VSIT | Vidyalankar School of Information Technology | VSEARCH

A NATIONAL LEVEL STUDENT RESEARCH PAPER COMPETITION

VIJANAN 2023

THEME

"TECHNOLOGY, INNOVATION AND MANAGEMENT AS ENABLERS FOR SUSTAINABLE DEVELOPMENT"

DATE OF CONFERENCE: 3rd MARCH 2023

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Editor- Dr. Rohini Kelkar

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V-Search is an Inter Collegiate Research Paper Presentation Competition conference, for students, aimed at inculcating the aptitude of research among young minds. The research competition is conducted with a view to provide students a platform to showcase their research skills and innovative ideas.

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Track 2: Innovation for Sustainable Development

Resource persons: Dr. Supriya Kamale, Ms. Prachi Mahajan

Track 3: Prospects, Challenges and Strategies in Business

Resource persons: Dr. Harsha Goyal, Dr. Leena Nair

Track 4: Creative Technology

Resource persons: Dr. Saravanan Reddy, Dr. Swagatika Nanda

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TRACK 1

TECHNOLOGY IN THE BUSINESS WORLD

ISBN NO: 978-93-5810-851-4

A STUDY OF CRYPTOCURRENCY AND INVESTORS PERCEPTION ON IT WITH SPECIAL REFERENCE TO MUMBAI REGION

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ABSTRACT:

Due to the rapid development of information and communication technologies, many activities in our daily life have been merged online and they become more flexible and more effective. A huge growth in number of online users has activated virtual word concepts and created a new business phenomenon which is cryptocurrency to facilitate the financial activities such as buying, selling and trading. The use of virtual currency has become widespread in many different systems in recent years. Virtual money is not fully controlled and regulated hence most of the countries have not admitted this currency in their economic activities. This paper primarily investigates about the concept of crypto currency, its work, its types, its top player, advantages and drawbacks, its legal status, challenges and opportunities. Secondly, the paper studies investor's perspectives towards cryptocurrency in Mumbai region.

Keywords: *Cryptocurrency, Bitcoin, Blockchain technology, investors*

1. INTRODUCTION:

The instruments used as exchange instruments to make the trade transactions as easy as possible according to the market needs had experienced a huge development and change. Those instruments used to intermediate the exchange of goods are known as money. Money is something that serves as a medium of exchange, a unit of accounting and a store of value. Money is a medium of exchange in the sense that we all agree to accept it in making transactions. Merchants agree to accept money in exchange for their goods; employees agreed to accept money in exchange for their labour. As a unit of accounting, money provides a simple device for identifying and communicating value. Money serves as a store of value in that it allows us to store the rewards of our labour or business in a convenient tool. From the era of barter to commodity money, metal and coins, to gold and silver, continuing by modern monetary systems and checks and ending with the latest global currency developments, such as introduction of cryptocurrencies known as Bitcoin and Ethereum and alike. The introduction of cryptocurrencies has revolutionized the international payment system in a scale that just few years ago were unimaginable. A cryptocurrency is a digital or virtual currency that uses cryptography for security. In 1983, the American cryptographer David Chaum conceived an anonymous cryptographic electronic money called e-cash. Later, in 1995, he implemented it through Digicash, an early form of cryptographic electronic payments which required user software in order to withdraw notes from a bank and designate specific encrypted keys before it can be sent to a recipient. This allowed the digital currency to be untraceable by the issuing bank, the government, or any third party. A cryptocurrency is difficult to counterfeit because of its security feature. A defining feature of a cryptocurrency is that it is not issued by any central authority. It is completely decentralized.

2. REVIEW OF LITERATURE:

✓ **Shruti Sharma (2021)**

This research paper states that crypto currencies could provide a significant benefit by overcoming the lack of social trust and by increasing the access to financial services (Nakamoto, 2008) as they can be considered as a medium to support the growth process in developing countries by increasing financial inclusion, providing a better traceability of funds and to help people to escape poverty.

✓ **Abhishek Kumar (2021)**

This study shows how a payment system should be safe, secure, reliable, and accessible. It will help in expanding financial inclusion and bringing financial stability. An efficient payment system helps in the smooth flow of payments and mitigation of risks and smooth functioning of the economy. It helps in fostering confidence in individuals about the use of payment services.

✓ **Dr. Anil Kumar V. and Swathy P. (2019)**

This research paper concludes that cryptocurrency especially Bitcoin offers a new, effective and attractive model of payment methods that can boost companies and operators' revenues. It also provides alternative method of payment, apart from real money, that enable users to make financial activities such as buying, selling, transferring and exchanging easily. Cryptocurrency can bring more positive changes to e-Business and e-Payment sector. However, cryptocurrency doesn't get that much of trust yet.

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Rahman and Dawood (2019)

In their Bitcoin and Future of Cryptocurrency focused on cryptocurrency as an imaginative and technically advanced alternative for globalization. It examined the possibility of an alternative for processing payments across geographical boundaries and if regulated effectively cryptocurrency could remove a lot of the financial challenges faced in the present.

✓ **Robert Stanley Madey (2017)**

This paper argues that the research will lead to conclusions that Bitcoin as well as other cryptocurrencies will proliferate not so much as a substitute but as an as an adjunct to more traditional government backed currencies. This growth will take place not only due to the intrinsic value that users will place in cryptocurrencies but also due to the proliferation of the underlying trust system associated with Bitcoin, Blockchain. Finally, this paper exposes threats and risks posed by acceptance of Bitcoin and suggest regulation needed to counter those threats and risks to economic systems as well as end user investment.

3. RESEARCH METHODOLOGY:

3.1. OBJECTIVES OF THE STUDY

- To understand the concept of crypto currency, its work, its types and its top player.
- To study the advantages and drawbacks of cryptocurrency.
- To analyse its legal status, challenges and opportunities.
- To understand investor's perspectives towards cryptocurrency with reference to Mumbai region.

3.2. HYPOTHESIS

H0: There is no significant relationship between demographics of respondents and level of awareness of cryptocurrency

H1: There is a significant relationship between demographics of respondents and level of awareness of cryptocurrency

3.3. METHODS OF DATA COLLECTION

Primary Data – Primary data was collected through online survey form. Responses were collected from 100 samples using convenience sampling method.

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Secondary Data – Secondary data was collected from published resources like websites, journal articles, books, magazines etc.

3.4. RESEARCH DESIGN

This research paper aims to understand the awareness about Cryptocurrency amongst youngsters and adults with reference to Mumbai.

The research and analysis were conducted for people above the age of 18.

A survey through Google form was circulated to collect primary data.

This research paper also showcased the opportunities and challenges faced by Cryptocurrency investors.

4. FINDINGS AND ANALYSIS:

Cryptocurrency presented an opportunity for companies to create new and innovative offerings around these digital assets. Examples range from mobile apps that allow consumers to get started with cryptocurrency quickly and easily to platforms that automate bitcoin purchasing for fledgling investors.

Attackers who targeted cryptocurrency businesses were aware of the continuous currency circulation in these industries and were typically motivated to steal those currencies or collect information they could put on sale was one of the biggest challenges faced by the investors.

4.1 UNETHICAL ACTIVITIES FACED BY THE CRYPTO INDUSTRY: -

Malware operators, Dark web threats, Cryptojacking, Insider threats, Blockchain reentrancy, DDoS attackers, scammers (phishers), etc.

2022 was the biggest year ever for crypto hacking, with $3.8 billion stolen from cryptocurrency businesses.

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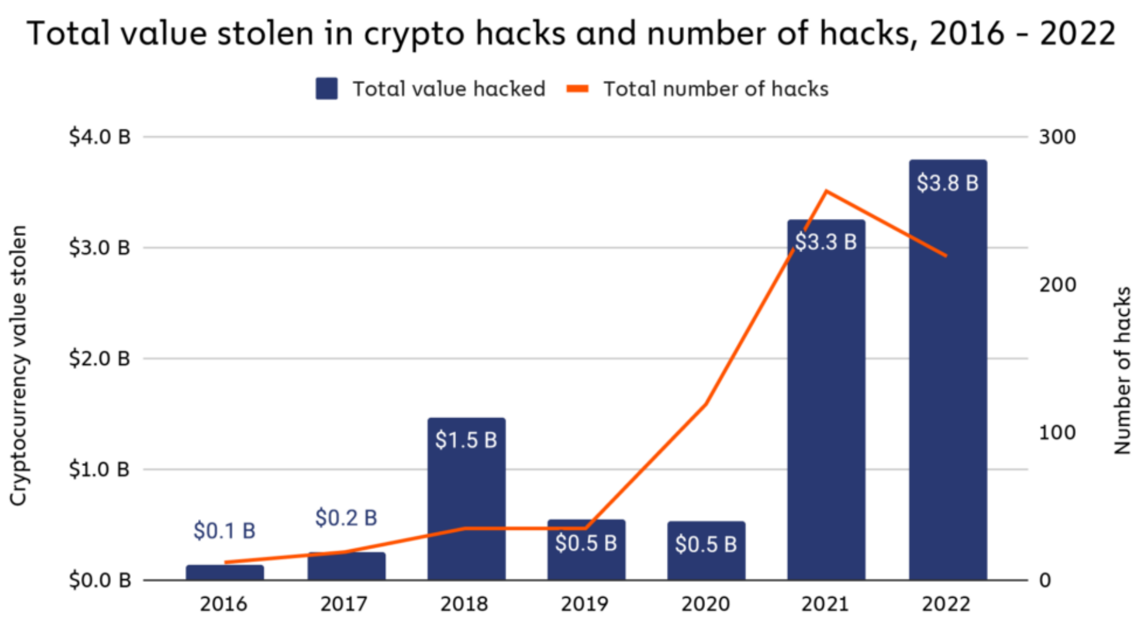
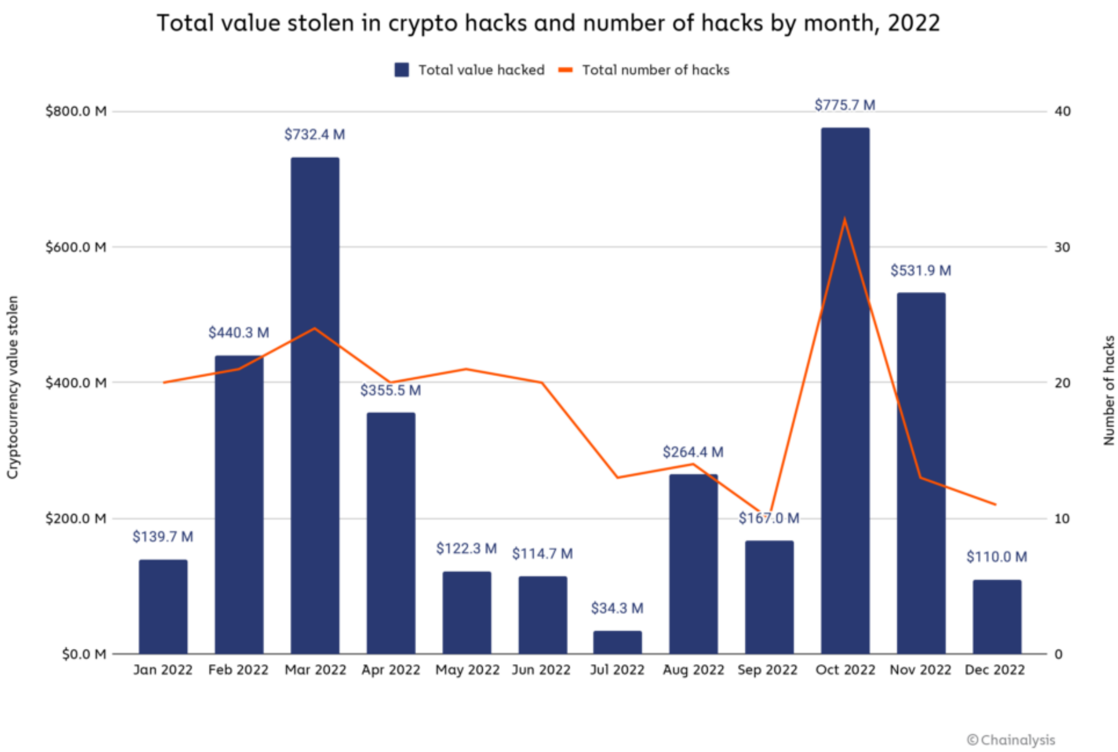
(Fig. 4.1)



Hacking activity ebbed and flowed throughout the year, with huge spikes in March and October, the latter of which became the biggest single month ever for cryptocurrency hacking, as $775.7 million was stolen in 32 separate attacks.

(Fig. 4.2)



The conducted survey received 100 responses:

1. Demographics:

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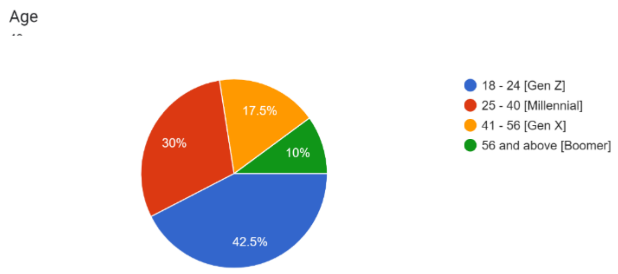
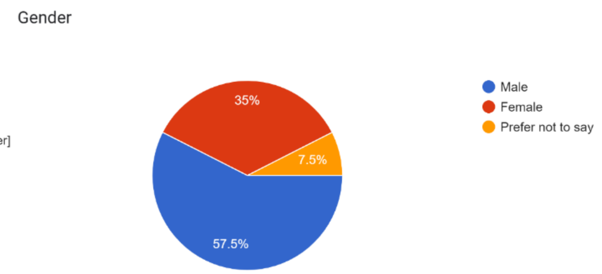
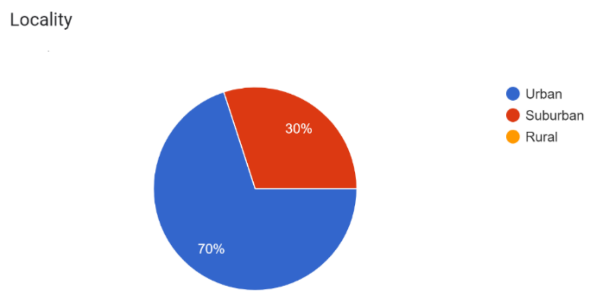




This shows that 42.5% od respondents belonged to the age group of 18-24, 30% belonged to 25-40, 17.5% belonged to 41-56 and 10% belonged to the age of 56 and above

Amongst the responses received, 57.5% were men, 35% were women and remaining 7.5% preferred not to mention.



70% percent of the respondents belonged to the urban area whereas 30% belonged to the suburban area.

2. Educational and Professional background

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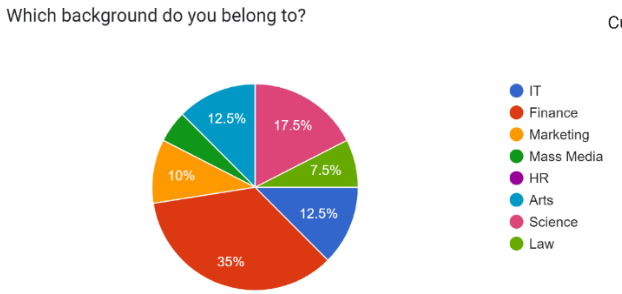
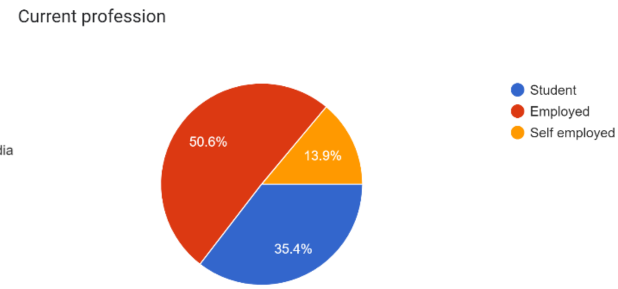
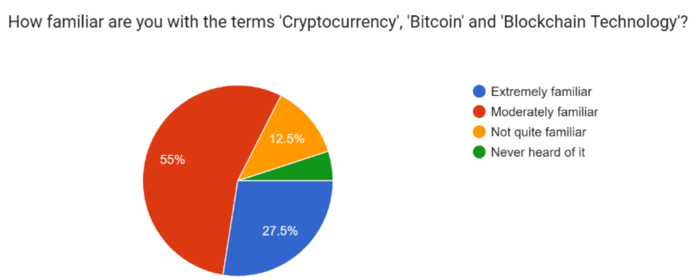




Here, the maximum number of respondents i.e.35% belonged to the Finance category.

Here, 50.6% of respondents were employed, 35.4% were students and 13.9% were self-employed.

3. Degree of awareness/familiarity



This represents that maximum percentage i.e.55% of respondents were familiar with the terms.

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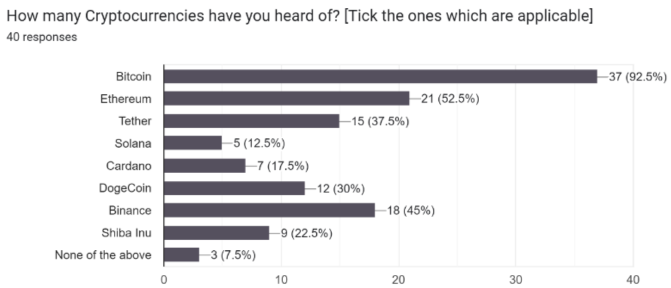
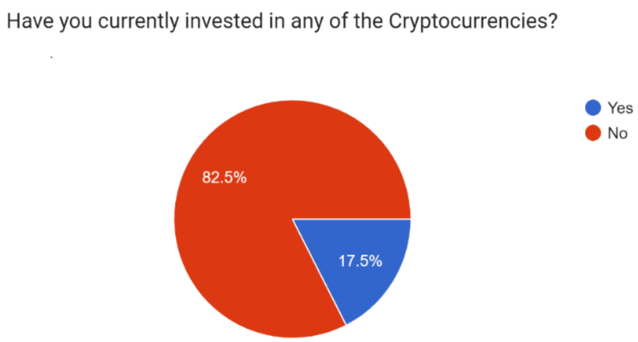
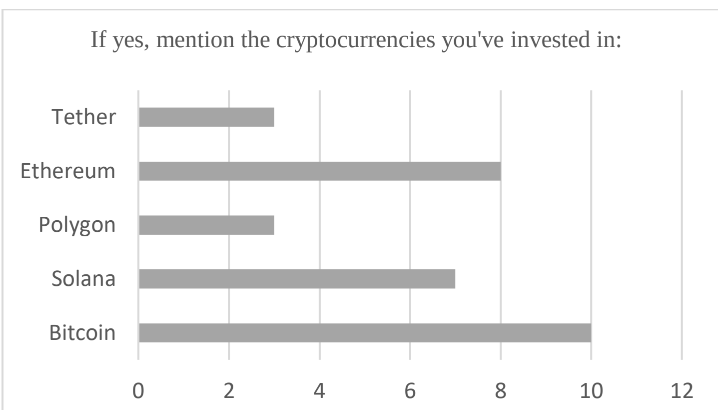


The above data shows that even though maximum respondents were moderately familiar with Cryptocurrency, 92.5% of them have heard about Bitcoin.



Amongst the 40 respondents only 17.5% have invested in Crypto.



This data shows that 10 respondents have invested in Bitcoin, 8 have invested in Ethereum, 7 have invested in Solana, 5 have invested in polygon and 3 have invested in Tether.

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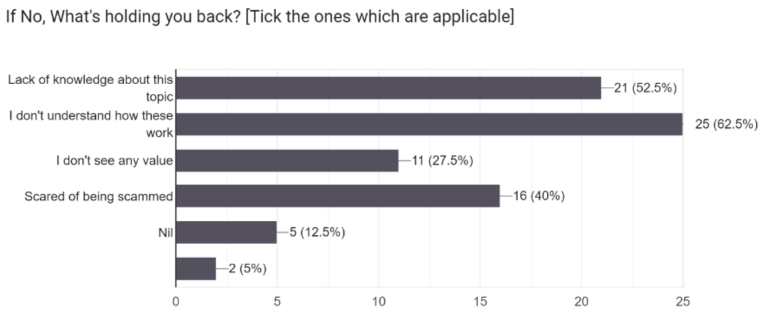
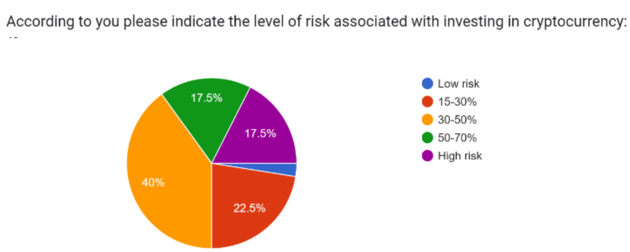
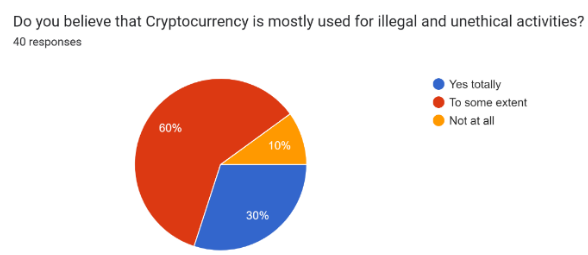
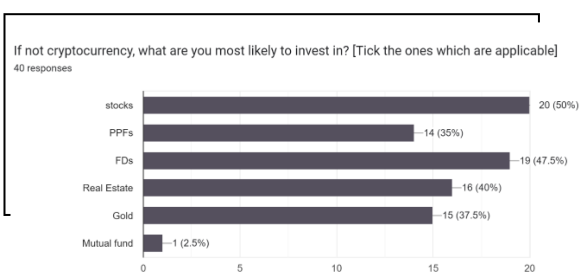


From the respondents who don't invest in Crypto, 62.5% didn't understand how it works, 52.5% lacked knowledge about it, 40% were scared of being scammed and 27.5% didn't see any value.

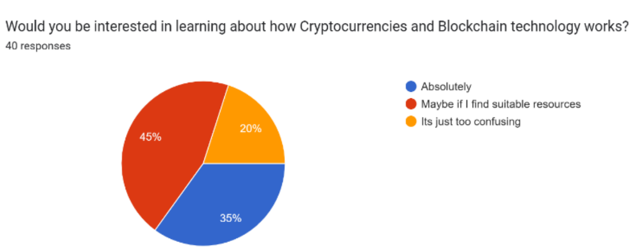
4. Investor's preferences





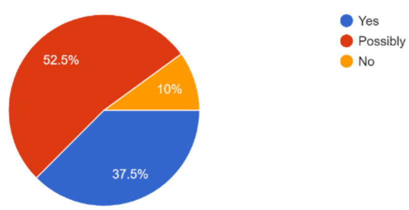


This chart shows that 60% of respondents believe that cryptocurrency is used for illegal and unethical activities only to some extent, 30% believe that its totally used for illegal and unethical activities and 10% believe its not at all used for the mentioned activities.



Only 35% of respondents were interested in learning about how Crypto and blockchain works whereas, 45% were willing only if they find the right resources and 20% believed that it's too confusing.

Do you think Cryptocurrency will be considered as a high value asset in the near future?



50% of the respondents preferred investing in stocks rather than crypto, 47.5% preferred FDs, 40% preferred real estate, 37.5% preferred gold, 35% preferred PPFs and 2.5% preferred Mutual Funds.

Lastly, 52.5% respondents believed that Cryptocurrency will possibly hold a higher value in the future whereas 37.5% were sure of it and 10% didn't believe that it will hold much value.

5. HYPOTHESIS TESTING:

Null Hypothesis H0: There is no significant relationship between demographics of respondents and level of awareness of cryptocurrency

Null Hypothesis H1: There is significant relationship between demographics of respondents and level of awareness of cryptocurrency

To test above Null Hypothesis ANOVA is obtained and F-test is applied. Results are as follows:

ANOVA					
Bank Employees Support					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1817.250	2	908.625	1.627	.002
Within Groups	148597.384	98	558.637		
Total	150414.634	100			

Source: Compiled from SPSS Output

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Interpretation: Above analysis indicate that p-value for demographics of respondents and level of awareness is 0.002. It is less than standard p-value of 0.05. Therefore, Null Hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is significant relationship between demographics of respondents and level of awareness of cryptocurrency.

6. CONCLUSION:

Innovation always came with two promises: one which offered huge opportunities for existing practices, for example by making them more efficient, inclusive or safer, and the other that related to potential risks and challenges that this new proposition could bring. The same held true for cryptocurrencies, which introduced a solution that was able to fulfil the role of fiat money but in constantly growing digital economy. However, as the examples prove, such a novel solution was not problem-free. Cryptocurrencies attracted both good and bad players, with the latter deciding to utilize the new tool for illicit practices. Many examples of corruptive behaviours involving cryptocurrencies have been identified such as scams, market abuses, exchanges' thefts, ransom ware attacks, dark market transactions and terrorist financing.

Introduced almost ten years ago, cryptocurrencies are still in an early stage of their development, lacking taxonomies, standards, regulations or even harmonized definitions. Due to their very complex nature, they required a thorough analysis and versatile exploration in order to define their true potential, possible risks and proper measures which could prevent corruption practices and still contribute to sustainable development of the cryptocurrencies' innovations.

7. REFERENCES:

1. https://www.technologyreview.com/2022/06/08/1053056/cryptocurrency-fuels-new-business-opportunities/
2. https://socradar.io/top-cyber-threats-faced-in-fintech-and-cryptocurrency-industries/
3. https://blog.chainalysis.com/reports/2022-biggest-year-ever-for-crypto-hacking/
4. https://www.researchgate.net/publication/324770908_The_Growth_of_Cryptocurrency_in_India_Its_Challenges_Potential_Impacts_on_Legislation
5. https://www.studocu.com/in/document/indian-institute-of-management-sambalpur/marketing/cryptocurrency-research-project/26034943
6. http://ijrar.com/upload_issue/ijrar_issue_20543250.pdf
7. https://www.imperial.ac.uk/cryptocurrency/projects/student-projects/

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A STUDY ON EFFECTIVENESS OF DIGITAL PAYMENTS AMONGST CUSTOMERS IN MUMBAI

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ABSTRACT:

Digital Payments have proved to be a revolutionizing mode of payment, for the Mumbaikars. Digital Payments are swift and effortless to operate, exactly a man from today's times need. A way to finish off the matters fast and easy. Just like two ends of a magnet everything has their own plus and minus ends. In this research paper we examine these ends of digitalized mode of payments, analyze their preferences, their views. This research paper inspects the usage of digital payments, the factors which drives an individual towards the usage of digital payments and also discrepancies the individual face while using the digitalized mode of payments. The research paper goes in depth of the digital payments from different variants of these payments such as E-Wallets, Net Banking, IMPS, Smart Cards, AePS, USSD etc. and understand their usage and awareness among the consumers.

Keywords: *Digital Payment, Digital Revolution, Consumer's Perception, Effectiveness, Evaluation*

1. INTRODUCTION

Over the course of recorded history, the consensus concerning the origins and the forms of ancient money has consistently changed. However, the fact that money is a credible store of value and facilitates trade in goods and services as a medium of exchange has not changed over the years; what has majorly changed is how it facilitates trade in goods and services. Typically, foreign trade requires the settlement of large payments as fast as possible over long distance with a minimal amount of transaction fees. Thus, the payment systems around the world are being digitalised in an effect to meet these needs.

The term digital payment refers to a payment that is made through the use of digital technologies such as the Internet, Mobile devices, or Computer Networks in order to make payments. Throughout the last several years, the Indian Financial System has been continuously evolving with the help of emerging technologies to make online transactions easier, safer, more accessible and more personalized for consumers offering convenience beyond imagination. They offer wide range of options, including online payments, mobile payments, electronic wallets and digital currencies. Therefore, it makes sense that digital payments are especially popular among the younger generations, as most of them have grown up with smartphones as part of their lives, and are comfortable using technology to handle their finances as well.

There are many perceptions both positive and negative towards digital payments by its users. Factors contributing the positive perception is increased security as it leads to less risk of theft or loss compared to physical cash. In addition to which many digital payment providers offer secure and encrypted platforms to protect users' data and transaction. There are people who are still hesitant to adopt digital payment methods, either due to lack of awareness or concerns about security and privacy. Being scepticism about the fees and charges associated with digital payments, some people still prefer to handle transaction in old manner to avoid any hidden surprises. In spite of the fact that there are still some concerns about the security and reliability if digital payments, there are indications that overall perception of digital payments in India is becoming increasingly positive.

Digital payments modes in India

1. **E-wallets (**G-Pay/ Paytm/ UPI/ BHIM**)**

E-wallets are kind of electronic cards that are used in connection with online transactions that are made using a computer or a smartphone in order to make the transaction. Major benefit of E-wallets is that payment can be made on phone number without adding any one's account in online system. To activate E-wallets one just need to link their account details to respective E-wallet.

2. **Net Banking (**RTGS/ NEFT**)**

The Net-Banking facility allows you to make manual payments using a bank transfer rather than using the smart cards. It is also known as Online Banking, E-Banking or Virtual Banking. For using this facility, one has the

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need to go at their bank branch and submit an internet application form along with the required documents (passbook and Aadhar card). The bank then initiates the customers ID and password once the documents are verified.

3. **IMPS (**Immediate Payment Service**)**

IMPS is an instant payment inter-bank electronic fund transfer system in India. With the help of IMPS, one can send cash and funds electronically between banks via mobile phones. One can access this service 24*7, including bank holidays, all round the year.

4. **Smart Cards (**Debit Card/ Credit Card**)**

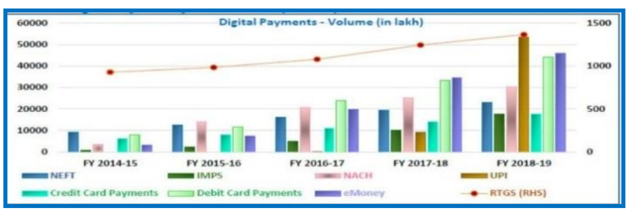
A Smart Card is a physical card that has an embedded integrated chip that acts as a security token. Smart card can provide personal identification, authentication, data storage and application processing.

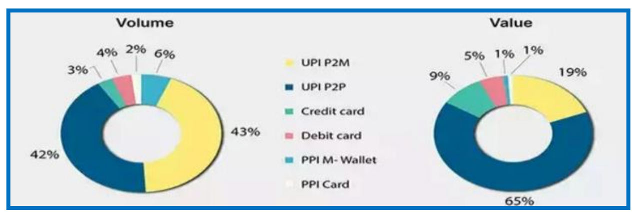
5. **AePS (**Aadhaar Enabled Payment System**)**

AePS is a payment service which allows a bank customer to use Aadhar card as their identity to access their Aadhar enabled bank account and perform basic banking transaction like bank enquiry, cash withdrawal, remittances through a business correspondent.

Figure 1 – Volume of Digital Payments in India

Figure 2 – Volume & Value of Digital Payment in India





Sources - RBI Data, RBI Publications (2020)

Sources- Digital payments clock over 23 bn transactions, TOI

The table above, shows the use of digital payments in various financial years over the past few years. It also show the growth of the usage of these modes.

Objectives

The research is conducted to achieve the following listed objectives:

1. To analyze individual's preference for digital payments in Mumbai.
2. To understand utility of digital payment system amongst individual in Mumbai.
3. To evaluate usage of digital payment system amongst individual in Mumbai.

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2. RESEARCH METHODOLOGY

For this study, both secondary and primary data has been used. Primary data has been collected circulating a well-structured close ended questionnaire responded by 201 respondents from Mumbai. Secondary data is collected using online sources such as websites, journals, news articles, etc.

3. LIMITATION TO THE STUDY

The study is confined only to few parts of Mumbai. Responses are collected from only 201 respondents.

4. LITERATURE REVIEW

- Shree S. & et al. (2021) in their research article spoke about the triumphing Indian Digital Payment System, along with increasing usage of cash. They analyzed in detail with the differences in opinion brought by couple of demographic factors; indicating an individual's usage of digital payment methods being influenced by their own perception of these instruments.
- Panday S. (2022) walks us through the denotation of digital payments and breaks down the system for us to understand. She later on paints a timeline & an analysis on the IMPS in 2010 and UPI 2016 and evolvement and participation of consumers for the digital payments during the given period. It pointed COVID as a major reason for spread of usage of digital payments in last few years.
- Sivathanu B. (2019) in his research paper aimed to scrutinize the factual usage of digital payments by consumers during the period of demonetization in India. Concluding that the behavioral intention to use and innovation resistance affect the usage of digital payment systems.
- Potey D. & Soni J. (2019) pinnacles the progressively demonstrating acceptance of digital payment methods in India juxtaposed to their global counter parts. Starting with the complication of other payment methods like cash and cheques they moved forward to the technology of digital payments. The study comprehensively jots down the consumer satisfaction, offer attraction, relation between age and acceptance & usage of digital payments.
- Agarwal S. et al. (2022) evaluates the consumer spending through digital payments and differential switch to digital payments across consumers induced by 2016 Indian Demonetization for identification. They logged a statistical data for the increase in digital payments and various other factors, evaluating factors exactly motivating the spending response; proving that digital payments increase consumer spending due to subdued salience.
- Pandey P. et. al. (2021) in IITM journal of management and IT, elucidate the challenges brought by the COVID in the business industry and obligation of banking industry to adopt digitalization and new-age technologies.

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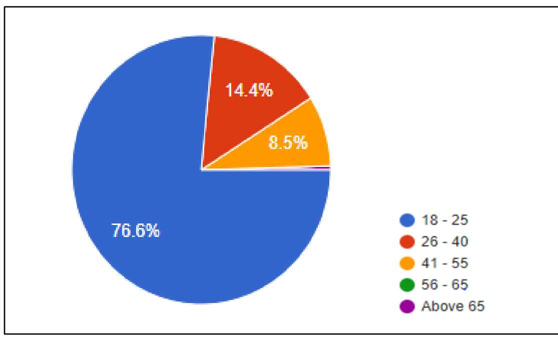
Research Paper also highlights significance of digital platform for payments, primary focus for banks looking for ways to improve it post pandemic.

- Vashishta A. et. al. (2019) discuss about the benefits and pitfalls the consumer perceives in digital payment for customer- merchant transactions. Based on primary data collected through an interview with various related parties, they wind up exploring people's awareness and perception towards digital payments. Results being that the individual being interested for the variant of payment method, but hesitant to use it regularly. They also discussed the subtle review of the merchants and customers, and recommendations to address the barriers faced by them while making a digital payment.

5. DATA INTERPRETATION AND DATA ANALYSIS

Figure 3 - Demographic Distribution



raph given besides reflects demographic data of 201 respondents. 154 respondents were from 18 to 25 years age

9 respondents from 26 to 40 years and 17 from 41 to 55 years of

ge.

Primary data collected from customers on their preference, perception and utility of digital payments is analysed as below –

According to graph 4, majority of the respondents selected rank 3 amongst the range of 1 being not at all safe to 4 very safe. Which indicates that majority respondents find digital payments as a safe mode of transaction. Only 28 respondents selected rank 1 & rank 2 indicating lack of their trust on digital modes.

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Figure 4 – Perception towards safety of digital payments

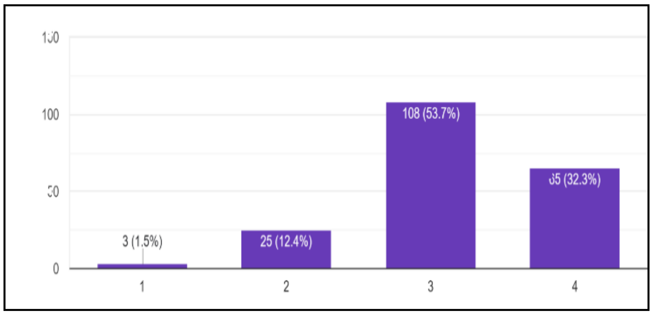
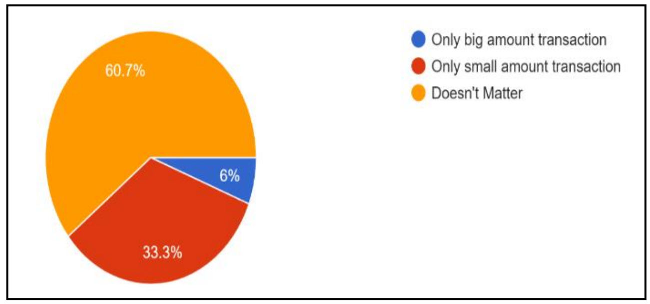
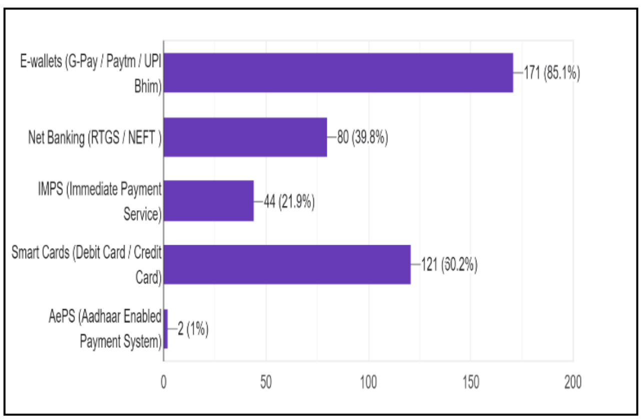


Figure 5 – Preference of Digital Payments



From the pie chart presented in figure 5, it can be seen that the amount of transaction however small or big doesn't matter for about 60.7% of the respondents. This shows that for an individual the usage of digital payments doesn't dependent on the number of transactions.

Figure 6 - Mode of digital payment



Due to the recent popularity for the UPI as a payment options, it was noticed that large part of the respondents prefer the E-wallets as their payment option. Preference rank down from E- wallets to Smart cards, Net Banking, IMPS and AePS being the last one. We can say this is because of the lack of awareness of the IMPS and AePS payment option. Figure 7 depicts various reasons for the preference of individuals to opt for digital payments. This is because of the

Figure 7 – Reasons of preference for Digital Payments

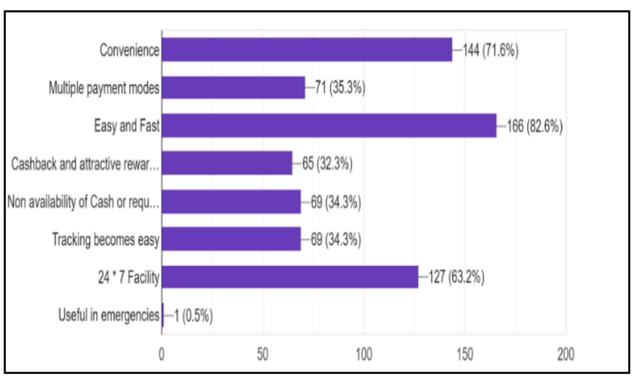
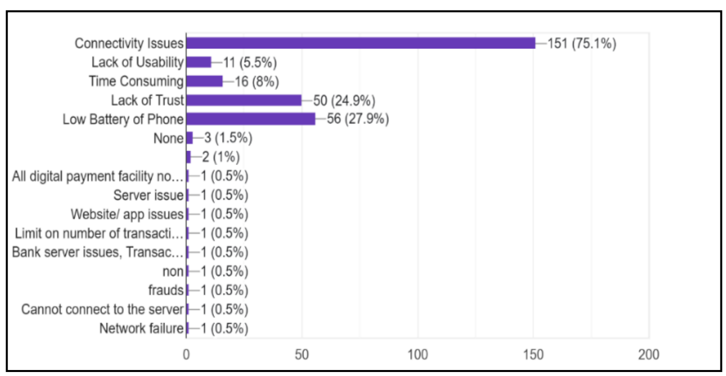


Figure 8 – Problems while using Digital



Payments

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quick, 24*7, convenience offered and multiple rewards and cashbacks tricks used to attract more individuals. From figure 8 it was clearly indicated that the respondents face connectivity issue as a major issue while paying digitally. Next major concern is to maintain phone battery to get beneficial by digital payment. Still 50 respondents facing lack of trust in digital payment system.

Figure – 9 Cost of Digital Payment

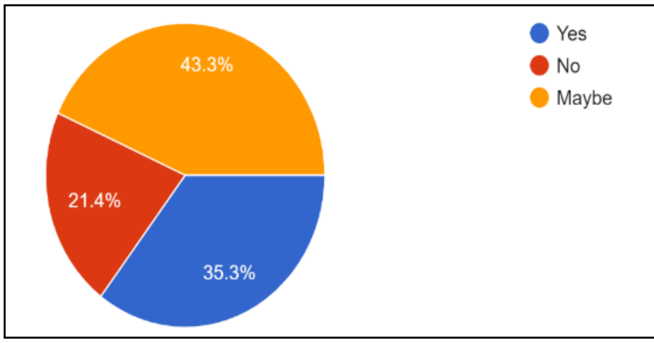
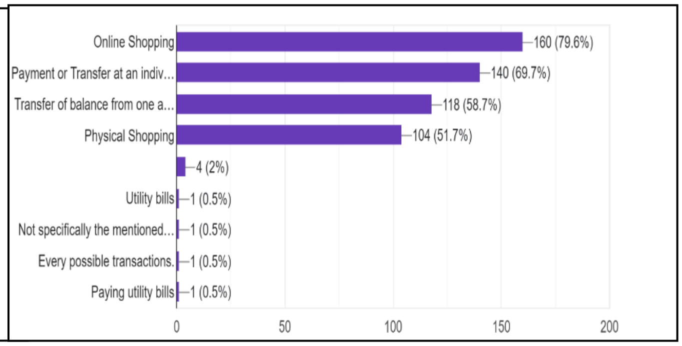


Figure 10 – Utility of Digital Payment



As depicted in figure 9, Mass respondents believe that the transaction charges levied on digital modes of payments are low for the convenience and quick transfer facility supplied to them. As depicted in figure 10, since the majority of respondents belong to the age group of 18 to 25, basically the tech-savvy generation, they prefer digitalized mode of payments for online shopping and transfers at an individual level. We also noticed the use of digital modes for physical shopping and payment of utility bills.

Figure 11 – Frequency of usage of digital payment

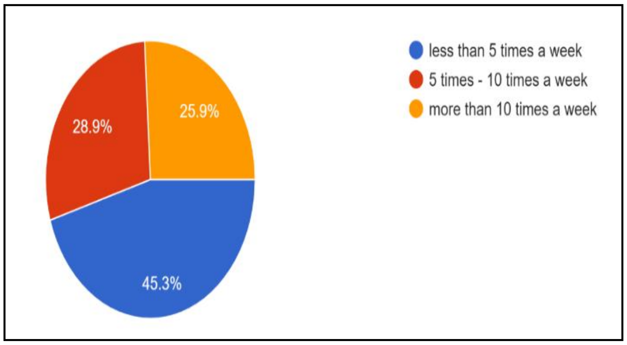
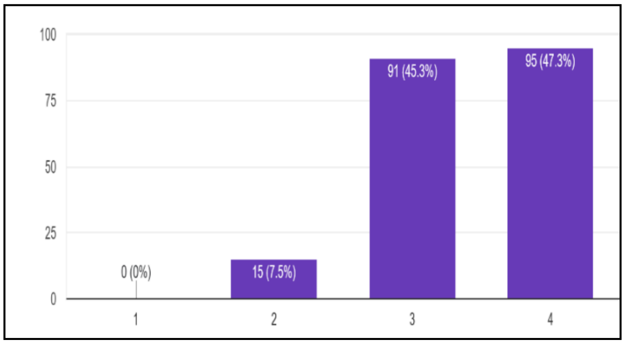


Figure 12 – Overall ratings for Digital Payment



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As shown in figure 11, individual's frequency of digital payments gives us a comprehensive idea of the utility rate of the same. It can be concluded that the frequency of 1/3 individuals ranges less than 5 times a week, whereas the other two categories share the pie with more or less similar range of rates. Figure 12 implicates overall utility of digital payments ranging from 1 (not at all useful) to 4 (very useful). 95 respondents opted rank 4 indicating it very useful. It acts as a trending topic among the current generation and as a means of an upgrade for the generation before.

6. CONCLUSION

Digital modes of payments are an emerging form of payments among the current generation which provides them with 24*7 facility to make their payments anytime anywhere along with multiple alternatives to pay from. They are not only convenient for the youngsters to go cashless, but they are also convenient for the elder age people to understand the procedure of payments performed as easily adaptable. The element of cashbacks and attractive rewards encourage the users to make their payments through the digital modes, and take advantage of various offers.

Respondents share a view of digital payments to be a swift mode of payments, while some defy to that. Though the payment mode being safe and secure it lacks the element of trust of few respondents. Digital modes of payments work through the network connection, and tha data in the mobile phones of the individuals, which with its perk of 'making it easy to carry money' has a flip side like difficulty in connecting to server or bank.

On the basis of the data collected and interpreted, it was very clear that even with the drawbacks of digital payments, positive attitude towards its usage is growing amongst the individuals. The distant and upcoming generation both are optimistically frenzied with the latest technology introduced in payment modes, which are both secure and hassle free.

7. SUGGESTIONS

Researchers would like to give few suggestions as listed below -

1. To increase the awareness for digital payment modes among the citizens of India, government or respective authorities need to create more curiosity on usage and benefits of digital payment.
2. To improve the connection with banks and servers, so as to avoid the end user face dejection during the payments.

3. To upgrade the process work of the payments, to consecutively resolve the matter of digital payments being time consuming.
4. To take necessary measures to dissipate the lack of trust of individuals on digital payments.
5. To track back the frauds executed through the digital payments.
6. To level up the number of transaction per day, a user can perform through the E-Wallets application, for convenience.

Overall digital payment is the future of transaction and everyone together need to team up to increase seamless working of it with high efficiency and utility across India.

7. REFRENCES:

- Sudiksha Shree, Bhanu Pratap, Rajas Saroy & Sarat Dhal (2021), Digital payments and consumer experience in India: a survey based empirical study, Journal of Banking and Financial Technology volume 5. Retrieved from https://link.springer.com/article/10.1007/s42786-020-00024-z

- Shinki Katyayani Pandey (2022), A Study on Digital Payments System & Consumer Perception: An Empirical Survey, Journal of Positive School Psychology (ISSN 2717-7564). Retrieved from https://journalppw.com/index.php/jpsp/article/view/5568

- Brijesh Sivathanu (2019), Adoption of digital payment systems in the era of demonetization in India: An empirical study, Journal of Science and Technology Policy Management ISSN: 2053-4620. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/JSTPM-07-2017-0033/full/ html

- Dr. Dhanashree Potey and Mr. Jay Soni (2019), A Study on How Digital Payments have Revolutionized the Customer Experience, The Management Quest volume 2, Issue 1. Retrieved from https://www.rset.edu.in/download/dsims/5_A_Study_on_How_Digital_Payments.pdf

- Aditya Vashistha, Richard Anderson and Shrirang Mare (2019), Examining the use and non-use of mobile payment systems for merchant payments in India. Proceedings of the 2nd ACM SIGCAS Conference on Computing and Sustainable Societies. Retrieved from https://dl.acm.org/doi/abs/10.1145/3314344.3332499

ISBN NO: 978-93-5810-851-4

- Sumit Agarwal, pulak Ghosh, Jing Li and Tianyue Ruan (2022), Digital Payments and Consumption: Evidence from the 2016 Demonetisation in India. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3641508

CHATGPT: OPPORTUNITIES AND CHALLENGES

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ABSTRACT:

The emergence of artificial intelligence (AI) prompted the creation of ChatGPT, a language model powered by AI that can interact with humans. Recent studies have investigated its possible applications in education, highlighting both advantages and disadvantages. The use of ChatGPIs and GPT-3 in higher education has the potential to offer a range of benefits, including increased student engagement, collaboration, and accessibility. These tools also bring up several difficulties and issues, especially in respect to academic integrity and plagiarism. This study looks at the benefits and drawbacks of using ChatGPT in education, research, with a particular emphasis on how it affects language learning and critical thinking abilities of individuals. The study looks at how ChatGPT shows social prejudice and toxicity, offering risks to morality and society from the results of irresponsibility. As a result, broad standards for accountability should be created.

Keywords: *Large Language Models, ChatGPT, Education, Opportunities, Challenges.*

1. INTRODUCTION:

1.1 ChatGPT:

OpenAI, a research group committed to advancing artificial intelligence in a secure and advantageous way, created the language model ChatGPT. Using a deep learning method known as a transformer, it was trained on a sizable dataset of online material, including books, papers, and websites. The training data for ChatGPT includes information on many different subjects, including history, literature, popular culture, and science. Based on its knowledge of the data in my training data, ChatGPT can comprehend spoken language and produce answers to a range of questions.GPT-1, the initial version issued by OpenAI, was followed by GPT-2 and GPT-3 in the following years. The most recent version, GPT-3, is one of the biggest and most sophisticated language models ever made. Each succeeding version is more potent and sophisticated than the one before it.GPT-3 has been utilized for many different purposes since it was first introduced, including language translation, content creation, and language modelling. It has been demonstrated that GPT-3 can produce summaries of lengthy papers that are informative and cohesive while translating between languages with high degrees of accuracy. The ability of GPT-3 to comprehend and react to inputs in natural language has also been utilised to build chatbots that can converse with people and respond to inquiries. Due to its capacity to produce plausible and coherent writing, it has also garnered a great deal of interest and debate. This has sparked worries about the possible applications and effects of AI in the area of language processing.

1.2 History and Evolution of ChatGPT:

OpenAI, a company that focuses on artificial intelligence research, created ChatGPT, a sizable language model. It was first released as part of OpenAI's GPT-3 (Generative Pre-trained Transformer 3) release in June 2020. GPT-3 is a cutting-edge language model that makes use of deep learning techniques to produce writing that resembles that of humans.

- **Initial Release:** OpenAI made the GPT-3 model, which featured the ChatGPT variant for conversational encounters, available in June 2020. A broad range of questions and subjects were amenable to understanding by ChatGPT, which could also produce answers.

- **Improvements in Accuracy:** Since the GPT-3 model's initial release, OpenAI has continued to train and develop it, which has resulted in appreciable gains in ChatGPT's response accuracy and naturalness.

- **Integration with Third-Party Platforms:** To facilitate the creation of conversational AI apps by developers and companies, OpenAI has also worked to integrate ChatGPT with third-party platforms like Microsoft Teams and Zoom.

- **Expansion of Training Data:** OpenAI has continued to increase the training data used to train the GPT-3 model, enabling ChatGPT to get better at comprehending and producing responses to a broader variety of subjects and languages.

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- **Release of GPT-4:** Although ChatGPT continues to use the GPT-3 model, OpenAI is already prepared to release a GPT-4 model that is anticipated to be even more advanced and capable than its predecessor. Consequently, ChatGPT is likely to keep developing and getting better as OpenAI continues to hone and develop its language models in the years to come.

1.3 Purposes of ChatGPT (Answered by ChatGPT itself):

- **Answering questions**: You can ask me any question on any topic, and I will do my best to provide an accurate and informative response.
- **Research:** If you need help with research, I can assist you by providing relevant information, summarizing complex topics, or generating ideas for further exploration.
- **Writing:** I can help you with various writing tasks, such as generating ideas, outlining, and proofreading. I can also assist with the creation of different types of content, such as articles, blogs, and social media posts.
- **Learning:** If you are a student or simply interested in learning new things, I can help you by answering questions, providing explanations, and generating personalized learning materials.
- **Productivity:** I can help you improve your productivity by setting reminders, scheduling appointments, and organi:zing your to-do list.

1.4 Opportunities for Learning:

Due to the wide range of applications that huge language models provide, ChatGPT has been determined that this is a prospective area of study. There are many ways that students of all ages and backgrounds can use ChatGPT for education. Here are some suggestions:

- **Research Assistance:** A student can research a topic related to a particular subject and can ask ChatGPT questions to get some ideas and insights.
- **Homework Assistance:** University students can also use ChatGPT for homework help. ChatGPT can help assisting in queries about a homework assignment.
- **Writing Assistance:** University students can now get writing assistance from ChatGPT for their assignments or papers by simply asking for advice on how to organise the work, create a strong thesis statement.

- **Exam Preparation:** Students can ask ChatGPT to provide them with some questions related to a particular topic and can use those questions to practice for their exam.

- **For group & remote learning:** ChatGPT can help in collaborative writing activities by offering style and editing advice as well as other integrative co-writing elements.

- **To empower learners with disabilities:** To assist people with visual impairment, ChatGPT can be used in conjunction with text-to-speech or speech-to-text programmes.

1.5 Opportunities for Teaching:

ChatGPT has the power to transform education and support the teaching process. A few instances of how it can help teachers is mentioned below.

- **For personalized learning:** ChatGPT can be used by teachers to design individualised learning opportunities for their students.
- **For lesson planning:** ChatGPT can help teachers design lesson plans and activities that are inclusive. The document collection on which teachers want to base their course can be entered into the models.
- **For research and writing:** ChatGPT can assist teachers at university and high school classes to complete research and writing tasks more effectively and efficiently.
- **For assessment and evaluation**: Teachers can emphasise potential strengths and weaknesses of the work in question, using ChatGPT to semi-automate the grading of student work. ChatGPT can be used to screen for plagiarism as well, which can aid in discouraging cheating.

2. LITERATURE REVIEW

ChatGPT's capability to generate essays has created challenges for educators, but there are those who seem ready to embrace the opportunities for innovation in teaching and learning that this disruptive AI application presents. While essays as assessments are regarded as threatened by ChatGPT, therein lies an opportunity for educators to introduce innovative assessments.

In the research paper "Chatting and Cheating. Ensuring academic integrity in the era of ChatGPT" by the author Debby R. et.al talks about the call for ChatGPT to be banned in the schools while others have started developing software to detect AI generated-texts. An article in the Guardian led with the title, "AI bot ChatGPT stuns academics with essay-writing skills and usability" (Hern 2022) and just two weeks after it went live, Professor Darren Hudson Hick reported a case of student plagiarism using ChatGPT at Furman University, South Carolina (Michell 2022). In January 2023, ChatGPT was banned from all devices and networks in New York's public

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schools (Yang 2023), a move followed swiftly in Los Angeles and Baltimore.

3. CHALLENGES OF CHATGPT:

By taking advantage of their capacity to produce contextualized, unique, and varied answers to user-posted queries in natural language, large language models used by ChatGPT to create more naive and sophisticated user interfaces. We quickly examine the dangers associated with the use of extensive language frameworks like ChatGPT in education.

- **Copyright concerns:** When training big language models to create educational material, such as course syllabi, quizzes, or scientific papers, the model should be trained on examples of such texts. When a new prompt is generated, the response might include a complete sentence or even a paragraph from the training set, which could violate copyright laws and constitute plagiarism.
- **Unfair and bias:** Large language models have the potential to reinforce and magnify societal injustices and prejudices, which can have a negative effect on teaching and learning procedures and results. For instance, if a model is trained using data that is biased against particular groups of people, it might generate outcomes that are unfair or discriminatory towards those groups. As a result, it's critical to make sure that the training data, or data used to fine-tune on downstream duties for the model, is diverse and representative of various demographic groups.

Learners and teachers may rely too heavily on the model: Their capacity for critical thought and problem-solving may suffer because of the knowledge that is so easily generated. This is because the model makes it easier to obtain information or responses, which can increase laziness and undermine students' motivation to conduct independent research and come up with their own solutions. Additionally, it is important for teachers to use these models as a supplement to their instruction, rather than a replacement.

4. RESULTS

A random sampling procedure is used, with a sample size of 80 pupils and teachers. The sample includes students from varied socioeconomic backgrounds, including academicians and college students, and is representative of the target community. Five closed-ended questions were included in the survey, and respondents had to select an answer from a list of options.

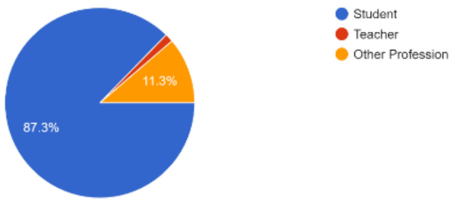

Figure 1: Designation of survey participants

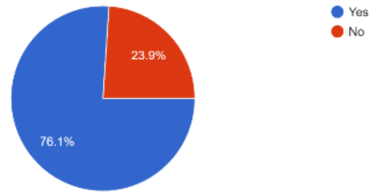

Figure 2: Have you ever used ChatGPT in an educational setting before?

According to Figure 1 and 2 87.3% of the sample, are students, while 11.3% are teachers. According to this statistic, students are more acclimated to using ChatGPT than teachers are. Students may utilise ChatGPT for a variety of purposes, some of which may not align with how teachers use it.

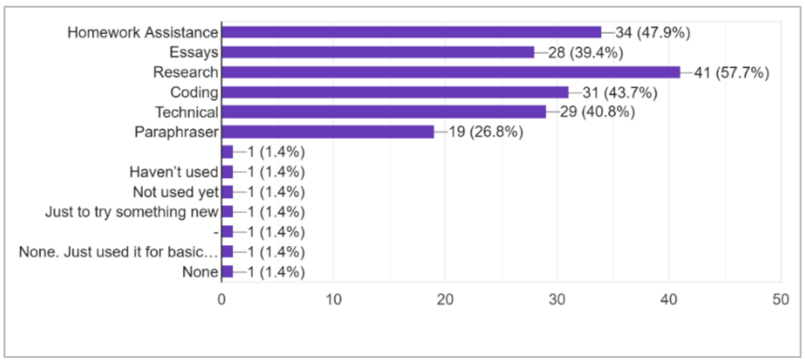

Figure 3: In what ways have you used ChatGPT in your teaching or learning?

Figure 3 illustrates the various uses of ChatGPT by students, including help with homework (47.9%), essays (39.4%), research (57.7%), coding (43.7%), technical (40.8%), and paraphrasing (19%). Some participants also stated that they haven't used ChatGPT for the purposes mentioned.

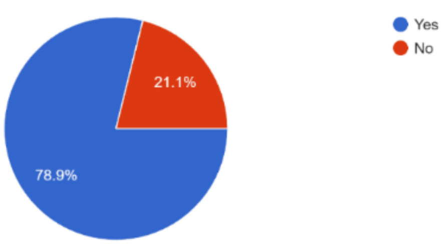

Figure 4: Were the responses generated by ChatGPT accurate ?

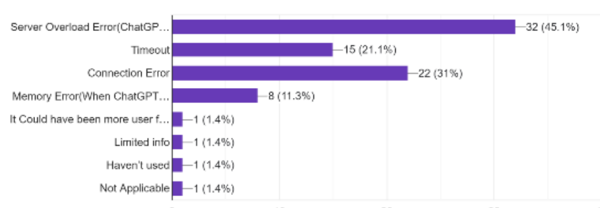

Figure 5: Were there any challenges or limitations you encountered when using ChatGPT?

The opinions of users regarding the responses produced by ChatGPT's accuracy are shown in Figure 4. The fact that the data is only available for the year 2021 is one of many factors that might have an impact on the responses' accuracy.

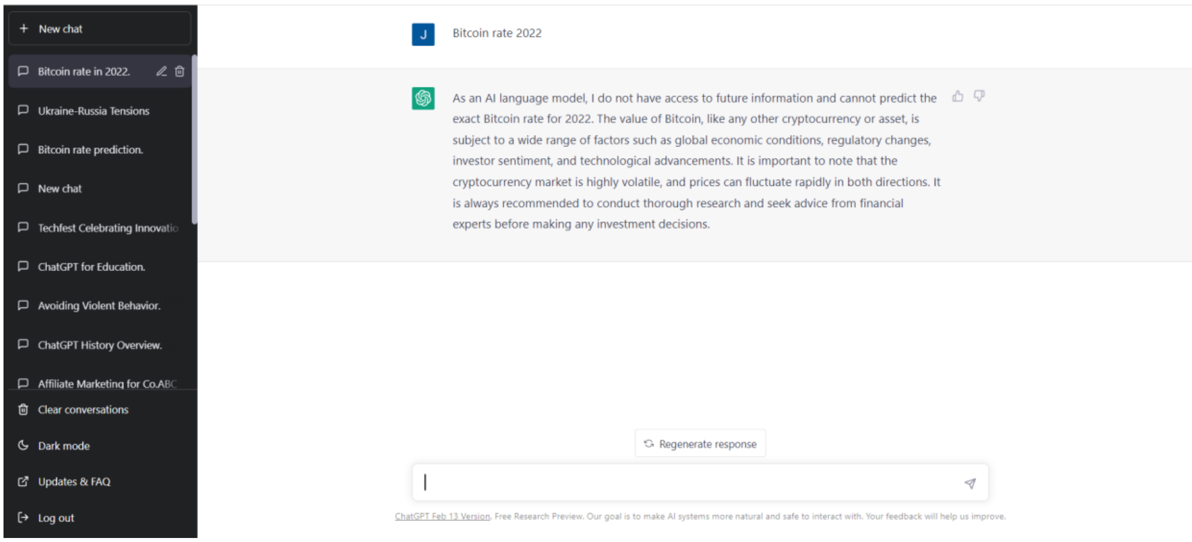

Figure 6: ChatGPT insufficient data

5. <u>RECOMMENDATION & SUGGESTIONS</u>

Considering the rise of AI in workplaces as well, incorporating generative AI tools in the classroom and instructing students on how to use it responsibly and productively will also equip them to succeed in an AI-dominated workplace. As a result, teachers could use ChatGPT and other generative AI model tools to assist students' learning. Many techniques can be used to identify content that was created by ChatGPT: -

- **Examine the language for trends or anomalies:** Chatbots have weak language skills and may produce text that is not quite human-like, repetitious, or inconsistent in its usage of words or phrases. To determine whether a chatbot is most likely responsible for the writing, look at the terminology employed in the piece.
- **Look for sources and citations:** Because chatbots are unable to do original research or generate novel ideas, their writing is unlikely to contain accurate citations or references to sources. To determine whether a chatbot is most likely responsible for the writing, look over the sources and citations in the piece.

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- **Verify the work's originality:** Because chatbots are not capable of creating unique content and are therefore likely to be extremely like already published sources. The work's originality can be checked, either manually or with the aid of plagiarism detection software, to determine whether it was likely created by a chatbot.
- **Examine the text for factual inaccuracies:** While AI language models can produce content that is coherent, they might not always produce factually accurate material. The presence of factual inaccuracies or contradictions in the essay may be a sign that it was generated by a computer.
- **Verify the spelling and grammar:** Writing produced by AI may be more error-free than writing produced by humans in terms of typos and grammatical faults. The quality of the AI language model and the raw data it was trained on, however, can change this.
- **Employ language analysis tools:** Certain tools, such as the GPTZero, are intended to analyse the language used in written work and to find trends or abnormalities that may point to the usage of a chatbot in the production of the work.

The newly released GPTZero, which uses perplexity as a measure that suggests generalisation capabilities (of the agent by which the text was written), are anticipated to offer additional support. The content produced by language models is intended to be watermarked using more sophisticated methods, such as by biassing the content generation towards terms that are unlikely to be used in tandem by humans in a text passage.

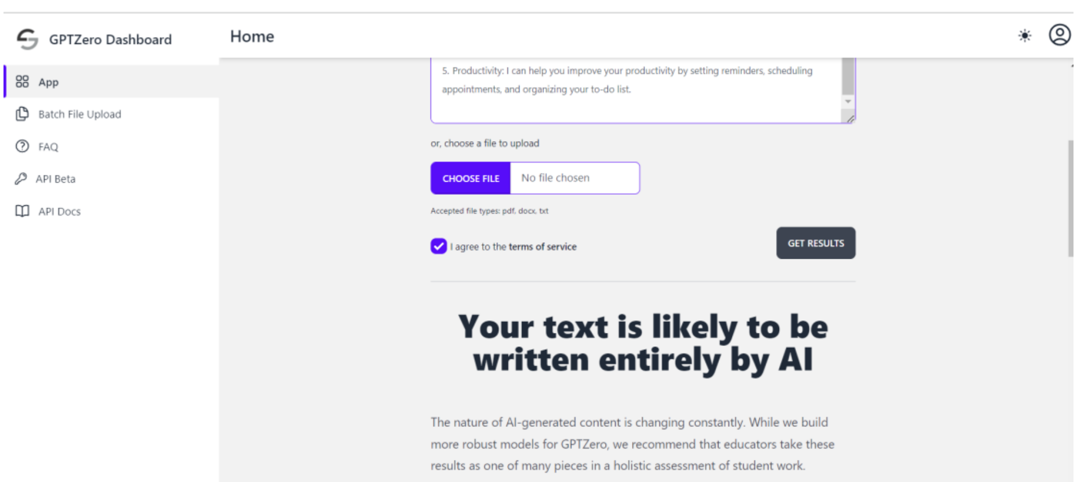

Figure 7: GPTZero

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6. FUTURE SCOPE:

Enhancing ChatGPT's functionality and performance: Researchers may look into methods to increase ChatGPT's responsiveness, accuracy, and dependability while also broadening its scope of use and functionality. Enhancing ChatGPT's conversational skills: Researchers may concentrate on enhancing ChatGPT's conversational skills, including its capacity to comprehend and react to natural language inquiries, participate in small talk, and maintain context over extended conversations. Investigating the ethical ramifications of using ChatGPT: With the use of conversational agents like ChatGPT growing, it is important to look into the moral ramifications of using AI-powered systems for human contact.

Considering the rise of AI in workplaces as well, incorporating generative AI tools in the classroom and instructing students on how to use it responsibly and productively will also equip them to succeed in an AI-dominated workplace. As a result, teachers could use ChatGPT and other generative AI model tools to assist students' learning. Moreover, tools that can identify AI participation in text writing, like the newly released GPTZero, which uses perplexity as a measure that suggests generalisation capabilities (of the agent by which the text was written), are anticipated to offer additional support.

In order to use conversational agents responsibly, researchers may investigate problems like anonymity, consent, and transparency. Examining possible ChatGPT uses in a range of fields: Potential uses for ChatGPT span a variety of industries, including healthcare, education, customer support, and more. Researchers could look into whether using ChatGPT in these fields is practical and successful as well as how to improve its performance in particular situations. The creation of novel talking AI models: There is still room for growth in ChatGPT's accuracy, effectiveness, and scalability, despite the fact that it is an effective tool for producing text that appears human. Researchers might look into novel models and architectures for conversational AI that could perform better than ChatGPT and get around some of its draw backs.

7. REFERENCES:

i. Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?. *Journal of Applied Learning and Teaching*, *6*(1).

ii. Cotton, D. R., Cotton, P. A., & Shipway, J. R. (2023). Chatting and Cheating. Ensuring academic integrity in the era of ChatGPT.

iii. Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. *Available at SSRN 4337484*.

ISBN NO: 978-93-5810-851-4

iv. Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., ... & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education.

v. van Dis, E. A., Bollen, J., Zuidema, W., van Rooij, R., & Bockting, C. L. (2023). ChatGPT: five priorities for research. *Nature*, *614*(7947), 224-226.

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A COMPARATIVE STUDY OF MACHINE LEARNING APPROACHES FOR PREDICTING TELECOM CHURN

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ABSTRACT:

The topic of client churn provides a persistent and difficult challenge for organisations in the telecommunications industry. When there are so many options on the market, it can be difficult for telcos to keep a solid customer base. Many efforts have been made to keep these clients from leaving, but according to research, 40% of customers eventually decide to transfer providers. Due to the propensity of disgruntled consumers to share unfavourable perceptions of their experiences, this can have significant effects on brand perception as well as the economy In this study, we compared machine learning methods used in the telecom sector to forecast client attrition. For this inquiry, we have developed prediction models using a range of machine learning approaches, including Logistic Regression, SVM, ADA Boosting, XG Boost, and Random Forest. The outcomes reveal that XG Boost and Logistic Regression performs the best .

Keywords: *Churn, telecom, customer, Boosting, Logistic regression, SVM, Random forest.*

1. INTRODUCTION:

Predicting customer turnover is a crucial component of every business and has a big impact on profitability. Predictive analysis, when used properly, can assist in identifying the main causes of client attrition and offer practical solutions for its mitigation. Yet it takes expertise and a good understanding of consumer behaviour patterns and preferences to foresee which clients would quit. It is now much simpler to forecast when clients are likely to depart or stay with a firm thanks to the development of advanced machine learning techniques. Companies can implement solutions that predict customer churn before it occurs, allowing them to take preventative measures and possibly retain these customers. This is possible with the correct data analytic tools and predictive models.

In the telecommunications sector, the phenomenon of customer turnover presents an ongoing and challenging challenge for businesses. Due to the propensity of disgruntled consumers to share unfavourable perceptions of their experiences, this can have significant effects on brand perception as well as the economy. Understanding customer turnover and taking proactive measures to lower it should therefore be at the top of any company's strategy. Customers may choose from a seemingly endless variety of mobile plans, plus they have access to enticing bonuses, rewards programs, and discounts, all of which encourage them to switch service providers with frightening speed. Customers' unruly behaviour can be disastrous for businesses that use client retention as a key performance indicator.

A comparison of machine learning algorithms for predicting customer attrition is presented in this research paper. Analysis and comparison of model performance in the literature is the primary objective of this study. To create predictive models for this investigation, we have used a variety of machine learning techniques such as Logistic regression, SVM, ADA Boost, XG Boost, and Random Forest.

2. LITERATURE REVIEW:

In the study, a data mining method is provided to categorise customers who aren't paying. Bagging, Boosting, and Random Forest Ensemble based Classifiers were used to predict churn in the telecom business. The well-known classifiers, Decision Tree, Naive Bayes Classifier, and Support Vector Machine were compared to the ensemble-based classifiers (SVM). In comparison to other methods, the experimental findings demonstrate that Random Forest has a lower error rate, a low specificity, a high sensitivity, and a larger accuracy of 91.66%. Therefore, random forest is the best method for the prediction of the test dataset.

In the paper [3] machine learning techniques such as SVM, Logistic Regression, k-NN, and Random Forests are used. In the current study, Grid Search is used to fine-tune the models for the best possible predictive performance. The results show that SVM and random forest performed better than regression and the k-NN model. over, the True Positives of random forest and SVM are forecasted with 94% accuracy and 98% sensitivity.

In paper [5], a sizable dataset is used to compare traditional methodologies with deep learning techniques for predictive modelling for customer churn prediction. Deep learning and Random Forest, two non-linear approaches, both produced results that were comparable. With regard to all employed performance metrics, it was found that the nonlinear technique outperformed the linear one. Random Forest performed best in terms of accuracy, AUC, and specificity, while Recurrent Neural Networks performed best in terms of sensitivity. These models could be applied to the telecom sector to help in decision-making.

In the work [10], A fresh approach is suggested for estimating client retention through machine learning methods. The suggested approach is based on a synthesis of deep learning and machine learning. A number of experiments on the suggested approach were conducted using machine learning algorithms on the datasets. Precision, recall, f1-score, and accuracy scores were noticed as outcomes.

The goal of the study [9] is to determine whether machine learning techniques, such as K-means clustering, decision trees, and decision trees, are most effective at predicting client turnover in the telecoms industry. With the suggested dataset, the approach was found to be inadequate for the client's chi-square prediction task. We determined the prediction quality metrics and contrasted our findings with those found in the literature. The findings revealed that 62,65% of the data that were successfully categorized could be predicted using the suggested strategy.

3. METHODOLOGY

Prior to comparing the performance of machine learning models, we first acquired the dataset from Kaggle and then performed exploratory data analysis on it. Here is the detailed overview of it .

3 .1 Dataset

We have got the dataset from Kaggle for this specific investigation. The dataset is titled Telecom Customer Churn. There are 21 columns and 7043 total rows in this dataset. Every customer is represented by a row, and each feature is represented by a column. The dataset includes details about:

a) Customers who have discontinued the service in the previous month.

b) Subscriptions- phone, multiple lines, internet, online security, online backup, device protection, tech support, and streaming TV and movies

c)Customer account information- how long they’ve been a customer, contract, payment method, paperless billing, monthly charges, and total charges

d)Personal info (Demographics) - gender, age, range and if they have any partners and dependents.

3.2 Pre-processing

Before building the model the very first step we have to do is data pre-processing.

Firstly, we have checked whether there are any missing values in the dataset or not by using isnull() function in python. We discovered that there are total 11 missing values in the dataset for total charges.

Secondly, we have converted all the categorical variables into numerical variables

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3.3 Exploratory Data Analysis

Exploratory data analysis is conducted to attain some meaningful insights from the data and to understand the patterns better. First, we will look at the distribution of individual variables and then slice and dice our data for any interesting trends. Let us first understand the gender, age range, patner and dependent status of the customers

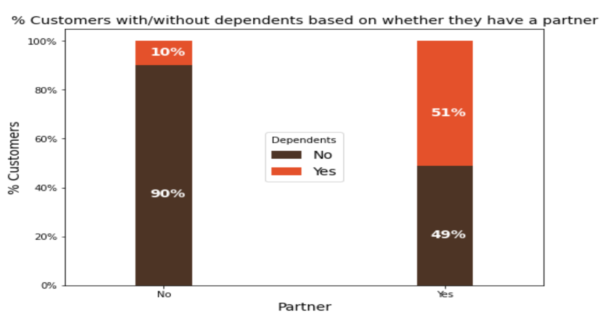
A) Demographics

Partner and dependent status - Only 30% of all clients have dependents, compared to about 50% of partners.

(fig 3.1)

It would be interesting to examine the proportion of customers who have partners and dependents. Next, we'll talk about this. Fascinatingly, only around half of the customers who have a partner also have a dependent, while the other half have no independents. Also, as anticipated, the majority (80%) of customers who do not have a partner also do not have any dependents.

(fig. 3.2)



We also examined any gender-based disparities in the percentage of clients having dependents and partners. The distribution of them by gender is the same. Also, there is no gender difference in senior citizen status.

B) Customer Account information

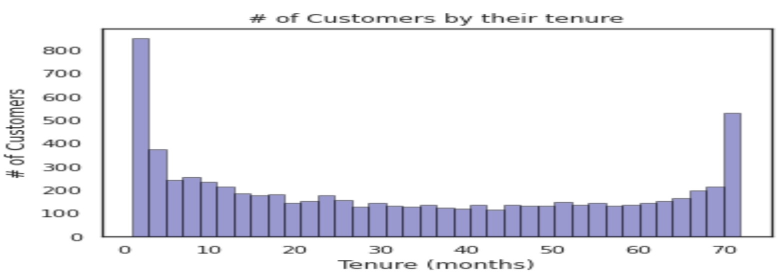
Now, let's examine the contract and tenure

Tenure: Based on the histogram below, we can see that a significant portion of the telecom business's clients have been with the company for less than one month, while a sizable portion have been with the company for more than 72 months. Due to the fact that many clients have various contracts, this can be the case. Thus, it may be more or less easy for clients to remain with or quit the telecom provider depending on the contract they have signed.

Contracts:

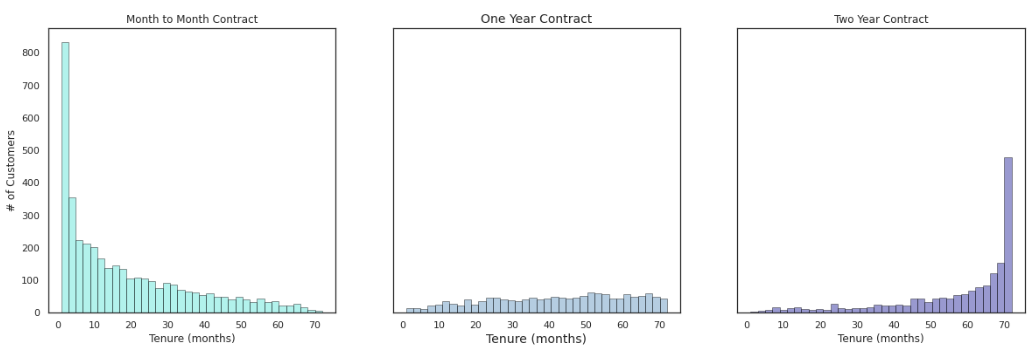
The majority of the consumers are under month-to-month contracts, as this graph shows. The number of customers in the 1 year and 2 year contracts is equal.

(fig. 3.3)



C) Contracts

(fig. 3.4)



It's interesting to note that whereas the majority of monthly contracts last for 1-2 months, two-year contracts typically endure for 70 months or more. This demonstrates that clients who sign lengthier contracts are more devoted to the business and are likely to stick with it for a longer period. This is also what the preceding correlation chart between turnover rate and correlation showed.

D) Let's now quickly examine the relationship between monthly and overall expenses. You will see that when a customer's monthly payment grows, so do the total charges.

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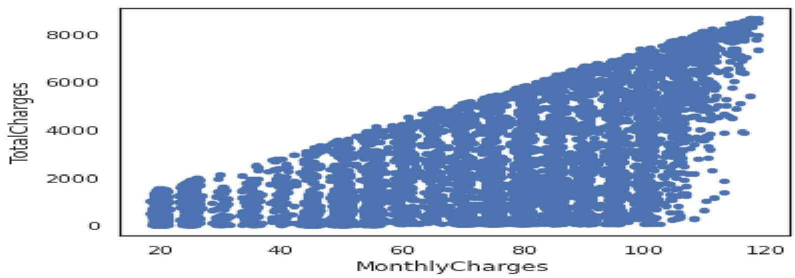
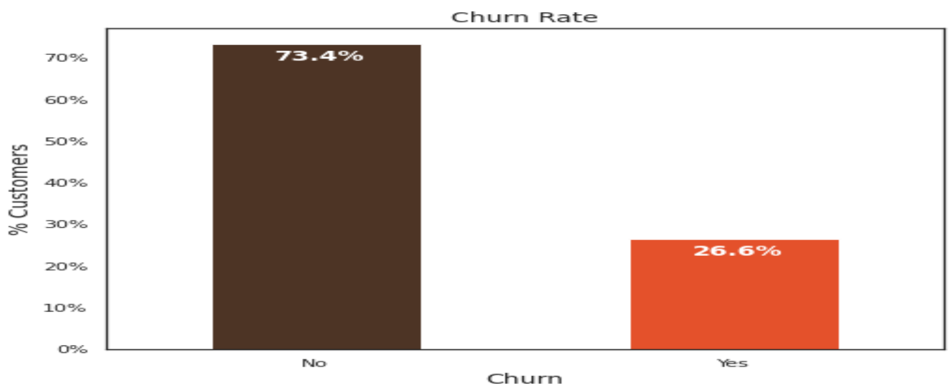
(fig. 3.5)



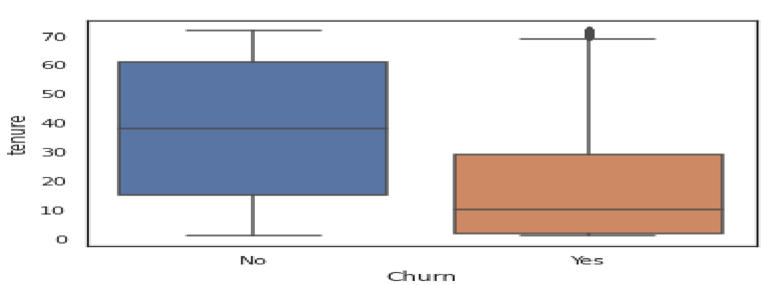
According to our analysis, 74% of clients remain loyal. We would anticipate that a sizable portion of the clients would remain loyal, therefore the data is obviously skewed. This is crucial to remember for our modelling since skewness may result in several false negatives. How to prevent skewness in the data will be covered in the section on modelling.

(fig. 3.6)



Now that we have examined the churn rate overall, let's look at how it differs by tenure, seniority, contract type, monthly costs, and total charges. i.) Tenure vs. Churn Customers who do not churn tend to stay with the telecom firm for a longer period, as shown by the below figure.

(fig. 3.7)



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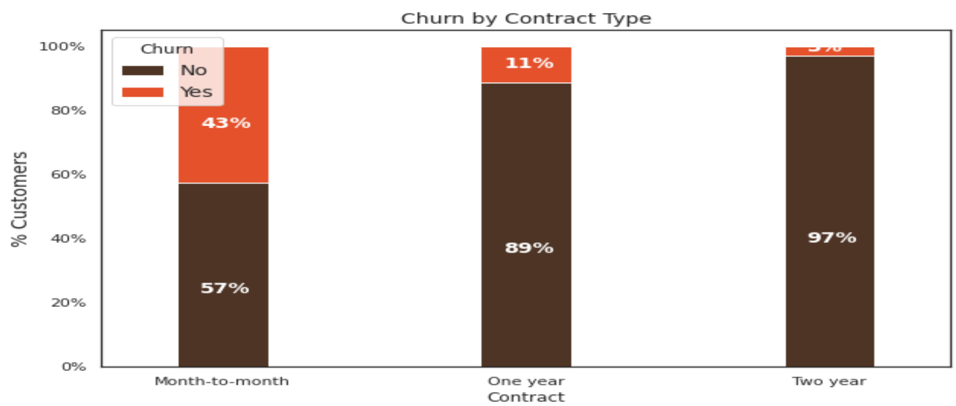
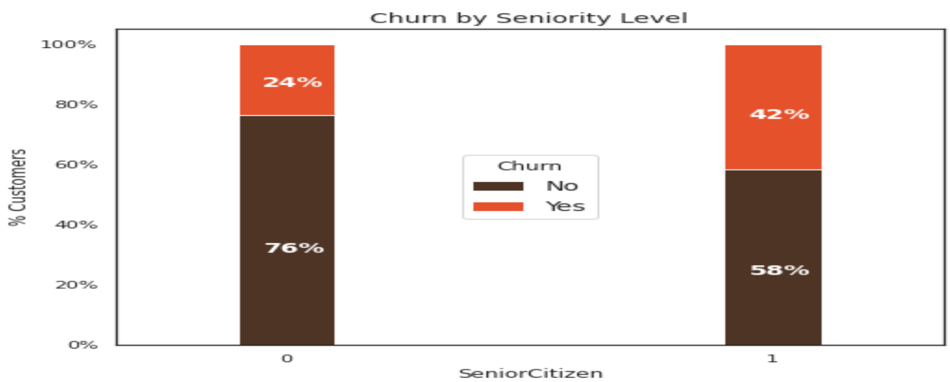
Churn by Contract Type: Similar to what we saw in the correlation plot, the customers who have a month-to-month contract have a very high churn rate.

(fig. 3.8)



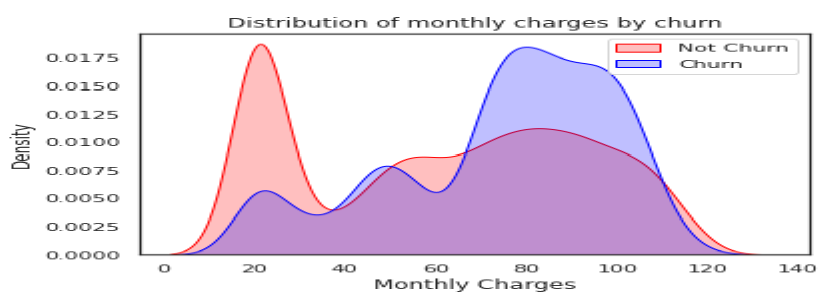
Churn by Seniority: Senior Citizens have almost double the churn rate than younger population.

(fig. 3.9)



Churn by Monthly Charges: Higher % of customers churn when the monthly charges are high.

(fig. 3.10)



Churn by Total Charges: It seems that there is higher churn when the total charges are lower.

(fig. 3.11)

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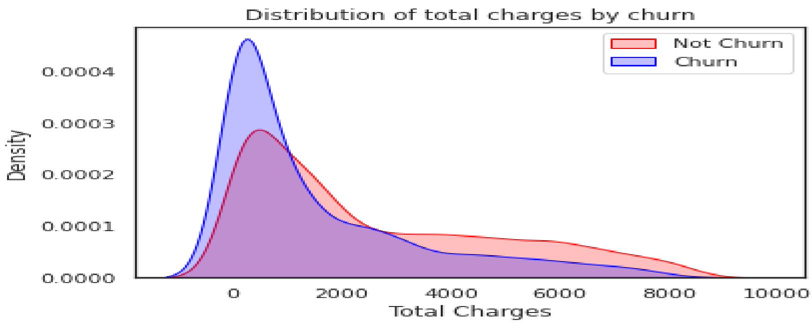

After going through the above EDA, we will develop some predictive models and compare them. We will develop Logistic Regression, Random Forest, SVM, ADA Boost, and XG Boost

3.4 Logistic Regression

By attempting to explain the relationship between one or more independent variables (such as age, income, etc.) and an outcome of interest (such as success/failure), logistic regression is a potent predictive modelling method. This method calculates the possibility that an event will occur based on its past data points using advanced mathematics. By doing so, logistic regression can spot data trends that would otherwise go unnoticed by more conventional statistical methods. An equation that forecasts the likelihood of an event occurring given particular input factors is the outcome of this study. In the end, logistic regression offers useful data to businesses so they may enhance marketing campaigns and better understand consumer behaviour.

3.5 Random Forest

Random forest is an advanced machine learning algorithm that builds numerous decision trees using random subsets of the data and then combines the outcomes to get a final model. By utilising the underlying structure of the data and enabling accurate predictions even when faced with new or unexplored data, it outperforms traditional classification and regression approaches. It is especially well suited for real-world applications, including forecasting credit risk or fraud detection, due to its capacity for handling big datasets and resistance to overfitting. Furthermore, because random forests are nonparametric models with less need for fine adjustment, they are significantly simpler to use and less susceptible to bias from human input.

3.6 Support Vector Machine

Support Vector Machine (SVM) is an advanced machine learning algorithm that is used to classify data and make predictions. Plotting points in a multidimensional space, dividing them based on their characteristics, and then creating the ideal line that best divides the two classes of data is how it operates. Since SVMs can easily segregate complex datasets using few data points and handle huge feature sets with less overfitting than other methods, they are very effective for classification issues. They can operate non-linearly, which makes them useful for small and medium-sized datasets. SVM can produce effective results with the correct parameters and dataset, revealing previously unknown correlations between variables.

3.7 ADA Boost

AdaBoost is an ensemble machine learning algorithm that combines multiple weak learners to create a strong learner. It works by sequentially training each weak learner to correct the mistakes of the previous weak learner. The end result is a model that performs better than any of the individual weak learners. This is done by giving more weight to misclassified examples so that the next weak learner can focus on those examples. This iterative process continues until all of the weak learners are trained and the model is able to make more accurate predictions.

3.8 XG Boost

XGBoost is an algorithm that uses decision tree ensembles to generate predictive models. It creates multiple decision trees, each of which makes predictions, and then combines the predictions of all the trees to create a more accurate prediction. XGBoost is popular because of its high accuracy, scalability, and speed. XGBoost is capable of making accurate predictions faster than many other algorithms because it uses a gradient boosting mechanism. This means it can quickly identify the most important features and generate an accurate model by combining the most important features from multiple decision trees. Additionally, XGBoost is flexible and can be used in a variety of applications.

- **4. Evaluation Measure**
- **4.1 Accuracy**

How frequently the classifier predicts correctly is how accuracy is defined.

The number of accurate predictions to all predictions is the ratio that determines this.

Accuracy=TP+TN/TP+TN+FP+FN

Following is the accuracy of all the models.

	Accuracy Score
Model	
LogisticRegression	0.829424
XGB	0.829424
Support Vector Machine	0.820185
ADA Boost	0.815920
Random Forest	0.808813

5. CONCLUSION

In logistic regression, it's crucial to scale the variables so that they are all contained inside a 0 to 1 range. As a result, my accuracy increased from 79.7% to 82.9%.

I was able to raise the accuracy with SVM to as high as 82%. For a more precise prediction, we must examine the real positive and true negative rates in great depth, as well as the Area Under the Curve (AUC).

Remarkably, I was able to raise the accuracy on test data to approximately 83% using XG Boost and logistic regression. Of all other strategies, XG Boost and logistic regression stand out as the best. The slow learning model XG Boost is based on the idea of boosting.

6. REFERENCES

Ahmad, A. K., Jafar, A., & Aljoumaa, K. (2019). Customer churn prediction in telecom using machine learning in big data platform. Journal of Big Data, 6(1), 28. https://doi.org/10.1186/s40537-019-0191-6

F., S. (2018). Machine-Learning Techniques for Customer Retention: A Comparative Study. International Journal of Advanced Computer Science and Applications, 9(2). https://doi.org/10.14569/IJACSA.2018.090238

Gaur, A., & Dubey, R. (2018). Predicting Customer Churn Prediction In Telecom Sector Using Various Machine Learning Techniques. 2018 International Conference on Advanced Computation and Telecommunication (ICACAT), 1–5. https://doi.org/10.1109/ICACAT.2018.8933783

Jain, H., Khunteta, A., & Srivastava, S. (2020). Churn Prediction in Telecommunication using Logistic Regression and Logit Boost. Procedia Computer Science, 167, 101–112. https://doi.org/10.1016/j.procs.2020.03.187

Mishra, A., & Reddy, U. S. (2017). A comparative study of customer churn prediction in telecom industry using ensemble based classifiers. 2017 International Conference on Inventive Computing and Informatics (ICICI), 721–725. https://doi.org/10.1109/ICICI.2017.8365230

Prashanth, R., Deepak, K., & Meher, A. K. (2017). High Accuracy Predictive Modelling for Customer Churn Prediction in Telecom Industry. In P. Perner (Ed.), Machine Learning and Data Mining in Pattern Recognition (Vol. 10358, pp. 391–402). Springer International Publishing. https://doi.org/10.1007/978-3-319-62416-7_28

Saraswat, M., Roy, S., Chowdhury, C., & Gandomi, A. H. (Eds.). (2022). Proceedings of International Conference on Data Science and Applications: ICDSA 2021, Volume 2 (Vol. 287). Springer Singapore. https://doi.org/10.1007/978-981-16-5348-3

Singh, M., Singh, S., Seen, N., Kaushal, S., & Kumar, H. (2018). Comparison of learning techniques for prediction of customer churn in telecommunication. 2018 28th International Telecommunication Networks and Applications Conference (ITNAC), 1–5. https://doi.org/10.1109/ATNAC.2018.8615326

Śniegula, A., Poniszewska-Marańda, A., & Popović, M. (2019). Study of machine learning methods for customer churn prediction in telecommunication company. Proceedings of the 21st International Conference on Information Integration and Web-Based Applications & Services, 640–644. https://doi.org/10.1145/3366030.3366109

[9] Mishra, A., & Reddy, U. S. (2017). A comparative study of customer churn prediction in telecom industry using ensemble based classifiers. 2017 International Conference on Inventive Computing and Informatics (ICICI), 721–725. https://doi.org/10.1109/ICICI.2017.8365230

[10] Hota, L., & Dash, P. K. (2021). Prediction of Customer Churn in Telecom Industry: A Machine Learning Perspective. Computational Intelligence and Machine Learning, 2(2), 1–9. https://doi.org/10.36647/CIML/02.02.A001

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A STUDY OF FINTECH: AWARENESS AND USAGE AMONGST INDIVIDUALS IN MUMBAI

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ABSTRACT:

Application of the term FinTech varies over a period of time. In today's age, it refers to the automation of the delivery of financial services. A great opportunity for India to develop its banking and financial sector, it still comes with its fair share of challenges. The paper offers research to understand the awareness and usage of FinTech among individuals in Mumbai and conducts a surveys to study the public's perception of them. It conducts research among individuals above the age of 18 who represent the future of India and are the ones most likely to use FinTech applications in the present and future.

Keywords: : *Fintech, Technology, Fintech Awareness, Fintech Usage*

1. INTRODUCTION:

Financial technology (better known as Fintech) is used to describe new tech that seeks to improve and automate the delivery and use of financial services. FinTech is a catch-all term referring to software, mobile applications, and other technologies created to improve and automate traditional forms of finance for businesses and consumers alike.

At its core, fintech is utilized to help companies, business owners, and consumers better manage their financial operations, processes, and lives by utilizing specialized software and algorithms that are used on computers and, increasingly, smartphones.

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When fintech emerged in the 21st century, the term was initially applied to the technology employed at the back-end systems of established financial institutions. Since then, however, there has been a shift to more consumer-oriented services and therefore a more consumer-oriented definition. Fintech now includes different sectors and industries such as education, retail banking, fundraising and non-profit, and investment management, to name a few.

Fintech also includes the development and use of cryptocurrencies, such as Bitcoin. While that segment of fintech may see the most headlines, the big money still lies in the traditional global banking industry and its multi-trillion-dollar market capitalization.

Fintech, the term encompasses a rapidly growing industry that serves the interests of both consumers and businesses in multiple ways. From mobile banking and insurance to cryptocurrency and investment apps, fintech has a seemingly endless array of applications.

Fintech refers to the application of software and hardware to financial services and processes, making them faster, easier to use and more secure. The fintech industry includes everything from payment processing solutions to mobile banking apps.

One driving factor is that many traditional banks are supporters and adopters of new-fangled fintech, actively investing in, acquiring, or partnering with fintech start-ups. Those are ways for established banking institutions to give digitally minded customers what they want, while also moving the industry forward and staying relevant.

FinTech Landscape:

Since the mid-2010s, fintech has exploded, with both start-ups receiving billions in venture funding (some of which have become unicorns), and incumbent financial firms either snatching up new ventures or building out their own fintech offerings.

North America produces most of the fintech start-ups, with Asia a relatively close second, followed by Europe. Some of the most active areas of fintech innovation include or revolve around the following areas (among others):

(fig. 1.1)

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1. **Cryptocurrency** (Bitcoin, Ethereum, etc.), digital tokens (e.g., NFTs), and digital cash. These often rely on blockchain technology, which is a distributed ledger technology (DLT) that maintains records on a network of computers but has no central ledger. Blockchain also allows for so-called smart contracts, which utilize code to automatically execute contracts between parties such as buyers and sellers.
2. Open banking, which is a concept that proposes all people should have access to bank data to build applications that create a connected network of financial institutions and third-party providers. An example is the all-in-one money management tool Mint.
3. Insurtech, which seeks to use technology to simplify and streamline the insurance industry.
4. Regtech, which seeks to help financial service firms meet industry compliance rules, especially those covering Anti-Money Laundering and Know Your Customer protocols which fight fraud.
5. Roboadvisors, such as Betterment, utilize algorithms to automate investment advice to lower its cost and increase accessibility.
6. Unbanked/underbanked services that seek to serve disadvantaged or low-income individuals who are ignored or underserved by traditional banks or mainstream financial services companies. These applications promote financial inclusion.
7. Cybersecurity. Given the proliferation of cybercrime and the decentralized storage of data, cybersecurity and fintech are intertwined.

2. REVIEW OF LITERATURE

- ✓ **Dr.P.Rajeswari, Dr. C.Vijai,(2021),** This research paper provides an overview of the Indian FinTech industry and government-supporting initiatives in the fintech industry. It studies the various trends in the FinTech industry such as Cloud computing, Blockchain, Artificial Intelligence, and chatbots. This research paper analyzes the Fintech Adoption, Fintech News Network, Indian Fintech Industry Structure, and Fintech Startup in India, and Fintech Trends in India. It concludes that the fintech industry development is necessary for both the global and Indian financial sectors.
- ✓ **Pooja Goel et al,(2021),** The aim of this paper is to present the role of Financial Technologies, or Fintech, in the financial industry, specifically in the banking sector, using data from the Reserve Bank of India's Report of the Working Group on Fintech and Digital Banking (2017). The paper discusses recent Fintech developments in Indian banking in detail. The research indicates a direction for Fintech evolution in terms of changing industries and customers. It dives deeper into the logical progression of Fintech-based developments, as well as the connection between Fintech and financial inclusion. The study indicates that there is a value frontier in further exploration of new perspectives on upcoming financial technology and its implications for the banking sector**.** The authors draw connections between FinTech and Financial inclusion, by studying the steps taken by FinTech Firms, Financial ecosystem, and government aids to promote financial inclusion.

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- ✓ **Victor Murinde et al,(2021),** In this research, the authors review the burgeoning literature on FinTech and FinTech-enabled services, focusing more on the opportunities and risks for banks. They conclude the statistical analysis of high-quality bank-level data from 115 countries around the world for the past 16 years, by computing statistical moments of some key indicators of the changing banking landscape in the fintech era. The preliminary findings suggested that it is unlikely that fintech leaders will replace banks, perhaps because banks are developing their own FinTech platforms or working with FinTech startups. It also showcases how regulation, global infrastructures and geopolitical frictions will shape the future of banking. They also identify some promising research ideas and summarize some key implications, fromexisting research, for policy makers and practitioners.

3. RESEARCH METHODOLOGY

3.1 OBJECTIVES

- ➢ The research has studied the various challenges and opportunities that FinTech has to overcome in modern India.
- ➢ It understands the scope of FinTech in Mumbai today and tomorrow.
- ➢ It has examined and analysed the perception and awareness of FinTech in Mumbai.

3.2 HYPOTHESIS

H0 There is no significant impact of age group of individual and awareness of fintech

H1 There is significant impact of age of group of individual and awareness of fintech

H0 There is no relationship between locality of individual and usage of fintech

H1 There is relationship between locality of individual and usage of fintech

3.3 METHODOLOGY

Primary data:- primary data was collected in the form of a survey, online Google form

Secondary data:- secondary data was collected from journals, articles, magazines, and websites for providing support to the primary data.

Sampling Method: A convenience sample, a type of non-probability sampling method that was taken from a group of people easy to contact or reach was used.

Sample size- 100

3.4 SCOPE OF STUDY

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With the help of this study, we have understood the challenges faced and opportunities ahead for the FinTech industry. We were able to examine the scope of growth and perception for the new technological innovations in the finance sector. We understood the awareness among individuals and frequency of usage among them.

3.5 STATEMENT OF PROBLEM

FinTech is about the adoption of new technologies into the financial sector, and it is transforming the financial industry. According to commerce and industry minister Piyush Goyal, the global adoption rate of 64% is easily trumped by India's adoption rate of 87%.

The research paper has understood the awareness and usage among Indian audience. It examines the frequency of usage for users in Mumbai. Although there are many opportunities for FinTech to be successful in India, it still has to overcome a lot of challenges to reach most of the people of the country.

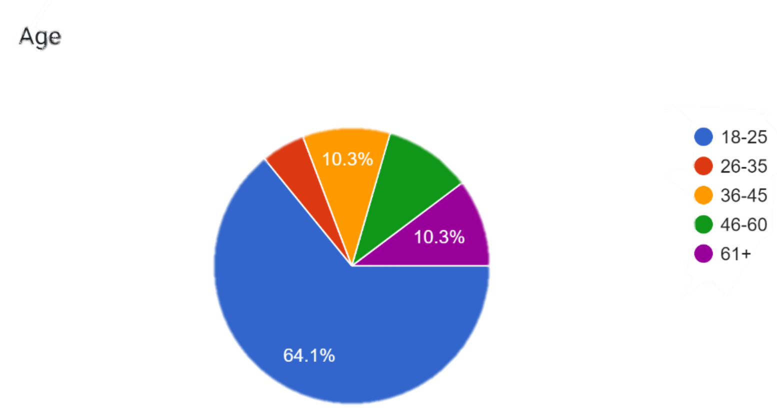
4. FINDINGS & ANALYSIS

(fig. 3.1)

AGE:-

AGE OF RESPONDENTS	PERCENTAGE
18-25	64.1%
26-35	5.1%
36-45	10.3%
46-60	10.3%
61+	10.3%
TOTAL	**100%**

(fig. 3.2)



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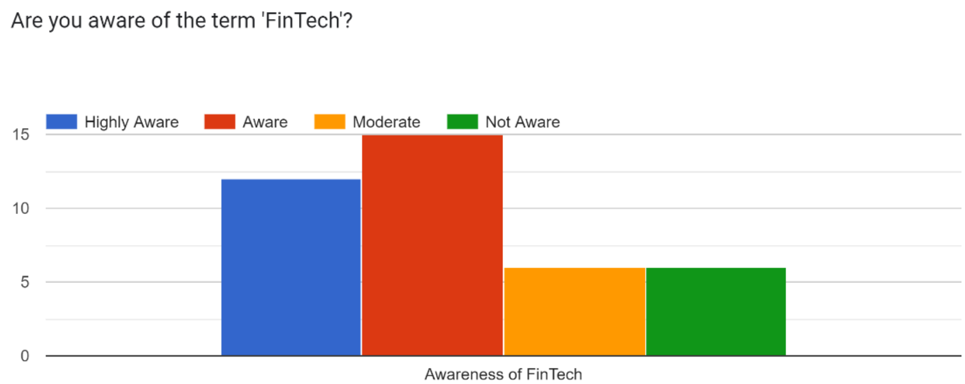
The study found that 64% of the respondents were from the age group of 18-25 years. 5.1% of the respondents were from the age group of 26-35. The rest of the groups made up for 10.3% each.

AWARENESS:-

Most of the respondents were aware of the term with few being either moderately aware or not aware.

(fig. 3.3)

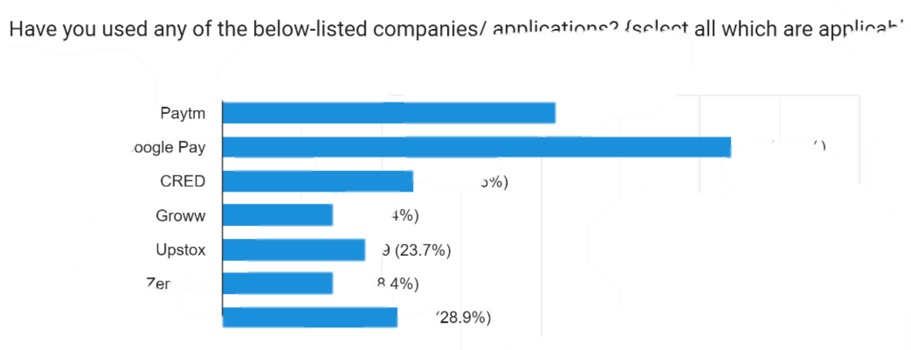


USAGE:-

The most used fintech applications from the set of applications asked were Paytm and Google pay with Policybazaar following next.

Gpay and PayTm are used for purposes such as wallets, UPI, Insurance etc.

(fig. 3.4)



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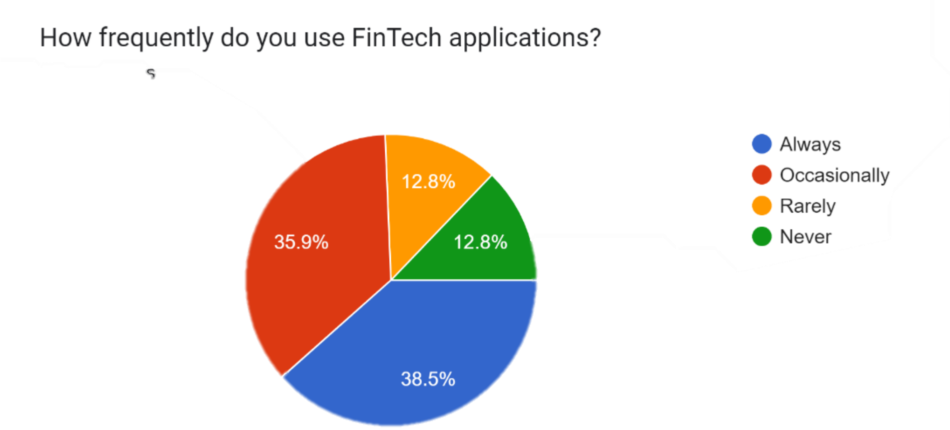
Survey showed that 84.2% of the respondents use Google pay, with PayTm being used by 55.3%. Cred was the other most used application with 31.6% respondents using. Policybazaar followed next by 28.9% of the users using that application.

FREQUENCY:-

Frequency of usage of FinTech applications showed that majority of the respondents use Fintech almost daily.

(fig. 3.5)



38.5% of respondents used FinTech applications almost daily, whereas 35.9% used it occasionally. 12.8% used the applications rarely or never.

4.TESTING OF HYPOTHESIS

Hypothesis 1:

H0 There is no significant impact of age group of individual and awareness of fintech

H1 There is significant impact of age of group of individual and awareness of fintech

To test above Null Hypothesis ANOVA is obtained and F-test is applied. Results are as follows

(fig. 4.1):

ANOVA

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Entrepreneurship Skill Development Training Support					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4094.160	2	2047.080	7.313	.001
Within Groups	74458.315	98	279.918		
Total	78552.475	100			

Source: Compiled from SPSS Output

Interpretation: Above table indicates that for p-value for age group of individual and fintech awareness 0.001. It is less than the standard p-value 0.05. Consequently, Null Hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: there is a significant impact of age group of individual and awareness of fintech.

Hypothesis 2:

H0 There is no relationship between locality of individual and usage of fintech

H1 There is relationship between locality of individual and usage of fintech

To test above Null Hypothesis ANOVA is obtained and F-test is applied. Results are as follows:

(fig. 4.2)

ANOVA					
Employee's Skill Development Training Support					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3077.975	2	1538.988	5.241	.002
Within Groups	78103.983	98	293.624		
Total	81181.958	100			

Source: Compiled from SPSS Output

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Interpretation: Above analysis indicate that p-value for locality of individual and usage of fintech 0.002. It is less than standard p-value 0.05. Therefore, Null Hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is relationship between locality of individual and usage of fintech

5. CONCLUSION

FinTech is the application that makes it easy for users to manage their finances. It involves Innovation in delivering financial services. The research showed that more than 50% of the respondents are aware of the term ‘FinTech’ with some being highly aware. The research also showed that 46% of respondents used such FinTech applications as their main mode of payment. Due to the pandemic, physical financial transactions were impossible, which led to rise of FinTech applications which were convenient and easy to access and use.

6. ANNEXURE

1. Age?
- 18-25
- 26-35
- 36-45
- 46-60
- 61+

2. Gender?
- Woman
- Man
- Prefer not to answer

3. Degree of education?
- SSC
- HSC
- Diploma
- Bachelors Degree
- Masters/ Ph.D
- Any other

4. Locality?
- Rural
- Urban

5. Are you aware of the term FinTech?

- Highly aware
- Aware
- Moderate
- Not aware

6. State your level of awareness for these FinTech services:-

a. Neo banks i.e those banks that have no physical presence
b. Online Brokerage firms
c. Latest additions to FinTech sector such as buy now pay later, UPI
d. E-commerce sectors branching into their own brands of wallets, credit cards
e. Online banking service providers such as YONO, Kotak 811.

- Highly aware
- Aware
- Moderately aware
- Not aware

7. Have you heard about these Fintech companies/ applications?

- Paytm
- Google Pay
- CRED
- Groww
- Upstox
- Zerodha
- Policybazaar
- Other:

8. Have you used any of these Fintech companies/ applications?

- Paytm
- Google Pay
- CRED
- Groww
- Upstox

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- Zerodha
- Policybazaar
- Other:

9. How frequently do you use FinTech applications?

- Always
- Occasionally
- Rarely
- Never

7. REFERENCES

- Daley, S. (n.d.). *What Is Fintech? Financial Technology Definition*. Built In. https://builtin.com/fintech
- Kagan, J. (2022, June 30). *Financial Technology (Fintech): Its Uses and Impact on Our Lives*. Investopedia. https://www.investopedia.com/terms/f/fintech.asp#toc-fintech-landscape
- C.Vija, & C.Vijai. (2021). Fintech Industry In India: The Revolutionized Finance Sector. *European Journal of Molecular & Clinical Medicine*, 7(11), 4300–4306.
- Goel, P. G., & Kulsrestha, S. K. (n.d.). Fintech Unfolding: Financial Revolution in India. *Thailand and the World Economy*, *40*, 41–51.
- Murinde, V., Rizopoulos, E., & Zachariadis, M. (2022). The impact of the FinTech revolution on the future of banking: Opportunities and risks. *International Review of Financial Analysis*, *81*, 102103. https://doi.org/10.1016/j.irfa.2022.102103.

DIGITALIZATION OF STANDARDIZED BUSINESS CARD

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ABSTRACT:

Even though the traditional visiting card are handy and easy to carry, there are lot of chances of misplacing it as well as they are not eco-friendly. This reduces the efficiency of its marketing and leads wastage of money. The MSME businessmen faced a lot of problems to use their visiting cards as effective marketing tool. Also every year a good amount of paper is used to make these visiting cards which forms major part of deforestation. To resolve this issue we came up with the concept of "Digital Business Card". In this project, you will have your Digital Business Card which you can offer to your customers. After scanning the QR code, customer will get to view your business card so there is no need to constantly have a physical card. It specifies features such as the save contact button, Whatsapp button, Profile, Gallery, About Us, Payment, Social media, location, etc. So, this saves us time and there is no need to give a physical visiting card to each customer. These are the main concept of developing a Digital Business Card.

Keywords: *Digital business card, business card, digital visiting card, smart business card.*

INTRODUCTION:

In this project, you will have your Business Card which you can offer to your customer by scanning QR code or by sending the link of your card, so there is no need constantly to have a physical card in your wallets/purse. So, card owner can share their Business Card anywhere and at any time. This Business Card specifies His/her position of work at their organization and has several Contact's where he or she may simply access His/her like Phone number, Email, Position at specific organization, Name, and so on.

To protect the confidentiality of high profile user contact information while identifying duplication or fake card, the encryption, notification and allow or decline technique has been proposed to use the digital business card. To make the digital business card online application easier to use, share, and search, it includes features such as business Whatsapp, call manager, Instagram profile, business location, payment transaction data or UPIs, website hosting, and an image gallery. These are the main concept of developing a Digital Business Card application.

OBJECTIVE:

As our growing reliance on technology, networking is advancing at a record-breaking rate. Everything is evolving to reflect a paperless, environmentally friendly society, including how we do business, meet up with one other, and even exchange contact information. While paper business cards have long been a networking staple, exchanging and managing bits of paper is no longer convenient in our digital world. More and more professionals are turning to digital business cards to share information with new contacts easily. This is especially true for professionals who rely on relationships to drive their business growth and boost their bottom line. A digital business card commonly referred to as an electronic or virtual business card is a rapid and efficient way to exchange and save contact information. They are customized with your unique information and can be as detailed or general as you wish. When you are ready to share it, you would provide a URL, a QR Code, or embed it on your webpage. The recipient would click the link or scan the QR Code and access all your contact information. Some free digital business card apps require the recipient to have the same app, but our project allow you to share your contact information without being dependent on the mobile application.

a. EXISTING SYSTEM:

Business related persons always use websites and paper business card to introduce business. Mostly business persons create static business website which advertise and introduce the business, products, services, contact us form, map location, contact details. After that many issues are generated like as maintain website, proper advertisement, review, ratings, etc. Any business person can't avoid these issues. Paper business cards can crush or rubbish by user. User can find appropriate card at need. Google reviews and advertises show the highest paid websites at the top. Business mans are paid for this top rating. Because they are use the Google advertising theory. As per this theory public can trust on things which are show again and again.

b. FUTURE SCOPE:

The Digital Business Card is aim in future to provide a greater user experience to users in using functions of web application include scan and store printed business cards. Dynamic content of digital business cards, map location, website hosting, link instagram, facebook, linkedin, etc., are taking the whole social activity control of business and help to share market users. In future web application is add QR code scanning to store more information. With this concept in mind, we plan as future work to start out performing on an initiative to permit trusted users to rate business cards so as to make a model which could be caught an fake business card users. Subsequently be employed by fake news detection approaches.

CONCLUSION:

In this project, we will have your Business Card/Personal Recognition Card where we may offer it to strangers when needed so that you do not need to constantly have a physical card in your wallets/purses so that He/She can present their Business Card whenever or wherever required. This Business Card specifies His/her position of work at their organization and has several Contact's where he or she may simply access His/her like Phone number, Email, Position at specific organization, Name, and so on.

To protect the confidentiality of high profile user contact information while identifying duplication or fake card, the encryption, notification and allow or decline technique has been proposed to use the digital business card. To make the digital business card online application easier to use, share, and search, it includes features such as business Whatsapp, call manager, Instagram profile, business location, payment transaction data or UPIs, website hosting, and an image gallery. These are the main concept of developing a Digital Business Card application.

REFERENCE:

- Arnold, M. (2003). On the phenomenology of technology: the “Janus-faces” of mobile phones. Information and Organization, 13(4), 231–256. doi:10.1016/S1471-7727(03)00013-7
- Betterevaluation.org. (2011). Equal Access Participatory Monitoring and Evaluation toolkit Module 5: Doing qualitative data analysis. Retrieved from http://betterevaluation.org/sites/default/files/EA_PM%26E_toolkit_module_5_QDA_for_publication .pdf
- Brown, J. S., & Duguid, P. (1994). Borderline Issues: Social and Material Aspects of Design. HumanComputer Interaction, 9(1), 3–36. doi:10.1207/s15327051hci0901_2
- Davis, F. D. (1985). A Technology Accepance Model for Empirically Testing New End-User Information Systems: Theory and Results.
- Jung, H., Belvis, E., & Stolterman, E. (2010). Conceptualizations of the Materiality of Digital Artifacts and their Implications for Sustainable Interaction Design.
- Rogers, Y., Sharp, H., & Preece, J. (2011). Interaction Design, beyond human-computer interaction (3rd ed.). West Sussex: John Wiley & Sons Ltd.
- Schutts, R. K. (2011). Qualitative Data Analysis. In Investigating the Social World: The Process and Practice of Research (7th ed., pp. 320–357).

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CRYPTO CURRENCY: EXPLORING THE HURDLES AND OPPORTUNITIES OF DIGITAL CURRENCIES

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ABSTRACT:

The study analyzes the key features of various cryptocurrencies, such as Bitcoin, Ethereum, Ripple, and others. The paper discusses the issues of security, privacy, scalability, and regulation, as well as the technical and practical challenges faced by the different cryptocurrencies. Furthermore, the paper presents a comparative analysis of the different cryptocurrencies, highlighting their strengths and weaknesses, and providing a comprehensive understanding of their features. The paper also provides insights into the future of cryptocurrencies and the potential challenges that could arise as they become more mainstream. Overall, our study aims to provide a comprehensive and comparative analysis of cryptocurrencies that can aid researchers, policymakers, and investors in better understanding the challenges and opportunities associated with this rapidly evolving field.

Keywords: *Bitcoin, Ethereum, Ripple, cryptocurrencies, security, privacy, scalability.*

INTRODUCTION:

Cryptocurrency is a digital or virtual currency that uses cryptography to secure and verify transactions and is not controlled by any central authority. The transactions are recorded on a public ledger called a blockchain, which provides transparency and security. The most well-known cryptocurrency is Bitcoin, but there are now thousands of different cryptocurrencies available. Cryptocurrencies have the potential to disrupt traditional financial systems by providing a more decentralized, secure, and efficient way of transferring value. However, they also pose risks such as price volatility, security threats, and lack of regulation.

The goal of cryptocurrencies is eliminating the need for banks, which requires a distributed ledger that records

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ownership of coins. However, there is a risk of double-spending coins in a distributed system, as digital copies are easy to create. Quorum systems, which rely on voting among subsets of peers, can be used to achieve consensus on a consistent ledger state. However, they are vulnerable to the Sybil attack and do not account for propagation delays in distributed systems, which can lead to temporary inconsistencies in the ledger. Bitcoin transactions are validated and propagated by nodes throughout the entire network.

These nodes, referred to as miners, compete to collect and bundle groups of transactions into blocks. Mining is the process of solving a difficult cryptographic puzzle, called the Proof-of-Work (PoW), which requires significant computational power. The first miner to solve the puzzle and validate the block broadcasts it to the network and earns a reward.

Once a miner broadcasts a validated block to the network, other miners must surrender to the solution of the winning miner and append the block to the blockchain. The blockchain is a public ledger that contains a record of all transactions in the network. Each block in the blockchain is cryptographically linked to the previous block, creating a chain of blocks that cannot be altered without significant computational effort. By incentivizing miners to compete for the right to add blocks to the blockchain, Bitcoin ensures a decentralized, secure, and reliable system for transferring value.

OBJECTIVES:

- Private transactions, how safe are they?
- Start-ups and Businesses, investment opportunities.
- Money transfer, transactions and ease of use.
- Finding market, system exploits and risks.
- Unreliability of cryptocurrencies, why are they volatile.
- Scalability issues, with regards to large scale scalability.
- Newbies and individuals prone to getting scammed.
- Is Anonymity necessary? What are its pros and cons.

LITERATURE REVIEW:

i. "Bitcoin and Beyond: A Technical Survey on Decentralized Digital Currencies"

This research paper provides a survey on decentralized digital currencies beyond Bitcoin, analyzing the technical aspects of these systems such as consensus protocols, transaction verification, and incentives. It also explores their security, privacy, scalability, and interoperability. The survey is a useful resource for researchers, developers, and practitioners in this field.

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ii. "Bitcoin and Blockchain: Security and Privacy".

This paper provides an overview of the security and privacy implications of blockchain technology and Bitcoin, covering topics such as public key cryptography, proof-of-work mining, potential attacks on the network, and privacy concerns related to the transparency of the blockchain. The authors emphasize the need for further research in this area.

iii. "A Comparative Analysis of Current Cryptocurrencies".

This review evaluates the fundamental principles, strengths, and weaknesses of various cryptocurrencies, including Bitcoin, Ethereum, and Ripple, based on consensus protocols, mining algorithms, and transaction processing. It also discusses emerging trends in cryptocurrency, including proof-of-stake consensus protocols and privacy-enhancing technologies, providing a valuable resource for understanding the technical and operational differences between different cryptocurrencies.

iv. "An Empirical Study of Volatility in Cryptocurrency Market"

The study explores the market trends and behaviour of Bitcoin, Ethereum, and Ripple from 2014 to 2018, and finds that all three cryptocurrencies exhibit a high degree of volatility, with Bitcoin being the most volatile. The authors attribute this to the lack of regulation and institutional support, as well as market speculation and manipulation. They suggest that the development of better regulatory frameworks and market transparency could help to stabilize the cryptocurrency market and reduce volatility.

v. "A Comprehensive Review of Denial-of-Service Attacks in Blockchain Ecosystem and Open Challenges"

The authors evaluate the key features of blockchain technology and its vulnerability to various DoS attacks, including network partitioning attacks, transaction flooding attacks, Sybil attacks, and consensus-based attacks. The paper presents some promising solutions, such as implementing distributed denial-of-service (DDoS) protection mechanisms, consensus-based algorithms, and blockchain-based voting schemes. The authors also highlight the open challenges that must be addressed to ensure the resilience of blockchain technology against DoS attacks.

vi. "Challenges of Cryptocurrencies Forensics – A Case Study of Investigating, Evidencing and Prosecuting Organised Cybercriminals".

In this paper, S. Naqvi discusses the challenges involved in investigating cybercrime related to cryptocurrencies. The author emphasizes the importance of understanding the technical aspects of blockchain and cryptocurrency transactions and highlights challenges in evidence collection, anonymity of transactions, and legal framework. Through a case study of a cryptocurrency fraud scheme, the author highlights the need for specialized training and tools to investigate and prosecute cybercrime in the cryptocurrency ecosystem.

RESEARCH ON EXISTING & UPCOMING METHODS:

Ethereum is a second-generation blockchain technology that aims to create a new model for building decentralized applications by combining virtual machines and stack-based architecture. It features a Turing-complete scripting language, which opens up unlimited possibilities for applications. While blockchain technology is often treated as a synonym for distributed ledger technology (DLT), it represents one specific type of distributed ledger in which blocks of transactional data are linked to one another with data integrity maintained by cryptography. Ripple, on the other hand, is a type of consensus-oriented distributed database that targets financial use cases. It is not a blockchain technology because transactions are not added in the form of blocks that are hash chained to each other. However, similar to block-oriented consensus models, the Ripple network updates the ledger through a consensus process between nodes.

The blockchain technology enables decentralized networks that allow nodes to transact with varying degrees of control of the ledger, transferring authority and trust to an open network. Financial institutions have adapted this paradigm to contexts in which data is not completely transparent. Table 1 provides an overview of the types of membership governing each model, along with information on transaction processing and data structure used to verify transaction integrity efficiently. Below table compares analysis of the architecture for the three platforms. *Symbols: '✓' means that the protocol has the feature and '**X**' that it does not have.

Blockchain-based Systems			
	Bitcoin	Ethereum	Ripple
Permissioned (1)/ Permissioned (2)	(2)	(2)	(1)
Public / Private	Public	Public	Public
Trade history recorded	✓	✓	✓
Data Structure	Merkle tree	Partricia tree	Merkle tree
Notion of account	**X**	✓	✓
Multiple senders and receivers	✓	✓	**X**

Table 1: Blockchain-based Systems

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Blockchain technology can be classified into permissionless and permissioned blockchain based on the authentication requirements for network nodes to participate in the consensus process. Permissionless blockchains allow anyone to join the network and participate in the consensus process, while permissioned blockchains restrict access to a predefined list of subjects. Permissioned blockchains are better suited for traditional finance settings but are vulnerable to fraudulent activities, while permissionless systems minimize human involvement and associated vulnerabilities.

ANALYSIS AND CONCLUSION:

In order to prevent attacks that take advantage of known vulnerabilities, it is important to patch the application in a timely manner. For blockchain-based enterprise applications, a standard vulnerability management approach can be used to address and patch any weaknesses that have been identified. Nevertheless, the ultimate goal is to instill confidence in the public and provide justice to victims of cybercrime. It is a challenging situation, but with continued research and development, the fight against cybercrime can be strengthened.

Volatility is a major concern still some people view cryptocurrency volatility as an opportunity, as it can create the potential for large profits through trading or investing. Additionally, some argue that as the cryptocurrency market matures and becomes more mainstream, volatility may decrease as more people begin to use and accept cryptocurrencies as a legitimate form of payment and investment. Now addressing lack of scalability, several solutions have been proposed, such as increasing the block size, reducing the transaction data size, and implementing off-chain transactions. However, these solutions come with their own set of challenges and trade-offs.

Anonymity in cryptocurrencies has benefits such as privacy, protecting against identity theft and fraud, but it can also enable illegal activities and market manipulation. It can make it hard for law enforcement to apprehend the perpetrators, creating a lack of trust in the system. The anonymity issue is a complex one, and it's crucial to weigh its advantages and disadvantages carefully.

REFERENCES:

- "*Bitcoin and Beyond: A Technical Survey on Decentralized Digital Currencies*" by Florian Tschorsch and Bjorn Scheuermann.
- "*Bitcoin and Blockchain: Security and Privacy*" by Ehab Zaghloul, Tongtong Li, Matt W. Mutka and Jian Ren.
- "*A Comparative Analysis of Current Cryptocur*rencies" by Lara Mauri, Stelvio Cimato and Ernesto Damiani.

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- "*An Empirical Study of Volatility in Cryptocurrency Market*" by Hemendra Gupta and Rashmi Chaudhary – October 2022.
- "*A Comprehensive Review of Denial-of-Service Attacks in Blockchain Ecosystem and Open Challenges*" by Rajasekhar Chaganti, Rajendra V. Boppana, Vinayakumar Ravi, Kashif Munir, Mubarak Almutairi, Furqan Rustam, Ernesto Lee, And Imran Ashraf – August 2022.
- "*Challenges of Cryptocurrencies Forensics – A Case Study of Investigating, Evidencing and Prosecuting Organised Cybercriminals*" by S. Naqvi.
- "*Blockchain Technology and Cryptocurrenices*" by Siddharth Rajput, Archana Singh, Smiti Khurana, Tushar Bansal, Sanyukta Shreshtha.
- "*Security Enhancement in Bitcoin Protocol*" by R. Bala and R. Manoharan.
- "*Safety Analysis of Bitcoin Improvement Proposals*" by Emmanuelle Anceaume, Thibaut Lajoie-Mazenc, Romaric Ludinard and Bruno Sericola.
- "*Analyzing the Bitcoin Network: The First Four Years*" by Matthias Lischke and Benjamin Fabian.
- "*Empirical Analysis of Denial-of-Service Attacks in the Bitcoin Ecosystem*" by Marie Vasek, Micah Thornton, and Tyler Moore.
- "*Bitcoin Mining Pools: A Cooperative Game Theoretic Analysis*" by Yoad Lewenberg, Yoram Bachrach, Yonatan Sompolinsky, Aviv Zohar, Jeffrey S. Rosenschein.

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MENTAL HEALTH AWARENESS

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ABSTRACT:

As more people report experiencing anxiety, sadness, and other mental health issues, it has become clear that this is a serious problem. A smartphone application called Mental Health Awareness is intended to enhance general wellbeing and increase awareness of mental health issues.

A variety of features are available on the app, including guided meditations, and breathing exercises, the app provides educational information on a variety of mental health issues. Users may also track their mental health improvement over time, obtain individualized routine suggestions, and connect with support groups and mental health specialists.

The purpose of Mental Health Awareness App is to offer a secure, welcoming, and encouraging platform for people to learn about mental health, connect with others who have experienced similar things, and get the care they require. People can adopt a preventative approach by routinely utilizing the app.

Keywords: *Mental Health Awareness, Daily Routines, Mental Health Specialists*

INTRODUCTION

The comprehensive smartphone app Mental Health Awareness was created to encourage good mental health and awareness. Users of the app get access to a variety of features, such as educational materials on various mental health conditions, self-help tools like cognitive behavioral therapy exercises, guided meditations, and breathing exercises to ease tension and anxiety. Although it is sometimes disregarded or vilified, mental health is an essential component of our general welfare. The rising incidence of mental health disorders including anxiety and depression emphasizes the significance of raising awareness of mental health issues and offering services to help people who

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are struggling. The number of mental health applications has significantly increased in response to this need and aims to give people the skills and resources they need to manage their mental health.

This paper focuses on Mental Health Awareness, one such software that aims to advance mental health awareness and wellbeing. Daily routines, guided meditations, breathing exercises, and educational resources on a variety of mental health disorders are just a few of the features available on the app. Users can also communicate with experts in mental health and receive support.

Mental Health Awareness App is a great tool for people wishing to take active measures to improve their mental health because of its user-friendly interface and extensive resources.

LITREATURE REVIEW

There is a growing amount of research on the value of mental health education and the contribution of mobile apps to mental health promotion. According to a study by Zhang et al. (2018), mobile health applications can effectively support people with mental health issues, reducing their symptoms and enhancing their quality of life. The potential advantages of mobile applications in lowering anxiety and depression levels among college students were emphasized in a different study by Sun et al. (2019).

Several research have also investigated the efficacy of particular mental health apps. For instance, a study by Kauer et al. (2014) discovered that the smartphone app "MoodGYM" was successful in lowering young people's symptoms of anxiety and sadness. Another study by Proudfoot et al. (2013) demonstrated the effectiveness of the app "e-couch" in reducing symptoms of anxiety and depression among adults.

Lack of understanding and awareness regarding mental health disorders can contribute to stigma and discrimination, according to research on the subject. According to a study by Pescosolido et al. (2010), people with mental health issues are frequently stigmatized because of misunderstandings and a lack of information regarding these conditions. This emphasizes the value of educational resources, like those provided by Mental Health Awareness, in spreading awareness of mental health issues and lowering stigma.

In general, the literature indicates that mobile applications, like Mental Health Awareness, can effectively support people with mental health illnesses and raise awareness of mental health issues. Features of the programmer including instructional materials, self-help tools, and linkages to mental health specialists are in line with earlier studies' conclusions about effective mental health support. Mental Health Awareness has the ability to enhance the lives of people dealing with mental health issues and contribute to a larger culture of mental health awareness by offering a secure and welcoming platform.

RESEARCH METHODOLOGY:

Research phase: Extensive research was conducted to determine the target audience, the needs in terms of mental health, the resources and support that are available, as well as the most recent findings and recommendations for raising mental health awareness and using technology to support mental health.

Design phase: To specify the app's objectives, features, and functioning, a diverse team of mental health specialists, software engineers, and designers worked together. In order to make sure that the app's design was user-centered, approachable, and efficient, several iterations and user feedback were employed.

Development phase: During the development phase, the technical architecture of the app was established, and the software was created using agile methodologies, allowing for continual testing and development to guarantee that the app's features and functionality were responsive to user feedback and met the app's goals and objectives.

Testing phase: To find any flaws, usability difficulties, or functionality concerns, testing was done both internally and outside. At this stage, user input was gathered to improve the functionality and design of the app.

Constant assessment and development: Using user input, app use metrics, and mental health results, continuously assess and enhance the app's efficacy and usability. This permits ongoing development and the possibility of later advances in mental health assistance.

Ultimately, the Mental Health Awareness app was developed using an iterative, user-centered, and evidence-based process, ensuring that it was efficient, accessible, and sensitive to user requirements and preferences.

FUTURE SCOPE:

Addition of new languages: The Mental Health Awareness app is now only accessible in one language. It could be enhanced in the future to support other languages in order to appeal to a wider audience of users.

AI technology integration: To offer customers individualized help and recommendations, AI technology may be included into the app. This could involve coping mechanisms based on user data, individualized mental health examinations, and facilitated meditation sessions.

Cooperation with mental health specialists: The software should be improved to include capabilities that link users with mental health specialists, such teletherapy sessions, online counselling, or crisis assistance.

Collaborations with institutions and organizations: To supply more resources, Mental Health Awareness might collaborate with hospitals, schools, and universities as well as mental health groups.

Game Integration: The app might include gamification components to enhance users' experiences learning how to improve their mental health more interesting and pleasurable.

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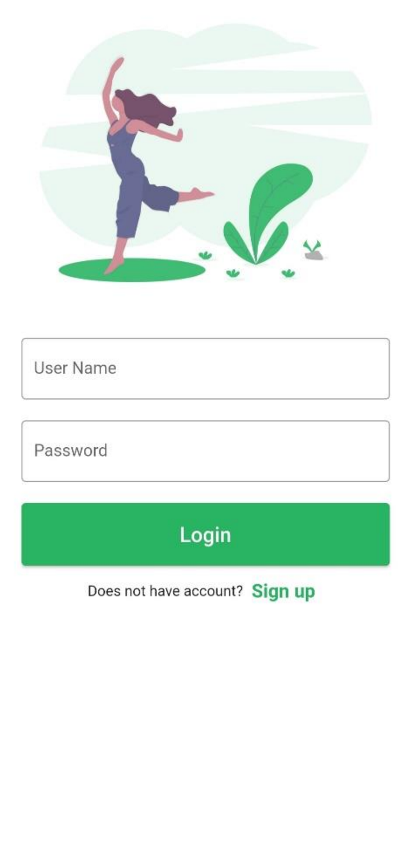
CONCLUSION

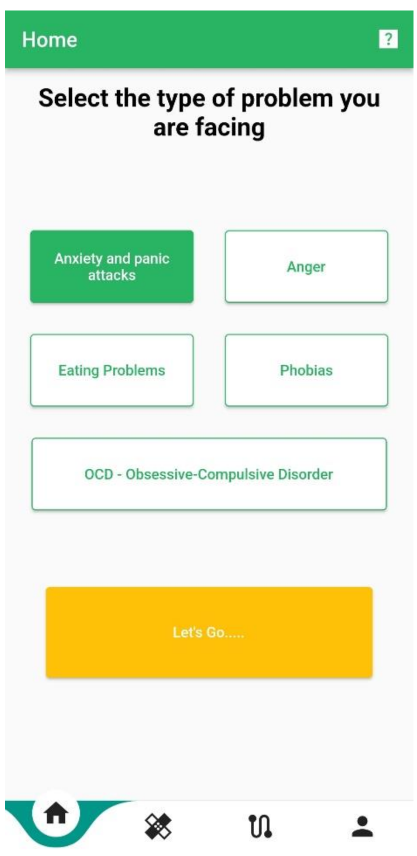
In conclusion, the Mental Health Awareness app for raising awareness of mental health issues has the power to significantly improve people's mental health and wellbeing. To guarantee that the app matches the requirements and preferences of its target audience, mental health doctors, and users worked together to build it. For those with mental health concerns, the app offers a variety of resources and help, such as knowledge about mental health issues, coping mechanisms, self-assessment tools, and mindfulness activities.

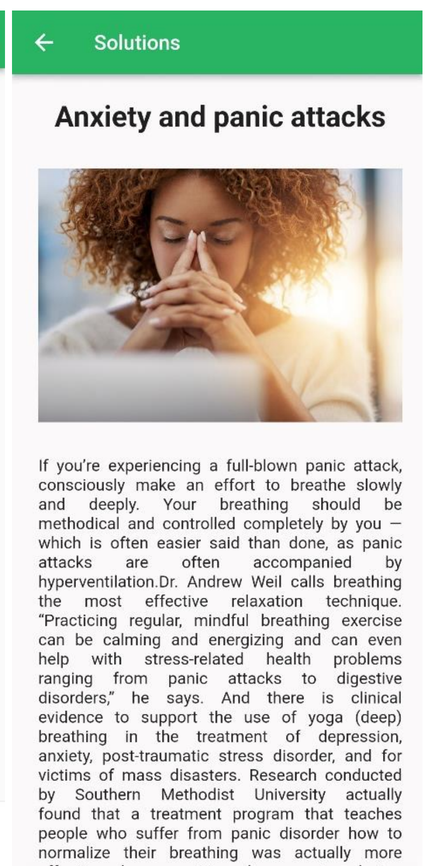
We were able to produce a complete and successful mental health awareness app using agile methods and user-centered design, which is still being improved upon as a result of user input and continuous testing. The app's potential future range is encouraging and may be extended in order to give consumers more individualized, efficient, and reachable service.

Overall, the Mental Health Awareness app for raising awareness of mental health issues is a great tool for anyone looking for assistance with their mental health and has the potential to help continuing initiatives to enhance mental health outcomes for all.

Output:







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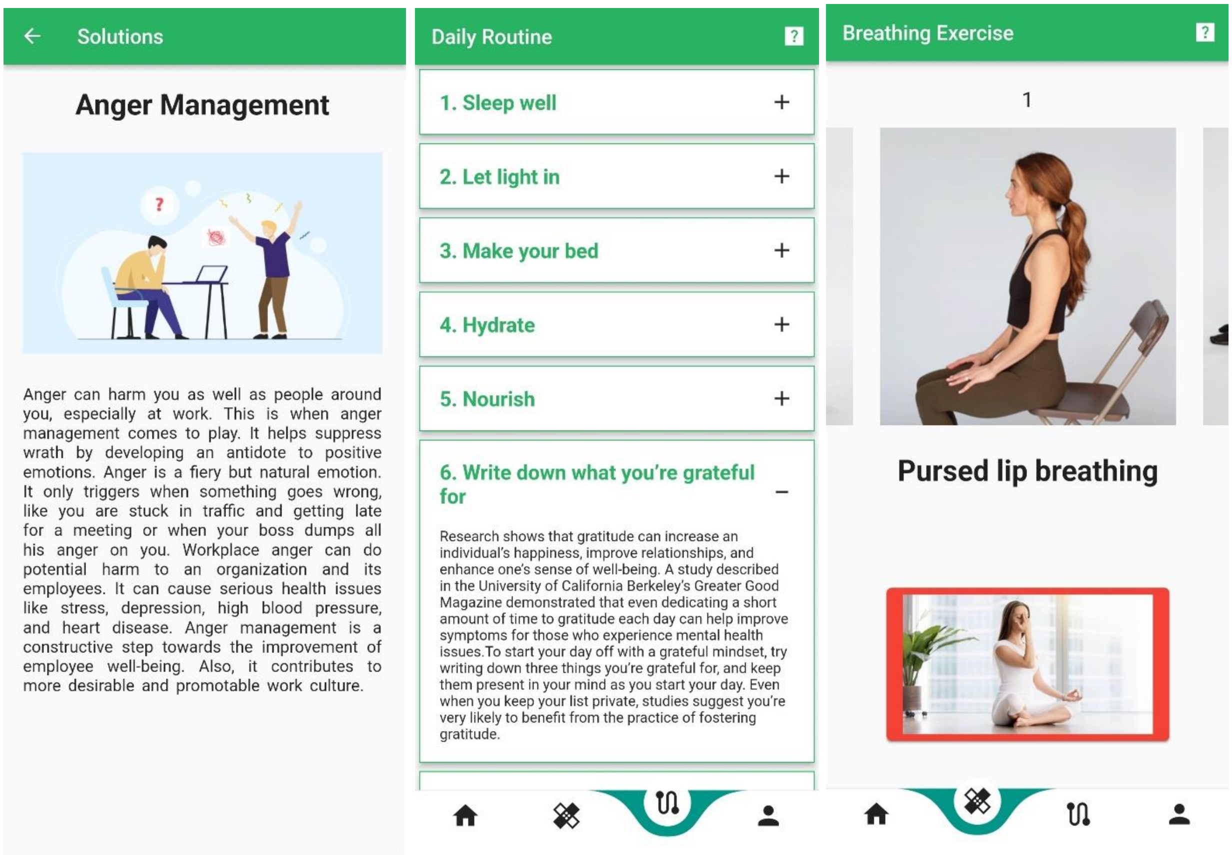

REFERENCES

1. World Health Organization (WHO). (2019). Mental disorders. Retrieved from https://www.who.int/news-room/fact-sheets/detail/mental-disorders
2. National Institute of Mental Health (NIMH). (2020). Mental health information. Retrieved from https://www.nimh.nih.gov/health/topics/index.shtml
3. American Psychiatric Association (APA). (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.
4. Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.
5. Kohn, R., Saxena, S., Levav, I., & Saraceno, B. (2004). The treatment gap in mental health care. Bulletin of the World Health Organization, 82(11), 858-866.
6. Brouwer, W., Kroeze, W., Crutzen, R., de Nooijer, J., de Vries, N. K., & Brug, J. (2012). Which intervention characteristics are related to more exposure to internet-delivered healthy lifestyle promotion interventions? A systematic review. Journal of Medical Internet Research, 14(6), e40.

ISBN NO: 978-93-5810-851-4

7. Donker, T., Griffiths, K. M., Cuijpers, P., & Christensen, H. (2009). Psychoeducation for depression, anxiety and psychological distress: A meta-analysis. BMC Medicine, 7(1), 79.
8. van Ballegooijen, W., Cuijpers, P., van Straten, A., & Karyotaki, E. (2019). Efficacy and adherence of guided internet-based interventions in the treatment of adult depression and anxiety: A meta-analysis. Journal of Medical Internet Research, 21(7), e11919.
9. Karyotaki, E., Riper, H., Twisk, J., Hoogendoorn, A., Kleiboer, A., Mira, A., ... & Cuijpers, P. (2017). Efficacy of self-guided internet-based cognitive behavioral therapy in the treatment of depressive symptoms: A meta-analysis of individual participant data. JAMA Psychiatry, 74(4), 351-359.
10. WHO. (2017). Mental Health Atlas 2017. Geneva, Switzerland: WHO.

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METAVERSE - THE PRESENT ADVANCE FUTURE

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ABSTRACT:

Digital transformation has been evolving drastically since the 1990s, with the birth of the internet. This digital transformation makes several fictions into reality. Metaverse is a complete conversion from the real world to the virtual world. Metaverse integrates different technologies and can be a new internet perspective. All tech joint is putting their effort into Metaverse development by feeling the potential economic and social power of Metaverse. This research will reveal the basic concepts of Metaverse and explore benefit with the use cases.

Keywords: *Metaverse, digital, high quality, software, virtual reality, decentralized*

INTRODUCTION


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The term "Metaverse" is not a recent one in technology. In this sense, the phrase refers to the integration of our physical and virtual universes, which will result in a complete virtual universe. Users will be able to engage with a variety of items both virtually and physically in this realm. It's a universe of limitless, interconnected virtual communities where individuals may interact via smartphone apps, augmented reality glasses, virtual reality headsets, and other devices to socialise, work, and play.

High-quality virtual reality, which enables users to interact with numerous aspects in the same way as in the actual world, is one of the keys to the development of the metaverse. By the use of technology like virtual reality (VR), augmented reality (AR), artificial intelligence (AI), social media, and digital currency, users navigate a virtual world that closely resembles the real world.

Big firms work to build their closed, exclusive hardware and software ecosystems in an effort to draw consumers and establish themselves as the de facto Metaverse destination. Around ideas like openness and privacy, several systemic approaches and divergent techniques collide. The winner of this contest will decide how much privacy users have access to and whether or not kids and schoolchildren can participate in the Metaverse.

REQUIREMENTS

Three things set the Metaverse apart from augmented reality (AR) and virtual reality (VR). First, Metaverse has a strong aspect as a service with more lasting content and social meaning, whereas VR-related studies focus on a physical approach and rendering. Second, AR and VR technologies are not always used in the Metaverse. It can be a Metaverse application even if the platform does not support VR and AR. The Metaverse's scalable ecosystem, which can support a large number of users, is crucial for enhancing social meaning.

Three elements are necessary for the extensive Metaverse implementation: i) hardware advancements (such as 5G and GPU memory) ;(ii) the creation of a recognition and expression model that makes use of the hardware's parallelism; (iii) the accessibility of engaging and interactive material.

TYPES OF METAVERSE

Traditional centralized metaverses – Web2 types of metaverse

These metaverses run on centralised systems and do not incorporate blockchain technology. In other words, they are online locations managed by a single company that stores user data. The player's avatar in various worlds is how he will advance in the game. In these virtual worlds, role-playing is typically involved. For instance, there are around 278 million players of the game Fortnite. This metaverse alternative may be alluring to a brand that wants to wager on quantity.

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Centralized Blockchain Metaverse – Web3 types of metaverse

Blockchain metaverses are a particular sort of metaverse that enable interactions to develop in virtual settings. Users can then monetise their purchases and creations in a fully developed digital economic environment created by this. Moreover, NFTs (Non-Fungible Tokens), which are traded or exchanged, can be found in these systems. It uses cryptocurrency payments, but a third party is purportedly in possession of the user data.

Decentralized Blockchain metaverse – Web3 types of metaverse

Blockchain metaverses that are decentralised are exceptional in that they encourage a community dynamic in which the power dynamic is reversed. Because of the horizontal governance structure of decentralised platforms, the concept of wealth redistribution makes more sense. The user has the option to take back control of information that is rightfully his or his data to begin with. Decentralized metaverses also enable rewards for users in the form of products or virtual currency.

USE CASES OF METAVERSE

Here are a few examples of how this new digital space has been put to use.

1. Experiential media -

The expansion of the metaverse is expected to be driven by younger consumers, who are very interested in the entertainment available there.

Younger consumers, who are particularly interested in the entertainment offered there, are predicted to be the ones that fuel the expansion of the metaverse.

2. Business operations-

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Businesses from all sectors currently utilise augmented reality to streamline operations. According to Srinivasan, a fully developed metaverse would promote a more collaborative atmosphere where data will be pervasive and always present.

3. Improved education and training -

The pandemic and the resulting restrictions on in-person gatherings forced educational institutions to adopt e-learning platforms and other digital means of communication. Businesses can also benefit from online learning possibilities.

The metaverse could be used by businesses in a variety of sectors to improve employee training.

4. Enhanced customer experiences -

Metaverse have the ability to change when, how and where businesses communicate with their customers since stretched realism platforms permit organisations to create new experiences and deliver information in inventive ways. Companies may also offer other shopping opportunities to prospective clients. Srinivasan suggested, for instance, that automakers conduct test drives in a setting that replicates extended reality.

5. Work meetings

During the COVID-19 pandemic, a lot of employees switched from in-person meetings to remote working and Zoom meetings. Such comfort is being exploited as a stepping stone to the upcoming iteration of "virtual meetings" by tech companies like Microsoft and Meta that are focused on the development of the metaverse.

6. At the cinema -

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Cinemas no longer have the exclusive use of large screens and excellent sound during the initial release window of new entertainment. The pandemic-fuelled streaming wars have moved a growing portion of this opportunity into our homes, leaving us to wonder what the future holds for movie theatres. What immersive entertainment can do for us is already evident.

7. At college -

Universities and colleges may lead the way in utilising more intensive kinds of education. A development where the classroom can be used both physically and virtually is quite appealing. Hybrid teachers have the option of teaching in person or virtually. Practical training sessions using simulated equipment are economical and appropriate for industries with quick product cycles.

BENEFITS

Users can access a variety of real-world capabilities in the 3-D immersive world of Metaverse. The following are the main advantages that Metaverse offers us.

Addressing remote work challenges

All of the current issues with remote work may be solved with metaverse. It gives managers access to a virtual setting where they may interact with employees (as represented by their avatars), read their body language, and simulate in-person interactions. By managing the staff inside a virtual office, the company may also stop issues like time theft and goldbrick inside the office.

Great tool for healthcare professionals

Healthcare providers and medical workers who were previously unable to visit patients due to regional restrictions would benefit greatly from metaverse. It can cooperate with patient and gain a thorough understanding of their health state in the Metaverse, a virtual environment.

Making online games more exciting

The majority of Metaverse games available today are decentralised and offer play-to-earn gaming with an integrated economic mechanism. In-game assets in the form of NFTs are available for users to buy, sell, and trade in these games

Providing the experience of virtual tours

Although travelling might be adventurous, not everyone can go to the places they want to go. The Metaverse fills this gap by enabling people to travel virtually to locations they are unable to travel too physically. An advanced virtual environment that delivers a first-person experience is being created using the combined capabilities of the Metaverse, AR, and VR.

CONCLUSION

Metaverse is a growing revolution for decentralized based data sharing over a huge system with untrusted associates all around the world. It creating impact on todays generations with lots of upgrade technology. It authorizes new types of distributed programming projects. In spite of the circumstance that the revolution was fundamentally comprised in computerized money in preliminary days, yet it is an auspicious innovation for diverse zones as well.

In this study, we considered the recent surge in Metaverse attention as a substitute to traditional centralized structures, and considered the developing applications thereof. In specific. we assessed the key methods required for Metaverse application, offering a reader to director research practitioners. We considered the extent of applications to which Metaverse has been functional, broadly associating Experimental media, Business operation, Improved education, Enhanced customer experience, At Meetings, Cinemas and College along with many other developing applications. Finally, we measured the various tasks to Metaverse application for extensive practical us.

REFERENCES:

[1] A Comprehensive Study on Metaverse and Its Impacts on Humans - Ajay Sudhir Bale, Naveen Ghorpade, Jatin Vaishnav, Hindawi Advances in Human-Computer Interaction Volume 2022, Article ID 3247060, 11 pages https://doi.org/10.1155/2022/3247060

[2] Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy - Yogesh K. Dwivedi, Laurie Hughes, Samuel Ribeiro-Navarrete, International Journal of Information Management, Volume 66, 2022, 102542, ISSN 0268-4012,

https://doi.org/10.1016/j.ijinfomgt.2022.102542 or https://www.sciencedirect.com/science/article/pii/S0268401222000767

[3] All One Needs to Know about Metaverse: A Complete Survey on Technological Singularity, Virtual Ecosystem, and Research Agenda - Tristan Braud, Pengyuan Zhou, and Lik-Hang Lee, 2021, DOI:10.13140/RG.2.2.11200.05124/8, License CC BY-NC-SA 4.0, The Planet-scale Metaverse, https://researchgate.net

[4] Advances in Metaverse Investigation: Streams of Research and Future Agenda - Mariapina Trunfio and Simona Rossi, MDPI Virtual Worlds 2022, 103-129, https://doi.org/10.3390/virtualworlds1020007

[5] Analysis of the Future Prospects for the Metaverse - Jie Huang, Pingjin Sun and Weijie Zhang, Advances in Economics, Business and Management Research volume 648, Proceedings of the 2022 7th International Conference on Financial Innovation and Economic Development (ICCFIED 2022)

[6] Research on Metaverse: Concept, development and standard system - Dianwei Wang, Xiaoge Yan and Yang Zhou, 2021, 2nd International Conference on Electronics, Communications and Information Technology (CECIT), Sanya, China, 2021, pp. 983-991, doi: 10.1109/CECIT53797.2021.00176

[7] An Introduction to Learning the Metaverse – Daniel Pimentel, Kai Frazier, Sergio Rosas, April 2022, Meridian Tree House, https://scholar.harvard.edu

[8] A Study on Metaverse and its Impact on Humans – Shashwat Umesh Singh, Ujjawal Kumar and Shubham Pandey, Metaverse research paper

[9] Metaverse: Future of the Internet – U.V. Ramesh, A. Harini and P. Druvitha, International Journal of Research Publication and Reviews, Journal homepage: www.ijrpr.com ISSN 2582-7421

[10] Metaverse – Virtual World, Real Challenges – Art Analysis and Research Team, 9th March 2022, https://consilium.europa.eu.

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BRAIN TUMOR DETECTION USING AI

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ABSTRACT:

Medical images are one of the most important resources used by doctors to diagnose brain tumors. A brain tumor, as we know, is caused by a cancerous or non-cancerous mass or growth of abnormal cells in the brain. Tumors can begin in the brain, or cancer from another part of the body can spread to the brain. Medical resonance imaging combined with artificial intelligence is now emerging as one of the best choices for diagnosing tumours as part of the treatment process. In this research paper, we present a machine learning approach to detecting whether an MRI image contains a brain tumour. This brain tumour detection application using AI involves various techniques in artificial intelligence to develop systems that can accurately detect the presence of brain tumours in medical images. The model is deployed in Android Studio for mobile users so that the maximum number of users can engage with the application with easy access. The results show that such an approach is very promising and lifesaving. What could be better than a modern scientific discovery that helps save lives?

Keywords: *: Diagnose, Tumor, Abnormal, Resonance, Artificial Intelligence, Android Studio*

INTRODUCTION:

Brain Tumor is one of the deadliest diseases due to its severe effects on the health of a person. It begins in and around the pituitary gland, in some patients it is also observed that cancer caused in other parts of the body spreads to the brain. The tumor caused in the pituitary gland is benign meaning non – cancerous collection of cells which spreads slowly and doesn't spread to other parts of the body while cancer spreading from other parts of the body to brain is malignant meaning cancerous which is dangerous to the patient. Brain Tumor has high mortality rate in all the age groups has also been a concern for many researchers. It has been observed that there is 75% survival rate

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of 5 years for people younger than 15 years of age, 72% survival rate of 5 years for age group 15 to 39 and 21% survival rate of 5 years for people more than 40 years of age.

Brain tumor detection using machine learning is a field of medical research that involves the development of algorithms and models to automatically detect the presence of brain tumors in medical images, such as magnetic resonance imaging (MRI) scans. Machine learning is a type of artificial intelligence that allows computer systems to learn and improve from experience without being explicitly programmed.

In the context of brain tumor detection, machine learning algorithms are trained on large datasets of MRI scans to recognize patterns that are indicative of the presence of a brain tumor. These algorithms can then be used to analyze new MRI scans and automatically identify the presence of a brain tumor with high accuracy.

There are various machine learning techniques used for brain tumor detection, such as artificial neural networks, support vector machines, and decision trees. The development of accurate and efficient machine learning models for brain tumor detection has the potential to greatly improve the accuracy and speed of diagnosis, leading to better patient outcomes and potentially saving lives
Has anyone ever thought that such an important and time-consuming task which takes an average of three visits to the GP (General Medical Practitioner) will be possible under three minutes?

A recent study which was mentioned in the blog by the NATIONAL CANCER INSTITUTE namely "Artificial Intelligence Expedites Brain Tumor Diagnosis during Surgery" shows that a combination of Advanced Imaging Technology and Artificial Intelligence can accurately predict tumor cells in the brain in less than three minutes.

So, me and my partner are very excited to propose you such advance implementation of detecting tumor cells. There are several prebuild models for this problem but a very few android applications which can do the prediction. Our research paper includes the study of CNN (Convolutional Neural Network) model which is used to build this project with a decent amount of accuracy score further deployed in Android Studio.

1. Brain Tumor Detection Model

In this project I present you CNN (Convolution Neural Network) Model which is the most fundamental and pioneer models used for the detection of Tumor, keeping the model simple. The main reasons behind choosing CNN are –

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1. It automatically picks up the important features on its own without any human intervention. If given a dataset of cats and dogs it learns the distinctive features of each class by itself.
2. Its built-in convolutional layer helps to reduce the dimensionality of images with losing any information.
3. It provides high accuracy models when trained on large datasets as compared to other algorithms, which makes it a better fit for real-world problems and can be reliable.

METHODOLOGY:

There are several sources of data for this project. But what better than a previously collected data for this purpose which makes further research process more effective keeping things easier. This data was from GitHub. The data in hand came under the required pre-processing needed for the detection and it contains ample number of images necessary for the prediction for a high accuracy score.

Traditional methods for tumor detection prove to be time consuming delaying the treatment of the patient, which can be risky if the patient is in the 2nd or last stage of tumour or even in the beginning stage. So, to tackle such problem, this proves to be a life-saving method with the help of Artificial Intelligence using deep learning model if adopted for early tumour detection in the brain, providing time for further treatment of the patient. There are several machine learning and deep learning algorithms that can be used for the prediction.

These methods include algorithms such as k-Nearest Neural, Support Vector Machines (SVM), and Generalized Regression Neural Networks (GRNN). All these pre-mentioned algorithms have their own advantages which are as follows –

[1] KNN is simple to execute, the model training of this algorithm is done quickly. This method performs better when there are lots of class labels.

[2] SVM with kernel function is used because it can the complexities of any type of dataset when compared to other algorithms. Over-fitting is less observed and a few changes in the data has no effect on the hyperplane

[3] GRNN learns in a single single-pass, hence no back propagation. It is flexible and the model can be trained with less amount of data, easily developed and trained.

The working our model is very simple, it learns spatial features from the input images using convolutional layers, which combines these features into high-level features using a fully connected layer and performs binary classification using a single output unit with a sigmoid activation functions.

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The following is the architecture of the model –

Model Architecture

```
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 62, 62, 32)        896

 activation (Activation)     (None, 62, 62, 32)        0

 max_pooling2d (MaxPooling2D  (None, 31, 31, 32)       0
 )

 conv2d_1 (Conv2D)           (None, 29, 29, 32)        9248

 activation_1 (Activation)   (None, 29, 29, 32)        0

 max_pooling2d_1 (MaxPooling  (None, 14, 14, 32)       0
 2D)

 conv2d_2 (Conv2D)           (None, 12, 12, 64)        18496

 activation_2 (Activation)   (None, 12, 12, 64)        0

 max_pooling2d_2 (MaxPooling  (None, 6, 6, 64)         0
 2D)

 flatten (Flatten)           (None, 2304)              0

 dense (Dense)               (None, 64)                147520

 activation_3 (Activation)   (None, 64)                0

 dropout (Dropout)           (None, 64)                0

 dense_1 (Dense)             (None, 1)                 65

 activation_4 (Activation)   (None, 1)                 0

=================================================================
Total params: 176,225
Trainable params: 176,225
Non-trainable params: 0
_________________________________________________________________
```

Figure 1

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The model shows a good amount of accuracy with minimum loss. The following are accuracy and loss graphs –

Training and Validation Accuracy

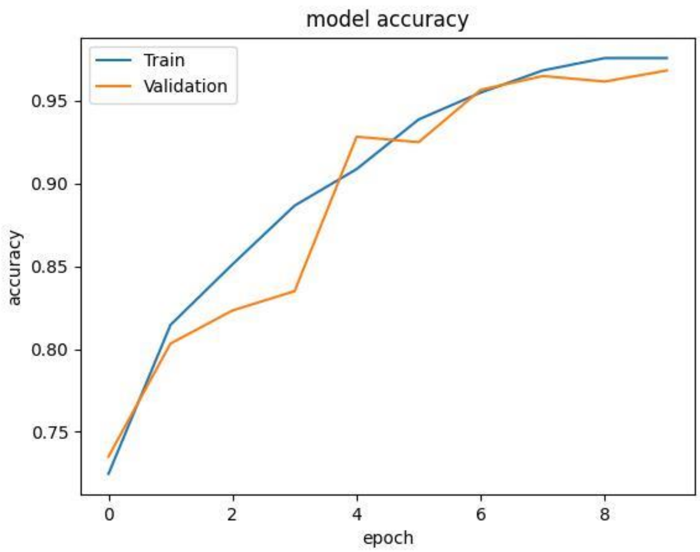

Figure 2

Training and Validation Loss

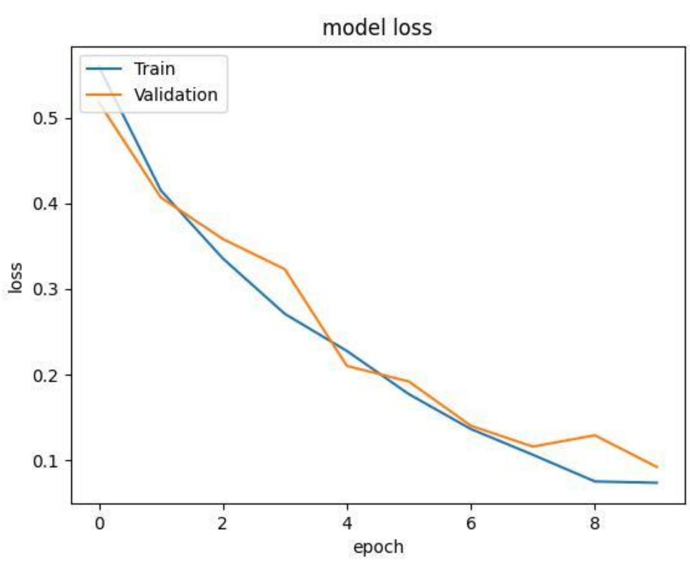

Figure 3

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CONCLUSION

In order to perform the prediction with high accuracy, this specific CNN model requires a relatively high number of images. If trained by good quality images, the model can perform even better. The main objective behind this project is to help doctors and radiologists reduce the time required for diagnosis and increase the chances of the patient's survival.

REFERENCES

[1] Fatma M. Refaat, "Detection and Classification of Brain Tumor Using Machine Learning Algorithms"
[2] Maria Nazir, "Role of deep learning in brain tumor detection and classification"

FACIAL RECOGNITION CLASS MONITORING SYSTEM

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ABSTRACT:

Deep learning is a machine learning and artificial intelligence (AI) technique that imitates how people acquire certain types of knowledge. Deep learning algorithms are built in a hierarchy of increasing complexity and abstraction, unlike typical machine learning algorithms, which are linear.

Face Recognition, one of the most effective image processing applications, is crucial in the technical world. The identification of the human face is a current problem for verification purposes, particularly in the context of student attendance. The process of identifying students using face biostatistics based on high-definition monitoring and other computer technologies is called a face recognition attendance system. The creation of this system aims to digitally replace the outdated method of taking attendance by calling names and keeping handwritten records. The methods now used to take attendance are cumbersome and time-consuming. Manual recording makes it simple to alter attendance data. Both the current biometric methods and the conventional method of keeping attendance are susceptible to proxies.

Attendance reports will be generated and maintained in excel format following face recognition. The system is tested under a variety of circumstances, including lighting, head movements, and changes in the pupil's distance from the cameras. The total complexity and accuracy are determined after rigorous testing. The proposed system was demonstrated to be a reliable and effective tool for taking attendance in a classroom without taking up any time or requiring manual labour. The technology created is affordable and requires little installation.

Keywords: *Face Recognition, AI, Deep Learning, Algorithms*

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OBJECTIVES:

Our aim is to build up a face recognition system where a human will stand in front of the system and a camera will match the face along with its database. There will no need for people to carry extra RFID card anymore and this system will be the most authentic system of taking attendance.

The goal of this system is to develop a facial recognition system that can be imitated and eventually surpass human ability. The faces of people are the major emphasis of this method. If we are previously familiar with a face, we can usually instantaneously recognise it when we see it. If at all possible, this power can be explained and put to practical use. Many facial recognition algorithms already exist.

The neural network and its feasible applications in the field of research. The complications of a facial features that take place over time. So, the idea of emulate this skill is that human beings can be very rewarding.

INTRODUCTION:

Face recognition technology was once thought to be science fiction. Face recognition, however, has not only become a reality in recent years, but has also spread over the world.

Deep Learning is one of the interesting domains that enables the machine to train itself by providing some datasets as input and provide an appropriate output during testing by applying different learning algorithms. Nowadays Attendance is taken into account as a vital factor for both the student as well as the teacher of an educational organization.

With the advancement of deep learning technology, the machine now automatically tracks student attendance performance and keeps a record of the information gathered. We aim to give teachers and students a useful attendance system. By integrating facial recognition technology, an automated and trustworthy attendance system may replace manual processes.

METHODOLOGY:

Data Collection: The gathering of a picture collection is the initial step in the development of a facial recognition system. Individuals can be photographed for this purpose, or existing image collections can be used. It's critical to make sure that the dataset accurately depicts the population on whom the system will be employed.

Pre-processing: The dataset must be pre-processed after it is gathered in order to remove any noise or artefacts that can reduce the facial recognition system's accuracy. The photos may need to be resized, cropped, or normalised to do this.

Feature Extraction: Extraction of facial features from each image in the dataset is the following phase. Many techniques, including Scale-Invariant Feature Transform and Local Binary Patterns (LBP), can be used to accomplish this (SIFT). The objective is to find a set of facial characteristics that are specific to each person's

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face and may be used to identify them.

Training: The facial recognition system needs to be taught using a machine learning algorithm after the features are extracted. In order to reduce the error rate, this entails putting the characteristics into a classifier, such as a support vector machine (SVM) or neural network, and modifying the algorithm's weights.

Testing: After the features are extracted, the facial recognition system needs to be trained using a machine learning algorithm. In order to reduce the error rate, this entails putting the characteristics into a classifier, such as a support vector machine (SVM) or neural network, and modifying the algorithm's weights.

Deployment: If the system is found to be accurate and effective, it can be deployed in a real-world scenario. However, it's important to consider the ethical implications of using facial recognition technology and to ensure that appropriate safeguards are in place to protect individuals' privacy.

REVIEW OF LITERATURE:

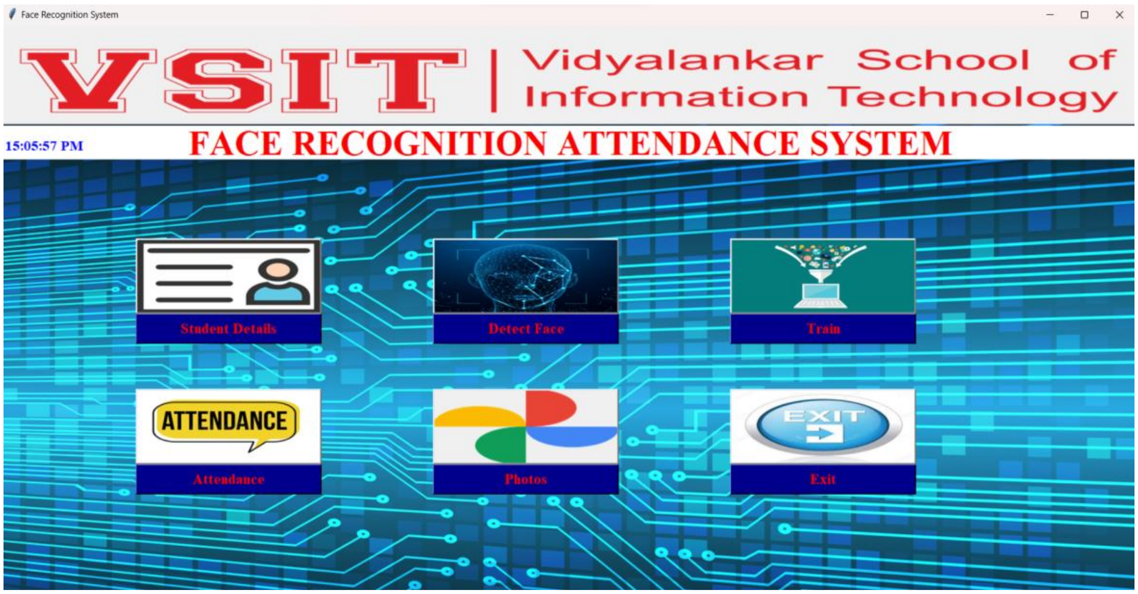
The research challenge of Facial recognition is significant and crosses many fields and disciplines. This is due to the fact that facial recognition, in addition to having many real-world uses like bankcard identification, access control, searching mug pictures, security monitoring, and surveillance systems, is a basic human behaviour that is necessary for successful interpersonal relationships.

The author suggested assembling face profiles as curves, determining their average, and then categorising additional profiles according to how far they deviated from the average. This classification produces a vector of independent measures that can be compared to other vectors in a database since it is multi-modal.

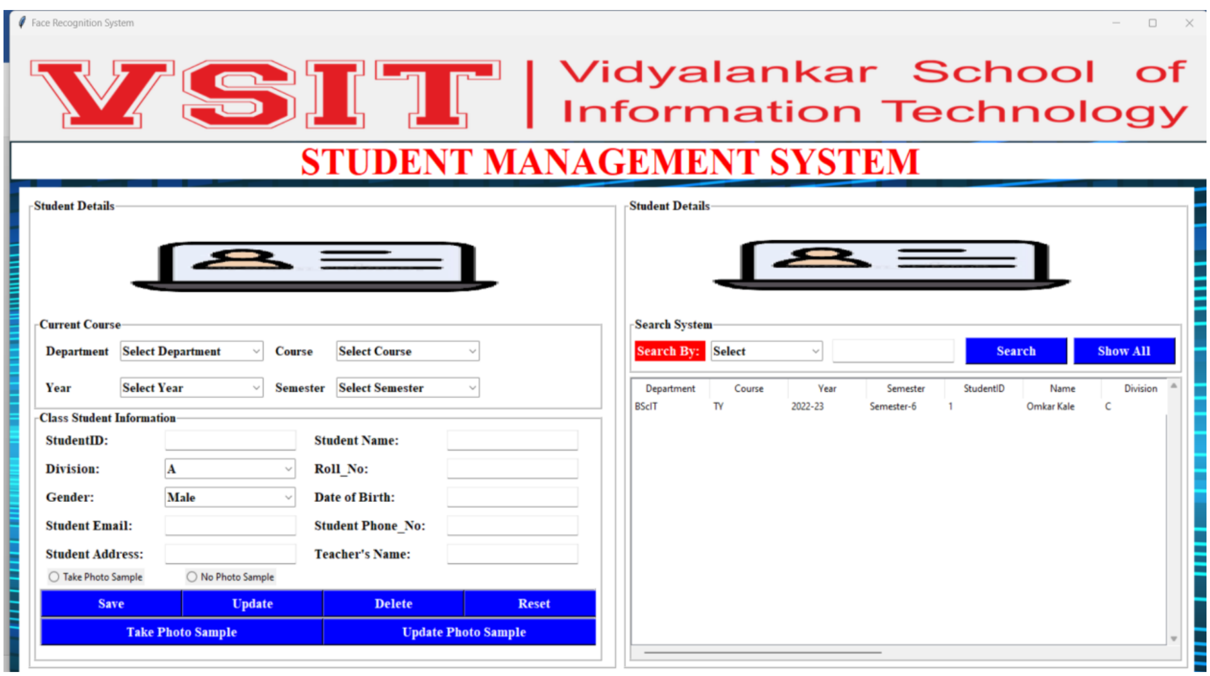
Face recognition technology has improved to the point where it is already being tested in actual environments. Face recognition has advanced quickly as a result of a number of variables, including active algorithm research, the availability of vast libraries of facial photos, and a mechanism for assessing the effectiveness of face recognition algorithms. Given static (still) or video photos of a scenario, identify or verify one or more people in the scene by matching with faces contained in a database, according to the literature.

Facial recognition is a biometric technique that uses automated ways to confirm or identify a living person's identity based on his or her physiological traits. In general, a biometric identification system uses a person's handwriting, voice, or keystroke pattern in addition to physiological traits like a fingerprint, iris pattern, or face to identify them. Some people are hesitant to utilise eye identification devices due to the innate need to protect one's eyes. The advantage of face recognition is that it is a passive, unobtrusive method of verifying a person's identity in a "natural" and courteous approach.

Face Recognition Attendance System (fig. 4.1)



The Home Page of the Project (fig.4.2)



Student Details: Student supposed to enter details here.

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CONCLUSION:

In conclusion, face recognition systems have become increasingly prevalent in modern society and have a wide range of applications. These systems use sophisticated algorithms and machine learning techniques to analyze images and identify individuals based on their facial features.

While face recognition systems have the potential to provide many benefits, including improved security, enhanced convenience, and more efficient processes, there are also concerns about privacy, accuracy, and bias.

Privacy concerns arise because face recognition systems can potentially be used to track individuals and monitor their behavior without their knowlfaicaedge or consent. Accuracy issues can arise due to factors such as variations in lighting, facial expressions, and aging. Bias can also be a problem, as face recognition systems may be less accurate when identifying individuals with certain skin tones or facial features.

REFERENCES:

1. Li, S. Z. (2011). Handbook of face recognition. Springer.
2. Jain, A. K., Ross, A., & Nandakumar, K. (2016). Introduction to biometrics. Springer.
3. Zhao, W., Chellappa, R., Phillips, P. J., & Rosenfeld, A. (2003). Face recognition: A literature survey. ACM Computing Surveys (CSUR), 35(4), 399-458.
4. Klare, B. F., Jain, A. K., & Jain, A. (2015). Face recognition: Some challenges in forensics. In Handbook of facial recognition (pp. 341-362). Springer.
5. https://docs.opencv.org/4.x/da/d60/tutorial_face_main.html
6. https://www.digitalocean.com/community/tutorials/how-to-perform-face-detection-with-python-using-opencv
7. https://realpython.com/face-recognition-with-python/
8. https://www.datacamp.com/tutorial/face-recognition-python

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A SYSTEMATIC ANALYSIS BASED ON BLOCKCHAIN WITH CYBERSECURITY

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ABSTRACT:

Since Satoshi Nakamoto's white paper on Bitcoin was released in 2008, blockchain has (slowly) grown in popularity as one of the most frequently mentioned strategies for securing data storage and transmission through decentralized, trustless, peer-to-peer systems. This study identifies academic research that aims to use blockchain for cyber security reasons and provides a systematic analysis of the most widely used blockchain security applications. Our research demonstrates that the Internet of Things (IoT), networks and machine visualisation, public-key cryptography, web apps, certification schemes, and the safe storage of Personally Identifiable Information all lend themselves well to novel blockchain applications (PII).

Keywords: *Blockchain, Cybersecurity, Data security, Cyberattacks, IoT, AI.*

INTRODUCTION:

Blockchain technology allows for trusted interactions between erroneous network members as it functions as a distributed ledger with cryptographic foundations. Numerous blockchain systems with public and private accessibility have appeared since the first Bitcoin blockchain was introduced in 2008, including Ethereum and Hyperledger Fabric, which are independent of the current fiat currencies and electronic payment systems. Blockchain technology has also recently been the focus of a growing number of its distinct trust and security characteristics, scientific studies have generated a great deal of interest among researchers, developers, and industry practitioners.

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There is no denying that blockchain technology is becoming more ubiquitous. It has had a long-lasting influence on the world in addition to merely becoming well-known. For instance, it has been used professionally, affected global currency markets, and aided the growth of illegal dark web marketplaces. It has also had a significant impact on the rise of financially motivated cyberattacks against online merchants and other businesses, such as ransomware and denial of service attacks. Due to the special characteristics of the blockchain technology, its use is appealing in many industries, including banking, logistics, the pharmaceutical sector, smart contracts, and most crucially, cyber security, for the purposes of this paper.

The blockchain may allow a new breed of decentralized apps without intermediaries and serve as the basis for crucial components of Internet security infrastructures, which is a trend that goes beyond cryptocurrency payments. To address how emerging technologies can provide solutions to mitigate emerging threats, it is crucial to identify the existing research specifically related to the application of blockchain to the issue of cyber security. It is necessary to methodically map out pertinent papers and scholarly works to determine what research has already been done in relation to blockchain and cyber security. This paper aims to focus on the literature that already exists regarding how blockchain is used for the support of cybersecurity applications, including business-related areas of privacy, security, integrity, and accountability of data, as well as its use in networked devices, like the Internet of Things (IoT).

RESEARCH GOALS:

The goal of this study is to evaluate previously conducted research, summarize its conclusions, and focus on blockchain applications for cyber security. We created three research questions to sharpen the task.

1. RQ1: What are the most recent blockchain uses with a security focus?
2. RQ2: How does blockchain technology enhance online safety?
3. RQ3: Which security management techniques are available for blockchain solutions without needing a cryptocurrency token?

Following was the discussion based on the questions:

- Blockchain's use cases have expanded beyond just cryptocurrencies. Understanding the complete impact of blockchain technology on cyber security will be aided by a review of the most recent use cases.
- The security of devices, networks, and individuals can be improved with the help of blockchain features. This will help people comprehend how to integrate blockchain technology into secure digital infrastructure.
- Blockchains for cryptocurrencies are frequently kept using a Proof-of-Work (PoW) system, which allows miners to demonstrate to the rest of the network that they have expended considerable effort to support transaction

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validation. This inquiry will examine a study on how a blockchain can be kept up to date without the need to reward miners for transaction validation.

RESEARCH METHODOLOGY:

We carried out the SLR to respond to the study questions. To enable a comprehensive assessment of the SLR, we attempted to progress through the planning, conducting, and reporting phases of the review in iterations.

CHOICE OF SOURCE RESEARCH: -

Passing keywords to a specific publication's or search engine's search function highlighted primary studies. The keywords were chosen to encourage the development of study findings that would aid in addressing the study's concerns. Only AND / OR were allowed as Boolean operators. The query terms were: The following systems were checked:

Digital Archive of IEEE, Science Direct, Springer Link, Use Google Scholar and Research gate

Studies for this SLR must present empirical results and may include case study papers, new technical block chain applications, and commentaries on how integrating block chain technology will advance current security measures.

DATA EXTRACTION: -

Data was then extracted from all papers that cleared the quality assessment to evaluate the completeness of the data and verify the accuracy of the information recorded within it. Before being applied to the complete set of studies that have successfully completed the quality assessment phase, the data extraction procedure was first tested on a sample of five studies. Each study's data was taken out, put into categories, and then entered a worksheet. The following classifications were applied to the data:

Information about the study's objectives serves as context material.

Qualitative data: The writers' findings and judgements.

Quantitative data: Information obtained through experimentation and investigation that is used in the study.

DATA ANALYSIS: -

We gathered the information in the qualitative and quantitative data categories to respond to the study questions. We also performed a meta-analysis on the articles that were subjected to the last step of data extraction.

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FINDINGS:

The pertinent qualitative and quantitative information from each original research paper was extracted and summarized after being read. Each of the main studies had a theme or focus related to how blockchain was addressing a specific issue. Additionally, each paper's emphasis is noted. To enable a more straightforward categorization of the themes of the main studies, the focus of each article was further divided into broader categories. The network category was used to group studies that focused on virtual machines, networking, and virtual network administration. Data storage and sharing studies were categorized with an emphasis on peer-to-peer sharing, encrypted data storage, and searching.

Figure below shows the percentages of different themes of the 30 primary studies, which had made them pass the quality assessment to be included in the data analysis. The themes identified in the primary studies highlight that almost half (45%) of all studies on cyber security applications of blockchain are concerned with the security of IoT devices. Data storage and sharing is the second most popular theme, with a percentage of 16%. The studies include blockchain applications for searching encrypted cloud-based data and for preventing the tampering of file names and data contained within. Networks are the third most common theme, accounting for 10%, and are mostly concerned with how blockchain can provide security and authenticity to virtual machines and containers. Data privacy and public key infrastructure are the fourth most common theme, each with a proportion at 7%. The blockchain applications allow for end users to authenticate in some way with another entity or service so that they do not need to rely on a vulnerable central server of information. The fifth most common theme is about Domain Name Systems (DNSs) and how blockchain can effectively host DNS records in a distributed environment to prevent malicious changes and denial of service attacks. The last common themes on our list are related to Wi-Fi, web and malware, each accounting for 3%.

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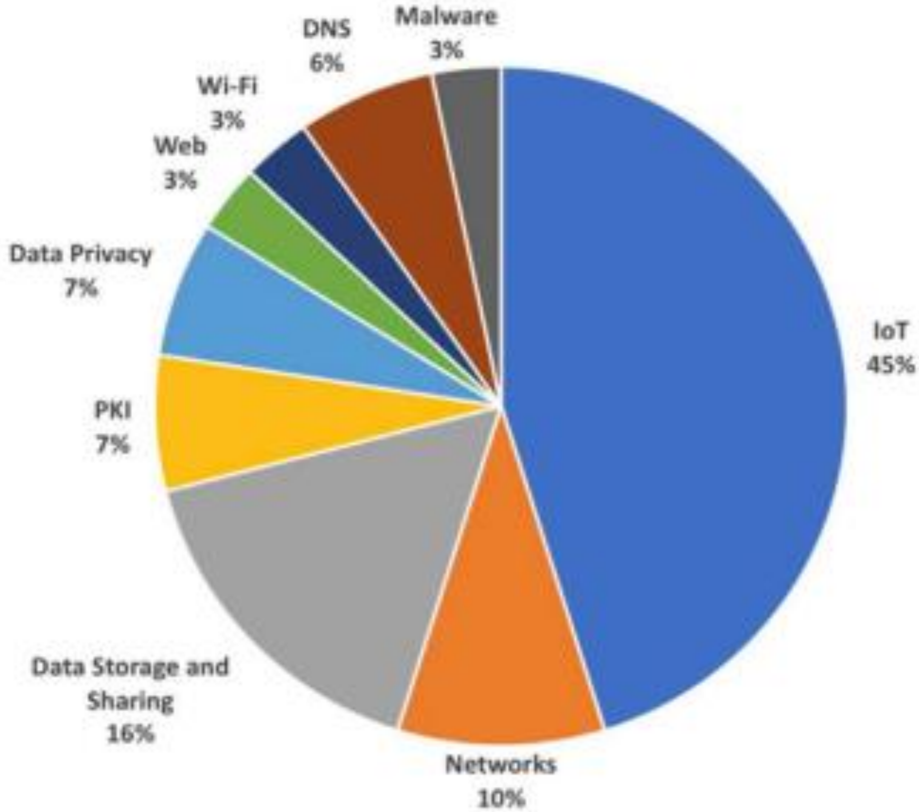
(Fig. 3.1)



8. DISCUSSION:

There are a sizable number of papers relating to blockchain, according to early keyword searches. Clearly still in their infancy, blockchain technology and truly distributed decentralized systems have only been created for ten years.

RQ1: -

What are the latest blockchain applications focused on security? It is important to stress that this systematic literature review intends to just focus on cyber security applications of blockchain but no other potential or existing applications such as healthcare and coordination. With that in mind, it should be noted that, during the process of attrition to select the primary studies, the researchers noted that studies regarding finance and healthcare were plentiful. Each of these may have addressed security issues in their own right; however, the selection process concentrated on studies which were focused on security at their cores. The opportunities to improve the security of IoT are clearly abundant when consideration is given to the fact that almost half of all published cyber security blockchain applications concerned IoT. This may be because of the proliferation of IoT in our homes, military and healthcare, and the ever-increasing demand for IoT solutions. Similarly, the demand for solutions to security threats to IoT may be spawned from well-covered media reports of attacks orchestrated through exploiting such devices.

RQ2: -

How does blockchain help with internet security? No one technology, including blockchain, is a panacea for internet security problems. If anything, they merely strengthen current initiatives for secure networks, interactions, and data. Many of the current cyber security solutions use technology that is very similar to that used by blockchain, which uses encryption and hashing to keep immutable records. A single trusted authority is used by the majority of currently implemented security measures to verify information or keep encrypted data. The system becomes susceptible as a result, and numerous malicious players may concentrate their efforts on a single target to launch denial-of-service attacks, introduce malicious code, and extort data through theft or blackmail. Given that genuine blockchains are more secure than the methods used today.

RQ3: -

What alternatives exist for blockchain security management that don't involve a coin token? A large number of main studies concur that token incentivization of miners, like that found in the bitcoin reward, is a tried-and-true and reliable technique for reaching agreement on the longest chain. This indicates that there are alternatives to giving miners money in the form of tokens; tokens have worth in that they give receiver nodes more voting power; and the more a node mines, the more voting power it will have over the chain's future operations.

CONCLUSION AND FUTURE WORK:

This study has uncovered current studies that are accessible on how blockchain solutions can affect cyber security issues. Blockchain is highlighted as a stand-alone technology that offers an enormous variety of potential solutions for finance, logistics, healthcare, and cyber security in the initial keyword searches for this study and in recent media stories. Only internet security has been the subject of this study. There are unquestionably valuable uses for blockchain, but a decentralised, trustless system cannot by itself address every issue that may arise in the area of cyber security. Applications for blockchain in cyber security have developed and strengthened the current initiatives to improve security and prevent malicious players.

REFERENCES:

1. A systematic literature review of blockchain cyber security- Paul J. Taylor, Tooska Dargahi, https://doi.org/10.1016/j.dcan.2019.01.005 Received 19 June 2018; Received in revised form 13 January 2019; Accepted 21 January 2019 Available online 19 February 2019 2352-8648/© 2020 Chongqing University of Posts and Telecommunications. Production and hosting by Elsevier B.V. on behalf of KeAi. This is an open access article
2. Convergence of Blockchain and Cybersecurity - IBM Government Industry Blog
3. V. Buterin, A Next-Generation Smart Contract and Decentralized Application Platform, Etherum, 2014 [Online]. Available: http://buyxpr.com/build/pdfs/Ethe reumWhitePaper.pdf.
4. Blockchain is this year's buzzword - but can it outlive the hype? — Technology — The Guardian
5. H. Watanabe, S. Fujimura, A. Nakadaira, Y. Miyazaki, A. Akutsu, J. Kishigami, Blockchain contract: securing a blockchain applied to smart contracts, in: 2016 IEEE International Conference on Consumer Electronics (ICCE), 2016, p. 467468.
6. Ravi Prakash, V.S. Anoop, S. Asharaf, Blockchain technology for cybersecurity: A text mining literature analysis,International Journal of Information Management Data Insights,Volume2,Issue2,2022,100112,ISSN2667-0968,https://doi.org/10.1016/j.jjimei.2022.100112.(https://www.sciencedirect.com/science/article/pii/S2667096822000556)
7. Yassine, Maleh & Shojafar, Mohammad & Alazab, Mamoun & Romdhani, Imed & KC, Ujjwal. (2020). Blockchain for Cybersecurity and Privacy: Architectures, Challenges, and Applications.

ISBN NO: 978-93-5810-851-4

8. Marina Liu, William Yeoh, Frank Jiang, Kim-Kwang Raymond Choo, "Blockchain for Cybersecurity: Systematic Literature Review and Classification", *Journal of Computer Information Systems*, vol.62, no.6, pp.1182, 2022.
9. Saba Khanum, Khurram Mustafa, "A systematic literature review on sensitive data protection in blockchain applications", *Concurrency and Computation: Practice and Experience*, 2022.
10. Sikandar Ali, Abdullah, Tagne Poupi Theodore Armand, Ali Athar, Ali Hussain, Maisam Ali, Muhammad Yaseen, Moon-Il Joo, Hee-Cheol Kim, "Metaverse in Healthcare Integrated with Explainable AI and Blockchain: Enabling Immersiveness, Ensuring Trust, and Providing Patient Data Security", *Sensors*, vol.23, no.2, pp.565, 2023.

THE EFFECTIVENESS OF DIGITAL EDUCATION ON STUDENT LEARNING: A REVIEW OF RECENT RESEARCH

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ABSTRACT:

In recent years, digital education has become increasingly popular as a means of delivering educational content. This paper reviews the literature on the effectiveness of digital education on student learning. The literature suggests that digital education can be effective in improving student learning outcomes in certain contexts. However, there are also challenges associated with the use of digital education, such as the need for adequate technological infrastructure and training for both students and teachers. The paper concludes with recommendations for future research in this area.

Keywords: *Digital education, student learning, effectiveness, interactive, personalized*

INTRODUCTION:

Digital education refers to the use of digital technologies, such as computers, tablets, and the internet, to deliver educational content. Over the past few decades, the use of digital education has become increasingly popular in schools and universities around the world. The COVID-19 pandemic has accelerated this trend, with many schools and universities transitioning to online learning to accommodate social distancing requirements.

The effectiveness of digital education in improving student learning outcomes has been the subject of much research. This paper reviews recent research on the effectiveness of digital education on student learning outcomes. Specifically, it examines the factors that contribute to the effectiveness of digital education and the challenges associated with its use.

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The literature suggests that several factors contribute to the effectiveness of digital education. First, digital education can be effective when it is used to supplement traditional classroom instruction. For example, digital technologies can be used to provide students with access to a wider range of educational resources, such as online textbooks, videos, and interactive simulations.

Second, digital education can be effective when it is designed to be interactive and engaging. Interactive digital learning materials, such as educational games, quizzes, and simulations, can help students to actively engage with the content and improve their understanding of the material.

Third, digital education can be effective when it is personalized to meet the individual needs of students. Digital technologies can be used to create personalized learning paths that adapt to the student's learning style, pace, and interests. This can help to improve student motivation and engagement, and ultimately lead to improved learning outcomes.

REVIEW OF LITERATURE:

I. Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. US Department of Education. - In this study, Means et al. conducted a meta-analysis of existing research on online learning to evaluate its effectiveness. The authors analyzed over 1,000 empirical studies and found that, on average, students in online learning environments performed better than those in traditional face-to-face courses. The authors also found that blended learning (a combination of online and face-to-face instruction) was more effective than either online or face-to-face instruction alone. However, the authors caution that these findings are not universally true and depend on a variety of factors, including the specific context of the learning environment and the design and implementation of the online course.

II. Kirschner, P. A., & van Merriënboer, J. J. G. (2013). Do learners really know best? Urban legends in education. Educational psychologist, 48(3), 169-183. - In this paper, Kirschner and van Merriënboer argue against the common belief that learners know best and that student-centered approaches to education, such as discovery learning and inquiry-based learning, are always superior to more teacher-directed approaches. The authors review a number of research studies and argue that evidence supports the idea that novice learners benefit from more structured and explicit instruction, while more experienced learners may benefit from more open-ended and student-centered approaches. The authors caution that too much emphasis on learner-centered approaches can result in poor learning outcomes and that instructional design should be based on evidence rather than popular educational trends.

III. Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. Proceedings of the National Academy of Sciences, 111(23), 8410-8415. - In this study, Freeman et al. conducted a meta-analysis of over 200 studies to evaluate the effectiveness of active learning approaches in science, engineering, and mathematics courses. The authors found that students in active learning courses performed better on exams and had higher course grades than those in traditional lecture-based courses. The authors also found that active learning approaches had a greater impact on student performance in STEM courses than in non-STEM courses. The authors conclude that active learning should be used more widely in higher education to improve student outcomes.

IV. Hsu, T. C., Hwang, G. J., & Chang, C. K. (2013). A personalized recommendation-based mobile learning approach to improving the reading performance of English as a foreign language students. Computers & Education, 63, 327-336. - In this study, Hsu et al. developed and evaluated a personalized recommendation-based mobile learning approach to improve the reading performance of English as a foreign language (EFL) students. The authors used a recommender system to provide personalized reading materials to each student based on their reading level and interests. The authors found that the personalized recommendation-based approach led to significant improvements in the reading comprehension and vocabulary knowledge of EFL students compared to a control group that received traditional classroom instruction. The authors conclude that personalized mobile learning approaches have the potential to improve the effectiveness of EFL instruction.

V. Kim, K. J., & Bonk, C. J. (2006). The future of online teaching and learning in higher education: The survey says. Educause quarterly, 29(4), 22-30. - In this paper, Kim and Bonk report the results of a survey of higher education faculty, administrators, and students on the future of online teaching and learning in higher education. The authors found that the majority of respondents believed that online learning will play an increasingly important role in higher education in the future. However, they also found that there are concerns about the quality of online learning and that faculty and students need more support and training to effectively teach and learn in online environments. The authors conclude that online learning has the potential to transform higher education, but that it will require careful planning, investment, and support to realize this potential.

RESEARCH METHDOLOGY:

Purpose of the research: -

The purpose of the research on the effectiveness of digital education on student learning is to investigate the impact of digital technology and educational practices on student learning outcomes. The research aims to identify the potential benefits and challenges of digital education, as well as to provide evidence-based guidance on how to design and implement effective digital learning environments. The ultimate goal is to improve student learning outcomes and enhance educational opportunities for all students. The research may also aim to explore how digital

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education can be used to address educational inequalities and improve access to education for underserved populations.

Objectives of the research: -

- To examine the impact of digital education on student learning outcomes, such as academic achievement, retention, and engagement.
- To identify the benefits and challenges of digital education for different student populations, including those from diverse backgrounds and with different learning styles and abilities.
- To explore the role of digital technology in supporting student-centered and personalized learning approaches.
- To investigate the effectiveness of different digital educational practices, such as online learning platforms, virtual reality simulations, and gamification techniques.
- To identify the factors that contribute to the success or failure of digital education initiatives, such as teacher training, infrastructure support, and student motivation.

Methods of the research: -

- Surveys
- Interviews
- Observation
- Case studies
- Learning analytics
- Focus groups

Rearch design: -

The research design deployed was analytical research design. It is descriptive in nature.

Delimitations of the research: -

The research is conducted from the data collected from various website and the information is till 24th Feb 23.

Limitations of the research: -

The research has physical and economical constraint.

Data analysis methods: -

Data is collected from government sources to generalize the findings and draw conclusions of the research study.

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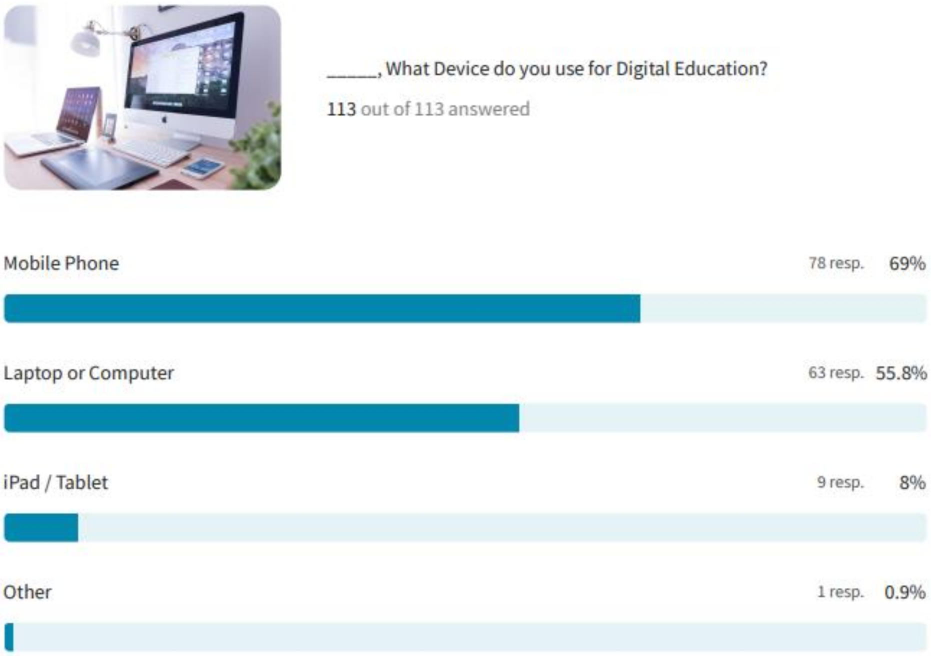
FINDINGS AND ANALYSIS:

There have been 113 responses for the questionnaire.

(Fig. 4.1)



- As it can be observed, majority of respondents, i.e. 55.8% of them use either a laptop or computer as a part of their digital learning process.
- Some of the respondents, i.e. 8% use either a tablet or an iPad in their digital learning because it is easy to carry and more convenient.
- The remaining 69% of the respondents use a mobile phone either because they do not own any other device or because they are travelling somewhere.

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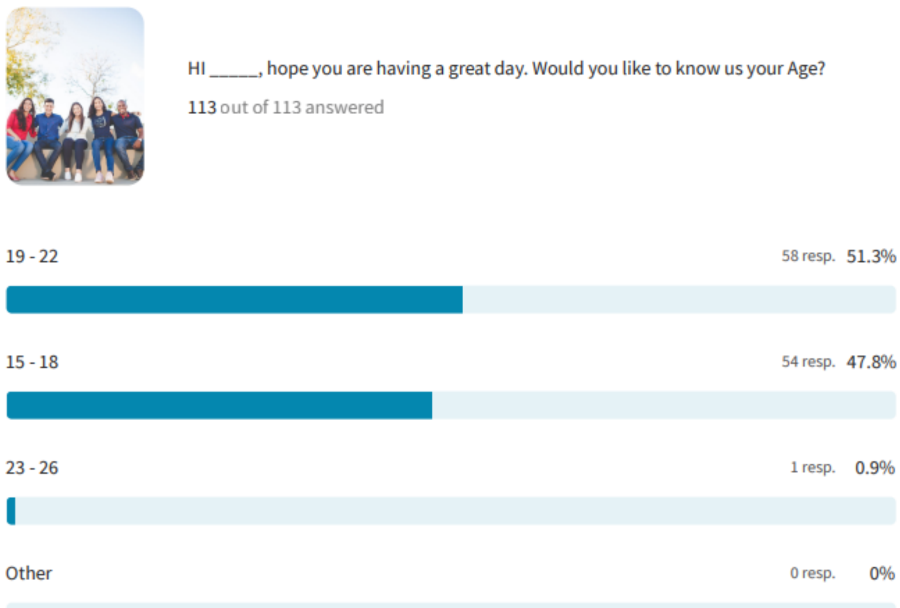
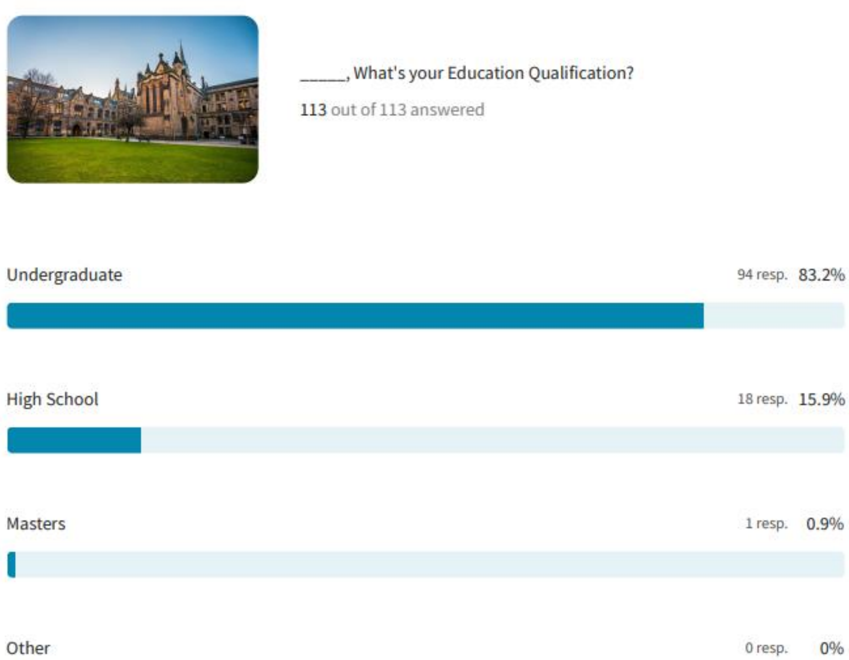
(Fig. 4.2)



- The respondents are from age groups of 15-18, 19-22, & 22-26.
- A total of 51.3% is from the age group of 19-22, 47.8% are from 15-18 age group and the remaining 0.9% of them are from the age group of 23-26

(Fig.4.3)



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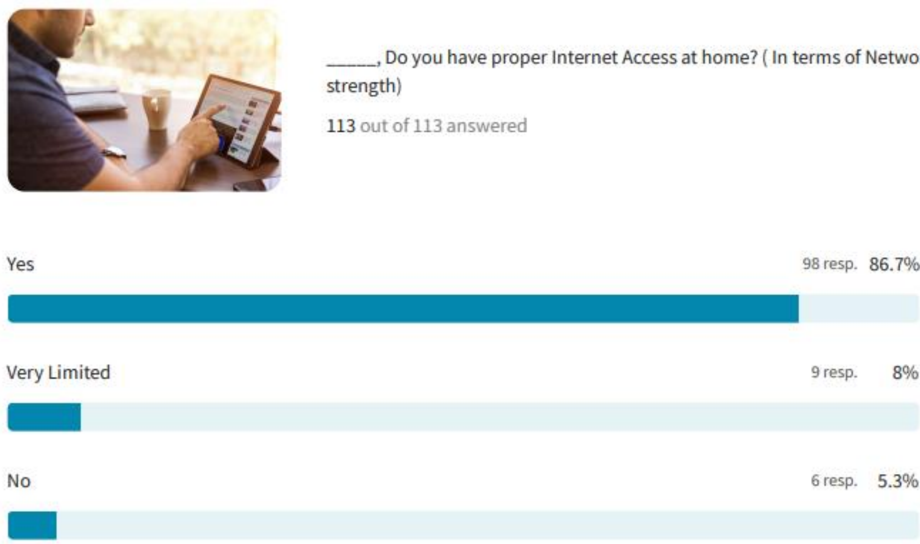
- The given chart depicts that out of 113 responses, 83.2% of the respondents are pursuing their undergraduate degree.
- It can be noted that 15.9% out of those 113 respondents are currently pursuing their High School.
- The remaining 0.9% are currently in their Masters.
- Majority of students who have responded are currently studying in college.

<u>(Fig. 4.4)</u>



- A huge percentage of the respondents (86.7%) have proper internet access at home, in terms of their network strength.
- Only a negligible proportion of respondents (8%) have limited and 5.3% has no internet access.

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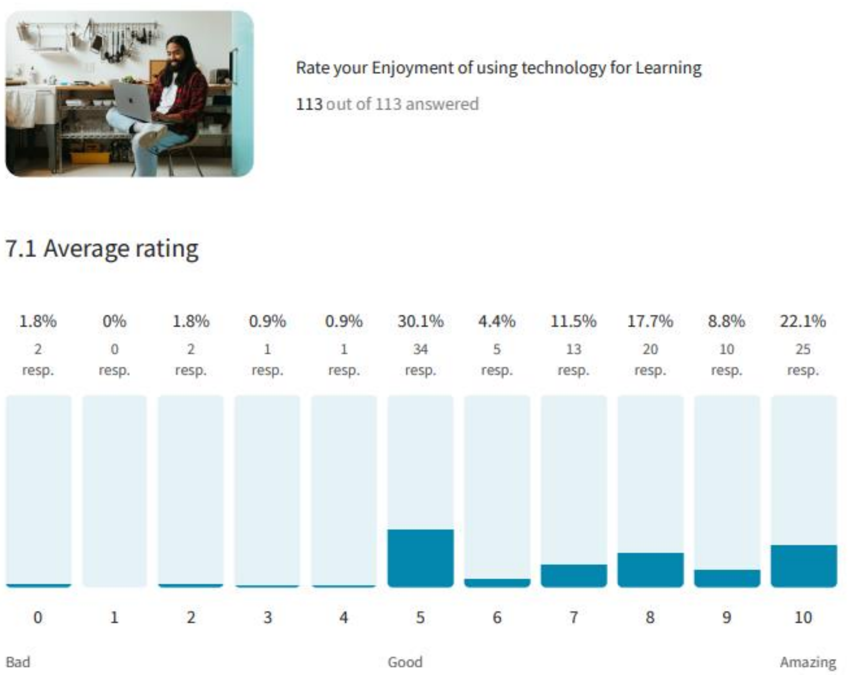
(Fig. 4.5)



- 10 being extremely good, 5 been good and 1/0 being extremely bad.
- 22.1% of the respondents rate their enjoyment of using technology for learning, as 10.
- 8.8% of the respondents rate their enjoyment of using technology for learning, as 9.
- 17.7% of the respondents rate their enjoyment of using technology for learning, as 8.
- 11.5% of the respondents rate their enjoyment of using technology for learning, as 7.
- 4.4% of the respondents rate their enjoyment of using technology for learning, as 6.
- 1/0 being highly negative and 10 being highly positive,
- 16.8% of the respondents have a positive attitude towards technology for learning and have rated it 10.
- 20.4% of the respondents have rated their attitude towards technological learning as 5.
- 0.9% of the respondents have rated their attitude towards technological learning as 0/1.
- Overall it can be observed that majority of the respondents have a positive attitude towards technological learning.

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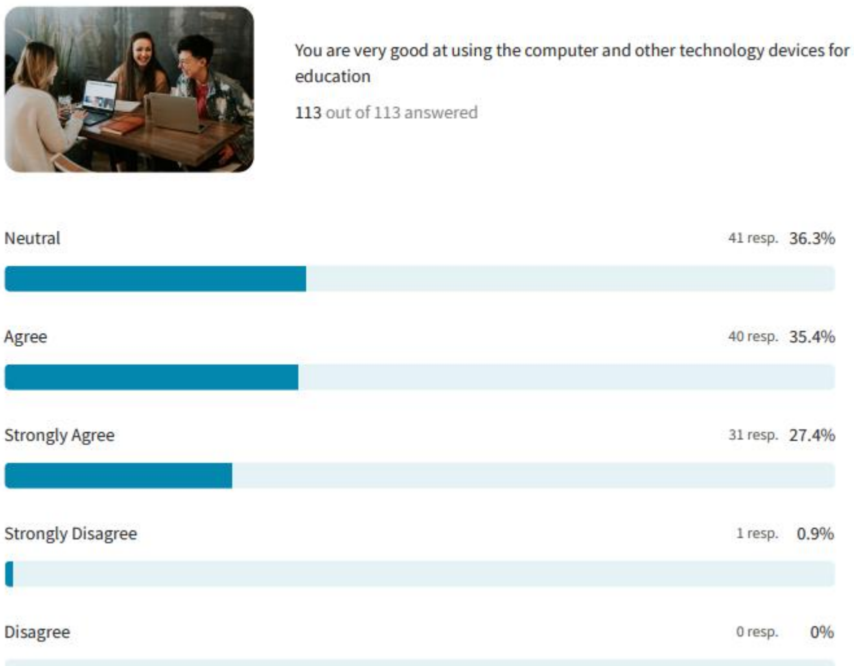
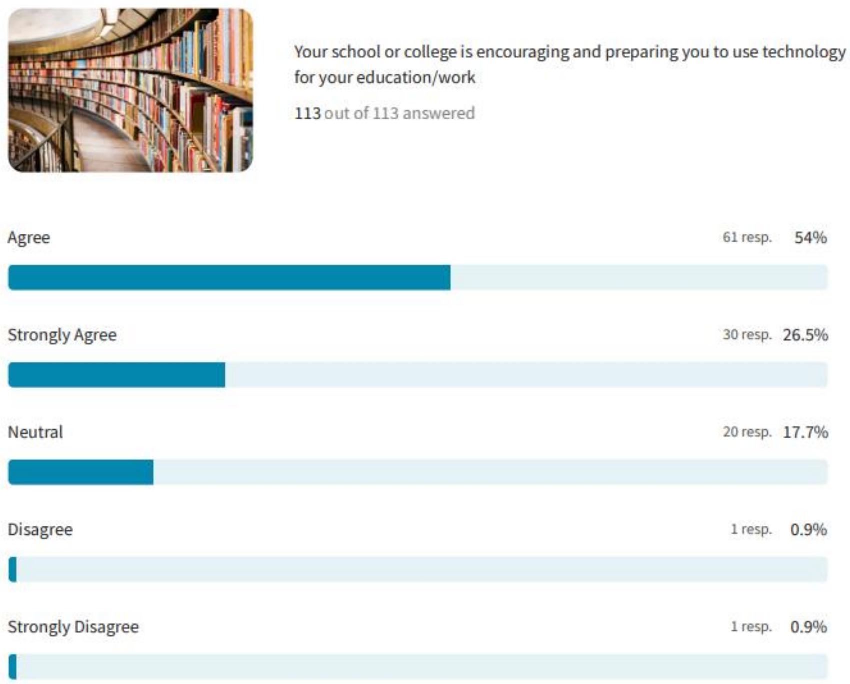
(Fig. 4.6)



- 35.4% of the respondents agree that they are good at using technological devices for education.
- 27.4% of the respondents strongly agree that they are extremely good at using technology in the field of education.
- 36.3% of the respondents are neutral at this aspect.
- Only about 0.9% of the remaining respondents do not agree on the statement that they are good at using technology in education.
- It is good to know that nobody disagrees on this aspect.

(Fig. 4.7)



- 54% of the total respondents agree on the fact that their school or college is encouraging and preparing them to use technology for their education and work purpose.
- 26.5% respondents strongly agree on the fact that their school or college is encouraging and preparing them to use technology for their education and work purpose.
- 17.7% of the respondents have a neutral perspective on this aspect.
- Only a negligible proportion of the respondents feel that their school or college is not encouraging and preparing them to use technology for their education and work purpose.

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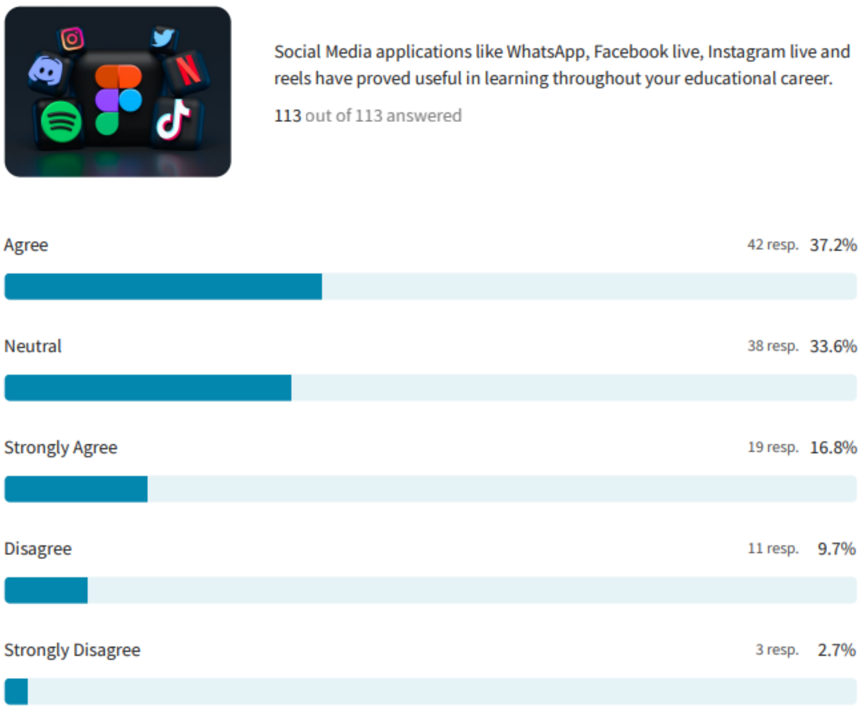
(Fig. 4.8)



- 37.2% respondents agree on the fact that social media applications like whatsapp, facebook live, Instagram live and reels have proved useful in learning throughout their educational career.
- 16.8% respondents strongly agree on the fact that social media applications like whatsapp, facebook live, Instagram live and reels have proved useful in learning throughout their educational career.
- 33.6% respondents are neutral in this respect.
- 9.7% respondents disagree on the fact that social media applications like whatsapp, facebook live, Instagram live and reels have proved useful in learning throughout their educational career. This might be because they must have other techniques which might have helped them and not distracted in their educational learning.
- 2.7% respondents are Strongly disagree in this respect.

CONCLUSION:

In conclusion, digital education has become increasingly popular and widespread in recent years, especially in the wake of the COVID-19 pandemic. As such, there is a growing need to evaluate the effectiveness of digital education on student learning. The literature review highlighted several studies that have examined the effectiveness of digital education on student learning, indicating both benefits and limitations of digital education.

To address the research question of this study, appropriate methods of data collection, research design, and data analysis will be crucial in generating accurate and reliable results. The study's objectives, delimitations, and limitations will also need to be considered when interpreting the findings. Ultimately, the results of this study could inform educators, policymakers, and other stakeholders in improving digital education to enhance student learning outcomes.

SUGGESTIONS:

Based on the literature review and the research question, here are some suggestions for future research.

- Investigate the effectiveness of specific digital education technologies or tools on student learning outcomes, such as learning management systems, virtual reality, or gamification.
- Compare the effectiveness of digital education to traditional classroom education in various contexts, such as different grade levels or subject areas.
- Examine the impact of digital education on student motivation, engagement, and satisfaction with their learning experience.
- Explore the role of teacher training and support in facilitating effective digital education practices.
- Investigate the potential barriers to successful digital education implementation, such as technological infrastructure, access to devices, or student readiness for online learning.
- Evaluate the impact of digital education on student equity and accessibility, particularly for marginalized or disadvantaged populations.
- Examine the long-term effects of digital education on student learning outcomes and career readiness.
- These suggestions can help build upon the existing literature and expand our understanding of the effectiveness of digital education on student learning.

WEBLIOGRAPHY:

1. https://digitalpromise.org/wp-content/uploads/2021/02/Improving-Digital-Learning-The-Strategies-That-Work.pdf
2. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning
3. https://doi.org/10.1016/j.chb.2019.07.020
4. https://er.educause.edu/articles/2006/1/the-future-of-online-teaching-and-learning-in-higher-education-the-survey-says
5. https://www.ascd.org/el/articles/blended-learning-can-be-effective-with-careful-planning
6. https://doi.org/10.1016/j.compedu.2012.11.016
7. https://doi.org/10.1007/s10639-020-10323-3
8. https://jolt.merlot.org/vol6no2/shachar_0610.htm

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VIRTUAL VISITS TO INDIAN PILGRIMAGES AND TOURIST PLACES

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ABSTRACT:

Virtual tourism is a new form that allows people to visit and explore different destinations without being physically present. With the rise of technology, virtual tourism has come decreasingly popular and accessible, offering unique gests that would else be insolvable. This paper will explore the concept of virtual tourism, its benefits and downsides, and its implicit impact on tourism assiduity.

1. INTRODUCTION :

Virtual tourism, also known as digital tourism or online tourism, refers to the experience of exploring and interacting with a destination through digital technology. This form of tourism allows trippers

to visit new places without the need for a physical trip, making it a feasible volition for those who are unfit to travel due to fiscal, health, or other reasons. Virtual tourism has gained significant attention in recent times due to the growing availability of technology and the COVID-19 epidemic, which has limited trip openings for numerous individuals worldwide. This exploration paper aims to examine the miracle of virtual tourism, its impact on tourism assiduity, and its implicit as a sustainable and inclusive form of tourism. The paper will first give an overview of the history and elaboration of virtual tourism, tracing its development from early forms of online trip information to the emergence of immersive technologies similar as virtual reality and stoked reality. The paper will also explore the colorful forms of virtual tourism that are presently available, including virtual tenures, 360-degree vids, and live-streaming guests. It'll also bandy the advantages and disadvantages of virtual tourism, including its eventuality to reduce the environmental impact of tourism, increase availability to travel gests , and support original communities by promoting artistic and heritage tourism. Likewise, the paper will examine the implicit challenges facing the virtual tourism assiduity, including issues related to data sequestration, the digital peak, and the impact

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on traditional tourism businesses. It'll also explore the part of stakeholders similar to governments, tourism drivers, and consumers in shaping the future of virtual tourism. Eventually, the paper will conclude with a discussion of the implicit counteraccusations of virtual tourism for the future of trips and tourism. As virtual tourism continues to grow and evolve, it has the implicit to transfigure the way people witness and engage with destinations, making trips more accessible and sustainable for all.

2. REVIEW OF LITERATURE:

Virtual tourism has gained significant attention in recent years due to the growing accessibility of technology and the COVID-19 pandemic, which has limited travel opportunities for many individuals worldwide. A review of the literature on virtual tourism reveals a complex and evolving phenomenon that has the potential to transform the way people experience and engage with destinations.

The literature on virtual tourism provides a range of definitions and typologies that reflect the diversity of virtual tourism experiences. According to Buhalis and Law (2008), virtual tourism refers to the use of digital technology to provide information, education, and entertainment related to travel and tourism. Wang and Liang (2018) identify three types of virtual tourism experiences: informational, experiential, and interactive. Informational experiences provide travel information, experiential experiences offer immersive and realistic virtual travel experiences, and interactive experiences allow for user participation and customization.

The literature on virtual tourism also highlights the various forms currently available, including virtual tours, 360-degree videos, and live-streaming experiences. Virtual tours provide a 3D virtual representation of a destination, allowing travelers to explore and interact with the environment from a remote location. 360-degree videos offer a panoramic view of a destination, providing a more immersive and realistic experience than traditional videos. Live streaming experiences allow travelers to participate in real-time events and activities, providing a sense of presence and immediacy.

The literature on virtual tourism also identifies the advantages and disadvantages of virtual tourism. Virtual tourism has the potential to reduce the environmental impact of tourism by promoting remote exploration and reducing the need for physical travel. Virtual tourism also increases accessibility to travel experiences for individuals who are unable to travel due to financial, health, or other reasons. Additionally, virtual tourism supports local communities by promoting cultural and heritage tourism. However, virtual tourism also has some disadvantages, including the potential for the digital divide, the lack of social interaction, and the impact on traditional tourism businesses.

The literature on virtual tourism also highlights the potential challenges facing the virtual tourism industry. These challenges include issues related to data privacy, cybersecurity, and the quality and authenticity of virtual experiences. The literature also identifies the role of stakeholders such as governments, tourism operators, and consumers in shaping the future of virtual tourism.

Overall, the literature on virtual tourism provides a rich and nuanced understanding of the phenomenon, highlighting the potential of virtual tourism as a sustainable and inclusive form of tourism. However, further research is needed to explore the implications of virtual tourism for the tourism industry and the wider society.

3. METHODOLOGY:

This research paper employs a qualitative research approach to investigate virtual tourism. Qualitative research is a suitable method for exploring complex and dynamic phenomena such as virtual tourism, as it allows for an in-depth understanding of the experiences,

perceptions, and behaviors of individuals. The study will involve conducting semi-structured interviews with virtual tourists and tourism industry professionals to gather rich and detailed data about their experiences and perspectives on virtual tourism.

The participants for the study will be recruited through purposive sampling, which allows for the selection of individuals who have specific characteristics relevant to the research question. The sample will include virtual tourists who have engaged in virtual tourism experiences, as well as tourism industry professionals who are involved in the development and marketing of virtual tourism products. Data analysis will be conducted using a thematic analysis approach, which involves identifying patterns and themes within the data to gain insights into the research question.

Ethical considerations will be taken into account throughout the research process. Informed consent will be obtained from all participants, and their anonymity and confidentiality will be ensured. The study will also adhere to ethical principles such as respect for individuals' autonomy, beneficence, and non-maleficence. The research findings will contribute to the understanding of virtual tourism, its impact on the tourism industry, and its potential as a sustainable and inclusive form of tourism.

Potential impact on the tourism industry & the world:

Virtual tourism has the potential to significantly impact the tourism industry. It can be used as a complementary tool to traditional tourism, providing a preview of destinations and attractions before people decide to travel. Virtual tourism can also be used to promote lesser-known destinations, providing a platform for them to showcase their attractions to a wider audience.

Virtual tourism could also change the way people travel. It could lead to a shift in travel preferences, with people opting for more sustainable and cost-effective options. This could have a positive impact on the environment and local communities.

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1) **Increased Access:** Virtual tourism can provide people with a greater level of access to destinations and experiences that were previously difficult or impossible to reach. This can be especially beneficial for people with physical disabilities, those living in remote areas, or those who cannot afford to travel to distant locations.
2) **Sustainable Tourism:** Virtual tourism can promote more sustainable tourism practices by reducing the carbon footprint associated with travel. This can help mitigate the negative environmental impact of the tourism industry and promote more responsible travel behavior.
3) **Enhanced Marketing:** Virtual tourism can provide an innovative way for destinations and attractions to market themselves to a wider audience. By creating immersive and engaging virtual experiences, destinations can attract more visitors and generate interest in their offerings.
4) **Economic Impact:** Virtual tourism has the potential to complement traditional tourism and generate additional revenue for destinations. Virtual tourism can provide a preview of destinations and attractions, which can encourage people to travel and visit in person. This can have a positive economic impact on local communities by creating jobs and boosting the local economy.
5) **New Business Opportunities:** Virtual tourism can create new business opportunities for entrepreneurs and technology companies. As virtual tourism grows in popularity, there will likely be increased demand for virtual reality technology, content creation, and online travel platforms
6) **Changing Travel Preferences:** Virtual tourism could change the way people travel by encouraging more sustainable and responsible travel behavior. This could lead to a shift in travel preferences towards destinations that prioritize sustainability and environmental conservation.
7) **Cultural Exchange:** Virtual tourism can promote cultural exchange by allowing people to experience different cultures and customs from around the world. This can foster a greater understanding and appreciation of different cultures and promote global interconnectedness.

Benefits of virtual tourism:

One of the main benefits of virtual tourism is accessibility. Virtual tourism allows people to explore destinations that may be physically inaccessible, such as remote or dangerous locations. It also provides a safe alternative to traditional tourism during times of crisis, such as the current COVID-19 pandemic. Virtual tourism can also be used as a marketing tool for destinations, allowing them to showcase their attractions to a wider audience.

Another benefit of virtual tourism is its cost-effectiveness. Traditional tourism can be expensive, with costs such as travel, accommodation, and meals. Virtual tourism, on the other hand, can be experienced from the comfort of one's home at a much lower cost.

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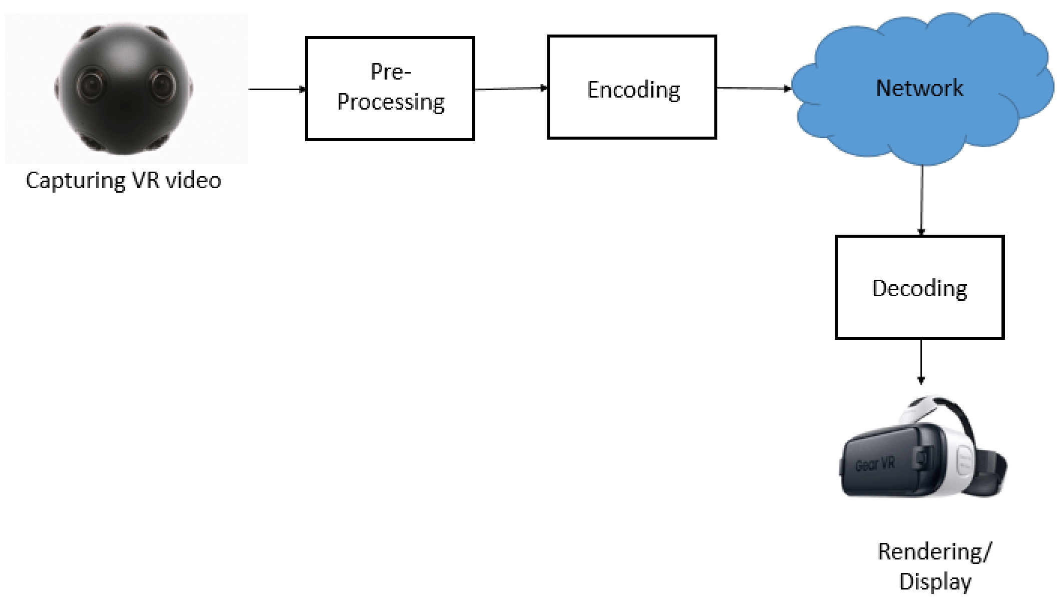
Virtual tourism also provides a more sustainable alternative to traditional tourism. Travel and tourism are major contributors to greenhouse gas emissions, and virtual tourism can help reduce the carbon footprint associated with tourism.

Drawbacks of virtual tourism :

Despite its benefits, virtual tourism also has its drawbacks. One of the main drawbacks is the lack of authenticity. Virtual tourism cannot replicate the sensory experience of physically being present in a destination. A destination's sights, sounds, and smells cannot be fully captured through a screen.

Another drawback of virtual tourism is the potential impact on the tourism industry. Virtual tourism may discourage people from physically traveling, which could harm local economies that rely on tourism. It could also lead to job losses in the tourism industry.

Fig. 1: BLOCK DIAGRAM



4. CONCLUSION:

This research paper highlights the potential of virtual tourism for the tourism industry, emphasizing the role of technology in shaping the virtual tourism experience. A qualitative research approach involving semi-structured interviews with virtual tourists and industry professionals will provide valuable insights into the development of sustainable and inclusive virtual tourism products that enhance competitiveness and address challenges facing the industry. This research can inform policymakers and tourism professionals on how to leverage virtual tourism to address challenges such as climate change and increasing demand for authentic travel experiences. Overall, this

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paper contributes to a deeper understanding of virtual tourism's potential as an innovative approach to experiencing destinations and cultural heritage sites.

5. REFERENCES:

1) Buhalis, D., & Law, R. (2008). Progress in tourism management: Twenty years on and 10 years after the internet—The state of eTourism research. Tourism Management, 29(4), 609-623.
2) Wang, D., & Liang, J. (2018). Virtual tourism experience: A review of research. Tourism Management, 65, 169-180.
3) Liu, D., Li, X. R., & Hsu, C. H. C. (2021). A systematic review of virtual reality applications in tourism research. Current Issues in Tourism, 24(5), 517-530.
4) Xiang, Z., Du, Q., Ma, Y., & Fan, W. (2020). A comparative analysis of major online review platforms: Implications for social media analytics in hospitality and tourism. Tourism Management, 77, 104015.
5) Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2020). Smart tourism: foundations and developments. Electronic Markets, 30(2), 219-233.
6) Gursoy, D., Lu, L., & Lu, J. (2021). Virtual reality and augmented reality in tourism and hospitality: A review. Journal of Travel Research, 60(3), 764-782.
7) Ivanov, S. (2021). Augmented reality in tourism: A systematic literature review. Tourism Management Perspectives, 38, 100814.
8) Munar, A. M., & Jacobsen, J. K. S. (2014). Motivations for sharing tourism experiences through social media. Tourism Management, 43, 46-54.

APPLICATIONS OF DAPPS IN FINANCE

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ABSTRACT:

Decentralized applications (DApps) are gaining widespread attention in the financial industry due to their potential to disrupt traditional finance models. DApps utilize blockchain technology, providing a secure, transparent, and decentralized platform for financial transactions. The applications of DApps in finance are numerous, including peer-to-peer lending, decentralized exchanges, stablecoins, and crowdfunding, among others.

One of the main benefits of DApps in finance is their ability to eliminate intermediaries and reduce transaction costs, providing greater efficiency and accessibility for users. Moreover, DApps offer enhanced security features, such as immutability and encryption, ensuring that transactions are tamper-proof and transparent.

The use of Dapps in finance is not without its challenges, including regulatory issues, scalability, and adoption. However, these challenges are being addressed through technological advancements and regulatory developments, making DApps a promising tool for financial innovation.[1]

Overall, the applications of DApps in finance are diverse and growing, with the potential to revolutionize traditional finance models by providing greater transparency, efficiency, and security for users.

Keywords: *Decentralized applications (DApps), Blockchain technology, Financial transactions, Intermediaries, Financial innovation.*

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1.INTRODUCTION:

Decentralized applications, or DApps, present a revolutionary departure from conventional apps. They are essentially blockchain-based smart contract-powered versions of apps popularized by the Ethereum network. DApps have the potential to unleash a transformational paradigm shift in the tech world. They act just like traditional apps, and a user shouldn't even notice a difference, but provide much more in terms of a feature set. The unique selling proposition of DApps lies in their robustness, security, and transparency.

DApps represent a new way of interacting with personal finance, offering unparalleled advantages over traditional finance.[2] The mere mention of traditional finance evokes a legion of financial entities such as money lending, borrowing, savings, and the likes. Each of these is powered, if you will, by a central authority such as banks or other financial institutions. The centralized control structure of traditional finance has long been a pain point for customers. However, DApps provide a panacea to these concerns, providing decentralized control structures and removing the need for central authorities.

The future of finance is undergoing a paradigm shift, with many considering cryptocurrencies and blockchain as representatives of that shift. Decentralized finance (DeFi) is one of the most significant use cases for blockchain technology. However, the question remains, how do simple financial tasks like loans work in a decentralized state? It is a complex issue, but DApps and smart contracts have the potential to revolutionize lending and borrowing. Smart contracts provide the necessary protocols to enable secure and trustless lending and borrowing, while DApps facilitate the necessary infrastructure to interact with these smart contracts seamlessly.

2.LITERATURE RIVIEW

2.1 Centralized Finance vs. Decentralized Finance (DeFi)

Centralized finance has long been the standard for financial transactions, where money is held by banks and third parties who facilitate money movement between parties, with each entity charging fees for using their services. A credit card charge, for example, starts from the merchant and moves to an acquiring bank, which forwards the card details to the credit card network, which then clears the charge and requests a payment from the bank. Each entity in the chain receives payment for its services, typically because merchants must pay for the use of credit and debit cards.

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All financial transactions are overseen in centralized finance, from loan applications to a local bank's services. This is a stark contrast to the decentralized finance model, which eliminates intermediaries by allowing people, merchants, and businesses to conduct financial transactions through emerging technology.

Through peer-to-peer financial networks, DeFi uses security protocols, connectivity, software, and hardware advancements, to offer users an unprecedented level of control over their financial transactions. DeFi leverages distributed financial databases, accessible across various locations, which collect and aggregate data from all users and use a consensus mechanism to verify it.

Decentralized finance eliminates the need for a centralized finance model by enabling anyone to use financial services anywhere, regardless of who or where they are. DeFi applications give users more control over their money through personal wallets and trading services that cater to individuals, promoting greater financial inclusion and autonomy. The future of finance is undoubtedly decentralized, and the possibilities are limitless.

2.2 Working of DeFi

The DeFi ecosystem comprises various applications, including lending and borrowing platforms, decentralized exchanges (DEXs), prediction markets, derivatives trading platforms, and stablecoins. These applications operate on blockchain networks like Ethereum, Binance Smart Chain, or Solana.

The working of DeFi can be explained in the following steps:

1. Creating a Wallet: To start using DeFi, users need to create a cryptocurrency wallet that supports the specific blockchain network. This wallet will be used to store and manage their cryptocurrencies.
2. Buying Cryptocurrencies: Users can buy cryptocurrencies like Bitcoin or Ethereum from an exchange platform and then transfer them to their wallet.
3. Accessing DeFi Applications: Users can access DeFi applications like DEXs or lending platforms through their wallets, and the applications can interact with the blockchain network to execute transactions.
4. Decentralized Exchanges (DEXs): DEXs are trading platforms that allow users to trade cryptocurrencies without a central authority. Users can connect their wallets to the DEXs and trade cryptocurrencies directly with other users, using smart contracts to execute the trades.
5. Lending and Borrowing Platforms: DeFi lending platforms allow users to lend their cryptocurrencies to other users in exchange for interest rates. Borrowers can use their cryptocurrencies as collateral to obtain loans. The smart contract system ensures that the lending and borrowing processes are secure and transparent.

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6. Stablecoins: Stablecoins are cryptocurrencies that are pegged to the value of a fiat currency like USD or EUR. They are used in DeFi applications as a stable store of value and for trading.
7. Decentralized Applications (DApps): DApps are blockchain-based applications that are built on smart contracts and operate without a central authority. They can be used for various financial activities like prediction markets, derivatives trading, insurance, and crowdfunding.

In conclusion, DeFi works by leveraging blockchain technology to create a decentralized financial ecosystem that is more transparent, secure, and accessible to users.[8] It is transforming traditional financial models by eliminating intermediaries and automating financial transactions. However, it is still a nascent technology, and there are challenges like scalability, regulatory compliance, and security that need to be addressed.

2.3 Uses of DeFi

In the world of finance, peer-to-peer (P2P) financial transactions play a key role in the functioning of decentralized finance, or DeFi. DeFi transactions occur between two parties who exchange cryptocurrency for goods or services without any third-party intervention.

In the DeFi realm, P2P transactions can also cater to an individual's loan requirements. The process begins with an algorithm that matches peers agreeing to the lender's terms, and a loan is issued. Payments for P2P transactions in DeFi occur via a decentralized application, or DApps, and are processed through the blockchain.

The benefits of using DeFi for P2P transactions are many. Firstly, DeFi platforms offer accessibility to anyone with an internet connection, with transactions being made without any geographical restrictions. Secondly, DeFi enables the direct negotiation of interest rates between two parties, thereby offering low fees and high-interest rates.

In addition to the above, DeFi also ensures security and transparency through smart contracts published on a blockchain, with records of completed transactions being available for anyone to review while still maintaining anonymity. The immutability of blockchains ensures that records cannot be changed, offering a higher level of security. Lastly, the decentralized nature of DeFi protocols mitigates risks associated with centralized financial institutions, ensuring autonomy and protecting against adversity or bankruptcy.

2.4 Examples of DeFi

2.4.1 Uniswap

Uniswap is an innovative and revolutionary platform that embodies the essence of decentralized finance (DeFi). Unlike traditional centralized exchanges, Uniswap allows users to trade cryptocurrencies in a fully decentralized

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manner, without the need for intermediaries or middlemen. Instead of using conventional order books, Uniswap leverages liquidity pools and an automated market maker algorithm to determine token prices based on the principles of supply and demand.

One of the unique features of Uniswap is its permissionless liquidity provision. This means that anyone can become a liquidity provider by contributing an equal value of two different tokens to a liquidity pool. In exchange, they earn a portion of the trading fees as a reward, which promotes participation and incentivizes liquidity. By democratizing liquidity provision, Uniswap empowers its users to take control of their own financial destiny.

Uniswap operates exclusively on the Ethereum blockchain using smart contracts, which ensures that the platform is transparent, secure, and free from the control of any central authority or intermediary. By using Uniswap, users can trade cryptocurrencies with each other without needing to trust a centralized exchange with their funds. This promotes financial freedom and inclusion, and opens up new opportunities for individuals and businesses alike.

2.4.2 Curve Finance

Curve Finance leverages decentralized finance (DeFi) to offer users a low slippage and low fee trading experience for stablecoins in a fully decentralized manner. Unlike traditional centralized exchanges, Curve Finance utilizes an automated market maker algorithm to determine stablecoin prices based on the laws of supply and demand. This way, users can easily swap stablecoins directly with each other in a decentralized and trustless manner.

To further enhance the decentralized experience, Curve Finance also allows users to contribute to liquidity pools by depositing two different stablecoins of equal value. In return, liquidity providers are rewarded with a share of the trading fees generated by the platform. The automated market maker algorithm ensures that the price of each stablecoin in the pool remains closely aligned with the market price.

Curve Finance operates entirely on the Ethereum blockchain using smart contracts, ensuring that the platform is transparent, secure, and free from any central authority or intermediaries. By using Curve Finance, users can trade stablecoins without relying on centralized exchanges, giving them more control over their assets and promoting financial freedom and inclusion.

2.5 Advantages and Disadvantages of DeFi

Advantages of DeFi:

1. Decentralization: DeFi is decentralized, meaning it operates without the need for intermediaries such as banks, which can reduce transaction costs and provide greater accessibility for users.

2. Transparency: DeFi transactions are recorded on a public blockchain, making them transparent and tamper-proof.
3. Accessibility: DeFi allows anyone with an internet connection to participate in financial transactions, regardless of their location or socioeconomic status.
4. Programmability: DeFi applications are programmable, allowing for the creation of smart contracts that automate financial transactions and reduce the need for human intervention.
5. Security: DeFi applications use advanced cryptography and security protocols to ensure the safety of user funds and prevent fraud.

Disadvantages of DeFi:

1. Complexity: DeFi applications can be complex and require technical knowledge to use, which can be a barrier to entry for some users.
2. Risk of Hacks: DeFi applications are vulnerable to hacking and security breaches, which can result in the loss of user funds.
3. Regulatory Issues: The regulatory landscape for DeFi is uncertain and may lead to legal challenges in some jurisdictions.
4. Limited Adoption: DeFi is still in its early stages of development, and adoption rates may be limited until the technology becomes more mainstream.
5. Volatility: Many DeFi assets, such as cryptocurrencies, can be highly volatile, leading to significant price fluctuations and investment risks.

2.6 Future of DeFi

The future of DeFi is promising, as it has the potential to revolutionize the financial industry by providing greater accessibility, efficiency, and transparency for users.[6] Here are some possible developments in the future of DeFi:

1. Increased Adoption: As DeFi applications become more user-friendly and accessible, adoption rates are likely to increase, especially in emerging markets where traditional financial services may be limited.
2. Integration with Traditional Finance: DeFi may eventually be integrated with traditional finance systems, creating a hybrid financial ecosystem that combines the benefits of both systems.
3. Enhanced Scalability: DeFi applications may adopt new technologies, such as layer-2 scaling solutions, to improve transaction speed and reduce network congestion.
4. Improved Security: DeFi protocols may adopt new security measures, such as multi-sig wallets and insurance schemes, to reduce the risk of hacks and increase user confidence.

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5. Regulatory Clarity: Regulatory frameworks for DeFi may become more defined, providing legal clarity and fostering institutional adoption.
6. DeFi 2.0: The next iteration of DeFi may include even more advanced features, such as cross-chain interoperability, privacy enhancements, and artificial intelligence-powered smart contracts.

Overall, the future of DeFi is likely to be characterized by continued innovation and growth, with the potential to transform the financial industry in unprecedented ways.[7]

3.CONCLUSION

In conclusion, Decentralized Finance (DeFi) is a promising new technology that has the potential to revolutionize the financial industry. It operates without intermediaries, such as banks, and uses blockchain technology to provide secure, transparent, and accessible financial services to anyone with an internet connection.

DeFi has several advantages, including increased accessibility, efficiency, and transparency, as well as enhanced security features such as immutability and encryption. However, it also has some challenges, such as complexity, regulatory uncertainty, and the risk of hacks.

Despite these challenges, the future of DeFi looks promising, with possible developments such as increased adoption, integration with traditional finance, enhanced scalability, and improved security. The potential of DeFi to transform the financial industry is significant, and it will be interesting to see how this technology continues to evolve in the coming years.

4.REFERENCES

[1] Jensen, Johannes Rude, Victor von Wachter, and Omri Ross. "An introduction to decentralized finance (defi)." *Complex Systems Informatics and Modeling Quarterly* 26 (2021): 46-54.

[2] Schueffel, Patrick. "DeFi: decentralized finance-an introduction and overview." *Journal of Innovation Management* 9.3 (2021): I-XI.

[3] Qin, Kaihua, et al. "CeFi vs. DeFi--Comparing Centralized to Decentralized Finance." *arXiv preprint arXiv:2106.08157* (2021).

[4] Salami, Iwa. "Challenges and approaches to regulating decentralized finance." *American Journal of International Law* 115 (2021): 425-429.

[5] Popescu, Andrei-Dragoş. "Decentralized finance (defi)–the lego of finance." *Social Sciences and Education Research Review* 7.1 (2020): 321-349.

[6] Chen, Yan, and Cristiano Bellavitis. "Blockchain disruption and decentralized finance: The rise of decentralized business models." *Journal of Business Venturing Insights* 13 (2020): e00151.

[7] Meyer, Eva, Isabell M. Welpe, and Philipp G. Sandner. "Decentralized finance—a systematic literature review and research directions." ECIS, 2022.

[8] Zetzsche, Dirk A., Douglas W. Arner, and Ross P. Buckley. "Decentralized finance." *Journal of Financial Regulation* 6.2 (2020): 172-203.

[9] Lo, Yuen, and Francesca Medda. "Uniswap and the rise of the decentralized exchange." (2020).

[10] Caldarelli, Giulio, and Joshua Ellul. "The blockchain oracle problem in decentralized finance—a multivocal approach." *Applied Sciences* 11.16 (2021): 7572.

TRACK 2

INNOVATION FOR SUSTAINABLE DEVELOPMENT

CAN SUSTAINABILITY EMERGE AS A NEW MARKETING TREND?

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ABSTRACT:

Many companies are coming up with innovative ideas so that the product attracts a large number of customers. Such as digital marketing, social media marketing, search engine marketing , influencer marketing, word of mouth and many more. One such tactic is sustainable marketing. This research paper is a study on whether sustainable marketing helped the companies to gain their market share and do they prefer sustainable marketing practices over profitable marketing practices. It also focuses on the customers perspective towards these marketing practices. It also studies whether long term market survival is possible for sustainable marketing practices.

Keywords: *Sustainable, marketing, environment, profits, customers.*

INTRODUCTION

In order to win the rat race companies have to come up with forward looking tactics to make their product stand out and capture the market. This can be done through effective marketing channels. Marketing is a process wherein the customers are made aware about the product or services. It is a mixture of advertising, selling and making the goods available to the consumers. Product, price, place and promotion or the 4P's are of vital importance for a successful firm. The survival of any business depends upon the product it sells, the price it quotes, the market place and the promotional activities it implements. Many new techniques for promoting products are emerging in the market. Sustainable marketing is one such in the list. Sustainable marketing is applied to arrive at a centre place of people, planet and profit. Here people, planet and profit imply the consumers, environment and monetary returns respectively. Today we come across sustainable marketing practices in the form of eco friendly packaging, stationery as well as contributing a certain share of their profits for a social cause.

LITERATURE REVIEW:

Business must encourage innovation in all fields. Innovation is the key to attract customers and meet their demands. A product marketed in an innovative way will fetch more potential customers than a product marketed in an ordinary way. These innovations should be efficient for the customers as well as the companies. Some examples are hybrid cars, LED or CFL bulbs. ***(Trivedi, Trivedi, & Goswami, 2018)***

Researchers need a better understanding on how customers values and their attitudes towards business operations in the marketplace affects their support for those companies that use sustainable marketing practices. This will help in determining the relation between marketing techniques and practices and consumers preferences. The 3 important results were sustainability influence consumers choices, their charitable nature and their concern about the company's ethics and morals***. (Peterson, Minton, Liu, & Bartholomew, 2021)***

Over the last five decades sustainability has emerged as a critical macro marketing perspective. There has been change in forces now. Now marketing is looked upon as a complex societal problem-solving solution. Marketing can help to put light upon the issues of poverty, environment, standard of living, public health, socio-economic imbalances and many more. It is believed that sustainability will grab the centre stage and will be studied as an important marketing aspect. ***(Sheth & Parvatiyar, 2021)***

SCOPE OF THE STUDY:

This study is based on people's perspective on sustainable marketing practices. The survey was taken electronically in order to get proper idea of their opinion. The first-hand data was collected through this survey.

OBJECTIVES:

1. To study about customers perspective towards sustainable marketing practices.
2. To understand businessmen's marketing preferences.
3. To study whether sustainable marketing practices take over the market.
4. To understand whether sustainable marketing practices emerge as a market trend.

RESEARCH METHODOLOGY:

In this study the data is obtained from both primary as well as secondary sources. The primary data is collected using the questionnaire method. We used this method to understand the impact of sustainable marketing practices whereas the secondary data is collected from newspapers, magazines, websites and books in order to get relevant

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information. Convenience sampling method was used. The sample size of the survey was 60. The data is analysed and interpreted using Microsoft Excel 2019.

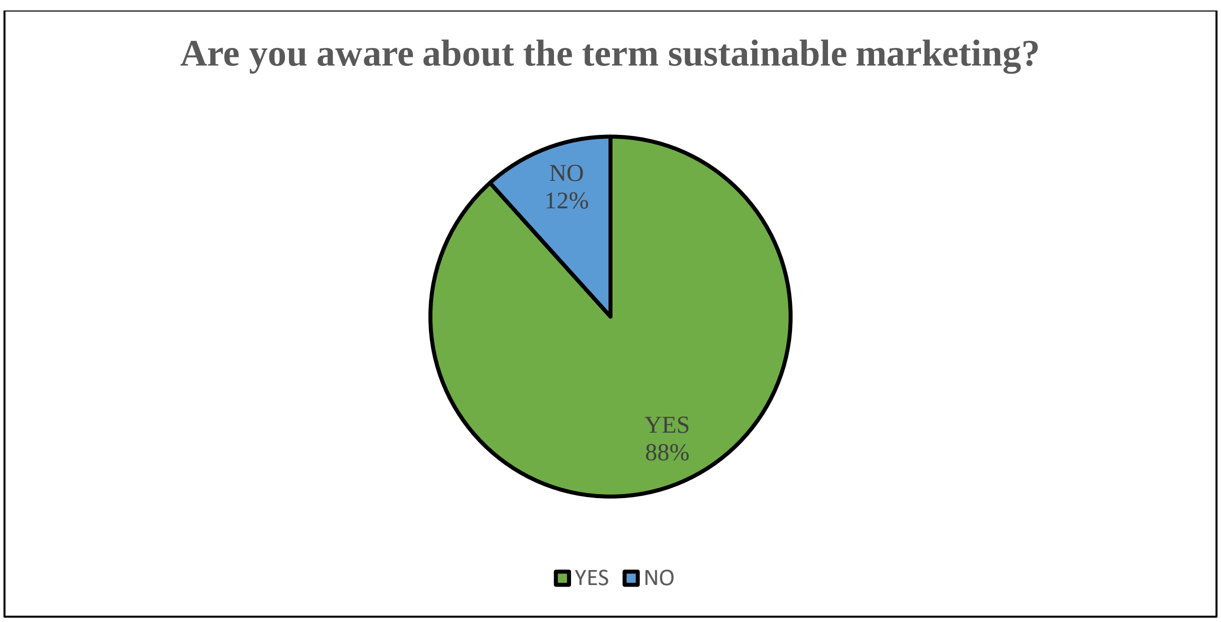
DATA ANALYSIS AND INTERPRETATION:

1) Are you aware about the term sustainable marketing?

Responses on awareness about sustainable marketing: (Table 1)

Particulars	Value	Percentage
Yes	53	88
No	7	12
Total	**60**	**100**

Awareness on sustainable marketing: (Fig. 6.1)



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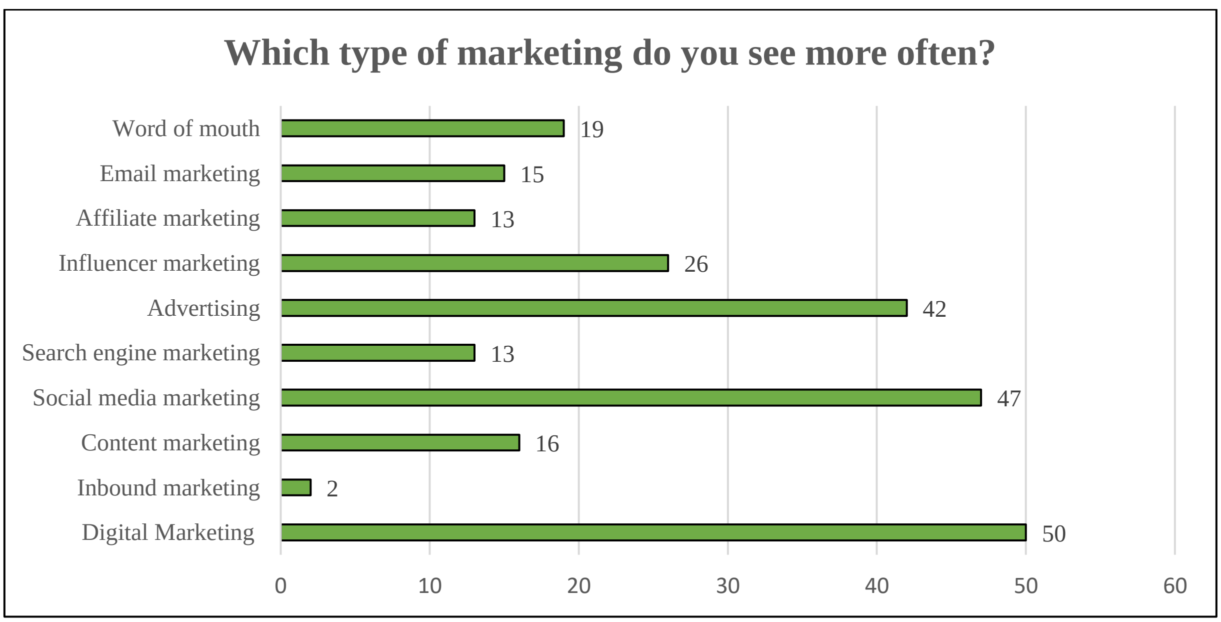
Majority of the respondents are aware of the term sustainable. That is 88% of the respondents were aware while 12% were unaware.

2) Which type of marketing do you see more often?

Responses on most often seen type of marketing: (Table 2)

Particulars	Value
Digital Marketing	50
Inbound marketing	2
Content marketing	16
Social media marketing	47
Search engine marketing	13
Advertising	42
Influencer marketing	26
Affiliate marketing	13
Email marketing	15
Word of mouth	19
Total	**243**

Most often seen type of marketing: (Fig. 6.2)



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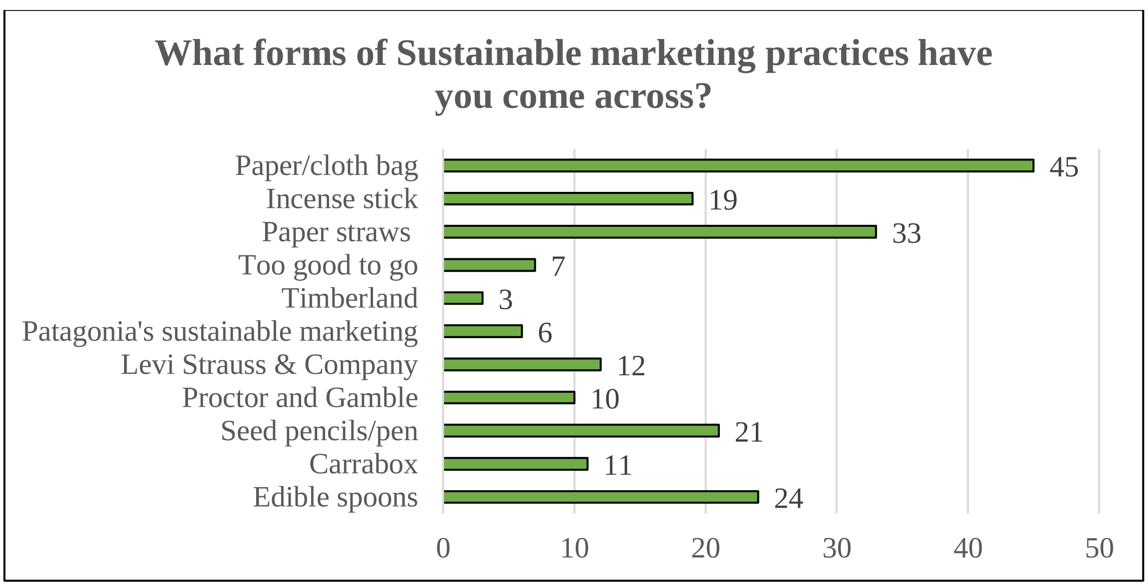
Majority of the respondents were aware about digital marketing followed by social media marketing and advertising, influencer marketing, word of mouth, content marketing, email marketing, affiliate marketing and inbound marketing.

3) What forms of Sustainable marketing practices have you come across?

Responses on most observed form of sustainable marketing: (Table 3)

Particulars	Value
Edible spoons	24
Carrabox	11
Seed pencils/pen	21
Proctor and Gamble's Tide detergent Cold Caller Campaign	10
Levi Strauss & Company's "Buy Better, Wear Longer" campaign	12
Patagonia's sustainable marketing	6
Timberland campaign	3
Too good to go	7
Paper straws	33
Incense sticks made from recycled flowers	19
Paper/cloth bag	45
Total	**191**

Forms of sustainable marketing practices: (Fig. 6.3)



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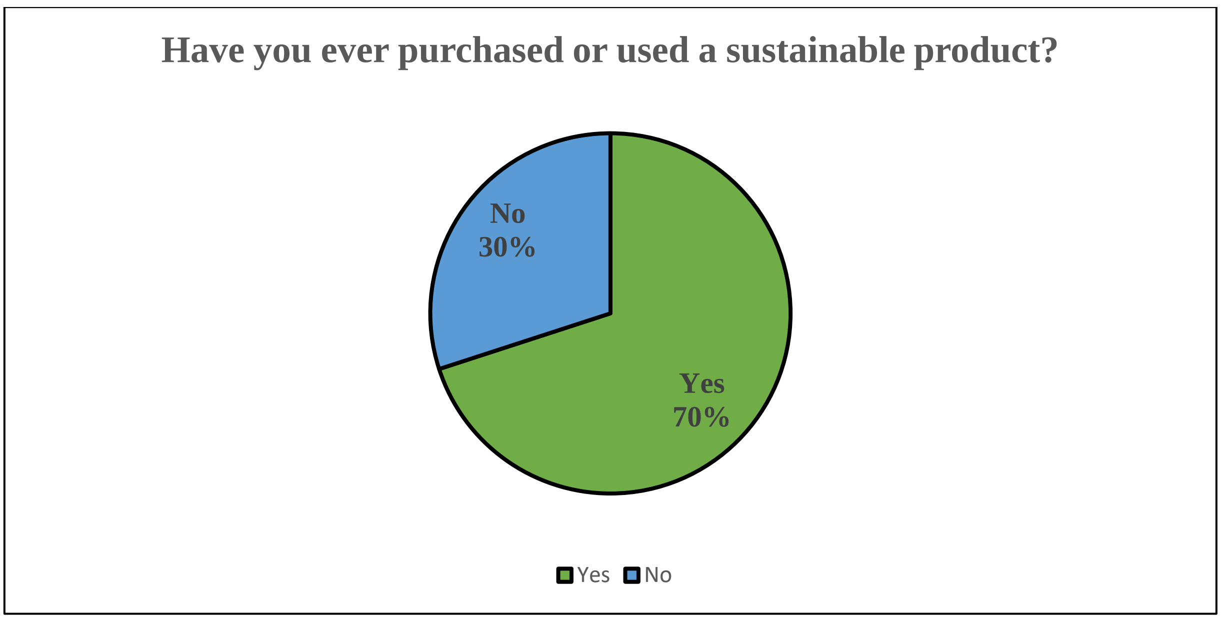
A large number of people have come across paper/cloth bag followed by paper straws, edible spoons, seed pencils/pens, incense stick, Levi Strauss & Company's "Buy Better, Wear Longer" campaign, carrabox, Proctor and Gamble's Tide detergent Cold Caller Campaign, Too good to go, Patagonia's sustainable marketing, and Timberland

4) Have you ever purchased or used a sustainable product?

Responses on whether have they purchased or used sustainable product: (Table 4)

Particulars	Value	Percentage
Yes	42	70
No	18	30
Total	**60**	**100**

Responses on purchased or used sustainable product: (Fig. 6.4)



Majority of the people have purchased or used sustainable product that is 70% while 30% have not used.

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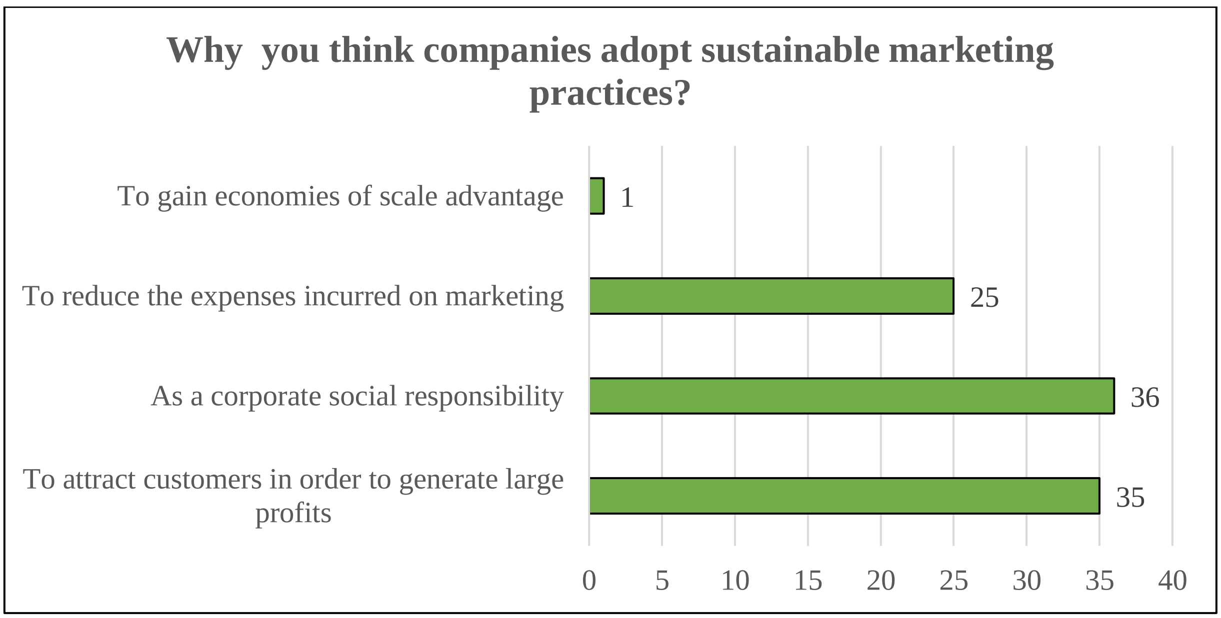
5) Why do you think companies adopt sustainable marketing practices?

<u>Responses on why companies adopt sustainable marketing practices: (Table 5)</u>

Particulars	Value
To attract customers in order to generate large profits	35
As a corporate social responsibility	36
To reduce the expenses incurred on marketing	25
To gain economies of scale advantage	1
Total	**97**

<u>Reasons why companies adopt sustainable marketing practices: (Fig. 6.5)</u>



According to the respondents the companies adopt marketing practices majorly as a corporate social responsibility followed by to attract customers in order to generate large profits, to reduce the expenses incurred on marketing and also to gain economies of scale advantage

6) Would you opt sustainability over quality?

<u>Responses on whether respondents would opt for sustainability over quality: (Table 6)</u>

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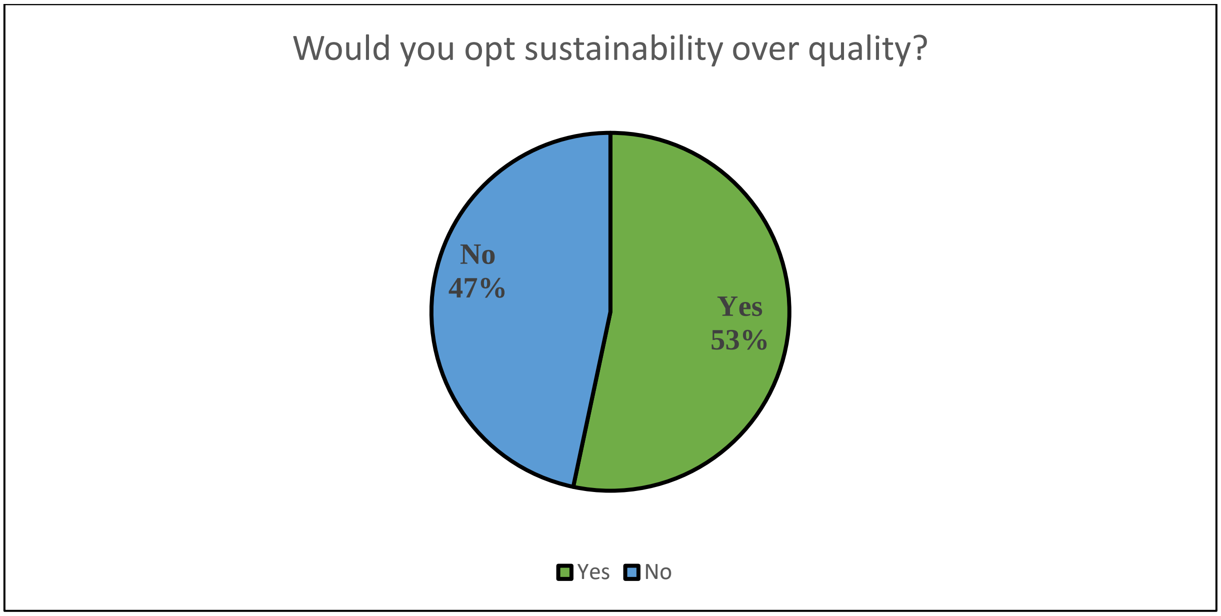
Particulars	Value	Percentage
Yes	32	53
No	28	47
Total	**60**	**100**

Choice of sustainability over quality: (Fig. 6.6)



Majority of the respondents prefer sustainability over quality that is 53% and 47% of the respondents would opt for quality.

7) Will you recommend others to opt for sustainable products?

Responses on whether respondents would recommend sustainable products to others: (Table 7)

Particulars	Value	Percentage
Yes	55	92
No	5	8
Total	**60**	**100**

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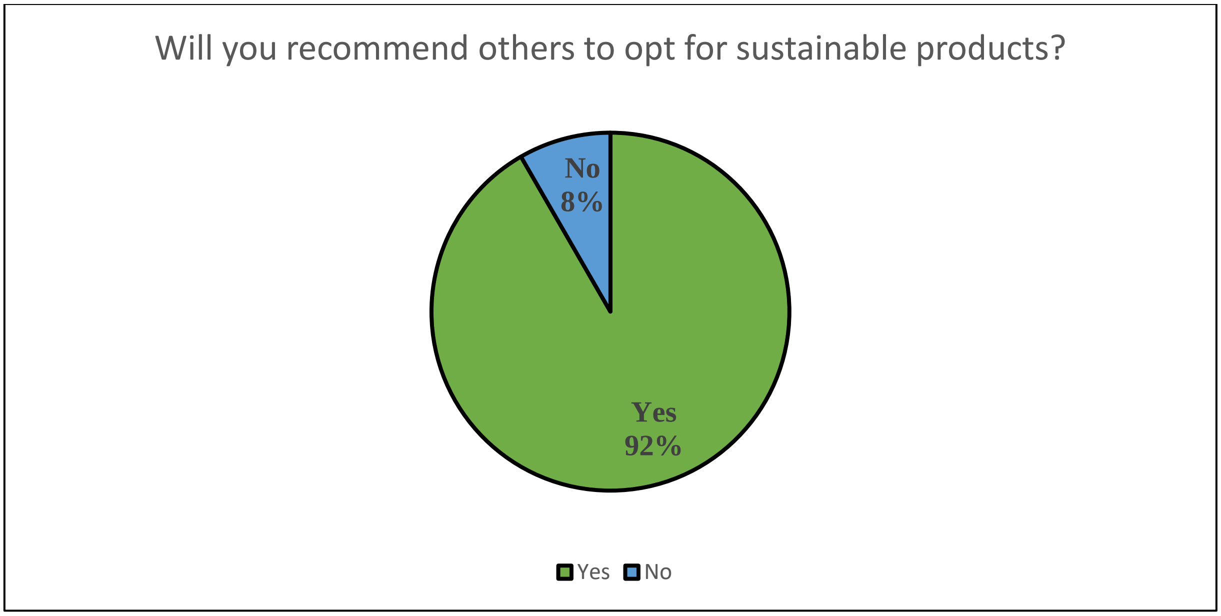
Whether respondents would recommend other to opt for sustainable products: (Fig. 6.7)



Majority of the respondents are in favour of sustainable products and would recommend them to others. That is 92% of the respondents would recommend while 8% would not.

8) Can sustainable marketing practices take over the market?

Responses on whether sustainable marketing practices can take over the market: (Table 8)

Particulars	Value
Yes	11
No	2
Maybe	47
Total	**60**

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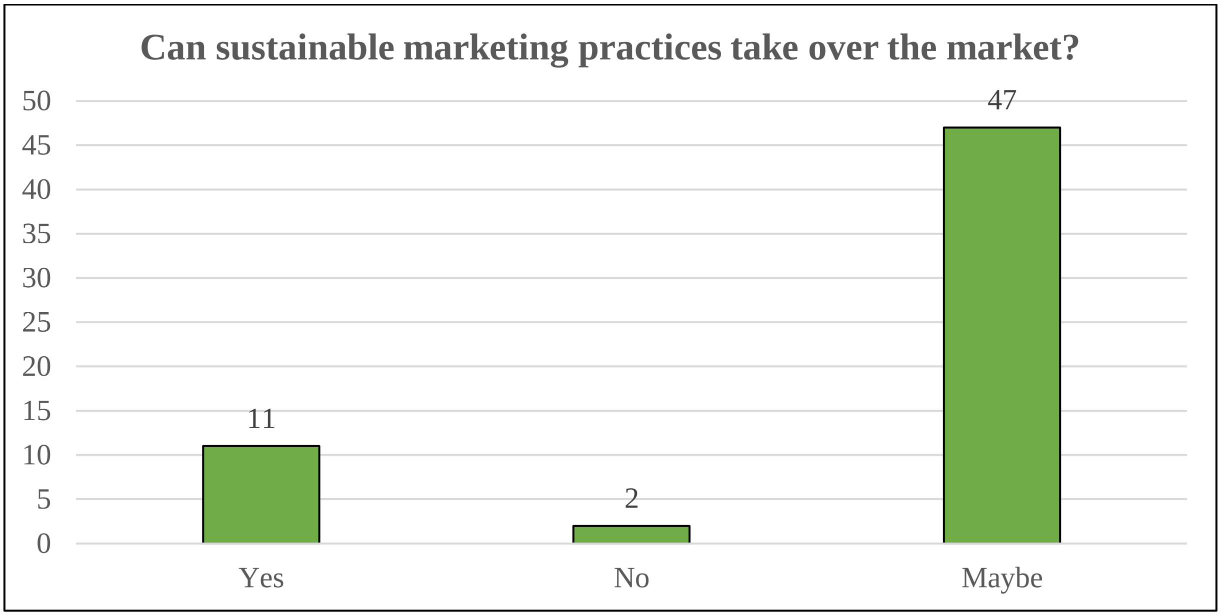
Responses on can sustainable marketing practices take over the market: (Fig. 6.8)



Many people are confused whether sustainable marketing practices can take over the market while 11 of the respondents were sure that it would and 2 of the respondents were sure that it would not.

CONCLUSION:

Businesses have evolved during a period of time and so are the marketing techniques. In today's world the objective of businesses has not only been restricted to profit but has also considered the society and environment. The CSR activities performed by the companies to a great extent impact the corporate image as well as the sales of that particular company. Nowadays the customers are more inclined to purchase environmentally friendly products. The businesses have considered these aspects and have tried to put together sustainability and quality. It is observed that sustainability and competition share a direct relationship with each other that is the brands which are most sustainable tend to be more competitive in the market. Sustainability is not only considered by GenZ but it also seen as a parameter while making purchase decisions by other age groups as well. Taking advantage of this businesses have come up with various sustainable marketing practices such as eco friendly packaging, containers, products etc. The customers positive response towards sustainable marketing practices has encouraged the businesses to come up with more and more sustainable practices.

 ISBN NO: 978-93-5810-851-4

REFERENCES:

1. Trivedi Krunal, Trivedi Pooja and Goswami Vandana, "Sustainable marketing strategies: Creating business value by meeting consumer expectation" Jersey City, NJ.
2. Mark Peterson, Elizabeth A. Minton, Richie L. Liu, Darrell E. Bartholomew, "Sustainable Marketing and Consumer Support for Sustainable Businesses."
3. Jagdish N. Sheth and Atul Parvatiyar, "Sustainable Marketing: Market-Driving, Not Market-Driven"

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FUTURE PROSPECTS OF HYDROGEN FUEL CELL VEHICLES IN INDIA

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ABSTRACT:

This paper discusses the working of Hydrogen Fuel Cell Vehicles and their current presence in India. This research also identifies the advantages, disadvantages and the probable difficulties that companies which tend to manufacture and sell Hydrogen Fuel Cell Vehicles in India will experience. This study examines the impact of Hydrogen Fuel Cell Vehicles on the environment and the general opinions of the target demographic on Hydrogen Fuel Cell Vehicles and their future in India.

Keywords: *Hydrogen Fuel Cell Vehicles, clean transportation, future prospects*

INTRODUCTION:

Hydrogen is not a direct source of energy, but an energy carrier. It is mainly used as energy storage, especially in renewable energies when their production cannot be fully utilized. It must be crafted and stored by separating chemicals before it can be used for mobility. In the fuel cell, a device that generates electricity through chemical reactions, hydrogen is converted into electricity and water vapor. Fuel component vehicles are controlled by packed hydrogen gas that feeds into an installed power module "stack" that doesn't consume the gas but changes the fuel's substance energy into electrical energy. This power then drives the vehicle's electric engines. Tailpipe discharges are zero, and the main waste delivered is unadulterated water.

The construction of a fuel cell is similar to a battery. Hydrogen enters the anode, where it comes in contact with a catalyst that promotes the separation of hydrogen atoms into an electron and proton. The electrons are gathered by the conductive current collector, which is connected to the car’s high-voltage circuitry, feeding the onboard battery and/or the motors that turn the wheels.

The components of a Hydrogen Fuel Cell are -

1. Fuel Cell Stack – An aggregate of numerous fuel cells that combine oxygen and hydrogen to generate electricity and power the electric motor
2. Fuel Tank – Hydrogen gas is stored in carbon-fiber reinforced tanks to provide fuel to the fuel-cell stack
3. Electric Motor – Powers the car using energy produced in the fuel cell stack
4. Battery – Captures energy from regenerative braking and provides additional power to the electric motor
5. Exhaust – The byproduct of the reaction occurring in the fuel cell stack is water vapor, which is emitted through the exhaust

REVIEW OF LITERATURE:

1: **Rubio, Llopis-Albert and Besa (2023)** - Optimal allocation of energy sources in hydrogen production for sustainable deployment of electric vehicles

This article has conducted a study that includes an optimization process that calculates the amount of hydrogen that must be produced in Spain to carry out this replacement so that conventional vehicles have no sources of greenhouse gas emissions by 2030. Therefore, the amount of electricity required to produce hydrogen in the electrolysis process must be calculated taking into account the renewable energy sources (wind, solar, photovoltaic, hydropower). The optimization process takes into account the main energy sources currently used (wind, solar, hydro, nuclear, coal, and photovoltaic gas) and their share and role in the production of hydrogen. The ultimate goal is to use coal, gas, and nuclear power to generate electricity. In this phase, the set goals are achieved. Two phases were also considered. In the first phase, lasting three years, different energy sources will be considered, including the most polluting ones (coal and gas). In the second phase, only those that do not produce greenhouse gases (wind, solar, hydroelectric and photovoltaic, nuclear energy) are taken into account. The long-term (phase three) goal is to phase out nuclear power because if it does not produce greenhouse gases, it generates waste that poses safety issues and is difficult to manage.

2: **Trapp, Kanbach and Kraus (2022)** -Sector coupling and business models towards sustainability: The case of the hydrogen vehicle industry

The results of this article paved the way for several future lines of research. First, due to the exploratory nature of this study, it is extremely important to examine variations of business model archetypes in detail through one or more case study approaches. Indeed, case studies of best practices in hydrogen regions can help shed light on regional challenges as these regions have different starting positions and face different challenges. Second: Extend the empirical framework beyond the automotive sector and include other forms of mobility (such as the use of hydrogen in the context of sea, rail, and air transport) and other sectors related to the holistic concept of sector coupling (e.g., heat) would help to analyze synergies and market developments for hydrogen applications. In this

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context, it would be interesting to examine both established and start-up business models in order to formulate policy recommendations. Thirdly, it might be interesting for future investigations to conduct international studies to understand the similarities and differences of the business models used in the hydrogen vehicle industry, to examine the relevance of policies in the respective national institutional context, especially the policy frameworks that could develop enable or accelerate the hydrogen vehicle industry and identify the strengths and weaknesses of certain policies

3: **Ferrara, Jakubek and Hametner (2021)** - Energy management of heavy-duty fuel cell vehicles in real-world driving scenarios: Robust design of strategies to maximize the hydrogen economy and system lifetime. This article examines the design of energy management strategies for fuel cell heavy-duty vehicles considering a complete and realistic representation of road freight transport. The analysis of the simulation results shows that energy management studies should always include several driving cycles in order to statistically secure the control strategies and to avoid significant errors in the evaluation of the key performance indicators. This study also showed that it is extremely important to consider the actual speed of the height and the load conditions of the truck as they result in large differences in vehicle performance. In particular, a sound design of an energy management strategy for heavy-duty vehicles should not ignore road gradients and truck loading conditions, as these have a major impact on electrical consumers.

4: **Yunzhe, Bowei, Feifei and Mengmeng (2020)** - Research on Hydrogen Energy and Fuel Cell Vehicle Roadmap in Various Countries

Based on the above analysis, this article posits that China's hydrogen and FCV power industry has started to take shape but is not yet sustainable. The government should clarify the place of hydrogen energy in China's energy structure and define the development path and scope of hydrogen energy. In the future, China should increase investment in technology R&D and infrastructure construction, set up hydrogen industry and FCV research and development institutes to finance the development of high technology, and speed up the construction of production, storage, transportation, and transportation. Construction of utility infrastructure to promote industrial development.

5: **Chapman, Hoa Nguyen, Farabi-Asl, Itaoka, Hirose and Fujii (2020)** - Hydrogen penetration and fuel cell vehicle deployment in the carbon constrained future energy system

These studies explain the important role of hydrogen in the future energy system, with a focus on the transport sector but covering a range of sectors including town gas, chemical feedstocks and direct combustion for power generation. We estimate that hydrogen will account for around 0.8-2% of global energy consumption, most of which will be consumed in OECD countries. For the maximum penetration scenario, a city gas mixture with a theoretical limit of 30% hydrogen-represents the majority of end uses, followed by the transport sector. For the lowest penetration scenario, transportation is by far the most important use case, dominated by FCV passengers in both scenarios. With global and regional CO2 reduction targets, several policy issues need to be addressed. Rising energy system costs are a major concern, especially for non-OECD countries that are modernizing rapidly. As the model used in these studies is under development, some limitations are evident, namely that the model does not cover all possible end-uses of hydrogen, in particular the emerging applications of fuel cells, oxide solid fuels, or its use in steel reforming. Even if the model supports different types of passenger cars, plug-in hybrids are not considered at this time.

6: **Zhao, Mu, Hao, Liu, He, Przesmitzki and Amer (2020**) - Hydrogen Fuel Cell Vehicle Development in China: An Industry Chain Perspective

The use of hydrogen and FCVs aims to reduce dependence on fossil fuels and reduce greenhouse gas emissions, but it's not clear if FCVs can completely solve energy and environmental problems. FCVs can only be emission-free in the use phase, while life-cycle emissions still depend on each country's energy mix. In China, the greenhouse gas intensity of hydrogen is generally higher than that of fossil fuels such as diesel. Therefore, to ensure the FCV's ability to save energy and reduce greenhouse gas emissions, it is necessary to create a hydrogen energy chain based on a clean energy system. From an economic perspective, FCVs currently cost significantly more than other automotive technologies. Therefore, reducing operating costs and improving system reliability by improving technology are prerequisites for the large-scale commercialization of FCVs.

7: **Turoń (2020)** - Hydrogen-powered vehicles in urban transport systems – current state and development

In summary, this work showed that despite many skeptical evaluations and societal fears, mainly resulting from ignorance, hydrogen vehicles have the potential to become an alternative to conventional vehicle evaluation. The current state of use of this type of vehicle in the different countries presented in the text shows a growing interest in environmentally friendly transport technologies and the search for different solutions that can support sustainable transport development. However, given the total number of vehicles in the world and traditional fueling stations, in the case of global transport, action is just a drop in the bucket of need. However, it should be remembered that all activities aimed at dissemination and education in the field of new mobility require an effort to change the attitude of society. However, this challenge has an opportunity to pay off in the form of an environment where transport is people-friendly and not anti-social.

8: **Rose and Neumann (2020)** - Hydrogen refueling station networks for heavy-duty vehicles in future power systems

In this article, we examined the interaction of hydrogen filling stations with the electricity system nationwide. We combined the two methods, the refueling site model and the fuel system model, and developed an understanding of their interaction. We first estimated the increase in total installed capacity by applying a service station model to the

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German truck and fuel cell sector. The resulting very small number of around 140 potential new SRHs needed to supply the national park results in additional installed generation capacity. The use of fuel cell trucks in Germany would increase the total electricity demand for national transport by around 60 TWh and lead to additional infrastructure costs of around 12 billion euros per year. We, therefore, conclude that the Coop optimization of many energy sectors is important for energy system investment planning and promises to exploit synergies and cost reduction potentials when its elements work together. In addition, location-based capacity markets provide important insights into systemically profitable energy consumption. This is a prerequisite for investors to consider the system perspective when investing and to consider the size of hydrogen plants, e.g., Gas stations.

9: **Manoharan, Butler, Hosseini and Alzahrani (2019)** - Hydrogen Fuel Cell Vehicles; Current Status and Future Prospect

The above article presents research on hydrogen power generation using fuel cells and its use in hybrid vehicles. Various FC types and their applications have been studied, including the use of FC in hybrid vehicles. FCs with the right control strategies can become a cheaper choice for automotive applications than batteries alone. In the near future, hydrogen fuel cells will play an important role in the transportation sector. The price of the fuel cell 17 will decrease as the fuel cells are mass-produced and commercialized fuel cell transportation, power plants, and generator sets are expected to become dominant in the coming decades.

10: **Doğan Üçok (2019)** – Hydrogen Fuel Cell Vehicles

This study aims to examine the current suitability of HFCVs given the remarkable lead that BEVs have achieved in recent years to become the global sustainable vehicle of the future. Given that BEVs and HFCVs can offer similar emission reductions, what characteristics do HFCVs have that make them commercially competitive with BEVs despite the need to adopt another alternative fuel and widely available fuel distribution infrastructure? Hydrogen fuel and HFCV are increasingly becoming international joint ventures. Global inventories of HFCV cars reached 11,200 units in 2018. xv. The United States accounts for about half of the world's circulating HFCV (mainly in California), followed by Japan with about a quarter. Japan is followed by Korea, Germany, and France. Four HFCVs are commercially available for purchase or lease in the United States: Honda Clarity (366-mile EPA range), Toyota Mirai (312-mile range), Hyundai Tucson (265-mile range), and Hyundai NEXO (265-mile range). range) 354 miles or 380 miles) for NEXO Blue). Hyundai, Toyota, Honda, and other OEMs continue to improve HFCV technology. Other OEMs such as GMC, Mercedes, Nissan, Ford, Lexus, and BMW are also working on the production of the HFCVs. Honda and General Motors recently formed a joint venture to jointly develop and mass-produce a new-generation hydrogen fuel cell system to produce. As mentioned above, technological advances for HFCVs and BEVs will continue as OEMs capture the BEV market share and anticipate a new market for BEVs.

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11: **Davis, Edelstein, Evenson, Brecher and Cox (2003)** - Hydrogen Fuel Cell Vehicle Study: Hydrogen storage remains an important research problem. Although progress has been made, current systems are inadequate or marginal. Proper onboard storage of H2 is most likely in the form of compressed gas. The demonstration vehicles used carbon fiber wrapped tanks rated at 5,000 psi and the tanks were recently certified to 10,000 psi. Storage and Cryo-adsorption of liquid hydrogen are totally impractical for vehicles.

Metal hydrogenation systems and metal-NAH systems are promising, but further research on these systems is needed. Advanced carbonaceous materials are intriguing, but mixed research results with relatively small reproducible storage capacities are discouraging, and much work remains to be done. Unresolved research questions such as hydrogen storage make the fuel cell vehicle a perennial favorite. It is not a short-term solution to energy or emissions problems.

RESEARCH METHODOLOGY:

Need for research

Currently, electric vehicles are the most environmentally conscious vehicles available. However, they have multiple drawbacks that make Hydrogen Fuel Cell Vehicles the superior option for the country's future. Electric vehicles can travel 300 to 350 kilometres after 8 hours of charging while Hydrogen Fuel Cell Vehicles require 5 minutes of charging and can travel 500 to 550 kilometres. Charging stations for electric vehicles are also rare to find and still underdeveloped. They do not have a wide range of speed and distance range. The introduction of Hydrogen Fuel Cell Vehicles will erase these problems and make it easier for people to use vehicles that do not cause harm to the environment.

Objectives

The objectives of the research are to understand the following –

1. To know the future of Hydrogen Fuel Cell Vehicles in India
2. To understand how the companies selling these vehicles can influence the minds of consumers and motivate them to contribute towards achieving a sustainable environment.
3. To know the level of awareness consumers have regarding hydrogen fuel cell vehicles.
4. To understand the problems companies face while developing cars using advanced technological equipment and how to overcome them.

Research Design:

Sample - Primary data is collected through a questionnaire filled by 113 potential Hydrogen Fuel Cell Vehicle consumers from India.

Secondary data is collected from Journals, Magazines

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Delimitations of the Research

Electric vehicles are not the perfect alternative to conventional fuel vehicles. Hence there is a need for a new and better alternative.

Limitations of the Research

The research was conducted in the city of Mumbai.

FINDINGS:

- 55.8% of the 113 respondents are aware of the concept and workings of Hydrogen Fuel Cell Vehicles while 31% of them do not know the workings. 13.3% of them are unsure of the concept and workings, they might have a basic idea of it.
- 49.6% of the respondents, that being the majority, have not heard about a hydrogen fuel cell vehicle being introduced in India whereas 35.4% have heard about a hydrogen fuel cell vehicle being introduced in the country.
- 67.3% of the respondents agree that using hydrogen powered vehicles will be a positive development for the country while 9.7% of them believe they will have a negative impact on the environment.
- Electric vehicles are known to cause trouble sometimes such as break down in the middle of the road or even catch on fire. 37.2% of the respondents think that hydrogen fueled vehicles are also likely to run into similar types of trouble. 19.4% of them believe that the vehicles will operate smoothly.
- 38.1% of the respondents feel that hydrogen powered vehicles are prone to malfunction and similar issues while 18.5% of them feel that the vehicles will not malfunction.
- 51.3% of the respondents agree that hydrogen fuel cell vehicles will be a success in the Indian market while 18.6% of them disagree with the statement and do not think hydrogen powered vehicles will sell well in the Indian market.
- 61% of the respondents feel that hydrogen fueled vehicles are a better option that the conventional fuel vehicles available currently while 12.5% of them believe that there are better options available in the market when considering different types of fuels in vehicles.
- 76.1% of the respondents agree that Union Budget 2023 is correct for focusing on cleaner fuels, such as hydrogen, in vehicles for energy sourcing whereas 10.6% disagree with the Union Budget 2023.
- 46% of the respondents feel that hydrogen powered vehicles will be more difficult to maintain than regular fuel vehicles whereas 18.6% of them feel that they will not be difficult to maintain.
- 76.1% of the respondents agree that people will usually prefer to purchase products from well-known companies rather than new companies while 11.5% of them disagree with the statement.

- Most of the respondents would pay within the range of 20 lakhs to 35 lakhs for a hydrogen fuel cell car. However, a hydrogen fuel cell car is more likely to cost an individual a price within the range of 35 lakhs to 55 lakhs on average.
- Tata and Toyota were the most popular responses from the respondents as which company they thought would be the first to introduce hydrogen fueled cars in the country. As of March 30th 2022, Toyota announced the start of a pilot project in India of testing the Toyota Mirai, a hydrogen fuel powered car, and the Union Minister of Road Transport and Highways, Nitin Gadkari tested the car himself. Toyota might have the first-mover advantage when it comes to the usage of hydrogen as a fuel in vehicles in India. Hyundai is also on the verge of getting the Hyundai Nexo into the Indian market. The company unveiled its hydrogen fuel cell SUV at the Auto Expo in January of 2023.

CONCLUSION:

From the above findings, we conclude that a significant amount of the Indian population is aware of the workings and concept of hydrogen fuel cell vehicles and a majority of them are willing to switch from conventional fuel vehicles to hydrogen fuel vehicles once a few common conditions have been met. Automobile companies that try to launch these vehicles in the Indian market must ensure that their vehicles are completely ready to be sold commercially and that there are zero or minimal malfunctions. The companies must also guarantee the safety of the vehicles and make sure they are not difficult to maintain. We can also conclude that this is the correct time for companies to research and test out hydrogen fuel cell vehicles in the Indian market due to the rapidly depleting resources in the country. It will take time for these vehicles to be a common presence and widely popular in the country as their development is still in the nascent stage. The industry is new in India and still growing and developing. However, since such vehicles are already present in multiple international markets, people in India may expect a refined version of the vehicles, rather than a first prototype version. Companies will have to work on the targeting and positioning of the product because the average price of hydrogen fuel cell cars is higher than what most potential consumers are willing to pay for them.

WEBLIOGRAPHY:

- https://timesofindia.indiatimes.com/auto/policy-and-industry/fuel-cells-as-future-of-clean-mobility-market-expectations-and-challenges/articleshow/96243692.cms
- https://driveclean.ca.gov/hydrogen-fuel-cell#:~:text=How%20They%20Work,powers%20the%20car's%20electric%20motors.
- https://www.sciencedirect.com/science/article/pii/S2352146520301368

ISBN NO: 978-93-5810-851-4

- https://www.researchgate.net/publication/333446536_Hydrogen_Fuel_Cell_Vehicles_Current_Status_and_Future_Prospect
- https://iopscience.iop.org/article/10.1088/1755-1315/512/1/012136/pdf.
- https://iicec.sabanciuniv.edu/sites/iicec.sabanciuniv.edu/files/2020-11/iicecenergyandclimatepaperhfvcdoganucok_0.pdf
- https://ietresearch.onlinelibrary.wiley.com/doi/10.1049/iet-est.2020.0014
- https://onlinelibrary.wiley.com/doi/10.1002/ente.202000179
- https://www.sciencedirect.com/science/article/pii/S0196890420313182
- https://www.sciencedirect.com/science/article/pii/S2773032822000141
- https://www.sciencedirect.com/science/article/pii/S2352146520301368
- https://www.sciencedirect.com/science/article/pii/S0040162522008113
- https://www.sciencedirect.com/science/article/pii/S1361920920305459
- https://www.aps.org/policy/reports/occasional/upload/fuelcell.pdf

A STUDY ON THE APPLICATION OF FUTURE'S SMART ENERGY METER WITH SPECIAL REFERENCE TO ENERGY MANAGEMENT.

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ABSTRACT:

Upgradation of the energy industry is the key to a successful energy transition, an efficient energy utilization plays a vital role in the development of smart grids in power systems, Hence the energy grid needs to be implemented dynamically to absorb different energy sources, so proper monitory and controlling of energy consumption is a chief priority, Thus this future smart meter helps in home automation using IoT and enabling wireless communication which can be a great step towards Digitalization, Smart energy meter is NGT which is highly efficient and user friendly, which can prove a great way to save and control the usage of energy, IoT can be utilized for applications of the smart grid including energy consumption, energy demand side management and various areas of energy production, Internet of Things (IoT) presents an efficient and better way to transfer details to the consumer wirelessly This automation can reduce the effort of collecting electricity utility meter readings manually

Keywords: *NGT, IoT, Smart energy meter*

1. INTRODUCTION

The evolution of any country depends upon a well-knitted system. With the rapid growth of Energy is a non-renewable source therefore we must use it judiciously for its sustainable utilization, Growth, and development. This Smart Energy Meter System (SEMMS) promotes an adequate asset of energy savings for people, this study is to measure electricity consumption in the household and generate its bill automatically using IoT. The Arduino microcontroller is employed to coordinate the activities with the digital energy meter system and to connect the system to a Wi-Fi network and subsequently to the Internet. This SEMS is capable of continuously monitoring and

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notifying about the number of units consumed by the energy consumer. The energy consumption is calculated, and the bill is updated on the internet by using a network of Internet of Things. This automation can reduce the need for manual labour.

Smart energy meter Monitoring System utilizes the features of embedded systems i.e., Hardware and software combination to implement desired functionalities. A smart energy meter monitoring system is a unit measuring meter. This device will in turn be connected to the main server with the help of IoT. The algorithm is such that the device will generate the rate of units and send it to the user's smartphone via email, android application, and web dashboard which will be connected to the same server where the smart meter system is connected. On the Smartphone and web-dashboard user will get the bill amount based on the energy consumption, The interesting feature is that the user can set his limit of consumption as per his requirement from any remote location. The application will have the option of setting a threshold limit and turning the meter on/off. The user can also check the units daily as they will be updated continuously.

2. PROPOSED SYSTEM

The proposed system is cost-effective and compact, so, installation becomes much easier. The readings are uploaded at every interval into a pall space called “ADAFRUIT.IO ” and monitoring can be done by consumer/ client as well as supplier/ patron.

In this proposed system, an energy monitoring system is connected to ESP8266 12E via Arduino uno. This will affect in collecting reading of energy consumed and reflecting it to the MQTT dashboard and hence consumer/ client can review the real-time consumption on the web dashboard feed whenever necessary.

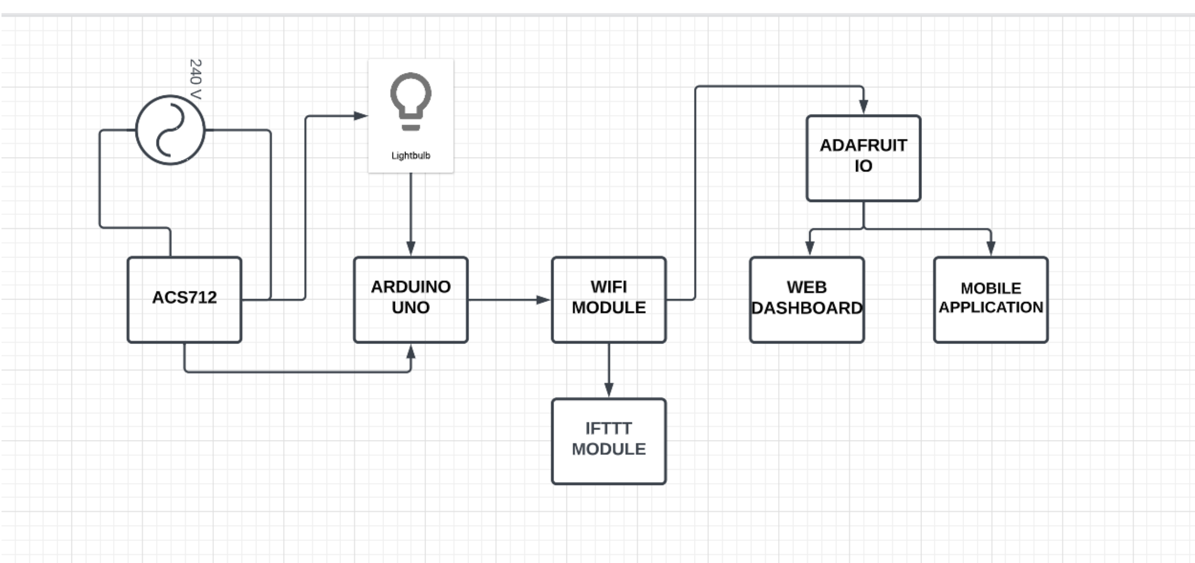

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Fig. 1: Functional block diagram of smart energy meter monitoring system

The main functional unit of this system is bandied henceforth.

- Wi-Fi module: ESP8266 is the name of the microcontroller developed by Espressif Systems which is a company based out of shanghai. This microcontroller could perform WIFI related activities hence it is widely used as a WIFI module. There are many types of ESP8266 module available ranging from ESP8266-01 to ESP8266-12. The one that we are using in the project is the ESP8266-12.
- Current Sensor: The ACS712 is a fully integrated, hall effect-based linear current sensor with 2.1kVRMS voltage isolation and an integrated low-resistance current conductor. it's simply put forth as a current sensor that uses its conductor to calculate and measure the amount of current applied. The major advantage of using ACS712 Current Sensor is that it can measure both AC and DC current and it also provides isolation between the Load (AC/DC load) and Measuring Unit.
- Arduino Uno board : The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. Arduino microcontroller can provide a quick tool for developing projects that involve sensors. Arduino microcontroller is easy to program.
- Load: A 12-15W bulb are connected as loads to the system.
- Power supply: A 230V ac power force is given to the system to power the energy meter monitoring system. Wi- Fi module power is supplied by 5 V DC.
- MQTT Platform : Adafruit IO is a platform designed to display, respond, and interact with your project's data. The data is private (data feeds are private by default) and secure . It's the internet of things - for everyone!
- IFTTT : IFTTT is an abbreviation of "if this then that", It's a free web service that helps users automate web-based tasks and improve productivity it connects developers' devices, services, and apps to create applets that perform automation. It provides flexible APIs.

The Arduino uno has been connected to acs712 current sensor to measure the current flowing from the power circuit to the object connected in and as the consumption takes place current sensor will sense the unit and send to Arduino and Arduino uno will process calculations and send them to esp8266 Wi-Fi module and this Wi-Fi module will

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upload the calculated power consumption data and bill to the server which is connected to web-dashboard and android application and the user and company will be able to check the real-time consumption info.

3. PRACTICAL IMPLEMENTATION

To analysis the proposed smart energy meter monitoring system, the system is practically implemented. The practical implementation with circuit diagram is shown in Fig 2.1 below ;

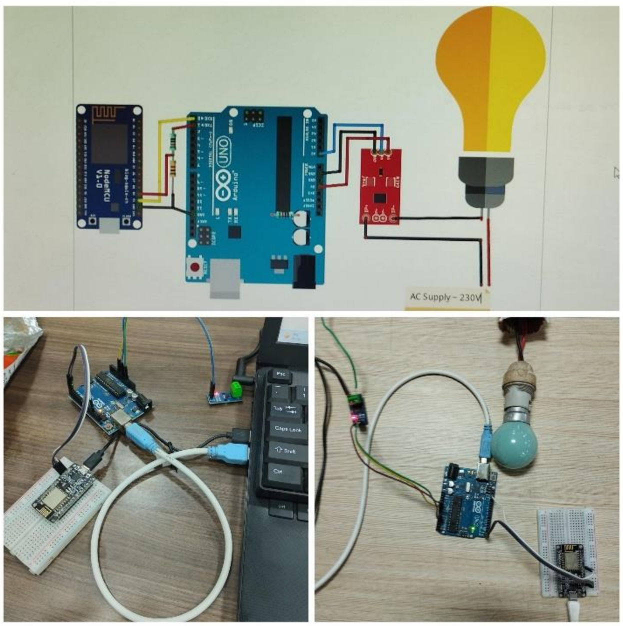

Fig 2.1

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Fig 2.2

Fig 2.1 shows the hardware implementation without connecting the main supply,

Fig 2.2 shows the hardware implementation when the connection from the main supply is turned on with the load connected.

Fig 2.3

Fig 2.3 Shows wi-fi module connected with Mqtt server to transfer data collected from Arduino .

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Created at	Value	Location	
2023/02/23 6:38:18PM	0.00		×
2023/02/23 6:38:13PM	0.00		×
2023/02/23 6:38:08PM	0.00		×
2023/02/23 6:38:03PM	0.00		×
2023/02/23 6:37:58PM	0.00		×
2023/02/23 6:37:53PM	0.00		×
2023/02/23 6:37:48PM	0.00		×
2023/02/23 6:37:43PM	0.00		×

Fig 2.4

Fig 2.4 shows the feed value 0 as the Wi-Fi module transfer the data when no load is connected.

Created at	Value	Location	
2023/02/25 5:59:45PM	4.20		×
2023/02/25 5:59:40PM	4.20		×
2023/02/25 5:59:35PM	3.80		×
2023/02/25 5:59:30PM	3.80		×
2023/02/25 5:59:25PM	3.56		×
2023/02/25 5:59:20PM	3.56		×
2023/02/25 5:59:15PM	3.06		×
2023/02/25 5:59:10PM	3.06		×
2023/02/25 5:59:05PM	2.60		×
2023/02/25 5:59:00PM	2.60		×
2023/02/25 5:58:55PM	2.24		×

3.1 Result and Discussion

The result obtained has been uploaded to an open IoT platform "Adafruit.io" help us to store, collect, and analyze data from Arduino and other supporting hardware. Initially, the information is transferred to the cloud via ESP 8266 12E (Wi-Fi Module) as the load is not energies to the system was 0. After connecting the load, information is transferred to the cloud using a Wi-Fi module reflected on the feed. Fig. 2.5 shows the initial data transferred to the cloud with the connection of the load.

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3.2 Conclusion

This project provides wireless meter monitoring system that can monitor and analyze the data at every interval providing accurate results with less error. Some of the advantages of this smart system are :

- Energy Utilization
- High Accuracy
- Remote access
- Less manual labour.

4. REFERENCES

[11] https://en.wikipedia.org/wiki/National_Grid_%28India%29
[12] https://www.tatapower.com/pdf/whatsnew/article-12jan16.pdf
[13] https://www.sciencedirect.com/science/article/pii/S2352484722005960
[14] https://www.sciencedirect.com/science/article/pii/S2352484722005960
[15] https://www.researchgate.net/figure/Prototype-of-AEMMS-in-a-simulated-environment_fig3_324
[16] https://www.researchgate.net/publication/331606305_IOT_Based_Smart_Energy_Meter_for_Efficient_Energy_Utilization_in_Smart_Grid

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A COMPREHENSIVE STUDY OF FINDING THE FACTORS BEHIND ACCIDENTS IN AUTOPILOT CARS (TESLA)

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ABSTRACT:

Advanced technology has led to significant advancements in AVs. Automated vehicles that operate in "Autopilot" mode have grown in popularity in recent years. Tesla Inc. was sued in June 2020 for a Maryland highway crash in which the airbags on a Model 3 failed to activate, leaving a college professor with brain damage. Even after the lawsuit, the frequency of accidents increased dramatically in 2022, and was significantly higher than in prior years. In this paper, we attempted to comprehend the causes of the accidents, the most significant of which were the lack of safety measures provided by the business and the careless behaviour of the car's users. We have used Natural Language Processing (NLP) to analyse the descriptions of the accidents and clustered them into 5 different categories using K-means clustering.

Keywords: *Autopilot cars, Self-driving cars, Tesla, Autopilot accidents, Autonomous vehicles, Natural Language Processing, Exploratory Data Analysis, ADAS.*

1.INTRODUCTION:

Autonomous Vehicles, also known as Self-driving vehicles, are the type of vehicles that drive without any assistance from humans. It travels from point A to point B using instruments such as LiDAR, radar, and ultrasonic sensors, as well as cameras and other technologies such as GPS navigation, adaptive cruise control, and auto-steering. These self-driving cars are becoming increasingly common. An AV not only saves fuel, but it also reduces pollution produced by conventional vehicles that run on gasoline and diesel. It can be extremely beneficial for physically impaired people to drive. Although AVs minimise human error, they also make mistakes. Making sound decisions as a machine can be challenging if appropriate instructions or algorithms are not embedded which may lead to accidents.

In this research project, we used the Tesla Company's dataset of autonomous vehicles. Tesla has released four AV versions, named "S", "X", "Y", and "3". The features of Tesla Autopilot are comparable to international Tier 2 SAE vehicle automation. Lane centring, traffic-aware cruise control, automatic lane changes, semi-autonomous navigation on restricted access motorways, self-parking, and the ability to summon the vehicle from a garage or parking spot are among its features. The company has stated that they are working to make the autopilot comparable to a Tier 5 vehicle automation.

Tesla launched its first self-driving car in September 2014, and demand for its self-driving vehicles has grown steadily since then. However, the number of accidents caused by these vehicles has grown over time. Some were caused by human error, but there is a heated discussion about the effect of autopilot on the number of accidents. People all over the globe are concerned about the safety of these vehicles.

2.LITERATURE REVIEW:

(Petrović et al., 2020) conducted a comparative analysis of traffic accidents caused by conventional vehicles and autonomous vehicles over a three-year period in California, USA, using data from the California Department of Motor Vehicles, and discovered that collisions with pedestrians and broadside are reduced when autonomous vehicles are used. The paper also claimed that read-end collisions, driving too closely, and unsafe speed were the causes of more damage.

(F. Favarò et al., 2018) performed a study on instances of disengagement of the autopilot mode in autonomous vehicles in situations such as accidents or similar incidents where control is returned to the human in a safe and timely way using data collected by manufacturers in California. According to the article, only one out of every 178 disengagements result in an accident.

(Wang et al., 2020) statistically analysed on-road public AV incident reports in order to help minimise the damage caused by disengagements and accidents in the future growth of autonomous vehicles. According to the review article, safe choices such as alerting and avoiding safety risks such as over speeding must be considered for the safety of both the autonomous vehicle driver and other vehicles.

(Faisal et al., 2019) attempted to learn about the characteristics and capabilities of autonomous vehicles, as well as the changes that autonomous vehicles will introduce in the coming years.

(Severino et al., 2021) have presented different effects of the new autonomous vehicles on the urban transportation system and road development. As the machine analyses it and makes the turn, new or more visible road markings, particularly at junctions, must be engraved.

(Hanselaar et al., 2022) suggested a new feature called safety shell to combat the autonomous vehicles' inadequacy when it comes to efficiency and safety using various case studies.

(F. M. Favarò et al., 2017) examined records from the California Department of Motor Vehicles to determine the causes of accidents reported between 2014 and 2017. The accidents were caused by detection and disengagement, collisions with other vehicles, with rear-end collisions being the most common variety.

(Hevelke & Nida-Rümelin, 2015) posted two moral questions concerning whether it is right: the payment of liabilities by the manufacturers and the compensation paid by the owner in case of accidents and discussed who must be held responsible for the damage caused by accidents.

(Karnouskos, 2020) have investigated five ethical frameworks namely, utilitarianism, deontology, relativism, absolutism (monism), and pluralism to make their case for the acceptance of autonomous vehicles. The paper concluded by stating that more and more research needs to be done in order to make autonomous cars safer and more efficient.

3. METHODOLOGY

Prior to comparing the performance of machine learning models, we first acquired the dataset from Kaggle and then performed exploratory data analysis on it. Here is the detailed overview Analytical Research was used in this article. This study article examines the accidents that occurred while the automobile was in autopilot mode, as well as the circumstances that contributed to the accident. The data was acquired from Kaggle as secondary data. The study was carried out on the Google Colab platform using Python. We ran the analysis in three stages: preliminary analysis, exploratory data analysis (EDA), and natural language processing (NLP). These stages are explored in depth below.

3.1 PRELIMINARY ANALYSIS

The term Preliminary Analysis refers to the processing of the data, understanding the features and attributes, and finding the summary of the data for further analysis. It is carried out to get a better understanding of the data and find out the features or attributes and instances.

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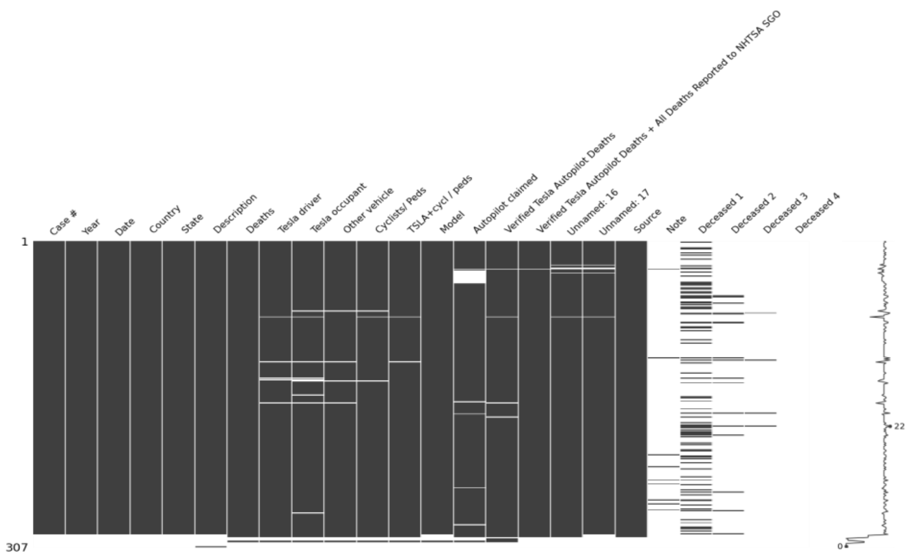
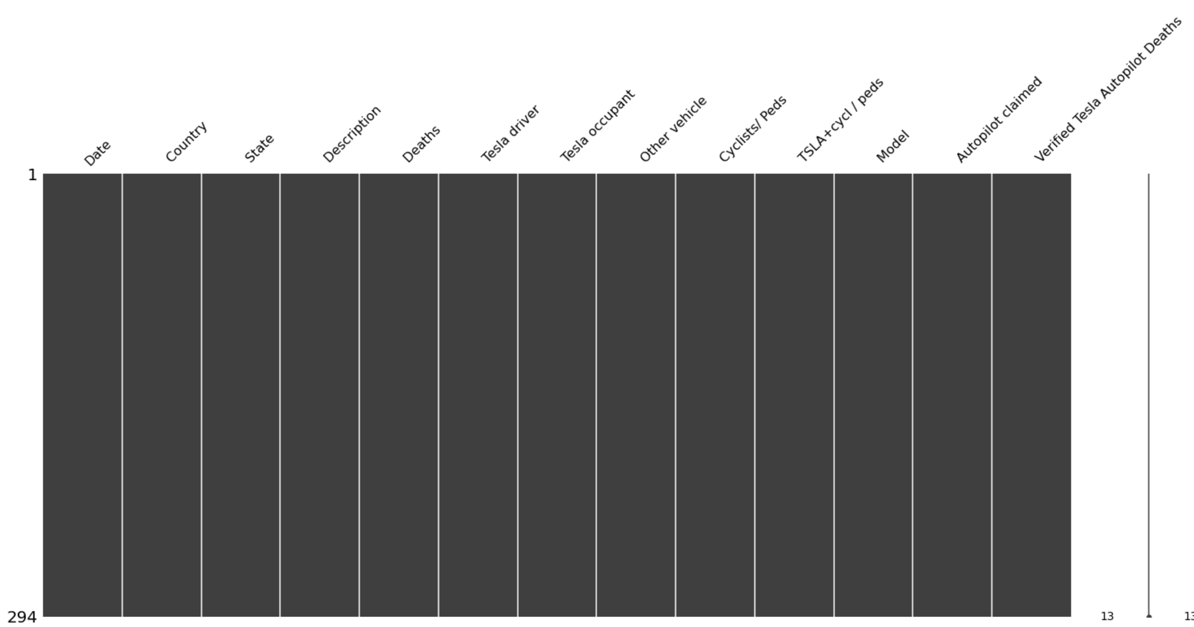
The data was verified and checked from the sources mentioned in the dataset. The first step carried out here is data cleaning. We checked the Null values and replaced them with '-'.

Correlation analysis was done to extract the most relevant features and the most appropriate 13 features were selected out of 24. Fig. 1, is the Dataset before cleaning and Fig. 2, is the Dataset after cleaning.

(fig. 3.1)





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3.2 EXPLORATORY DATA ANALYSIS (EDA)

Data scientists use exploratory data analysis (EDA), which frequently makes use of data visualisation techniques, to examine and analyse data sets and summarise their key properties. It makes it simpler for data scientists to find patterns, identify anomalies, test hypotheses, or verify assumptions by determining how to modify data sources to achieve the answers they need.

3.2.1 Rate of accidents by year, month and date.

We split the 'Date' into year, month and date for individual analysis of the rate of accidents by year, month and date.

From Fig. The accidents by year had a subtle constant increase from 2012 to 2014 but the accidents rose very drastically from 2011 to 2022. The year 2022 witnessed the highest number of accidents, i.e., 93 observed in *Fig. 3*. The technology that was introduced in this period might have been the reason for the substantial increase or the incorrect use of the feature must have caused the hazard. In *Fig. 4,* we can observe that there are more accidents in the months of November and December, and the reason might be that it was the winter season, and the roads were slippery because of the melting snow.

(fig. 3.2)

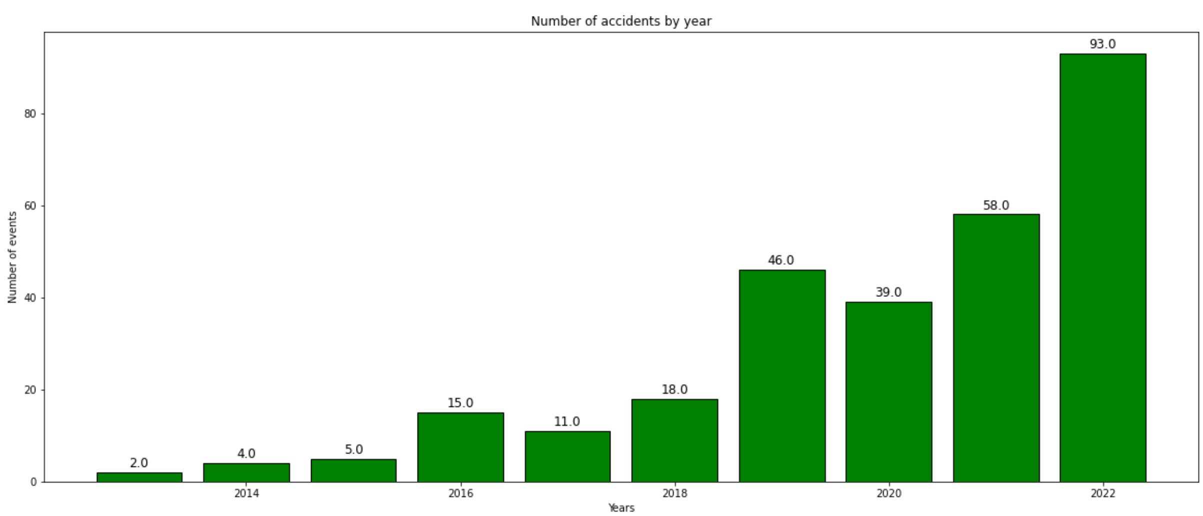

Fig. 3: Number of deaths V/S Number of accidents by year

(fig. 3.3)

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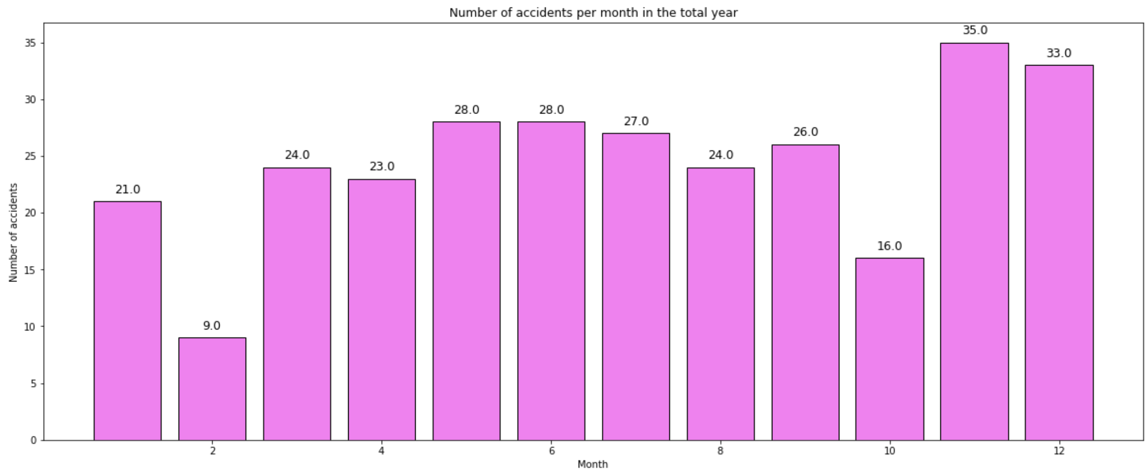

Fig. 4: Number of deaths V/S Number of accidents by months in the year

3.2.2 Death rate analysis of the victims.

When we analysed the individual accidents and the deaths per incident there were 247 cases at least 1 death was recorded, in 38 cases 2 deaths were recorded, in 6 cases 3 deaths were recorded and in 3 cases 4 deaths were recorded. We can see the summary of the Victim Type and the Number of Victims in Table.1.

(fig. 3.4)

Victim Type	Number of Victims		
	1	2	3
Tesla_driver	117	-	-
Tesla_occupant	39	3	1
Cyclists/Peds	42	2	
Tsla+Cyclists/Peds	157	20	3
Other_vehicle	95	11	3

Table. 1: Victim Types and the number of victims

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If we notice, the maximum number of victims are Cyclists/Peds which means the accidents have caused more victims when the car had crashed into someone due to any system failure or due to lack of attention or during disengagement.

The Tesla drivers are affected up to 40% time, and the cause of death due to other vehicles is recorded in 95 cases; by which we can draw the conclusion that maybe the driver got crashed into something or maybe there was some system failure or it can also be the case that the airbags malfunction caused the accident to look severe.

Tesla_occupant victims are 39 as recorded may have gotten into the act of the accident due to either the driver's fault or the system failure. The Cyclists/Peds are 42 and they might be innocent victims or they must have crashed the car by chance due to a lack of balance or attention.

(fig. 3.5)

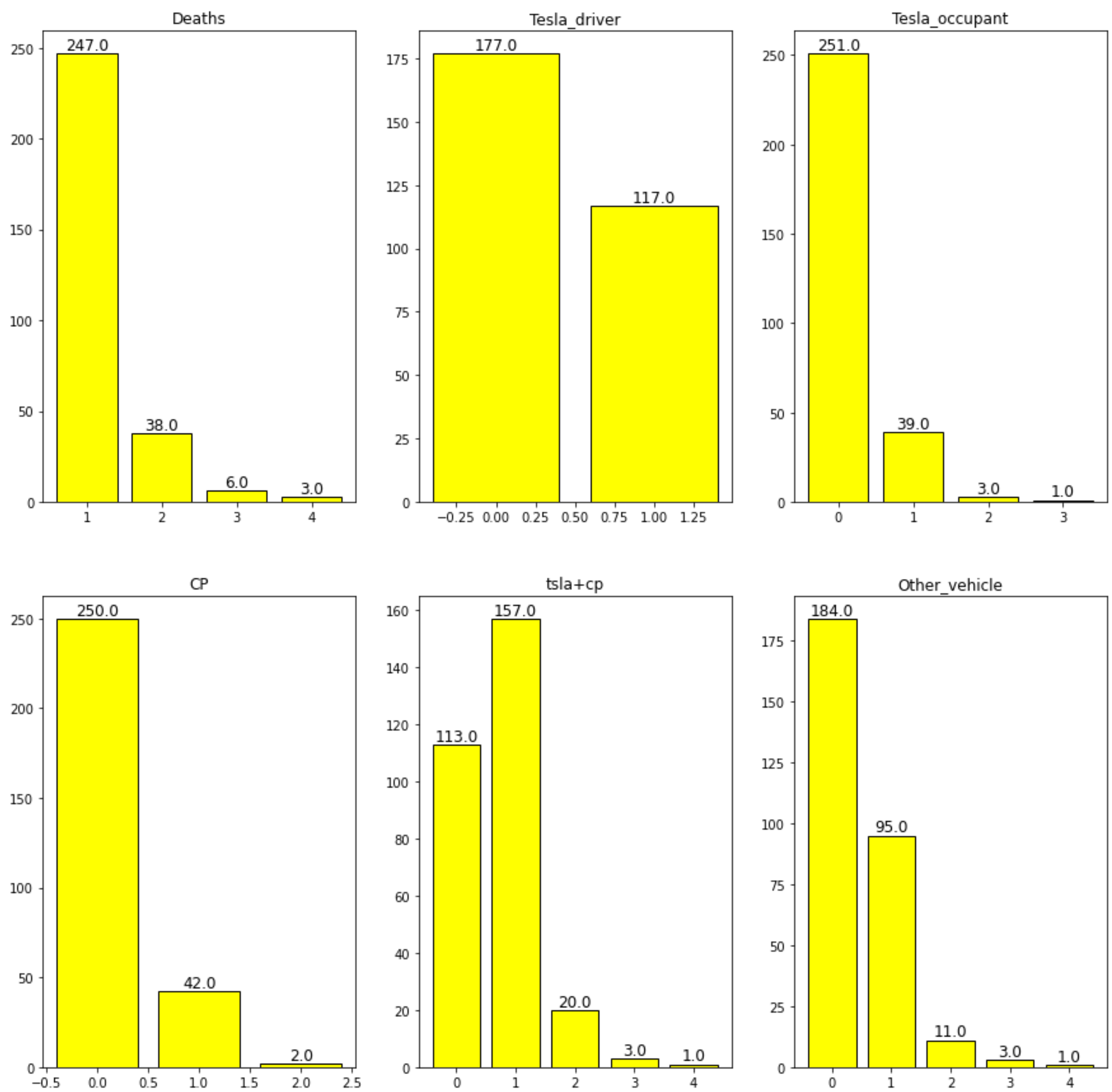

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Fig. 5: Date Rate Analysis of the Victim

Out of all the cases there were only approximately 12% of victims claimed their losses and the Verified Tesla Autopilot Deaths (VTAD) were only approximately 5%; with this, we can draw a conclusion that as the victims claiming their loses were so less the reason behind their accidents might be because of some malfunction and the other 88% of the victims might have been affected due to other factors as the VTAD is so less.

3.3 NATURAL LANGUAGE PROCESSING (NLP)

NLP (Natural Language Processing) models are machine learning models that are designed to process and analyse human language. We build the NLP model using the wordnet and the lemmatizer. The wordnet is used. You used WordNet alongside the NLTK module to find the meanings of words, synonyms, antonyms, and more. The basic organisation of WordNet is concept-based, which means that different words referring to similar concepts are treated together. Lemmeatizer is used in the model as lemmatization is the process of grouping together the different inflected forms of a word so they can be analysed as a single item. It links words with similar meanings, grouped based on whether they are nouns, pronouns, adjectives, or verbs. We are using NLP for the description to understand the accidents. There are 248 unique accident causes recorded and out of which we divide the causes into 5 categories.

(fig. 3.6)

Categories	Cases included for grouping	Accident type count	Percentage
accident_0	Tesla kills a person	35	22.7%
accident_1	Tesla crashes into something	0	0 %
accident_2	Accidents of multiple cars	27	17.5%
accident_3	Tesla catches on fire after the accident	49	31.8%
accident_4	Tesla hits another car	43	27.9%

Table. 2: Grouping of the accident types and the Counts of accident types

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(fig. 3.7)

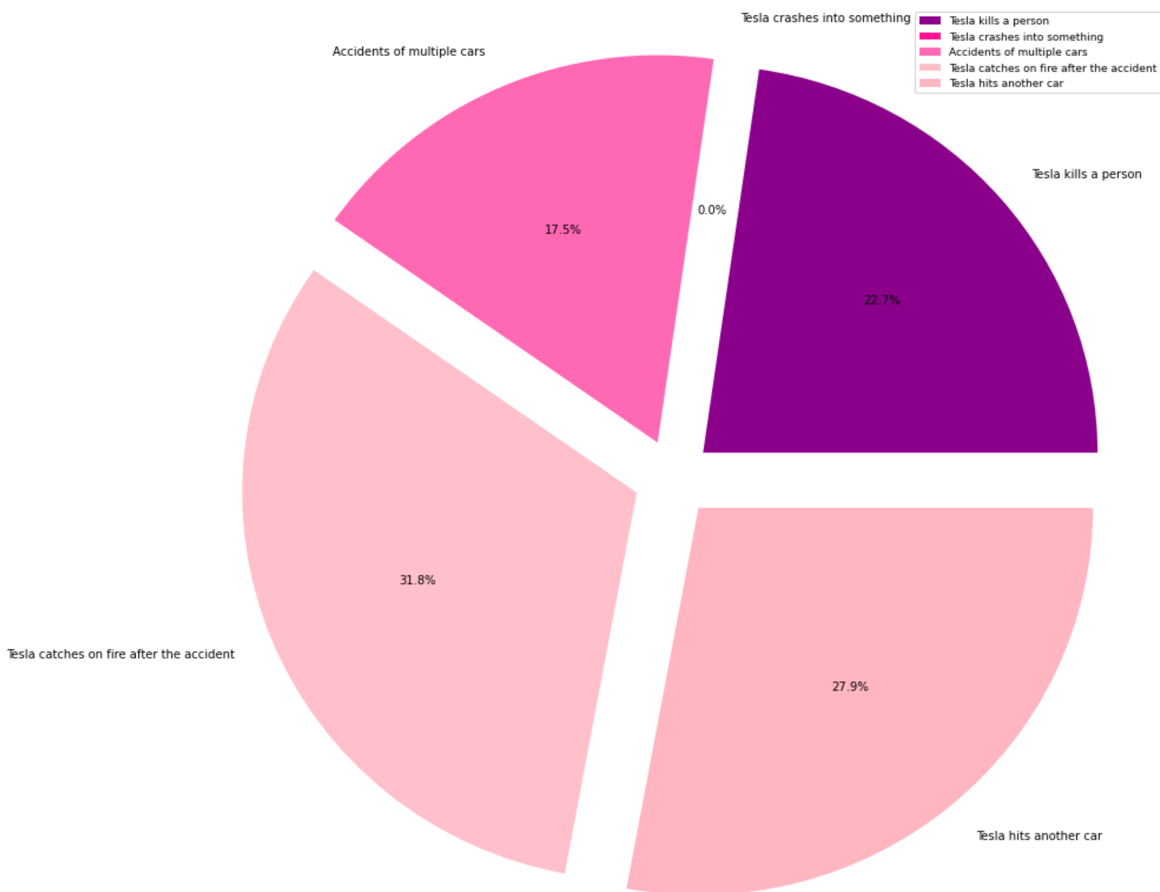

Fig. 6: Counts of accident types V/S Grouping of the accident types

We analysed the accident type by month, and we could see there the highest peaks came in the months of July and October and the reason was that Tesla kills a person.

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(fig.3.8)

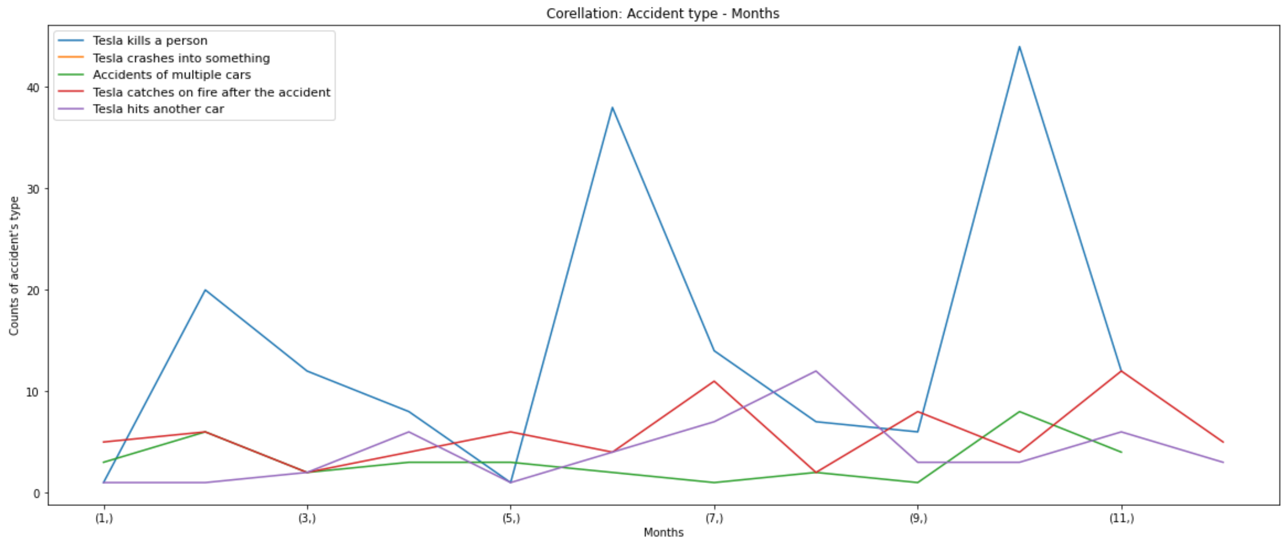

Fig. 7: Correlation: Accident type - Months

The accident type count that resulted in the death of the Tesla Driver, the most recorded reason was Tesla crashes into something shown in *Fig. 9*, by this, it can be concluded that the car had a failed to assure safety for the driver that is, for example, the airbags did not work on time and had a malfunction.

As we can see in *Fig. 10 and Fig. 11,* the major reason for the death of occupants and the passenger's deaths was that the tesla crashed into something. The other vehicle's passengers might have died due to the accident due to their less safeguarded car and the occupants of the tesla might have got deceased due to lack of safety or due to not following the protocol of the cars, for example, wearing a seat belt as the airbags only activate when they are put on.

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(fig. 3.9)

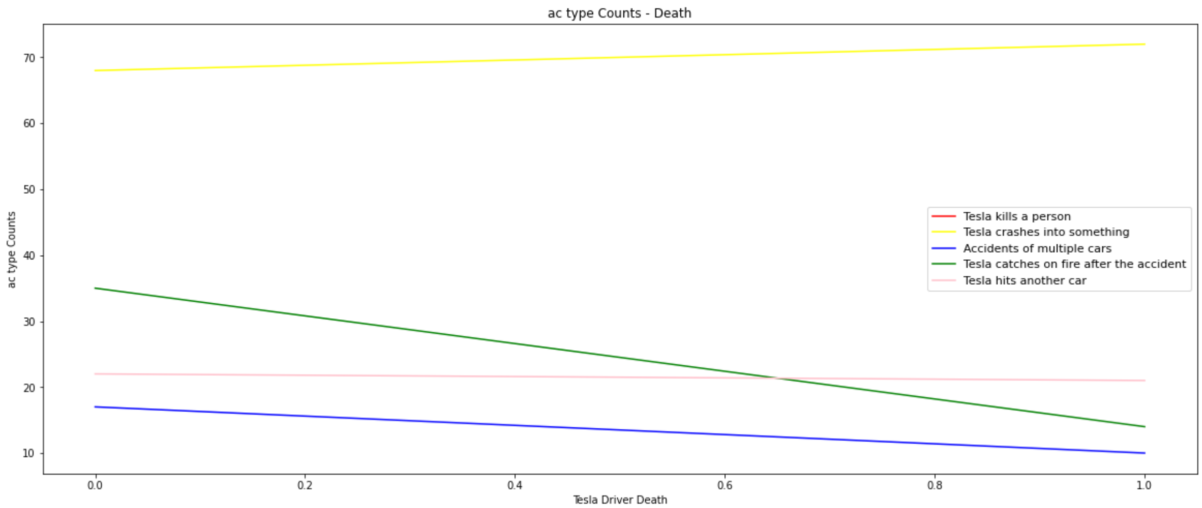

Fig. 8: Accident type count that resulted in the driver's death

(fig. 3.10)

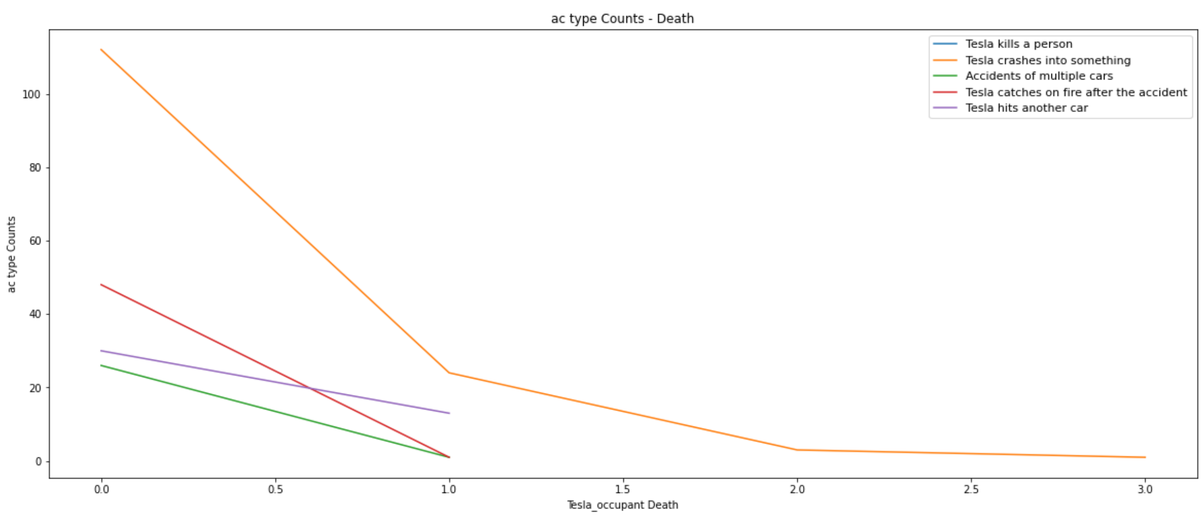

Fig. 9: Accident type count that resulted in the occupant's death

(fig. 3.11)

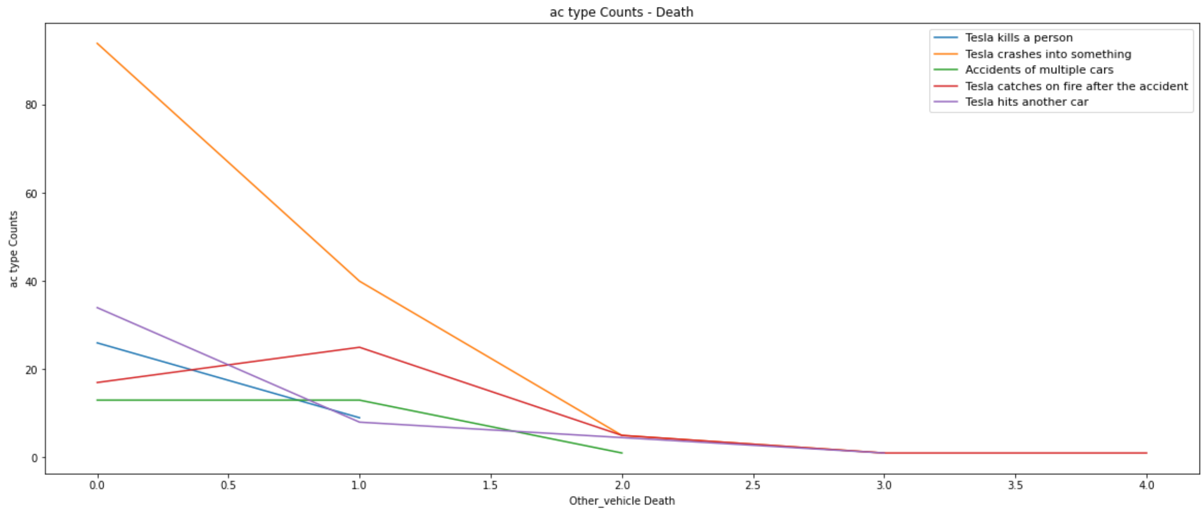

Fig. 10: Accident type count that resulted in other vehicle passengers' death

3.3.1 Analysis of the Accident Type count with the event years.

As we observe *Fig. 12,* we can see that as we concluded in *Fig. 9*, the maximum number of accidents happened in the year 2022 and the most recorded factor was tesla crashing into something.

(fig. 3.12)

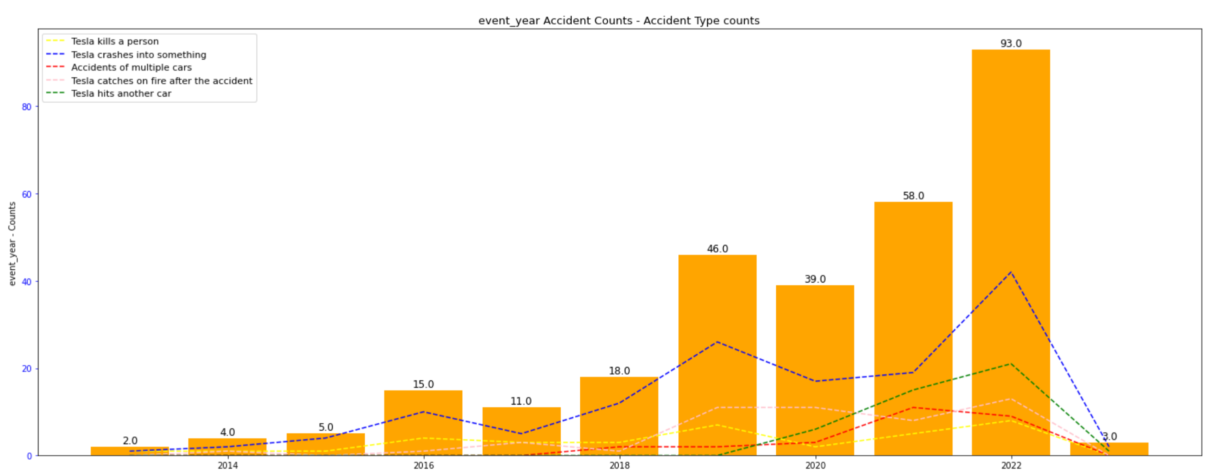

Fig. 11: Event Year Accident counts - Accident Type counts

3.3.2 Plotting the factors V/S the Accident Type counts.

In *Fig. 13*, by using the subplot we have plotted all the factors V/S the Accident Type Count.

(fig 3.13)

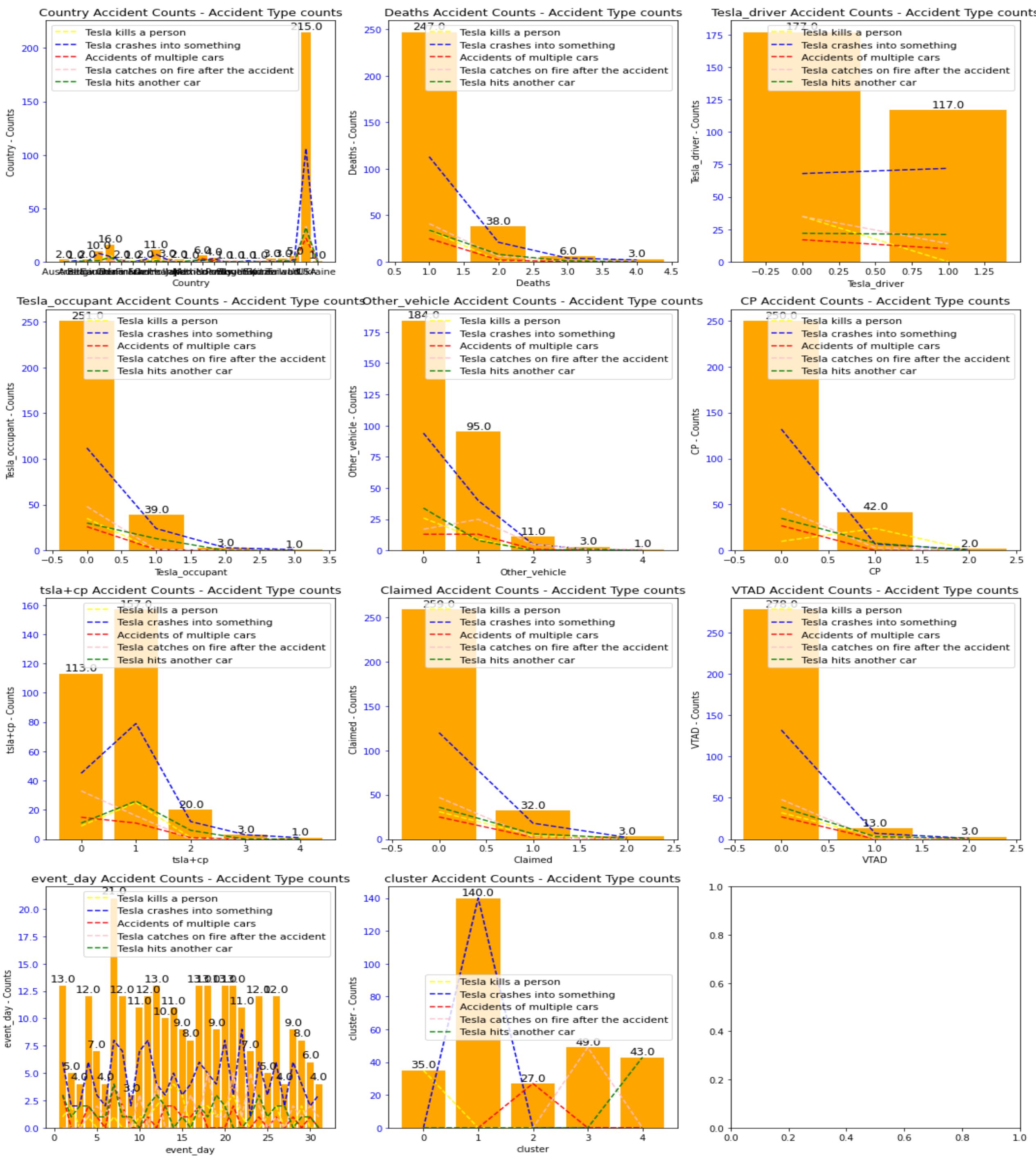

Fig. 12: Subplot of the factors and the Accident Type count

4.CONCLUSION

The IIHS found that about 42% of the Tesla Autopilot users were comfortable letting the system drive the vehicle without them watching what was happening on the road. This neglected and careless behaviour of the users must have been one of the main reasons for the cars to crash as if we need to observe the road conditions and the surroundings and change the particular settings for the system to move smoothly. The Ludicrous mode by Tesla promises zero to 100 kmph speed and this could also result if the driver is not paying attention. The Model X and Model S vehicles were recalled due to the potential risk of power steering assist failure after driving through sections of rough pavement or a violent pothole strike. The new technology which was implemented in the duration of 2021 should be improved and checked as the death rates increased drastically. Car users should strictly follow the driver's manual and should be less distracted and should pay attention to the condition of the surroundings while driving.

5.REFERENCES

1. Faisal, A., Yigitcanlar, T., Kamruzzaman, Md., & Currie, G. (2019). Understanding autonomous vehicles: A systematic literature review on capability, impact, planning and policy. *Journal of Transport and Land Use*, *12*(1). https://doi.org/10.5198/jtlu.2019.1405
2. Favarò, F., Eurich, S., & Nader, N. (2018). Autonomous vehicles' disengagements: Trends, triggers, and regulatory limitations. *Accident Analysis & Prevention*, *110*, 136–148. https://doi.org/10.1016/j.aap.2017.11.001
3. Favarò, F. M., Nader, N., Eurich, S. O., Tripp, M., & Varadaraju, N. (2017). Examining accident reports involving autonomous vehicles in California. *PLOS ONE*, *12*(9), e0184952. https://doi.org/10.1371/journal.pone.0184952
4. Hanselaar, C. A. J., Silvasl, E., Terechko, A., & Heemels, W. P. M. H. (2022). Detection and Mitigation of Functional Insufficiencies in Autonomous Vehicles: The Safety Shell. *2022 IEEE 25th International Conference on Intelligent Transportation Systems (ITSC)*, 2021–2027. https://doi.org/10.1109/ITSC55140.2022.9922405
5. Hevelke, A., & Nida-Rümelin, J. (2015). Responsibility for Crashes of Autonomous Vehicles: An Ethical Analysis. *Science and Engineering Ethics*, *21*(3), 619–630. https://doi.org/10.1007/s11948-014-9565-5
6. Karnouskos, S. (2020). Self-Driving Car Acceptance and the Role of Ethics. *IEEE Transactions on Engineering Management*, *67*(2), 252–265. https://doi.org/10.1109/TEM.2018.2877307
7. Petrović, Đ., Mijailović, R., & Pešić, D. (2020). Traffic Accidents with Autonomous Vehicles: Type of Collisions, Manoeuvres and Errors of Conventional Vehicles' Drivers. *Transportation Research Procedia*, *45*, 161–168. https://doi.org/10.1016/j.trpro.2020.03.003

8. Severino, A., Curto, S., Barberi, S., Arena, F., & Pau, G. (2021). Autonomous Vehicles: An Analysis Both on Their Distinctiveness and the Potential Impact on Urban Transport Systems. *Applied Sciences*, *11*(8), 3604. https://doi.org/10.3390/app11083604
9. Wang, J., Zhang, L., Huang, Y., Zhao, J., & Bella, F. (2020). Safety of Autonomous Vehicles. *Journal of Advanced Transportation*, *2020*, 1–13. https://doi.org/10.1155/2020/8867757

AUTOMATED CAR PARKING SYSTEM

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ABSTRACT:

This paper described an automated car parking system. The system can be used anywhere from the household to the industrial sector. Because the simplicity of this project, people who have less knowledge of the circuits can also use it without facing any problems.

This Automated car parking system will only accept authorized users to enter into the parking lot with the help of RFID tags. It will be easy to find the space where user can park their vehicle by using IR sensors and it will get display on the LCD screen at the parking entrance.

It will also reduce air pollution and provide an efficient system with no wastage of time and fuel in searching for vacant parking lots.

Keywords: *Automated Car Parking , RFID, Authorization, IR sensors, LCD*

INTRODUCTION:

Car parking problem has some problems with how to check the car number inside, how to monitor parking entry and exit movements, how to check if there is room inside for more cars or no cars and parking security.

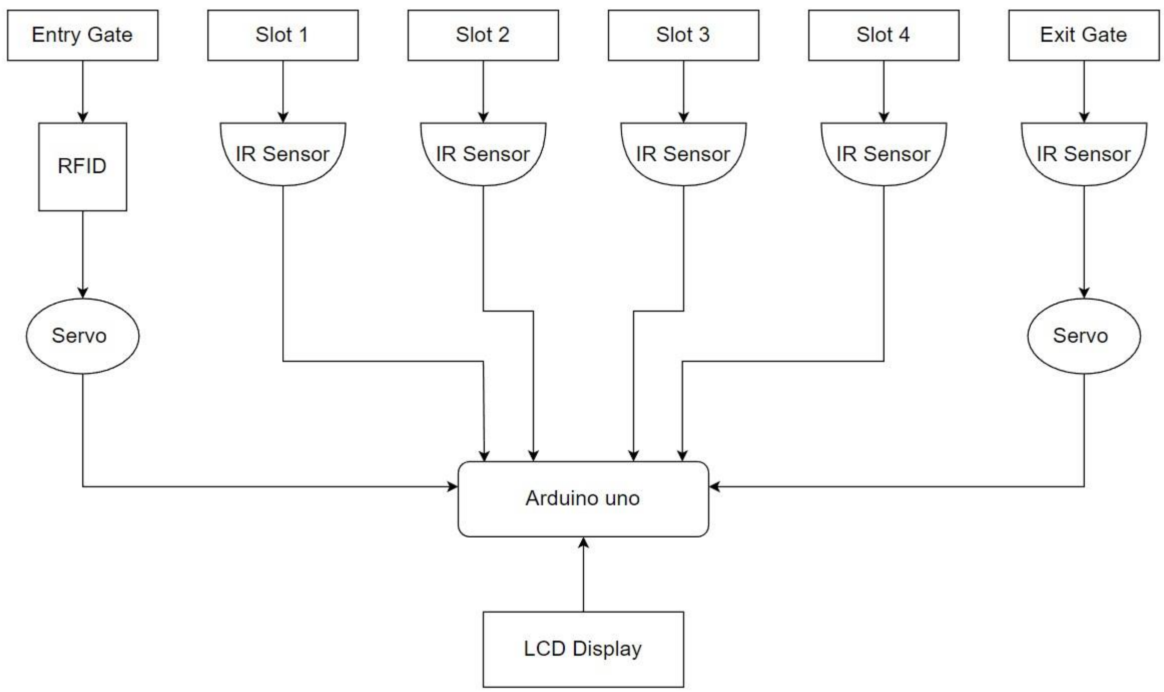
The solution system suggested in this document attempts to solve this problem by detecting available parking slots in the parking lot using IoT technologies and posting the same on a display for user's kind reference.

This system proves to be useful for the needs of car parking automation and thus helps to reduce the time of the car driver, as the search of free parking space is handled by the Parking Control Unit. There is much fuel and time lost by countless commuters to find a parking spot. This became our main motivation to develop a system where commuters can get parking information easily, because time saved is time earned.

HARDWARE DESIGN:

Our automated car parking system is composed of Arduino UNO, RFID module, IR sensors, Servo Motor and LCD Display. The detailed hardware composition is shown in figure.

(fig. 2.1)



a. Arduino:

The Arduino used in the project is Arduino UNO. This part is the heart of the project. It checks for the entry and exit of car. When car will arrive, the user will swipe RFID card on RFID reader, it will check whether the card is authorized or not. If the card is authorized it will open the gate automatically. At the same time, it shows the available slot as well. At exit gate, the sensor will detect the car and open the gate automatically.

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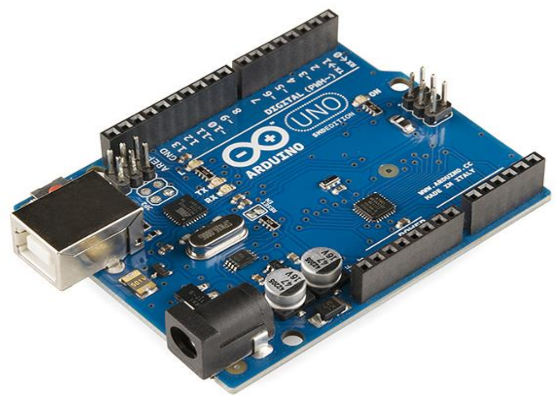
(fig. 2.2)



b. **RFID Module:**

When car will arrive, the user will swipe RFID card on RFID reader, if the card is authorized the gate will open. At the same time, it shows the available slot as well on display. If the car is un- authorized the gate will not open.

(fig. 2.3)

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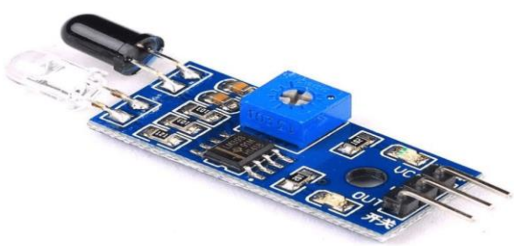
c. IR Sensor:

IR sensor will detect the cars on the parking slots. Each slot will contain an IR sensor. It also has an IR sensor on the exit door, which will detect the exit car and the door will open.

(fig. 2.4)



d. LCD Display:

LCD Display will display whether the user is authorized or not. At the same time, it displays the available slot as well. If the slot is full, it will also display the “Slots Full” text. At the exit door, when the car goes, it will display "Exit" text.

(fig. 2.5)

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e. Servo Motor:

It uses micro servo motor 9g. When car will arrive, if the card is authorized the gate will open automatically. If the car is un- authorized the gate will not open. At the exit door, when the car is leaving, it will also open the automated door.

(fig. 2.6)

<u>SOFTWARE DESIGN:</u> (fig. 3.1)

```
#include <SPI.h>
#include <MFRC522.h>
#include<Servo.h>
#include <LiquidCrystal_I2C.h>

LiquidCrystal_I2C lcd(0x27,16,2);
Servo Sentry;
Servo Sexit;

#define SS_PIN 10
#define RST_PIN 9
#define Exit 2
#define S1 3
#define S2 4
#define S3 7
#define S4 8

int totalSlots = 4;
int slotAvailable;
MFRC522 mfrc522(SS_PIN, RST_PIN);

void setup() {
  Serial.begin(115200);   // Initiate a Serial communication
  SPI.begin();
  mfrc522.PCD_Init();
  lcd.begin();
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Smart Parking");
  lcd.setCursor(5,1);
  lcd.print("System");
  pinMode(Exit,INPUT);
```

APPLICATIONS:

This prototype can be used by the multiple corporate companies to provide a parking slot which will advance the parking system. The application can be used for managing and controlling various reports and operations of the parking system.

Automated Car parking system can also be applied in situations similar to multistorey parking garages such as freestanding above ground, under buildings above grade and under buildings below grade. Automated Car parking system can also be used in Private Housing societies.

FUTURE SCOPE:

For future, by using GPS system we can find where the car park and also we can find number of vacancy available in parking system.

The sensors detect whether the parking slot is available or unavailable and transmit information wirelessly to the database and then to the user. Registered vehicles may be parked in the available space and the user may locate the car at any time using the mobile application.

CONCLUSION:

This paper described an automated car parking system. The system can be used at all places starting from domestic to the industrial sectors. Because the simplicity of this project, people who have less knowledge of the circuits can also use it without facing any problems.

This Automated car parking system will only accept authorized users to enter into the parking lot with the help of RFID tags. It will be easy to find the space where user can park their vehicle by using IR sensors and it will get display on the LCD screen at the parking entrance.

It will also reduce air pollution and provide an efficient system with no wastage of time and fuel in searching for vacant parking lots.

REFERENCES:

1. https://www.researchgate.net/publication/326833971_Study_on_Automated_Car_Parking_System_Based_on_Microcontroller

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2. https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/iet-its.2018.5021
3. https://www.ijitee.org/wp-content/uploads/papers/v8i9S/I10350789S19.pdf
4. https://core.ac.uk/download/pdf/235050068.pdf
5. IoT based smart parking system

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HEALTH CARE SOLUTIONS USING AYURVEDA AND NATURAL INGREDIENTS

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ABSTRACT:

This research paper discusses the hazardous effects of the everyday products that people use. The long-term side effects of these products include cancers, renal disorders, and neurological disorders among others. Recently Unilever Plc recalled their popular brands of aerosol dry shampoos in India, after it was discovered that they were contaminated with benzene, a chemical that can cause cancer.

In the past year and a half, a number of sunscreens have been pulled from shelves due to their toxic ingredients such as Johnson & Johnson's Neutrogena, Beiersdorf AG's Coppersone along with spray-on antiperspirants like Procter & Gamble Co.'s Secret and Old Spice and Unilever's Suave. In the late 2020, an investigation conducted by the Centre for Science and Environment (CSE), most of the major honey brands being sold in the Indian markets as pure, failed to pass the adulteration test in Germany. It is therefore important to educate consumers about the toxic products and also suggest better and safe substitutes for them.

Keywords: Skincare, personal grooming, natural ingredients, Ayurveda products, healthcare

1. INTRODUCTION:

Health is a state of complete physical mental and social well-being not merely the absence of disease or infirmity. There has been a significant rise in people visiting dermatologists and doctors for allergies and that their symptoms recur frequently.

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Body and personal care products are designed for the purpose of enhancing, cleaning, protecting, beautifying appearance. The body care products include skin moisturizers, perfumes, make up products, shampoo among others.

It is important to note that unlike drugs (medicines), cosmetics are not subjected to and pass premarket screening tests where they are proven to be safe and effective before they are marketed. Most of the everyday cosmetic products, starting from toothpaste to hair care and skin care products that we use contain various toxic chemicals and preservatives like sulphates, parabens, phthalates, synthetic colors, fragrance, triclosan, polyethylene glycol among others. These chemicals can irritate eyes, skin, interfere with brain function, can cause cancers, ADHD (attention deficit hyperactivity disorder), skin allergies, respiratory disorders, dermatitis, fatigue, headache and other side effects in the long run. To get rid of these problem in long term, natural ingredients and ayurvedic products should become a priority.

From our ancient times, natural ingredients like neem, aloe Vera, coconut oil, camphor, haldi, etc. aroused to treat face, hair and body issues. These ingredients are extremely beneficial and are almost found in every Indian household.

2. LITERATURE REVIEW:

(Huntoon, E. (2017)).

Ayurveda is translated as the “Science of Life” or “Science of Lifespan.” It is not merely a system of medicine; rather it is a way of life that aims to increase lifespan by preventing or delaying the aging process. Its objective is to create optimal health and well-being through a comprehensive approach that addresses mind, body, behavior, and environment.

(Payyappallimana, U., & Venkatasubramanian, P. (2016))

Ayurveda is the oldest healthcare systems that has ever evolved. The term Ayurveda comprises two words – ayu (life) and veda (knowledge) and thus deals with various aspects of life. Drug discovery, quality standardization, pharmacological, and clinical validation of the safety and efficacy of medicines have been the mainstream focus areas of Ayurveda research. Pharmacological benefits of many Ayurvedic plants and formulations are being rigorously studied and validated scientifically to be exploited in the treatment of diseases.

Another study by **Dr.Rajeev Sharma (Ghar ka Vaid, 2007),** has elaborated on the scope and significance of Ayurveda beyond the ideas and conventions of modern science. Ayurveda’s approach to healing and well-being factors in multiple variables and touches upon an individual’s physical, mental, spiritual, social and psychological aspects.

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In a study conducted by **Deepak Chopra, M.D. (Perfect health, 2004)**, he recommends ayurvedic products for the overall well-being and increasing immunity. Contrary to popular beliefs, Chopra is of the opinion that natural and ayurvedic products can bring in visible results faster. Also, there are no side effects as the products are natural, organic and even cost effective in most cases.

(Mishra, L., Singh, B. B., & Dagenais, S. (2001))

Ayurvedic medicines offer healthcare therapies without the adverse effects associated with modern drug therapy. It provides relief for many chronic illnesses for which modern medicine is still seeking a cure including diabetes, obesity, rheumatoid arthritis and other various disorders.

3. RESEARCH METHODOLOGY:

Research methodology refers to the systematic investigation of the research problem using various techniques and providing interpretations of the gathered data. This helps researchers to find appropriate solutions to the problem. The data was collected through a questionnaire and the questionnaire was divided into two parts: the first part required the respondents to disclose their age, gender, income while the second part asked the respondents the factors they consider before purchasing, whether they consider the effect of products on environment, whether they prefer to first check a small quantity of product before buying in bulk etc.

The survey was conducted from 5th January to 10th February. The sample size was limited to 50 participants.

3.1 **Sample Profile:**

A sample of 50 people were surveyed. Majority of the respondents were within the age-group of 18-25 with a total of 28 respondents or 56 percent of the sample size. 12 respondents or 24 percent were from the age-group between 25 to 35 and 12 percent or 6 respondents were between 35 to 45 years and the remaining 8 percent were above 45 years of age.

3.2 **Limitations of the research:**

Regional limitations: Most of the respondents were from Mumbai. The preference of people, adaptability to products, perception may differ in different regions.

Time limitations: Intensive research could not be conducted in the 2-month period

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4. DATA ANALYSIS:

Data analysis refers to the critical examination of the assembled and grouped data for the characteristics of the object under study and determining the patterns of relations among the variables.

5. FINDINGS:

- 32% of the respondents considered price, while 20% considered brand, 22% considered quality while 26% considered price, brand and quality before buying products.
- Majority of the respondents were of the opinion that products that use natural ingredients were more effective than those that have chemical composition.
- 72% considered the environmental impact and factors like PETA approved before their purchase.
- 56% were willing to switch to ayurvedic products and products with natural ingredients.
- An overwhelming 82% preferred to a long-term solution to their existing problems.
- However only 46% preferred to make DIY products, highlighting time and other constraints.
- Majority of the respondents preferred to use samples before buying large quantity of a product (76%) and preferred to buy products online (68%).
- 22% devoted 2-4 minutes for personal care, 38% devoted 5-10 minutes and 40% gave more than 10 minutes.
- Allopathic medications suited 62%. Homeopathy was preferred by 12% and ayurvedic medicines were preferred by 26%.
- For common health problems, majority of 70% preferred OTC medicines while only 30% consulted a doctor.

6. CONCLUSION:

This research had answered important questions whether consumers prefer natural products, do they consider factors not directly related to the products like environmental impacts and whether they are looking for a quick fix to their problems or want a permanent solution. Consumers are now aware of the dangers of the toxic chemicals in their everyday and the effects on their health well-being. They do not mind paying a high price for better quality products. Consumers also expect transparency and fair practices from companies. Well-known brands now know that they are under scrutiny from legal organizations and also from consumers. As a result, they have added new organic and natural products in their existing variants.

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7. BIBLIOGRAPHY:

Deepak Chopra, M.D. (Perfect health, 2004), 28-37

Rajeev Sharma (Ghar ka Vaid, 2012)

Huntoon, E. (2017). Complementary and alternative medicine. Oxford Medicine Online, 13(2007), 1011–1019.

Payyappallimana, U., & Venkatasubramanian, P. (2016). Exploring Ayurvedic Knowledge on Food and Health for Providing Innovative Solutions to Contemporary Healthcare. Frontiers in public health, 4, 57.

Mishra, L., Singh, B. B., & Dagenais, S. (2001). Healthcare and disease management in Ayurveda. Alternative therapies in health and medicine, 7(2), 44–50.

8. Webliography:

https://timesofindia.indiatimes.com

https://www.thehindu.com/news

https://skinkraft.com

https://timesofindia.indiatimes.com/business/india-business/dove-other-unilever-dry-shampoos-recalled-over-cancer-risk/articleshow/95081887.cms

https://www.thehindu.com/news/national/10-out-of-13-honey-brands-fail-purity-test-finds-cse-investigation/article33230094.ece

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EMERGENCY VEHICLE BASED TRAFFIC CONTROL

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ABSTRACT:

In India population is growing rapidly day-by-day. Similarly, requirements are adding with the growing population. Now everybody owns one or two vehicles per house, which leads to road accidents and traffic congestion, so when an emergency vehicle like Ambulance, Fire extinguisher and Police van gets stuck in traffic congestion, then saving human life becomes difficult. Thus, under such situations, a promising system is required which can clear path for such emergency vehicles. In the exiting literature, less focus is given towards the problem of providing clear path to emergency vehicles in emergency situations.One of the major challenges is to control the traffic when there are emergency cases at traffic light intersection especially rush hours. This could affect the route for emergency vehicles such as ambulance, fire extinguisher and police car to reach their destination, so to solve these issues, an RFID-based system is proposed, which manages and regulates the traffic signals controls at junctions when the emergency vehicle approaches, by allowing the easy passage out of the traffic congestions. The main objective of this system is to control the traffic and the give special access for emergency vehicles like ambulance and fire extinguisher and all the other emergency vehicles by using the RFID technology. According to our project if any ambulance comes near the traffic post, the traffic signals automatically stop the signals and give green signal for this ambulance with the help of RFID Module. We also have a mobile application along with it which will be used to alert the application user about the emergency vehicle. We have proposed a system and tried to overcome the flaws of those previously system and created an advanced and cost-effective system in comparison to previous systems

Keywords: *Traffic Congestion, RFID Tag – Reader, Emergency Vehicles.*

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1. INTRODUCTION:

An emergency vehicle based traffic control system is a specialized system that aims to improve the efficiency and safety of emergency vehicle operations. Emergency vehicles such as ambulances, fire trucks, and police cars often face significant challenges when navigating through congested traffic on their way to an emergency situation. In some cases, this can result in delays that may impact the ability to save lives or prevent further damage. The emergency vehicle based traffic control system addresses this problem by providing emergency vehicles with the ability to control traffic lights at intersections. By doing so, emergency vehicles can clear intersections quickly and safely, ensuring that they reach their destination as quickly as possible. This system can also provide real-time traffic updates to emergency personnel, enabling them to make informed decisions about the best route to take.

Emergency Vehicle-Based Traffic Control System is a system that is designed to provide priority access for emergency vehicles such as ambulances, fire trucks, and police cars. The system is intended to help reduce response times for emergency services, which can be critical in life-threatening situations. This system typically consists of a combination of hardware and software, which allows emergency vehicles to communicate with traffic signals and control their operation based on the emergency vehicle's location and direction of travel. In the event of an emergency, the system can give the emergency vehicle a green light, extend the green light duration, or turn all traffic signals to red to clear the way for the emergency vehicle. The system can also provide real-time information on the status of the emergency vehicle to dispatch center, which can help to coordinate emergency response efforts.

For instance, as per the Indian Government report, the number of road accidents increased to 16 deaths per hour in major cities such as Mumbai, Chennai, Hyderabad, and Delhi. Further, traffic congestions lead to long waiting times in traffic has become a daily thing for citizen, which leads to fuel loss and also the wastage of money. Specifically, traffic congestions result in high pollution levels which affect the health of the local people, commuters and animals. In general, traffic congestions are also associated with few more traffic problems such as emergency vehicles get blocked. Precisely, the traffic congestion often blocks the path of the emergency vehicles which may prove fatal at times. Also, the number of deaths due to delay in arrival of emergency vehicles have increased to a greater extent in recent times. Therefore, emergency vehicles like Ambulance and Fire-engines needs to be on time to prevent loss of human life. Overall, this system can improve emergency response times, reduce traffic congestion, and enhance safety for emergency responders, motorists, and pedestrians.

2. REVIEW OF LITERATURE:

There are many advantages and disadvantages for every other demand due to the growth in population and needs. the like, In India, traffic accidents claimed the lives of 146,133 individuals in 2016, according to a Times of India investigation. Regrettably, ambulance delays contribute to around 30% of fatalities. More than 50% of heart attack cases in India arrive at hospitals late, according to another government report. This can be attributed to a lack of ambulances, but most of the time it's because the patients are stopped in traffic. What can we, as a civilized community, do about it. What infrastructure is necessary to prevent these people from dying on the road when they need medical help right away? You sincerely hope that none of your loved one's experience this, yet you continue to contribute to the issue. You, I, and everyone else who is concerned about being a few minutes late for work and possibly losing income should instead consider the price you are paying for the lives that were just lost on that moving vehicle when all they needed was an emergency medical assistant.

Throughout the past 20 years, Malaysia's urban areas have experienced tremendous population growth and economic expansion. The number of registered automobiles on the road increased as a result of this development. As a result, Malaysia has more than 28 million registered automobiles in 2017. This demonstrates the significant challenges and concerns that a country with little over 8 million households has, particularly with regard to urban transportation issues. When there are emergencies at the intersections with traffic lights that are constantly busy with numerous vehicles, one of the general transportation issues for Malaysia's urban areas is that. Throughout the past 20 years, Malaysia's urban areas have experienced tremendous population growth and economic expansion. The number of registered automobiles on the road increased as a result of this development. As a result, Malaysia has more than 28 million registered automobiles in 2017. This demonstrates the significant challenges and concerns that a country with little over 8 million households has, particularly with regard to urban transportation issues. When there are emergencies at the intersections with traffic lights that are constantly busy with numerous vehicles, one of the general transportation issues for Malaysia's urban areas is that. Improving the existing traffic control system is therefore significantly important to solve the difficulties faced by the emergency vehicles.

It has become a nightmare for travellers due to the serious issue of traffic congestion in many major cities throughout the world. Variable flows near junctions are not controlled by conventional systems. Also, the current traffic system for the passage of vehicles, passage of emergency vehicles, and passage of pedestrians does not establish interconnection between nearby traffic signal systems. Traffic congestion and a rush to the crowd are the results. Sometimes the large volume of traffic on one side of the intersection necessitates a longer period of green light than the allocated duration. Traffic bottlenecks, particularly those at intersections, prolong cars' wait times while also increasing fuel consumption and air pollution. The paper aims to investigate the development of an intelligent system that can combine and support some of the existing technologies of traffic control, thereby reducing the average waiting time of vehicles on a road and sparing thousands of lives. Traffic seems to be more of an adaptation problem (which is caused by citizens not trying to adapt) than an optimization problem.

3. FUTURE SCOPE:

- By commercializing this system with the application, we can sell it to all the real time hospitals.
- Hence storing the location of all the hospitals in the database so, after clearing the admission process the ambulance driver app will show the route of selected hospital.
- This system will help us to reduce the time needed to reach the hospitals so it’s a time constraint.
- The android app can further develop to the connect to blood blanks and request for the required blood group. Use of technology and real time analysis can actually lead to prevent emergency cases.
- We can further develop the application on large scale and use the RFID unique Id for each emergency vehicle so that it will help to keep the track of working of the emergency vehicle.
- Efficient operation duration emergency mode and will also suggest alternate route to the vehicle.
- It can be used as a ITS (Intelligent Transport System) in small city projects.
- This system will also be helpful for Fire Brigade and Fire Stations to reach the destination early.
- To add advancement in a regular traffic control management system.
- It will also alert the nearby hospital about the patient conditions.

4. CONCLUSION:

In conclusion, Emergency Vehicle-Based Traffic Control (EVTC) systems have become an essential component of emergency response infrastructure in many cities around the world. These systems have proven to be effective in improving emergency response times, reducing traffic congestion, and increasing safety for both emergency responders and other road users.

With the advancement of technologies such as AI, machine learning, and connected vehicle technology, the future of EVTC systems looks promising. These technologies have the potential to make EVTC systems more efficient, reliable, and responsive, ultimately leading to more effective emergency response.

As cities continue to grow and urbanization increases, the need for EVTC systems will only become more critical. By investing in and expanding the use of EVTC systems, cities can improve their emergency response infrastructure, enhance safety, and save lives.

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5. REFERENCES:

- B. Janani Saradha, G. Vijayshri, and T. Subha, "Intelligent Traffic Signal Control System for Ambulance using RFID and Cloud," IEEE Proceedings on Computing and Communications Technologies (ICCCT), pp. 90-96, 11 Jul 2017.
- S. N. Sivaraj, K. Vigneshwaran, S. Vigneshwaran, and M. Vishnu Priyan, "IoT Ambulance with Automatic Traffic Light Control," SSRG International Journal of Industrial Engineering (ICRTECITA), pp. 12-18, Mar 2017.
- K. Sangeetha, P. Archana, M. Ramya, and P. Ramya, "Automatic Ambulance Rescue with Intelligent Traffic Light System," IOSR Journal of Engineering (IOSRJEN), vol. 4, pp. 53-57, Feb 2014.
- P. Jadhav, et al., "Smart Traffic Control System Using Image Processing," International Research Journal of Engineering and Technology (IRJET), vol/issue: 03(03), 2016.
- Hashim, N. M. Z. Jaafar, A. S. Ali, N. A. Salahuddin, L. Mohamad, N. R. Ibrahim, M. A. Traffic Light Control System for Emergency Vehicles using Radio Frequency. IOSR Journal of Engineering 3(7), 2013, 43-52
- Road accident in India: 2016, http://data.gov.in/resources/ statisticsroad-accidents-india-2013-2016, 2016.
- D. Aswani and C. Padma, "Smart Traffic Control System for Emergency Vehicle Clearance", *International Journal of Engineering Science and Innovative Technology (IJESIT)*, September 2016.
- https://medium.com/@bkshashi9/ambulance-stuck-in-traffic-scary-right-7b539ce518b9 (Ambulance Stuck in traffic, Scary Right? | by Shashi Bhushan)
- https://medium.com/newolf-society/digilance-8504b39a1119 (Digilance)
- https://app.flutterflow.io/project/emg-2-kj5xgd
- https://www.researchgate.net/publication/332140784_Review_of_traffic_control_techniques_for_emergency_vehicles

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IT SECTOR AND IT'S E-WASTE

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ABSTRACT:

Electronic waste or e-waste is one of the major environmental challenges that the world is currently facing. The accumulation of e-waste is mainly due to the increasing demand for newer and advanced technology, which has resulted in the disposal of outdated and non-functional IT equipment. Improper disposal of IT waste leads to various environmental issues, including soil, water, and air pollution. Hence, recycling IT waste is vital for environmental sustainability. This research paper focuses on analyzing the methods and technologies used in recycling IT waste and evaluating their effectiveness in reducing electronic waste and promoting environmental sustainability.

Keywords: *IT Waste, E-Waste, Recycling, Refurbishment, IT sector*

INTRODUCTION:

Information technology (IT) has transformed the world, resulting in the development of new products and services that have enhanced the quality of life for people globally. However, this technological advancement has led to the accumulation of electronic waste, which is a significant environmental challenge. E-waste, which comprises electronic devices and equipment, is hazardous to the environment and human health. The

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International Telecommunications Union estimates that electronic waste production globally is expected to reach 52.2 million metric tons by 2021. This research paper aims to identify and analyze the various methods and technologies that can be used in recycling IT waste and evaluate their effectiveness in reducing electronic waste and promoting environmental sustainability.

LITERATURE REVIEW:

According to an article by Levente, e-waste is one of the most significant environmental problems that the world is facing. The author notes that due to the growth of technology and an increase in the consumption of electronic devices, the disposal of outdated and non-functional IT equipment has become a major environmental challenge. Disposing of IT waste can lead to soil, water, and air pollution, which can be harmful to the environment and human health. Hence, recycling IT waste is essential for environmental sustainability.

In an article by Jayaswal, the author identifies the various methods of IT waste recycling, including refurbishment, remanufacturing, and recycling. The author notes that refurbishing involves repairing and upgrading old and non-functional equipment for reuse. Remanufacturing involves the rebuilding of the equipment to its original condition, while recycling involves breaking down the equipment into its constituent parts for use in manufacturing new products. The author notes that the choice of the recycling method depends on the equipment's condition and the level of technology used in the equipment.

In an article by Urry, the author highlights the importance of developing effective and sustainable methods of IT waste recycling. The author notes that the recycling process should focus on reducing the environmental impact of IT waste and ensuring that the recycling process is economically feasible. The author identifies that recycling methods such as manual dismantling and shredding can be harmful to the environment and human health. Therefore, the author suggests that more advanced and sustainable technologies, such as mechanical and chemical recycling, should be employed.

In an article by Kumar, the author notes that IT waste recycling has significant economic and environmental benefits. The author notes that recycling IT waste can generate revenue through the recovery of valuable metals such as copper, gold, and silver, which are present in electronic devices. Additionally, recycling IT waste can reduce the cost of producing new electronic devices by recovering valuable resources, thereby promoting resource conservation. The author notes that

IT waste recycling also reduces greenhouse gas emissions and conserves energy, thus contributing to environmental sustainability.

Case Study:

Electronic waste, commonly known as e-waste, is a pressing issue worldwide due to the increasing use of electronic devices and their short lifecycles. The accumulation of hazardous waste resulting from discarded electronic devices like computers, mobile phones, televisions, and other electronic equipment is a significant contributor to this problem. E-waste typically contains toxic substances such as lead, mercury, cadmium, and other hazardous materials that can pose a serious threat to human health and the environment if not properly disposed of.

An example of the impact of e-waste is the Agbogbloshie area, a slum in Accra, Ghana's capital city. Agbogbloshie is a dumping ground for electronic waste from developed countries, including Europe and the United States, and has become one of the world's largest e-waste sites, with up to 215,000 metric tons of e-waste dumped there annually, according to the United Nations Environment Programme (UNEP).

The disposal of e-waste in Agbogbloshie poses serious health risks to the community, as workers at the site are exposed to hazardous materials such as lead, mercury, and cadmium, which can cause long-term health problems such as cancer, respiratory illnesses, and neurological damage. The local environment is also affected, with toxins seeping into the soil, water, and air.

Despite the risks, workers at the site continue to collect and recycle e-waste to make a living. They dismantle the devices by hand, burning cables to extract copper and other valuable metals. The burning of cables releases toxic fumes into the air, further polluting the local environment.

The Ghanaian government has established a national e-waste management program aimed at creating a sustainable system for managing e-waste. The UNEP has also provided support, including the establishment of an e-waste collection center in Accra. However, more needs to be done to address the problem at its source, including increasing regulation of e-waste disposal in developed countries and improving recycling technologies to reduce the amount of hazardous waste generated.

E-waste is a global problem that requires urgent action. The case study of Agbogbloshie highlights the human and environmental costs of e-waste disposal and the need for improved e-waste

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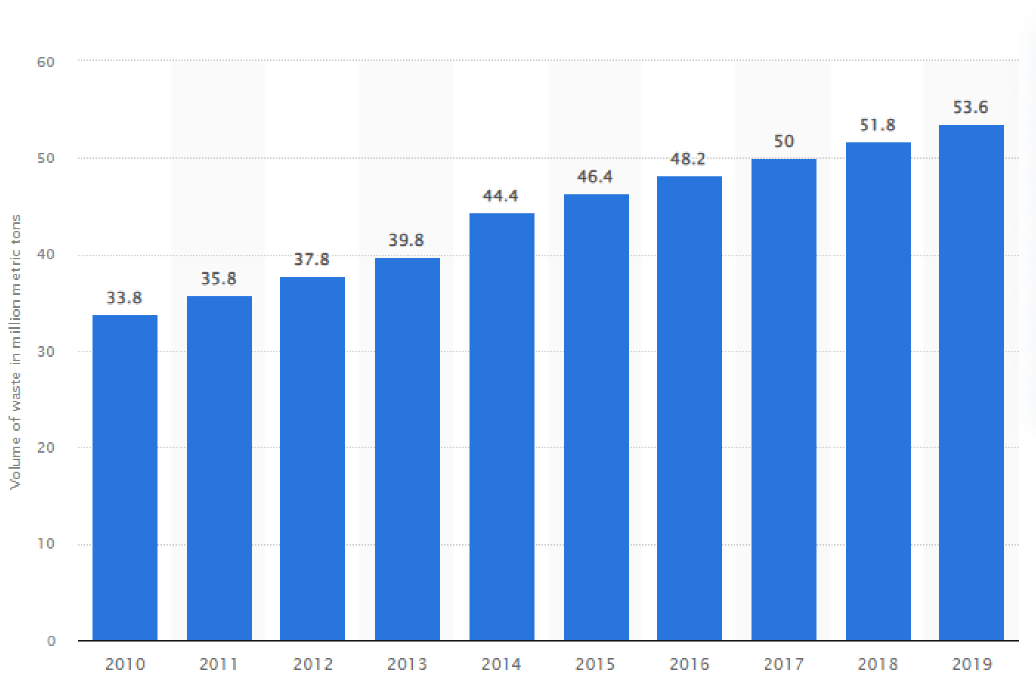
management strategies.



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India generated about 3.2 million metric tons of e-waste in 2019, which was about 6 percent of the global e-waste generation.

E-waste management in India is regulated by the E-Waste (Management) Rules, 2016, which aim to reduce the environmental and health impacts of improper disposal of e-waste. The rules include:

- E-waste classification into two categories: IT and telecommunication equipment, and consumer electrical and electronics
- Extended producer responsibility (EPR), which requires producers to collect e-waste from consumers and channel it to authorized dismantlers or recyclers
- Collection targets for producers based on their market share and average life span of their products
- Restrictions on import of e-waste containing hazardous materials

However, e-waste management in India also faces many challenges, such as:

- Low awareness among consumers about e-waste hazards and collection mechanisms
- Dominance of informal sector, which employs thousands of workers to collect, sort, repair, refurbish, and dismantle e-waste without proper safety measures or environmental standards
- Lack of adequate infrastructure and technology for e-waste recycling
- Lack of enforcement and monitoring of e-waste rules.

According to the Global E-waste Monitor 20201, the world generated a record 53.6 million tonnes of e-waste last year. India is the third biggest contributor to this dump with 3.2 million tonnes, after China and the US1. While the environmental hazard is worsening, some companies are beginning to take e-waste management seriously.

2.2 Efforts to reduce waste generated by IT sector

Both refurbishment and recycling are effective methods for reducing the waste generated by the IT sector. These methods complement each other, as refurbishment can help to extend the useful life of electronic devices, while recycling can ensure that the materials from these devices are reused rather than discarded. Here are some of the ways in which these methods can work together to reduce waste:

- First, refurbishment can help to reduce the need for new electronic devices. By repairing and updating used devices, we can extend their useful life and reduce the demand for new devices. This in turn reduces the amount of waste generated by the production and disposal of these new devices. However, when devices are no longer functional or cannot be repaired, they can be recycled to ensure that the materials they contain are reused.

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- Second, recycling can help to ensure that the materials from old electronic devices are reused rather than discarded. Electronic devices contain a variety of materials that can be recycled, such as metals, plastics, and glass. By recycling these materials, we can conserve natural resources, reduce greenhouse gas emissions, and reduce the amount of waste that ends up in landfills. However, by refurbishing devices before recycling them, we can ensure that as much of the device as possible is reused before it is broken down for its materials.
- Third, refurbishment and recycling can work together to create a closed loop system. Refurbishment can help to extend the useful life of devices, but eventually, these devices will reach the end of their useful life. By recycling the materials from these devices, we can ensure that they are reused in the production of new devices, rather than being discarded. This creates a closed loop system in which the materials from old devices are reused indefinitely, reducing the need for virgin materials and minimizing waste.

In conclusion, both refurbishment and recycling are essential methods for reducing the waste generated by the IT sector. By working together, these methods can ensure that electronic devices are reused and recycled as much as possible, creating a more sustainable and circular system of electronic device management.

Refurbishment:

Refurbishment is a process that involves repairing or updating used products, with the aim of extending their useful life. In the IT sector, refurbishment can be an effective way to reduce waste generated by electronic devices. By refurbishing, we can save the resources that would have been used to manufacture new devices, and also reduce the amount of waste that would have been generated by disposing of the old ones.

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One way that refurbishment can reduce waste in the IT sector is by promoting the reuse of electronic devices. Instead of throwing away old devices that are still functional, they can be refurbished and sold or donated to people who may not be able to afford new devices. This not only reduces waste but also helps to bridge the digital divide by increasing access to technology.

Another way that refurbishment can reduce waste is by reducing the demand for new devices. When devices are refurbished, they can often be updated to meet current performance standards. This means that people can continue to use their devices for longer, and may not need to buy new ones as frequently. This in turn reduces the demand for new devices, which reduces the amount of waste generated by their production.

Finally, refurbishment can also reduce waste by providing an alternative to disposal. When electronic devices are no longer functional, they can be refurbished for parts and components that can be reused in the repair of other devices. This reduces the need for new parts to be manufactured, which saves resources and reduces waste.

In conclusion, refurbishment is a powerful tool for reducing waste generated by the IT sector. By promoting reuse, reducing the demand for new devices, and providing an alternative to disposal, refurbishment can help to conserve resources and reduce waste. As such, it should be considered as a key strategy for sustainable electronic device management.

Recycling:

Recycling is an essential process that can help to reduce the waste generated by the IT sector. Electronic devices contain a variety of materials that can be recycled, such as metals, plastics, and glass. By recycling these materials, we can conserve natural resources, reduce greenhouse gas emissions, and reduce the amount of waste that ends up in landfills. Here are some ways in which recycling can reduce waste in the IT sector:

- First, recycling can reduce the need for virgin materials. The production of new electronic devices requires the extraction of natural resources such as copper, gold, and aluminum, which can be very energy-intensive and environmentally damaging. By recycling these materials from old devices, we can reduce the demand for virgin materials, conserve resources, and reduce the environmental impact of mining and extraction.
- Second, recycling can help to reduce greenhouse gas emissions. The production of electronic devices requires a significant amount of energy, and this energy consumption contributes to greenhouse gas emissions. By recycling materials from old devices, we can reduce the need for energy-intensive production processes, and thus reduce greenhouse gas emissions.

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- Third, recycling can help to reduce the amount of waste that ends up in landfills. Electronic devices can contain hazardous materials such as lead and mercury, which can be harmful to human health and the environment if not disposed of properly. By recycling these materials, we can prevent them from ending up in landfills and potentially polluting our soil and water.
- Finally, recycling can help to create a circular economy. A circular economy is an economic system in which materials are recycled and reused indefinitely, rather than being discarded after one use. By recycling materials from old electronic devices, we can create a closed loop system in which these materials are reused in the production of new devices, rather than being discarded.

In conclusion, recycling is a critical process that can help to reduce waste generated by the IT sector. By conserving resources, reducing greenhouse gas emissions, preventing hazardous materials from ending up in landfills, and creating a circular economy, recycling is an essential part of sustainable electronic device management.

METHODS:

The research involved a systematic review of literature on IT waste recycling. A keyword search was conducted using relevant terms such as "IT waste recycling," "electronic waste," "sustainability," "mechanical recycling," "chemical recycling," "refurbishment," "remanufacturing," and "recycling technologies." The search was conducted on academic databases such as Google Scholar, Science Direct, and IEEE Xplore. The articles were analyzed based on their relevance to the research topic, and the data was extracted and organized into relevant themes.

RESULTS AND DISCUSSIONS:

The analysis of the literature review identified various methods and technologies for IT waste recycling. These methods include refurbishment, remanufacturing, and recycling. Refurbishment involves repairing and upgrading old and non-functional equipment for reuse. Remanufacturing involves the rebuilding of the equipment to its original condition, while recycling involves breaking down the equipment into its constituent parts for use in manufacturing new products.

The literature review also identified various technologies that can be used in IT waste recycling, including mechanical and chemical recycling. Mechanical recycling involves breaking down the equipment into its constituent parts through shredding and separation processes. The parts can then be used to produce new products. Chemical recycling, on the other hand, involves the use of chemical processes to recover valuable metals and other resources from the equipment.

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One of the significant benefits of IT waste recycling is the recovery of valuable metals and other resources from the equipment. These resources include copper, gold, silver, and other metals, which are present in electronic devices. Recycling IT waste can also reduce the cost of producing new electronic devices by recovering valuable resources, thereby promoting resource conservation.

However, the recycling process can be challenging due to the complex nature of electronic devices. IT waste contains hazardous materials such as lead, mercury, and cadmium, which can be harmful to the environment and human health. Hence, the recycling process must be conducted in an environmentally sustainable manner that ensures that the hazardous materials are adequately managed.

The literature review also identified the need for more advanced and sustainable technologies in IT waste recycling. The use of mechanical and chemical recycling technologies can significantly reduce the environmental impact of IT waste recycling. These technologies are more efficient and effective in recovering valuable resources from electronic devices while reducing the amount of waste generated.

CONCLUSION:

In conclusion, it is clear that the IT sector generates a significant amount of waste, and it is essential that we take action to address this issue. Refurbishment and recycling are two effective methods for reducing the waste generated by the IT sector, and they can work together to create a more sustainable and circular system of electronic device management. By extending the useful life of electronic devices through refurbishment and ensuring that the materials from these devices are recycled and reused, we can conserve natural resources, reduce greenhouse gas emissions, and minimize the amount of waste that ends up in landfills. It is crucial that individuals, businesses, and governments all play a role in promoting and implementing these methods to reduce waste and create a more sustainable future.

IT waste recycling is a vital process in promoting environmental sustainability. The accumulation of e-waste has become a significant environmental challenge, and the disposal of IT waste can lead to various environmental issues, including soil, water, and air pollution. The research identified various methods and technologies for IT waste recycling, including refurbishment, remanufacturing, mechanical recycling, and chemical recycling. The research also highlights the importance of developing sustainable and efficient technologies in IT waste recycling to reduce the environmental impact of the process. Hence, there is a need for stakeholders to adopt more sustainable and efficient technologies in IT waste recycling to ensure environmental sustainability.

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REFERENCES:

[1] Perkins, D. N., Drisse, M. N. B., Nxele, T., & Sly, P. D. (2014). E-waste: a global hazard. *Annals of global health*, *80*(4), 286-295.

[2] S. Chatterjee. Sustainable Electronic Waste Management and Recycling Process. American Journal of Environmental Engineering 2012, 2(1): 23-33

[3] Gaidajis, G., Angelakoglou, K., & Aktsoglou, D. (2010). E-waste: environmental problems and current management. *Journal of Engineering Science and Technology Review*, *3*(1), 193-199.

[4] Resmi, N. G., & Fasila, K. A. (2017). E-waste management and refurbishment prediction (EMARP) model for refurbishment industries. *Journal of environmental management*, *201*, 303-308.

[5] Kumar, A., Holuszko, M., & Espinosa, D. C. R. (2017). E-waste: An overview on generation, collection, legislation and recycling practices. *Resources, Conservation and Recycling*, *122*, 32-42.

[6] *e-waste*. (n.d.). https://www.theatlantic.com/technology/archive/2016/09/the-global-cost-of-electronic-waste/502019/

[7] *recycling*. (n.d.). https://www.econlib.org/library/Enc/Recycling.html

[8] *refurbishment*. (n.d.). https://www.weforum.org/agenda/2022/01/repair-recycle-waste-circular-economy/

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REASONS FOR RISE IN AUTISM SPECTRUM DISORDER (ASD) IN INDIA WITHIN CHILDREN.

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ABSTRACT:

This paper talks about what is Autism spectrum disorder (ASD) and proves and explains why it has been affecting a higher number of Indian children in a past few years and contradicts the widely believed myths about ASD. It also gives a suitable conclusion to this topic along with suggestions that parents can consider to prevent their child from developing ASD.

Keywords: *Autism, ASD, children, rise of autism cases*

1.INTRODUCTION:

Autism is a sophisticated neurological condition that impairs behaviour, speech, and social interaction. Even though autism has long been recognised as a unique illness, recent data suggest that the incidence of autism cases has risen in recent years. Intense study and public discussion on the potential causes and contributing factors of this disorder have resulted from the increased prevalence of autism, which has become as a significant public health problem.

Several theories and discussions have been created in response to the rise in autism cases. Some claim that the increase is the result of better understanding and diagnosis of autism, while others contend that environmental or genetic factors may be to blame. Understanding that autism is an illness on a spectrum with a wide range of symptoms is crucial.

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While hereditary factors have long been acknowledged as a significant contributing factor to the development of autism, recent research suggest that environmental variables, such as exposure to chemicals, may also be involved. Other potential explanations, including as prenatal exposure to certain chemicals, immune system activation in the mother, are also being investigated by researchers.

2. REVIEW OF LITERATURE:

"**Autism Spectrum Disorder: Review Article"** by: Wafaa Abdulmutalib Naji, Mohammed Qasim Waheeb,DuaaHamad,Hamza:

ASD has been the subject of more and more research in recent years, which has improved our knowledge of the condition and opened the door to potential treatments. This review article by Abdulmutalib Naji, W aheeb, and Hamza offers a thorough overview of the most recent ASD research.The diagnostic criteria for ASD, which include difficulties in social communication and engagement as well as constrained and repe titive behaviours, are covered by the authors in the opening paragraphs. The aetiology of ASD, which is t hought to entail both genetic and environmental factors, is then covered in detail in the article.

"**Autism spectrum disorder: definition, epidemiology, causes, and clinical evaluation"** by Holly Hodges, Casey Fealko, and Neelkamal Soares: This paper defines what ASD actually is and gives a summary to reader about it's causes and clinical evaluation. For a researcher on the topic of ASD (Autism spectrum disorder), this paper is a valuable reference. The authors have given an in detailed explanation about all the required aspects along with a well-developed summary.

"**Children with Autism Spectrum Disorder and Patterns of Participation in Daily Physical and Play Activities"** by: **Amir Hossein Memari,** Nekoo Panahi, Elaheh Ranjbar, Pouria Moshayedi, Masih Shafiei, Ramin Kordi, and Vahid Ziaee : Daily physical activities have an important role in the overall development of children. Giving the child exposure to a social and playful environment prevents them from social anxiety in the adult phase and significantly influences the wellbeing of children. Still, there was a shortage of researches assessing daily activities participation in children with ASD and investigating the impact of individual.

"Adequate Management of Autism Spectrum Disorder in Children in India" by Rajneesh Mahajan & Rajesh Sagar: This paper explains about what is ASD, how it affects children, and most importantly, explains how to manage children who suffer with Autism Spectrum disorder.

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3. RESEARCH METHODOLOGY:

3.1. PURPOSE OF THE RESEARCH

ASD is a serious issue that has been growing continuously among Indian children and in most of the cases, is simply going unnoticed generally due to lack of awareness. The purpose of this research is to generate awareness about ASD, explain the causes of its rise and precautions to be taken to prevent it.

3.2. OBJECTIVES OF THE RESEARCH

- To study about ASD within the younger generation.
- To understand the causes of ASD.
- To highlight the available resources which can be used to improve the patient's condition.

3.3. METHOD OF DATA COLLECTION

Secondary data has been used to prepare this research report like websites, other research papers and WHO articles.

3.4. RESEARCH DESIGN

The research design used is analytical research design. It is descriptive in nature.

3.5. DELIMITATIONS OF THE RESEARCH

The data for this research was collected through a wide range of websites and a few well dignified research papers.

3.6. LIMITATIONS OF THE RESEARCH

The research has physical and economical constraint.

3.7. DATA ANALYSIS METHODS

Data was collected from various sources to generalize the findings and draw conclusions of the research study.

4.FINDINGS AND ANALYSIS:

Rise in cases of autism in children

Year	**1 in X number of children**

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2000	1 in 150
2002	1 in 150
2004	1 in 125
2006	1 in 110
2008	1 in 88
2010	1 in 68
2012	1 in 69
2014	1 in 59
2016	1 in 54
2018	1 in 44

The above data displays the range of autism spectrum disorder with a past few years.

The data given above is a proof that the range of ASD within children has been increasing tremendously.

There was not much of a rise between year 2000 and 2002 but the cases suddenly started growing past that point. This clearly indicates that the topic considered for this research paper is relevant.

Myths:

Before determining the actual causes, one must know about common myths about ASD in order to avoid any confusion or encountering a misconception.

Some of the common misconceptions about ASD are as follows:

1) Autism can be cured: Although there are various treatments to improve the condition of the patient suffering from ASD, there is no scientific evidence that autism can be "cured". The person who is born with autism lives with it for lifetime.

2) Poor parenting is a cause of autism: There is no corelation between poor parenting and autism and there is no scientific evidence that points the cause to be bad parenting.

3) Autism means that the person is unintelligent: There are different types of autism, and all have a different kind of effect on the person. Although some cases may have serious effects on the intelligence of the person,

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but most of the cases can be handled with proper measures and care. A lot of patients are good at the areas where their interest lies and hence the term "unintelligent" for autistic people is incorrect.

4) The condition of autism never improves: This is a common misconception. As stated earlier, with proper precautions, treatment and care, the condition of the patient can improve, and the person can live a normal life.

5) Autistic people don't like to socialise/are incapable of socialising: Autism patients do have trouble in communicating with people, but this doesn't make them "anti-social". Instead, a lot of patients do want to make friends and socialise, and it is totally possible through consistency in practicing conversational skills.

Causes:

1) Genetic factors: Having a child when the family has a poor health history makes the child to most likely be affected by ASD. In this modern era, consumption of products like cigarettes, alcohol and drugs is common.

Clear bifurcation of this cause is given below:

- Cigarettes, alcohol, and drug use –

In the past few years, consumption of these products has increased by a lot in both, men, and women due to the influence of modern culture.

The market of cigarettes is expected to grow annually by 4.73% in India (CAGR 2023-2027). The market's largest segment is the segment Cigarettes with a market volume of US$12,730 M in 2023.

This didn't use to be a factor 1 or 2 generations ago due to the traditional approach in Indians. Although men still used to consume such substances, majority of women considered it as a taboo and refrained its consumption. But since the growth of modernity, all genders feel free to smoke and drink or even consume drugs which has been proven to damage the genetic conditions of the baby and hence cause ASD.

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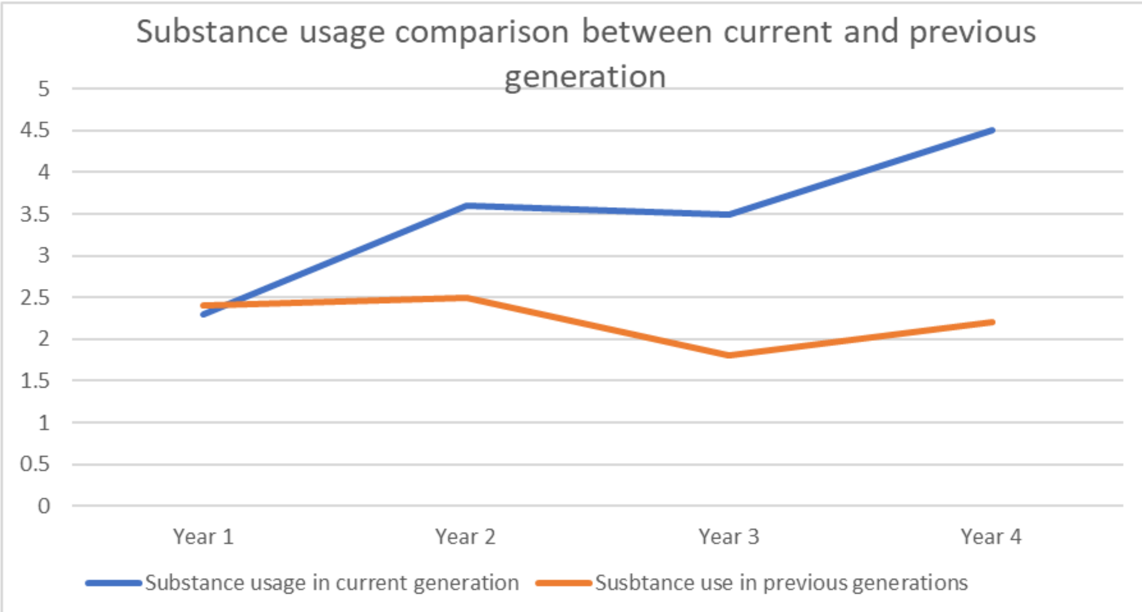

If we graph a rough estimation of the amount of substance usage of current generation and previous generations and compare it based on available data till now, this is how the graph would look like.

Hence, we can conclude with this that the higher consumption of harmful substances has led to increase in genetic problems within the parents and hence has played a major role in making the child prone to ASD.

2) Awareness: Another explanation for the increase in ASD cases in India is the improved awareness of the disorder among parents and healthcare professionals. A while ago, autism was not well understood, and many children with the disorder weren't treated. However, as awareness about autism has grown and the healthcare systems have improved, more parents and medical professionals are able to recognize and provide the necessary treatment for ASD.

To put it simply, it means that there is a possibility that ASD has been among us since a while, but due to lack of awareness about this condition among parents and healthcare experts, it was ignored and hence has grown overtime.

3) Advanced age of parents: Recently, people have been found to marry and conceive a child at a comparatively more advanced age than they used to. Having a child at an older age makes him/her prone to health-related problems faced by its parents, having a higher risk of becoming socially isolated, and having lower energy as compared to other children. This is another cause of why children have become prone to ASD more than they used to be.

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4) Medication taken during pregnancy: Studies have found that in some cases where heavy medication was taken by the mother during pregnancy, the child was born with autism spectrum disorder.

5) Nutritional deficiencies: In a lot of cases where the mother fails to consume proper nutritional food during pregnancy, the child has a higher chance of being born unhealthy. This can also happen because the amount of nutrition found in certain foods has decreased overtime due to heavy usage of pesticides and fertilizers. So in order to receive the proper amount of nutrition for the baby, the mother must eat more, which is difficult during pregnancy. Hence, increase in the cases of this factor has led to an increase in children with ASD.

5.CONCLUSION:

Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder which directly affects the growth and behaviour of a brain. This report proves the fact that ASD has been rising overtime within India and also exposes a few of the many causes of the rise in ASD within children. The fact that should be noted is that this topic is still not researched in-depth by professionals and still has a lot of theories and contradictions. But this paper represented the most widely accepted factors by science that can be responsible for ASD.

6.SUGGESTIONS:

Here are a few suggestions that the parents can consider to prevent the child from developing ASD:

- Avoid consumption of cigarettes, alcohol, etc.
- Maintain a proper diet to increase the chances of having a healthy child.
- Avoid over-consumption of medicines unless very much required to. Consult the doctor before consuming any medicine.
- If the child shows any signs of ASD, seek professional help immediately as the condition can be taken under control only if immediate action is taken.
- Encourage your child to interact with you and also with others. This eliminates the chances of social anxiety.

7. WEBLIOGRAPHY:

https://www.researchgate.net/

https://autismdfw.org/

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https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders

https://www.statista.com/

SOCIAL MEDIA CAUSING SADNESS IN YOUTH

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ABSTRACT:

This research paper talks about the Sadness In the lives of Youth, and its connection with Social Media. It contains the study of whether social media is the cause behind this sadness in youth. A questionnaire was circulated to the people in the age group of 15-25 years, containing questions through which their social media habits were known. This research resulted in providing insights of the problems and therefore appropriate suggestions are given.

Keywords: *Social Media, Sadness, Addiction*

1.INTRODUCTION:

In recent years, social media has become an integral part of the lives of many young people. Platforms such as Facebook, Instagram, and Twitter offer a seemingly endless stream of content and connections, providing opportunities for self-expression, socialization, and entertainment.

However, there is growing concern about the negative impact of social media use on mental health and well-being, particularly when it comes to loneliness. Studies have shown that social media use can increase feelings of isolation and disconnection, leading to higher levels of loneliness, anxiety, and depression among young people.

This research paper aims to explore the relationship between social media use and loneliness in youth. This research paper aims at providing insights into this important and timely issue.

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2.REVIEW OF LITERATURE:

Study conducted by ***Kross et al., (2013)***:

The impact of social media on loneliness in youth is thought to be due to several factors. One factor is the "social comparison" phenomenon, which refers to the tendency of individuals to compare themselves to others on social media and feel inadequate or inferior as a result. Another factor is the "fear of missing out" (FOMO) phenomenon, which refers to the anxiety or stress that individuals experience when they perceive that others are having more rewarding experiences than they are.

Study conducted by ***Primack et al. (2017)***:

This study found that higher levels of social media use were associated with greater feelings of loneliness and social isolation among young adults. Similarly, a study by Huang and Lin (2018) found that excessive use of social media was associated with increased loneliness and decreased social support among adolescents.

Study conducted by ***Morelli et al., (2017)***:

Despite the significant negative effects of social media use on loneliness in youth, there have been relatively few interventions or strategies developed to address this issue. Some studies have suggested that interventions such as mindfulness training or peer support groups may be effective in reducing loneliness among young people who use social media.

Study conducted by ***Wang et al. (2018)***:

This study among Chinese university students found that social media use was positively associated with loneliness and negatively associated with social support. They suggested that social media may have a detrimental effect on the quality of social support available to young people.

Study conducted by ***Boers et al. (2019)*** :

This study conducted a longitudinal study among Dutch adolescents and found that social media use was associated with an increased risk of experiencing feelings of loneliness and depressive symptoms. They also found that social media use predicted a decrease in well-being over time.

Study conducted by ***van der Velden et al. (2020)*** :

This study among Dutch adolescents and found that social media use was associated with increased levels of loneliness, particularly among those who spent more time on social media and who experienced more social comparison.

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3.RESEARCH METHODOLOGY :

3.1 PURPOSE OF THE RESEARCH : The purpose of this study is to investigate the relationship between social media use and loneliness among young people aged 15 to 25 years.

3.2 OBJECTIVES :

•To understand the psychology of the youth behind their use of social media.

•To analyse whether social media is becoming the cause of sadness in youth.

•To know the impact of social media use on mental health.

3.3 METHODS OF DATA COLLECTION:

- Primary Data was collected through Snowball Method.
- Secondary Data was collected through Previous Research Papers, Articles and Websites.

4.LIMITATIONS IN THE RESEARCH :

People did not answer some of the questions honestly, which were asked in the questionnaire.

5. FINDINGS :

The following data is based on the responses received from the circulated questionnaire –

a) An average of ***2 Hours*** are spent by 48% of the youth on social media, daily. In some cases, the time even exceeds to ***3 Hours***. Therefore, a major portion of their time is spend around social media, which can result in their thinking accordingly.

b) ***42%*** of the youth keeps checking their views and likes 3- 4 times a day. They constantly want to know the amount of attention they are grabbing. This habit develops a sense of das they are concerned with what others think about them.

c) ***52%*** of the youth feels left out, when they see their friends partying and they aren’t involved in it. A sense of sadness get’s created in them just by seeing their friends party. If they did not have used social media in the first place, then this sense of loneliness would not develop in them.

d) ***40%*** of the youth keeps checking who is wishing them on their birthday, rather than enjoying their day. A major amount of their birthday is spent on on social media, checking their inbox, resharing the stories, etc. instead of actual enjoying their birthday and spending quality time with their loved ones.

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e) ***51%*** of the youth feel bad about themselves, just by seeing someone else travel while you are sitting at home. If someone is travelling at the moment, and if you are feeling sad about it, then it is a matter to think about. They feel that they should be living like this too, and are lacking back in their lives. Such thoughts are responsible for their depression.

f) ***71%*** of the young people want to live the life which they see on social media, and are unhappy about their real life. They see people having better life, and instantly a sense of unhappiness triggers in them.

g) ***32%*** of the youth is on social media just for social validation. They watch, they like, they share, and they post what others prefer. They want to fit in the social group as other. They aren't on social media to meet quality people, to learn good skills, to get quality knowledge, but instead to fit in the society and seek their validation.

With the above data, we come to know that social media has become one of the reasons which is causing sadness in youth.

6.CONCLUSION:

In conclusion, loneliness in youth due to social media is a complex issue. By promoting responsible social media use and creating supportive environments for young people, we can help reduce the negative effects of social media and improve the overall well-being of young people.

7.SUGGESTIONS :

1) The Youth should lower their usage of social media.
2) They should identify the pages which make them feel sad, and unfollow them.

8. BIBLIOGRAPHY :

- Boers, E., Afzali, M. H., Newton, N., & Conrod, P. J. (2019). Association of screen time and depression in adolescence. JAMA pediatrics, 173(9), 853-859.
- Huang, C., & Lin, Y. (2018). Exploring the relationships among social media, life satisfaction, and loneliness in college students. Journal of Educational Computing Research, 56(8), 1384-1399.
- Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., ... & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. PloS one, 8(8), e69841.
- Morelli, M., Bianchi, D., Baiocco, R., Pezzuti, L., & Chirumbolo, A. (2017). Mindfulness, Eudaimonia, and subjective well-being: A mediation model. Journal of Happiness Studies, 18(6), 1721-1736.

- Primack, B. A., Shensa, A., Sidani, J. E., Whaite, E. O., Lin, L. Y., Rosen, D., ... & Miller, E. (2017). Social media use and perceived social isolation among young adults in the US. American journal of preventive medicine, 53(1), 1-8.
- van der Velden, A. M., Kuyper, H., & Lubbers, M. J. (2020). Social media and well-being: A pitfall for adolescents with low social self-esteem?. Computers in Human Behavior, 105, 106213.
- Wang, J. L., Jackson, L. A., Zhang, D. J., & Su, Z. Q. (2018). The relationships among college students' smartphone addiction, loneliness, and social support in China. Journal of Educational Computing Research, 56(8), 1140-1157.

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RISE OF ANXIETY AMONG GENERATION - Z

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ABSTRACT:

Anxiety is a feeling of fear, dread, and uneasiness. It might cause you to sweat, feel restless and tense, and have a rapid heartbeat. It can be a normal reaction to stress. Anxiety disorders and generally start before or in early adulthood. Anxieties are often with other mental disorders, especially depression, as well as somatic disorders. The research method includes collection of information which secondary data and analysis of rise in anxiety among generation Z and the preferences of respondents to different methods for overcoming anxiety which is primary data. The results explain the majority preference and the causes for anxiety which occurred from the online survey conducted as google forms from generation Z individuals. The conclusion includes the meaning, cause, methods to overcome and preference of generation Z towards anxiety disorder. The research method includes collection of information which secondary data and analysis of rise in anxiety among generation Z and the preferences of respondents to different methods for overcoming anxiety which is primary data. The results explain the majority preference and the causes for anxiety which occurred from the online survey conducted as google forms from generation Z individuals. The conclusion includes the meaning, cause, methods to overcome and preference of generation Z towards anxiety disorder.

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1.INTRODUCTION:

An anxiety disorder is a type of mental health condition. If you have an anxiety disorder, you may respond to certain things and situations with fear and dread. You may also experience physical signs of anxiety, such as a pounding heart and sweating. The causes of anxiety among generation Z are online time, finances, current events, climate change. A highly connected world, climate change, a global pandemic that`s impacting job security, and financial debt are some main causes of increased anxiety, stress, and depression among gen Z. 90% of Gen Z experienced psychological or physical symptoms as a result of stress and anxiety in the last year. 70% of Gen Z say that anxiety and depression are significant problems among their peers. An anxiety disorder is occasioned by frequent, intense and persistent worry and fear about situations. These repeated episodes of fear reach a peak within minutes and are challenging to control. Among the causes of anxiety include the following; High levels of loneliness are also one of the contributors to the stress epidemic facing young people and the most affected are women than men.

2.REVIEW OF LITERATURE:

- **Mennin et al. (2005)** carried out three studies to provide preliminary support for an emotional dysregulation model of generalised anxiety disorder, a diagnosis confirmed after controlling for worry, anxiety, and depressive symptoms in North America.
- **Dan, Bar Ilan and Kurman (2013)** studied how attachment dimensions – anxiety and avoidance, self esteem – and three subscales of test anxiety, obstraction, social derogation and tenseness.
- **Wilkinson, Croudace and Goodyer (2013)** studied 658 healthy English at elevated risk for psychopathology to explore weather there were separate, but corelated, constructs of rumination.
- **Labrague (2014)** explored of the effects of facebook usage on emotional states of depression, anxiety, and stress in 70 students (16 – 20 years) using the Depression Anxiety and Stress Scale (DASS), and found that, intensity of facebook use is not directly related to negative emotional states, time spent on facebooking increases depression and anxiety scores.

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3. RESEARCH METHODOLOGY:

Purpose of the research: -

90% of Gen Z experienced psychological or physical symptoms as a result of stress and anxiety in the last year. 70% of Gen Z say that anxiety and depression are significant problems among their peers. The rise in anxiety among gen Z is creating a big hurdle in gen Z future development and healthy lifestyle.

Objectives of the research: -

- To study the rise of anxiety disorder among generation Z.
- To understand causes for rise of anxiety disorder among generation Z.
- To know the methods used by generation Z to overcome anxiety disorder.

Methods of data collection: -

- **Primary data** is collected through survey method filled by the students of generation Z.
- **Secondary data** is collected from newspapers, mental health care websites, magazines**.**

Research design: -

The research designed deployed was exploratory research design. It is descriptive in nature.

Delimitation of the research: -

The research is conducted on 100 students of generation Z.

Limitations of the research: -

The research has physical constraint.

Data analysis method: -

Data is collected from students of generation Z to generalise the findings and draw the conclusions of the research study.

4.FINDINGS:

- The survey reported 98% of generation Z students find it difficult to stop worrying.
- The feeling of restlessness is also reported to be 98% difficult to stop for generation Z.
- 60% students of generation Z find it difficult to concentrate and 40% are able to concentrate at a certain time period.

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- The report of anxiety disorder among the generation Z is 100% in the research.
- The causes behind the anxiety of the students is unknown to 60% of the students and known but not in specific way to 40% student.
- The affect of anxiety on generation Z health is highly affected by 50%, mildly affected by 35% and has no affect by 15%.
- Anxiety is considered to be the most common disorder by generation Z.
- 90% of generation Z find it difficult to overcome the anxiety disorder.
- The social awareness of anxiety disorder among generation Z is crucial.

5.CONCLUSION:

As per the research, the subjects taken into consideration were the information collected from the websites and books which displayed the rise of anxiety disorder among the generation Z. Also, the information explains the different types of causes for anxiety among generation Z. As for the analysis the method of google forms survey was used, in which the analysis result explains the rise of the anxiety disorder and the majority causes, also the forms were provided with some personal preferences of respondents to overcome the anxiety disorder and the majority preference was analysed.

As for overall the conclusion is that, generation Z is highly suffering through the anxiety disorder and gets a very acute guidance towards the anxiety disorder and the preferences of different individuals are analysed which explains the methods which can be commonly used to overcome the anxiety disorder.

6.SUGGESTIONS:

The individuals suffering through the anxiety disorder should be provide with a precise guidance.

As per the analysis of google forms survey the individuals should increase involvement in physical exercises/activeness.

Books referring to simple methods and techniques to overcome the anxiety disorder.

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7.REFERENCES:

1. www.mckinsey.com
2. www.aecf.org
3. www.medicalnewstoday.com
4. www.wikipideia.corg

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THERMOELECTRIC ENERGY HARVESTING FOR CONSUMER ELECTRONICS

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ABSTRACT:

The increasing demand for energy, coupled with the need for sustainable and eco-friendly solutions, has led to the development of thermoelectric energy harvesting systems. Combined with embedded systems, this technology provides a novel energy harvesting and monitoring solution. The proposed embedded system-based thermoelectric energy harvesting system titled 'energen' consists of thermoelectric generators (TEG), an embedded microcontroller, a cooling system, and power management circuitry. The TEG converts the temperature difference between the hot and cold sides into electricity stored in a battery. The embedded microcontroller controls the cooling and the power management system and communicates with sensors through a wired network. This system's embedded design makes it energy-efficient, reliable, and compact, making it suitable for various applications, such as wearable devices, remote monitoring systems, and smart homes. The system's ability to generate electricity from waste heat sources makes it an environmentally friendly solution for power generation. The importance of this system for the environment and mankind lies in its potential to reduce carbon emissions and address the energy crisis. The system's ability to generate electricity from waste heat sources can reduce the reliance on fossil fuels and provide a sustainable source of energy. In this research, we'll see how such a system would work for consumer electronics (not limited to), and how in addition to the benefits mentioned above, this system also has great potential in the field of Internet of Things (IoT). Which would enable it to be controlled and monitored remotely.

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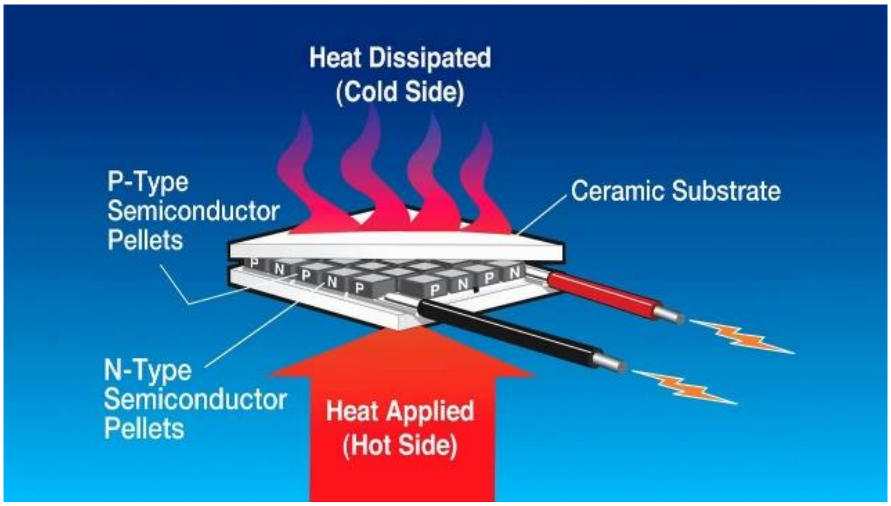
1.INTRODUCTION:

Inside of a TEG module [1]: (Fig. 1.1)



Thermoelectric generators (TEGs) are devices that convert heat energy into electrical energy using a phenomenon called the Seebeck effect. TEGs typically consists of multiple pairs of p-type and n-type semiconductors joined in a series, forming a thermocouple. When one side of the thermocouple is heated, electrons in the hot material gain energy and move to the cooler side, generating a voltage difference across the thermocouple. This voltage can be used to power an electrical device or charge a battery. This would be the base of energy harvesting.

Multi-mission Radioisotope Thermoelectric Generator (MMRTG) [2]: (Fig. 1.2)

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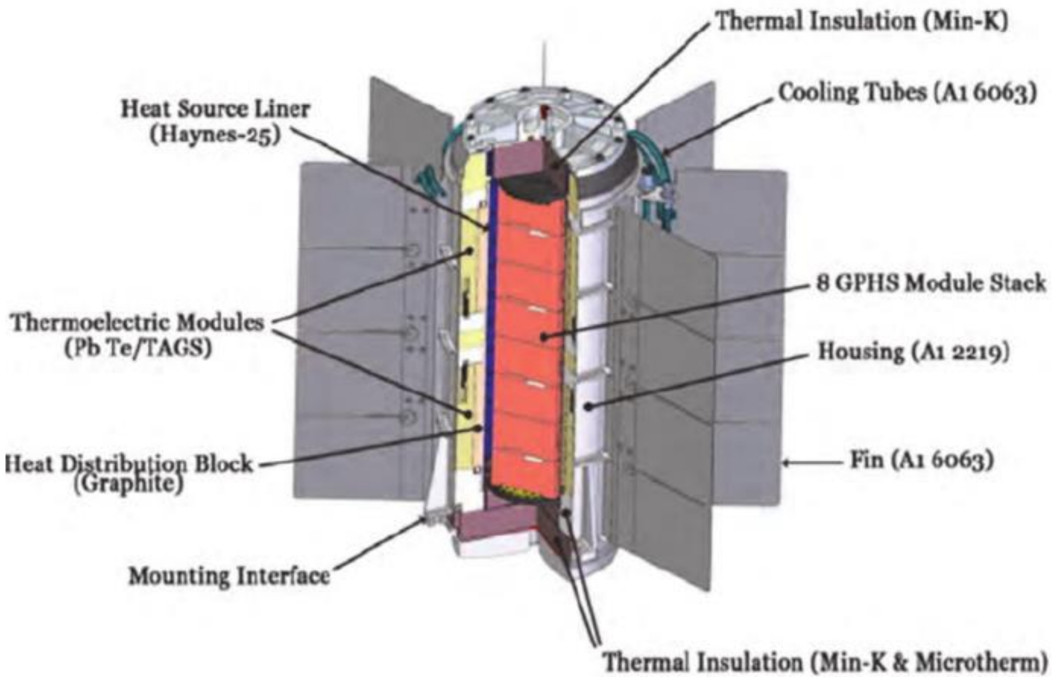

TEGs are also used in spacecraft, such as Radioisotope Thermoelectric Generators (RTGs) are lightweight, compact spacecraft power systems that are extraordinarily reliable. RTGs use the heat produced by the natural radioactive decay of plutonium-238, which results in the formation of plutonium dioxide, to generate electricity. Thermocouples are specialized solid-state metallic junctions that are used to transfer heat from the hot fuel to the cold environment of space while generating an electrical current without the use of any moving elements. [2]. In situations with natural temperature gradients and heat movement, thermoelectric energy conversion can produce electrical power. Similarly, Thermoelectric energy harvesting systems can be used to harvest energy from a wide range of consumer electronics that generate waste heat during operation. Such as wearables, smartphones, laptops, refrigerators, televisions, Gaming devices, etc. The target device must be generating enough waste heat to convert to electricity.

The basic outline of the energen (prototype one) would be:

A thermoelectric energy harvesting system that utilizes an Arduino Uno and an LCD display can be used to monitor the temperature of the modules and alert users when it exceeds a pre-set threshold. By utilizing a buzzer to alert users, they can turn on fans to reduce the temperature (to maintain the temperature difference) between the two sides of the TEG module

Apart from consumer electronics, This technology can be used in a variety of applications where waste heat is generated, such as in industrial processes, automotive systems, or electronic devices.

2.OBJECTIVES:

Even though the little amounts of heat exerted from consumer electronics is not something that is very harmful but the system can capture the waste heat and convert it into electrical energy, which can be used to power other components, charge batteries, or even feed back into the power grid. The goal of a thermoelectric energy harvesting system is to increase energy efficiency and reduce the environmental impact of energy consumption by utilizing waste heat that would otherwise be lost. Providing the unprivileged families who still use basic consumer electronics like refrigerators would help the poor by reducing energy costs. In developing countries, many people rely on expensive and polluting fuels like kerosene for lighting and cooking, if such systems would help out such people with charging their small devices or at least their communication devices it could make a difference. The objective of 'energen' is to make possible such energy harvesting for increasing the use of green electricity and the good of mankind by providing a low-cost, renewable source of energy in big amounts in the future and also be managed efficiently remotely, and not be limited to consumer electronics.

3.REVIEW OF LITERATURE:

- "Thermoelectric Generators for Energy Harvesting" by D. A. G. Vieira, F. M. Nunes, and J. A. Martino: This review article provides an overview of the current state-of-the-art in thermoelectric energy harvesting. It covers the basic principles of thermoelectricity, the design of thermoelectric generators (TEGs), and the various applications of TEGs.[3]
- "Recent Advances in Thermoelectric Energy Harvesting: A Review" by S. K. Jha, S. K. Pandey, and V. K. Singh: This review article discusses the recent advances in thermoelectric energy harvesting, including the development of new materials, improved device designs, and novel applications. It also highlights the potential of thermoelectric energy harvesting for powering small-scale electronic devices and sensors.[4]

4.SCOPE OF STUDY:

- Material selection and optimization: This involves researching and testing different thermoelectric materials and developing methods to optimize their performance for energy harvesting applications.
- Device design and optimization: This involves designing and optimizing thermoelectric devices, such as TEGs, to improve their efficiency and performance.

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- Thermal management: This involves developing strategies to manage the heat transfer in thermoelectric devices and minimize heat loss.
- Applications: This involves exploring the various applications of thermoelectric energy harvesting, such as in waste heat recovery, solar energy conversion, powering small-scale electronic devices, and most importantly the addition of IoT.
- Cost-benefit analysis: This involves analysing the economic feasibility of thermoelectric energy harvesting, including the costs and benefits of implementing this technology in different contexts.

5.METHODOLOGY:

Materials used-

- TEC modules. (x14)
- Voltage regulator
- Arduino uno
- Power bank
- Bmp 280 temperature and pressure sensor
- Fans and fans circuitry
- buzzer
- Cables

NOTE: TEG modules are not easy to source in little time and budget, and so for research and presentation purposes in this prototype, we use TEC (thermoelectric coolers) modules which are designed to provide cooling or heating by using electrical energy. As opposed to TEGs which are designed to convert thermal energy into electrical energy. But due to the Seebeck effect, which is a phenomenon in which a temperature difference between two dissimilar electrical conductors or semiconductors produces a voltage difference between the two substances. We can use the TEC modules to generate electricity, but far less efficiently than the TEGs.

Circuit Diagram: (Fig. 5.1)

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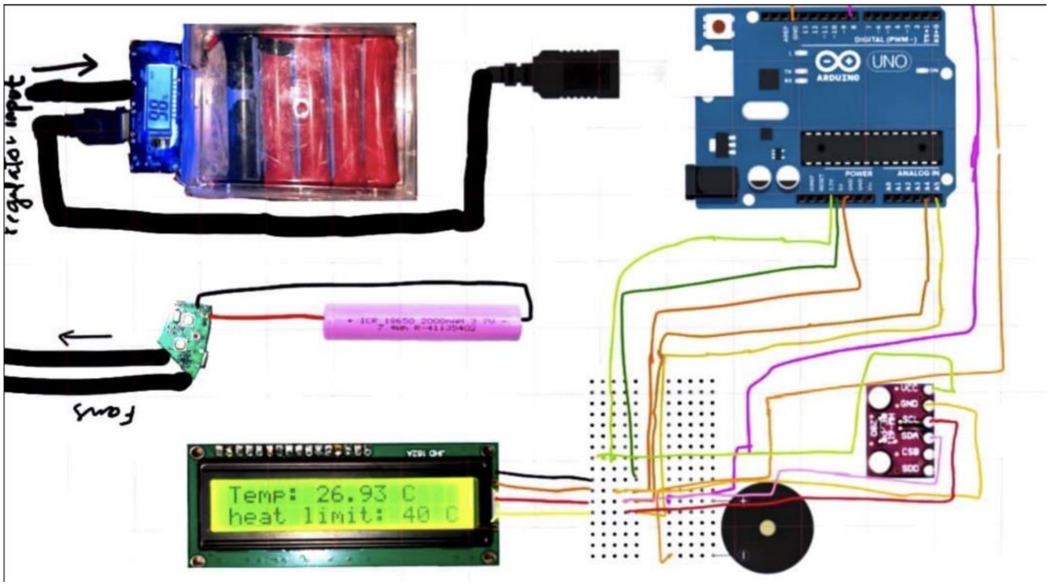

As shown in the diagrams, we connect the modules in series and connect them to a voltage regulator, which is giving power to the power bank (could be any battery pack), which would be the hub for the stored green energy.

In the ‘energen’, the microcontroller board is Arduino uno which is used to control the whole unit, is connected to a temperature sensor that senses the temperature of the side of the TEC modules which is supposed to be cool, to administrate the temperature difference.

The temperature sensor has a pre-set threshold, which is set by the user as per need (depending on the usual weather and location) (also displayed on an LCD screen). If the limit has been crossed the buzzer will buzz, alerting the users to manually turn the fan on to manage the temperature difference.

This would allow the TECs to generate electricity efficiently.

For demonstration purposes, fewer TECs are used in the case of a real-time harvesting system, as many to use should be used

Ex: Nonworking demonstration

(Fig. 5.2)

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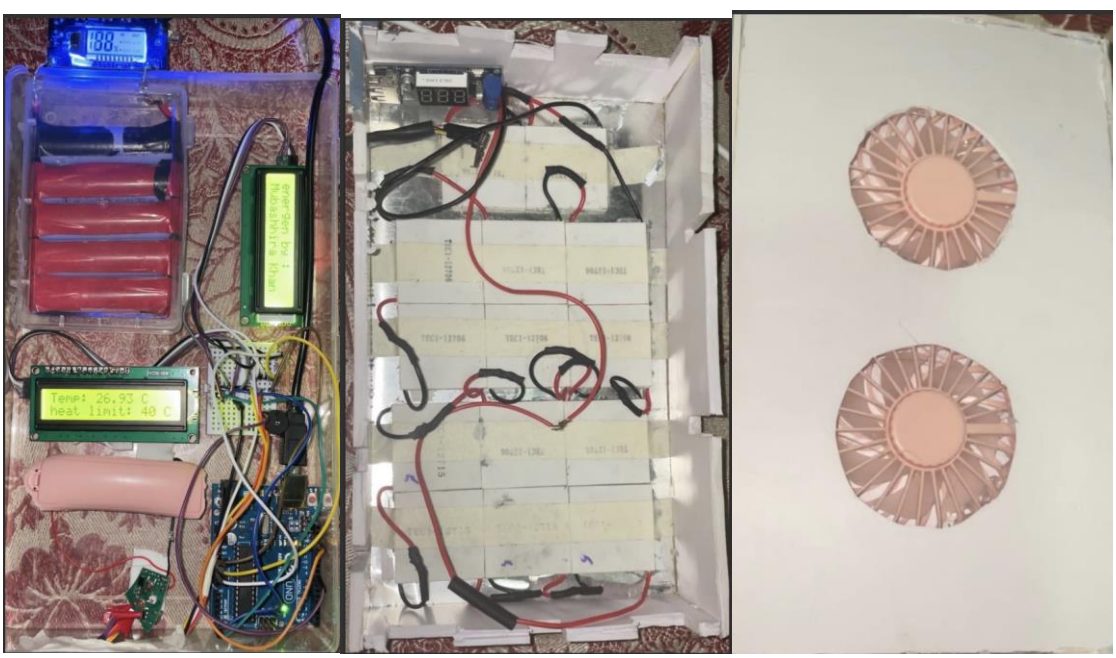
Many TEGs to be used, or custom TEG should be made according to the consumer electronic.

Energen first prototype (temporary casing): (Fig. 5.3)



To be noted: TECs were used to fill the lack of TEGs, TEGs are to be used in such harvesting units, as using TECs would be inefficient.

6.FUTURE SCOPE:

For the secondary level, we can include IoT and better components such as a WIFI module like esp8266 and make a mobile app that would help the users control it remotely. Instead of the buzzer buzzing and requiring the user to turn on the fans manually, we could make the microcontroller and the WIFI module send notifications on the phone app and also allow the user to remotely control the fans. We could also change the fans to better pc fans and connect multiple of those with relay and connect them together. And make the app notify the user when the battery pack is fully charged to swap it and make use of the stored energy. A database can be added even further, for maintenance and study.

7.CONCLUSION:

By doing this project and research we come to the conclusion that making such an energy harvesting system would be a great step towards bringing more green energy into use in a world of fossil fuels and that this thermoelectric harvesting system has much potential to grow and succeed as one of the best, efficient and user friendly inventions ever made in the field of green energy, but only after lots more research and lots more prototyping for better models every time an upgrade is made.

It is a promising technology that can convert waste heat into usable electricity and is capable enough to rule almost every modern household and industrial infrastructure that would take part in the green energy revolution in the near future.

By then more studies and experiments have to be done with TEGs and more and more efficient versions will have to be made by testing different semiconductors.

It won’t be long before the ‘energen’ plays a significant role in the future of sustainable energy generation and helps mitigate climate change by reducing greenhouse gas emissions.

8.REFERENCES:

1. Thermoelectric power generation - thermoelectric power generator - YouTube
2. Radioisotope Thermoelectric Generators (RTGs) | Cassini – NASA Solar System Exploration

ISBN NO: 978-93-5810-851-4

3. Energies | An Open Access Journal from MDPI
4. Renewable and Sustainable Energy Reviews | Journal | ScienceDirect.com by Elsevier

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INCREASING NUMBER OF CRIME CASES AND THEIR IMPACT ON THE VICTIM AND SOCIETY

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ABSTRACT:

This paper analyses the increasing crime in India. The problems faced by the victims and society are due to increasing crimes in the society. Trend of increasing case are analyzed to conclude the research. This paper has reviewed important court cases with judgement which are dealing with rape and murder cases.

Keywords: *Crime, Crime rate, Murder, Rape*

1.INTRODUCTION:

Increasing number of rape and murder cases in the world. Rape is a huge issue that plagues the world today. It is not specific to any one country, it's a worldwide phenomenon. Rape can impact anyone at any time. South Africa, with an estimated of 500,000 rape cases every year, has one of the highest rates of rape crimes in the world. It is estimated that more than 40% of South African women will be raped in their lifetime.

Rape and Sexual violence are a massive problem in India too. India is third among the top 10 countries where the highest number of rapes have taken place in 2010. While in case of murder, the country comes second in 2012 (Rajya Sabha, 2014). According to the National Crime Record Bureau (NCRB), crime against women have increased by 7.5% since 2010; the number of reported rapes in India have gone up to 33,707 in 2013 from 24,923 in 2012.

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The majority of rape victims are 18-30 years. About one out of the three victims is below 18 years. One in ten rape victims is under 14 years. In India a woman is being raped after every 20 minutes.

2.REVEW OF LITERATURE:

- ✓ **Wirth (1938)** claims that urban crime reflects the more anonymous and unstable nature of urban life.
- ✓ **Mathura Rape Case (1972):** The Mathura rape case is a landmark case in the history of Indian women's rights movement. The ambiguity in the decisions of all the three tiers of the legal courts shows the inherent patriarchal attitude of the Indian judicial system at that time. Public outrage led to formation of women's rights group and a subsequent change in the Indian rape law.
- ✓ **K. M. NanavatiVs State of Maharashtra (1962):** The crime of passion, where Commander K. W. Nanavati killed his wife's lover and marked the end of jury trials in India when the officer was let off.
- ✓ **Tukaram And Ors vs State Of Maharashtra (1979):** This case relates to Indian Penal Code Sec. 375-explaining various terminologies of rape. It also highlights that the onus is on prosecution to prove all the ingredients of an offense.
- ✓ **Bhanwari Devi Gang Rape Case(1992):** This case is considered very important in the women's rights movement in Rajasthan and India.Bhanwari Devi a social worker involved in speaking against child marriage it became clear that she was being denied justice on the basis of her low caste and gender.
- ✓ **Kehar Singh Vs Delhi Administration (1984):** Kehar Singh was accused of taking part in the murder of Indira Gandhi. Though the death sentence was upheld by the Supreme Court, its accuracy has often been questioned.

3.RESEARCH METHODOLOGY

c. Purpose of the research

To analyze the increasing cases and the problem of crime in India from multiple perspectives and suggest measures for mitigating this crime from the country.

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d. Objectives of the research

- To analyze the trend of crime cases
- To know the reasons behind the crimes
- To understand the reaction of the society against crime and victim

e. Methods of data collection

Secondary data is collected from journals, newspapers and NCRB reports.

Primary data is collected by conducting a survey.

f. Research design

The descriptive research is deployed to generalize the conclusion.

g. Delimitations of the research

The research is conducted on rape and murder crime.

h. Limitations of the research

The research has physical and economical constraints.

i. Data analysis method

Data is collected from NCRB reports and police-reported crime data.

4.DATA ANALYSIS AND FINDINGS:

- More women were killed after being raped in 2018 than in 2017. According to the latest National Crime Records Bureau (NCRB) data, there was 31% spurt in cases of rape with

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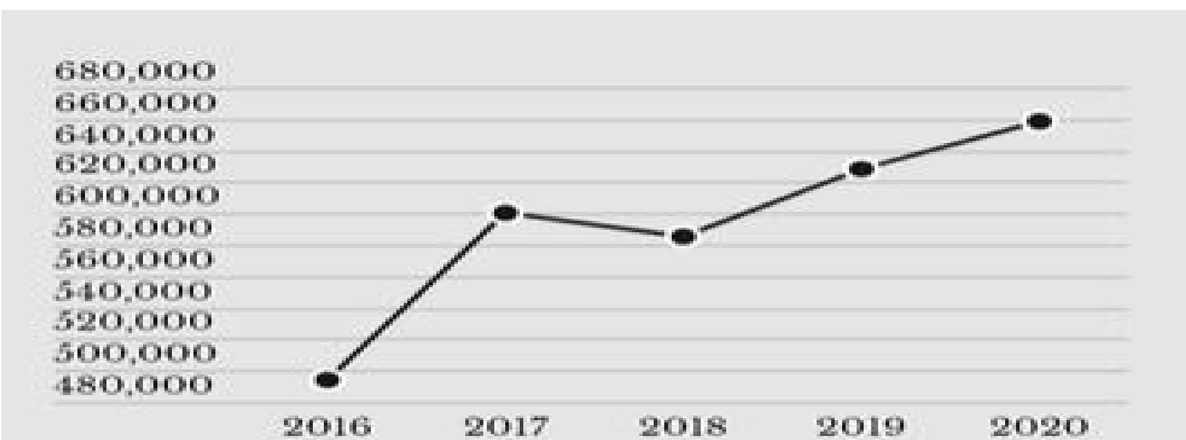
murder in 2018 as compared to 2017. It began collecting data on rape with murder only in 2017. Such cases were earlier recorded as murder.

- In 2017, according to the Global Burden of Disease study, over 400,000 people died from homicide in 2017. In some countries homicide is one of the largest killers. Homicide rates across some countries in Latin America are particularly high. In 2017, homicide was the largest cause of death in Venezuela, fourth in Honduras, and fifth in Guatemala.
- Public Health indicated that development of PTSD is likely in 50 to 95 percent of rape cases (1999). Lifetime income loss, due to sexual violence in adolescence, is estimated at $241,600 (MacMillan, 2000). The contributions and achievements that may never come as a result of sexual violence is a cost to society that can't be measured.
- Eight out of 10 (83%) indicated that their physical health was affected and three quarters (75%) that of the other family members. A third (33%) said that they suffered from high blood pressure following bereavement, while just over one in ten (12%) suffered from heart problems and over one quarter (28%) suffered in some other way (quite frequently stress, anxiety and depression).

(Fig 1)



The Graph shows the increasing crime rates in Uttar Pradesh from 2016 to 2020. In 2020 UP stood third in the absolute number of criminal cases registered- 6.75 lakh. Of these, 7.5% or 49,385 cases were related to crime against women, 7.9% were violent crimes and 0.93% were riots.

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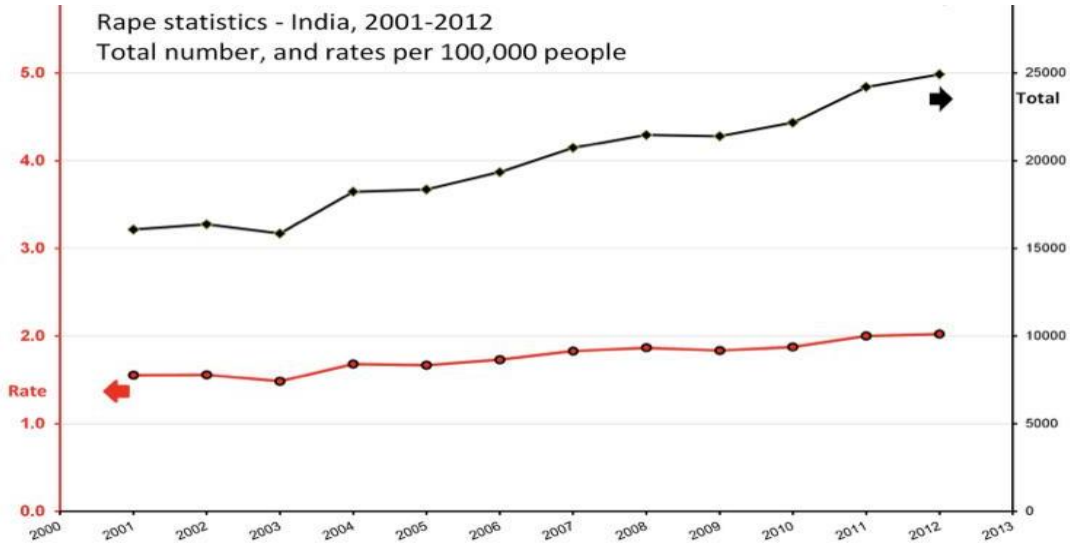
(Fig. 2)



The Graph shows the total increasing rape and rape rates from the year 2001 to 2012 in India.

5.CONCLUSIONS:

Increasing cases of sexual violence/rape and murder cases does not only become an obstacle to the victim but also to their family, friends, and the society. Some people take things very seriously and are not able to trust someone easily thinking that What if this happens to me ? The incident hampers them so much that it becomes difficult to move on in life. It is high time that all humans demand changes to all countries that perpetuate such injustices world-wide. It is time to provide education and awareness and encourage discussion that will change society's attitude towards rape and homicide and find ways to eradicate this intolerable social issue once and for all. The laws need to be strict. Society has to become so strong that a person becomes gutless and fears before committing any crime.

Crime has existed in all societies, and efforts to legislate, enforce, punish, or otherwise correct criminal behavior have not succeeded in eliminating crime. While some have concluded that crime is a necessary evil in human society, and have sought to justify its existence by pointing to its role in social change, an alternative view is that the cause of crime is to be found in the problems of human nature and human relationships that have plagued us since the origins of human history. Correcting these problems would effectively remove the source of crime, and bring about a

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peaceful world in which all people could realize their potential as individuals, and develop satisfying, harmonious relationships with others.

6.WEBLIOGRAPHY:

1. List of countries with highest 'Rape crime rate in the world'- Daily hunt
   https://m.dailyhunt.in/news/india/english/east+coast+daily+eng-epaper-eeastco/here+s+the+list+of+countries+with+highest+rape+crime+rate+in+the+world-newsid-90811949#:~:text=1.-,South%20Africa,Rape%20Crimes%20in%20the%20world.

2. 93 women are being raped in India everyday, NCRB data show- TOI
   https://timesofindia.indiatimes.com/india/93-women-are-being-raped-in-India-every-day-NCRB-data-show/articleshow/37566815.cms

3. In crimes against women, rise in case of rape with murder- The Indian express
   https://indianexpress.com/article/explained/in-crimes-against-women-rise-in-cases-of-rape-with-murder-6208863/

4. India is third in rape cases, second in murder in the world- The Hindu
   https://www.thehindu.com/news/national/india-is-third-in-rape-cases-second-in-murder-in-the-world/article6242011.ece

5. Homicides- Our world data
   https://ourworldindata.org/homicides

6. Effects of sexual assault and rape- Foundation
   http://www.joyfulheartfoundation.org/learn/sexual-assault-rape/effects-sexual-assault-and-rape

7. The effects of rape- IDAS
   https://www.idas.org.uk/our-services/sexual-violence/the-effects-of-rape/

8. Impact of sexual violence

 ISBN NO: 978-93-5810-851-4

https://studentaffairs.duke.edu/sites/default/files/u7/NSVRC_Publicication_Factsheet_Impact-of-sexual-violence.pdf

9. Health and social issues following the murder of a loved one
   http://canadianpomc.ca/resources/the-impact-of-murder-on-the-family-unit/health-and-social-issues-following-the-murder-of-a-loved-one/

10. 2012 Delhi gang rape and murder
    https://en.wikipedia.org/wiki/2012_Delhi_gang_rape_and_murder

11. Murder
    https://en.wikipedia.org/wiki/Murder#cite_note-:0-76

12. Causes of sexual violence
    https://en.wikipedia.org/wiki/Causes_of_sexual_violence

A STUDY ON THE NARROW MINDSET OF INDIAN SOCIETY

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ABSTRACT:

From the research paper we have obtained the idea of how the narrow mindset of people affects society. The research paper gives a glimpse of how people have a firm opinion about their mindset. The research paper also gives suggestions for the problem faced. The research paper also shows the negative impact on people.

Keywords: *Ideological reasoning, Political ideology, Value pluralism, Cognitive flexibility, Open mindedness, Tolerance, Social psychology, Political psychology*

1.INTRODUCTION:

Narrow mindset of the people is one of the biggest problems in India . The people of India are always pulled back by their thoughts .Once a thing fitted in our head regarding something it gets really hard to remove it from our head . Having a narrow mindset is the same thing . When a certain

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thing fits in our head, and it cannot be removed from our head without a proper conversation or a treatment similarly removing narrow mindset is not easy until and unless you start understanding and implementing others point of view . This research basically will lay an emphasis on the reasons , causes and solutions to solve the narrow mindset of the Indian society . Narrow mindset of people cannot be brainwashed completely but it can be removed a little with the help of the suggestions which will be provided .

Therefore, it is important to study the narrow mindset phenomenon and understand its causes, effects, and implications for individuals and society. By doing so, we can work to promote more open- mindedness, empathy, and critical thinking, which can help create a more inclusive, innovative, and harmonious world. Overall, studying the narrow mindset phenomenon is important for promoting personal growth, social harmony, innovation, and a deeper understanding of the psychological and cognitive processes that shape our thinking and behavior.

2.REVIEW OF LITERATURE

✓ **Festinger, L. (1957)**. A theory of cognitive dissonance.

In this influential book, Leon Festinger introduces his theory of cognitive dissonance, which posts that when individuals hold two or more conflicting beliefs or attitudes, they experience a state of psychological discomfort or dissonance. To reduce this dissonance, individuals will seek to reconcile their beliefs and attitudes in a variety of ways, including changing their behavior, attitudes, or beliefs, or seeking out new information that supports their existing beliefs. Festinger theory has been influential in a wide range of fields, including social psychology, communication studies, and marketing. It has been applied to explain a variety of phenomena, such as political polarization, post-purchase regret, and belief perseverance. Festinger work provides insight into the ways in which individuals try to reduce cognitive dissonance and maintain a sense of consistency in their beliefs and attitudes, which may be relevant to understanding the phenomenon of narrow-mindedness.

✓ **Haidt, J. (2012).** The righteous mind: Why good people are divided by politics and religion.

In “The Righteous Mind” Jonathan Haidt explores the psychological and social factors that shape our moral beliefs and values, and the ways in which they contribute to political and religious divides. Drawing on research from social psychology, evolutionary biology, and moral philosophy, Haidt argues that moral intuitions are deeply ingrained in human nature and shaped by factors such as culture, upbringing, and socialization. He posits that these intuitions are often automatic and unconscious, and that individuals may rely on them to make quick judgments and decisions without engaging in deep reflection or critical thinking.

Haidts work is relevant to the study of narrow-mindedness, as it provides insight into the ways in which individuals may be influenced by deeply ingrained moral intuitions and the social and cultural factors that reinforce them. He argues that by recognizing the diversity of moral intuitions and values that exist across different cultures and groups, individuals may be able to cultivate greater empathy and understanding for those with different perspectives and reduce the impact of narrow-minded thinking on social and political outcomes.

- ✓ **Kahneman, D. (2011).** Thinking, fast and slow.

In "Thinking, Fast and Slow" Daniel Kahneman introduces his theory of two distinct systems of thinking: System 1, which is fast, automatic, and unconscious, and System 2, which is slow, deliberate, and conscious. Kahneman argues that these two systems operate in different ways, with System 1 relying on heuristics and mental shortcuts to make quick judgments and decisions, while System 2 engages in more deliberate and effortful thinking.

Kahneman work is relevant to the study of narrow-mindedness, as it suggests that individuals may rely on System 1 thinking to make quick judgments and decisions, which may lead to cognitive biases and errors. These biases may include confirmation bias, which refers to the tendency to seek out information that confirms one's existing beliefs, and availability bias, which refers to the tendency to overestimate the importance of information that is easily accessible.

By understanding the ways in which cognitive biases and errors can influence thinking, individuals may be better able to recognize and counteract narrow-minded thinking patterns. They may also be able to cultivate greater self-awareness and engage in more deliberate and critical thinking, which may help to reduce the impact of cognitive biases on decision-making.

3.RESEARCH METHODOLOGY:

3.1 Purpose of the research:

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The purpose of an analytical study of narrow-mindedness is to better understand the phenomenon and its impact on individuals and society. The study aims to explore the causes and effects of narrow-mindedness, as well as to identify potential interventions or strategies for promoting more open-minded thinking and behavior. Specifically, the research may seek to answer questions such as: What are the underlying psychological, social, or cultural factors that contribute to narrow-minded thinking?

Through analytical study of narrow-mindedness, researchers can contribute to a better understanding of this complex phenomenon and develop evidence-based interventions to promote greater tolerance , understanding, and open-mindedness.

3.2 Objectives of the research:

- To understand the reason for the narrow mindset of the people
- To know the reason people, lag behind in the modern world.
- To understand why people cannot adapt to modern thinking.
- To understand reasons for people not accepting the new ways of thinking.

3.3 Methods of data collection:

- Primary Data: -

The primary data is collected by various means such as surveys, observations, and the various points of views as heard from people.

- Secondary Data: -

The secondary data is collected from newspapers, various research papers and magazines.

3.4 Research design:

The research is descriptive in nature. The research is analytical in nature.

3.5 Limitations of the research:

The research has physical and economical constraints.

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3.6 Data analysis methods:

Primary data : - There was a survey which was held .The data analysis method was completely analytical and based on observations.

4.FINDINGS AND ANALYSIS:

The Indian society has 13.5 per cent of narrow-minded people. The rest 86.5 per cent are open-minded. It is also observed that the narrow mindset of the Indian society affects the people in many ways. When the question was asked if guys crying was okay or not a majority of the people disagreed. 76.9 per cent of the people responded that boys should not cry. The remaining people agreed to the fact that it was okay for a boy to cry. When asked if it was okay for guys and females to be best friends 48.1 per cent of the people were against this. The other 15.4 per cent responded positively. The remaining 36.5 per cent could not answer correctly as they were not firm about their answers. The reason for the narrow mindset of the people was 46.2 per cent had a lot of stereotypes. 42.3 per cent of the generation has been raised with the narrow mindset. 30.8 per cent saw everything with a single perspective. The remaining 1.9 per cent had some other opinions about the questions asked. The reason why people do not change their narrow mindset is that 53.8 per cent follow family norms 48.1 per cent have low self-esteem. 38.5 per cent have adapted themselves to the narrow-minded environment. The remaining 1.9 per cent have a habit of proving themselves correct and hence they never tend to change. When surveyed if people have suffered narrow mindset 69.2 per cent agreed to it. 13.5 per cent have not suffered this problem. The remaining 17.3 per cent may or may not suffered the problem of narrow mindset. When questioned if people would like to see narrow mindset go or reduce a huge number of people agreed to the question. When inquired where is the narrow mindset of the people is observed it mostly starts from home and the surroundings in which they grow up.

5.CONCLUSION:

In conclusion, a narrow mindset can have negative impacts on both individuals and society. It can lead to a lack of empathy and understanding for others and can lead to discrimination and prejudice. The causes of a narrow mindset are complex and can be influenced by a variety of factors, including cognitive dissonance, motivated reasoning, intergroup conflict, and ideological reasoning. It is important to continue studying this phenomenon in order to better understand it

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and develop strategies for promoting greater openness, empathy, and understanding among individuals and groups. By recognizing the potential harms of a narrow mindset and working to overcome it, individuals and society as a whole can move towards greater harmony and mutual respect.

6.SUGGESTIONS:

The suggestions derived from this research are as follows:

People should start looking forward to understanding the ideas of the people. They should start listening to their ideas and try to understand their point of view. Everyone's ideas should be given a chance. People when start listening to and understanding others point of view they start to understand what others are trying to say. The narrow mindset should not affect the people.

7.WEBLIOGRAPHY:

- **www.myrepubluca.nagrika.com**
- **www.ncbi.nlm.nih.gov**
- **www.ncc.com**

TRACK 3

PROSPECTS, CHALLENGES AND STRATEGIES IN BUSINESS

CRITICAL ANALYSIS OF ROLE OF NATIONAL EDUCATION POLICY 2020 TOWARDS ENHANCE INDIAN EDUCATION SYSTEM

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ABSTRACT:

Education plays a powerful role in building a nation, it decides the future of the nation and the destiny of its people. As compared with the pre-independence and post-independence era, after thirty-four years Indian government is going to change the way of study i.e the third amendment in the education policy. The National Education Policy (NEP 2020) lays particular emphasis on the development of the creative potential of each individual. In this paper, a comparative analysis made with higher education in India between the current education system which is National Policy on Education (NPE-1986) and the National Education Policy (NEP 2020). The research is carried out with primary and secondary data and analyzed NEP from college students point of view and executed to create an awareness towards NEP 2020.

Keywords: *NEP, Education, System, Awareness.*

INTRODUCTION:

In India, the Gurukul system of imparting education is very well known to all of us. As time changed the Indian education system also observed some changes, the first education system was formed in 1968 and lasted thirty-four years. Later a new National Education Policy has been proposed by Indian government in year 2020. Quality education is a need of the hour, and the Government is trying to accomplish the same through National Education Policy 2020. The gap between the current state of learning outcomes and what is required must be bridged through undertaking major reforms that bring the highest quality, equity and integrity into the system from early childhood care to higher education. Higher education significantly contributes towards sustainable livelihoods and economic development of the nation. As India moves towards becoming a knowledgeable economy and society, more and more young Indians are likely to aspire for higher education.

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REVIEW OF LITERATURE:

Alok Kumar (2021) in the study entitled NEP 2020 aimed to revamp higher education in India with liberal environment of autonomy, promote freedom academic delivery, scope of research and emphasis on innovation. Dr. Kavitha Balkrishnan (2021) in the study also stated the NEP 2020 clearly underlined the concept, "Education is not a charity, it is a right." The multidisciplinary approach of this policy drastically effects Indian Education system. Pawan Kalyani (2020) in the study specified due to continuation of same education system for many years, major gaps recognized that had been seen between industry and academia which resulted into production of skilled and educated students but led to unemployable scenario or rather employed but under-paid. NEP 2020 will give students a chance to choose a desired combination of subjects and can learn what they want to learn according to their preference. Rupesh S. Wankhade (2021) in the study entitled India being a growing liberal country for education reforms. But it is noticed that Gross Enrollment Ratio is lacking. As higher education is an important aspect in deciding the economy, social status, technology adoption and healthy human behaviors in every country. Improving Gross Enrollment Ratio in higher education offerings is the responsibility of the country's education department. B.L. Gupta & Ajay K C(2021) in the study stated faculty members may be granted autonomy related to their roles and responsibilities as students may be granted autonomy related to their learning outcomes method and time. This will result in better achievement especially in outcome-based education environment. Dr. Smitha. S (2020) in the study stated NEP 2020 ensure that teachers are given the highest quality training in content, pedagogy and practice, by moving the teacher education system into multidisciplinary college and universities in NEP 2020 to rebuild India as a Global Knowledge Power.

Akash Kumar (2022) in the study entitled NEP 2020 focuses on more integrated way of learning by using technology. In order to implement this, substantial infrastructure investment is required as well as good electrical and telecommunication network should be there. Measures need to be taken by the government that our young assets do not have access to material that are not censored and safeguard them from cyber threats. Sunita Khatak, etl.,(2022) in the study stated as there are lot of universities in India, education ministry has to take strong and challenging decision to implement NEP at grassroots level. We can't jump directly to decision and implement new policy in days or years, it takes long time to establish particular trend in cultural traditional India. Aithal, etl.,(2020) in the study also reported that India is geared up to implement the guidelines of NEP 2020 throughout the country to reform changes in school and higher education with an objective to create new knowledge and skills along with human values. The student centred NEP 2020 can be implemented successfully with it's stated timeframe of 10-15 years.

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Research Gap: Lots of study was carried out from the different point of NEP and its implementation, but there is no study from the point of students in Mumbai. Hence this paper is focus the view from student's point.

AIM AND IMPORTANCE OF THE STUDY:

The education system in India is focused on memorization and rote learning, which does not encourage critical thinking or creativity, developing different skills among students. Also, The is outdated and not relevant to the changing needs of the job market. Hence an attempt is made to know who the current NEP 2020 will help to enhance students knowledge and skill. The main aim of this study is to create awareness among college students.

OBJECTIVES OF THE STUDY:

1. To make a comparative analysis of current Higher education system with New Education Policy system.
2. To study the pros and cons from students' perspective.
3. To make a set of population aware of NEP 2020.

HYPOTHESES:

H_{01}: There is no significant difference of opinion among different stream of students regarding autonomy of the college

H_{02}: Implementation of new NEP will not result into produce a more efficient, creative, and employable batch of students

RESEARCH METHODOLOGY:

The nature of the study is analytical. The research is based on both primary and secondary sources. The population for this study is college students of Science, Commerce, Management and Arts. in Mumbai. The number of samples is 198. Convenient sampling technique is used to select the sample and data has been collected through questionnaire. Secondary data has been collected from sources like previously published research papers on NEP 2020, journals, magazines, internet and so on. The study period is 3 months from December 2022 to February 2023. Ration, Descriptive analysis, ANOVA and Chi-Square is used to analysis the date and Tables , Chard are used to present the data in a best manner. Excel and SPSS software are used to analysis the data.

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ANALYSIS AND RESULTS:

1. Summary of Respondents in Detail.

Following table shows the summary of respondent's in details with respect to the gender, course stream and the language of medium of their school. The respondents of this data are college students and are expressed in percentage and frequency for easy understanding.

Table No. 1: Summary of Respondents

Particulars	Categories	Frequency	Percentage
Gender	Male	99	50
	Female	99	50
Stream	Science	30	15.2
	Commerce/Management	141	71.2
	Arts	27	13.6
School Language Medium	English	192	97
	Vernacular	6	3

(Sources: Primary data)

2. Preference on 4-year Undergraduate Courses:

From the responses collected, About 68.2% of students are willing to pursue an undergraduate course of 4 years with the fourth year purely being research based. About 16.7% students deem current 3-year pattern to be continued and around 15.2% students are unsure about this change.

3. Awareness of New Education Policy 2020:

Among the respondents, about 68.2% of students were aware about NEP 2020, 25.8% were unaware while 6.1% of the respondents had read or heard about it.

4. Independent Foreign Campuses in India:

Nearly 81.8% of respondents had positive opinion on independent foreign education campuses in India, while 13.6% believe that Indian universities have enough opportunities for its students meanwhile 4.5% held a neutral opinion to this change.

5. 4-year undergrad as opposed to current 3-year system:

Around 68.2% of the respondents were willing to take up a 4-year undergraduate course as opposed to the current 3-year system. 16.7% of the respondents were unwilling to accept

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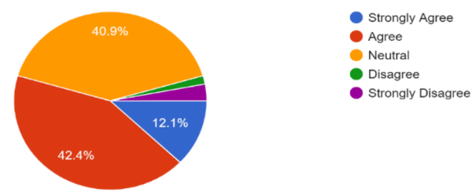
the new pattern while 15.2% respondents had not arrived at a conclusion of the said change.

6. Does India have enough infrastructural reserves to implement the 4-year undergrad system?

42.4% of respondents believe that India has enough infrastructural reserves to support the 4-year undergraduate course and 40.9% want measures to be taken to facilitate this system while 16.7% believe that there is not enough infrastructure to implement this change.

7. Opinion on selection of Science, Commerce and Arts:



Around 40.9% students strongly support the current system and 42.4% students agree on this system with only 12.1% students holding a neutral opinion and less than 5% of students disagreeing with the current system. This shows that around 84% students are in favour of the current system.

8. Autonomous College Education:

The responses indicated that 18.2% students strongly agree and 39.4% students agree with this change adding up to a total of 57.6% of students agreeing for an independent education system, whereas, 18.2% students differ with this change and 40.9% students had a neutral opinion. Based on ANOV test, the p value is more than 0.05. so, the hypothesis H01 is rejected which means there is an significant difference of opinion among different stream of students regarding autonomy of the college.

ANOVA

stream

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.453	3	.151	.497	.686
Within Groups	18.532	61	.304		
Total	18.985	64			

9. Will NEP 2020 bring Indian education to an international level?

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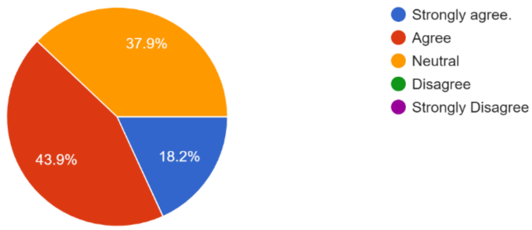

Responses indicate that 18.2% students have strong and 43.9% students have confidence in the policy and 37.9% students holding a neutral opinion. No respondent disagreed.

10. Readiness to select subjects of their own interests:

78.8% of the respondents were ready to select subjects based on their interests, 15.2% of the respondents were unwilling to have their own selection of subjects and 6% of respondents had neutral opinion.

11. Introduction of English post 5th Grade:

As this question had multiple selection of answers, respondents expressed their opinion through multiple options. 68.2 responses express that English should be introduced well in advance before 5th Grade. 42.4% of the responses extend their concerns towards children from remote regions who might not grasp a new language as well as urban children. 30.3% of the respondents recognize this implementation as a communication barrier at Global level for Indians and 22.7% of the respondents had opinion aligned with the change as per NEP.

12. Elimination of English from Indian Corporates:

42.4% Respondents agreed with using Hindi as a professional mode of communication, 57.6% respondents disagreed with this decision while 30.3% respondents believed that it will be challenging for employers to employ worthy candidates. Another set of responses revealed that 80.3% of respondents believe that complete dominance of local professional language with create a language barrier while 19.7% of the respondents agree with the preference of local language over English.

13. Specialization of colleges in only one Field:

74.2% students believe that when a college specializes in only one field it delivers better quality of education and better opportunities for its students, while 25.8% of students prefer that any college should offer courses of Science, Commerce as well as Arts.

14. Single Regulator of Education System:

About 70% of the respondents were aware of multiple regulators of the current education system. About 40% of the respondents believe that a single regulator of the education

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system can ensure a better quality of education while the rest of the respondents held a neutral approach to the said change.

15. Implementation of Equity Education:

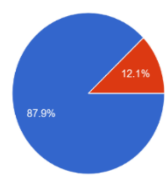
77.3% of the respondents knew the difference between equity and equality education, while 22.7% didn't . 19.7% of the respondents strongly agree and 45.5% agree with the implementation of equity education focusing on talents of each individual. 34.8% of the respondents held a neutral opinion and none of the respondents disagree with the said change.

16. Multidisciplinary education-linkage with traditional education:

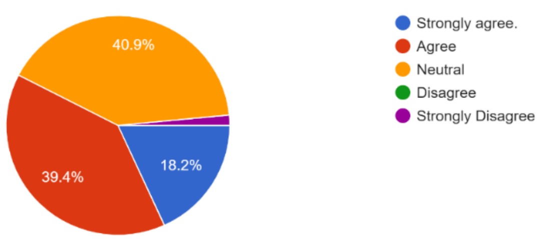
56.1% of the respondents knew that traditionally India had a multidisciplinary education system while 21.2% had somewhat known of it from various sources, and only 22.7% of respondents were unaware of this system. 80.3% of the respondents want the multidisciplinary system to be implemented with the implementation of NEP while 13.6% believe it might potentially overburden the students meanwhile 6.1% believe that if should be introduced in moderation to keep away unwanted stress on students and teachers.

17. Easy entry and exit to undergrad courses:

87.9% of the respondents agree to having exit and re-entry to any undergrad course as and when required and 12.1% disagree with it.



18. Autonomous colleges instead of affiliated colleges:



18.2% strongly, 39.4% agree and 40.9% hold a neutral view to having autonomous and independent colleges as opposed to affiliated colleges. Only 1.5% disagree with this change.

19. Will NEP 2020 help create a more employable batch of students every year?

18.2% strongly agree and 40.9% agree that NEP 2020 will create better employable youth and 40.9% were neutral to this change while none of the respondents had negative opinion. As per the result of Chi-Square test, the p value is more than 0.05, hence H02 is

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rejected which means, students belives that NEP brings more efficient, creative, and employable batch of students

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.509[a]	2	.775
Likelihood Ratio	.511	2	.775
Linear-by-Linear Association	.213	1	.645
N of Valid Cases	65		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.91.

FINDINGS:

- Most of the respondents were aware of NEP 2020.
- Around 82% of the students would want foreign campuses in India for an all-inclusive Indian-Foreign coordinated higher education system.
- About 70% of students are willing to take up a 4-year undergraduate course to be able to include research in their college experience to develop more practical knowledge and skills for the same.
- More than 50% of the students would be looking forward to independent and autonomous colleges i.e., not affiliated to local universities.
- More than 60% of the students are confident that NEP has the potential to bring Indian education on an International level.
- 80% of the respondents are ready to get to select subject of their choice to be able to prepare for a better career in the future. It is believed that this will help have a mindset of creativity and positive impact on the quality of take away that students will have at graduation.
- More than 80% of the respondents do not want English to be excluded until 5th Grade. Including English at primary level ensures that the students will not have a challenging time to cope with English after 5th grade, as it is also very essential for global interactions.
- More that 65% of the respondents agree that NEP should bring about multidisciplinary education instead of focusing only on one field.

- Around 90% of the respondents agree that students should be allowed to exit a course and continue it whenever it is required so that it is more convenient for everyone.
- Around 60% of the respondents are confident that NEP will certainly be able to provide education in a manner that the graduates are better skilled and experienced thus making them more competitive and employable for the jobs they aspire to pursue.

SUGGESTIONS TO POLICY MAKERS:

- Include English at primary level ensures that the students will not have a challenging time to cope with English after 5th grade, as it is also very essential for global interactions.
- Necessary steps should be taken bring more direct foreign institution campuses in India for an all-inclusive Indian-Foreign coordinated higher education system and it should be affordable to Indian middle class and lower class students.

CONCLUSION:

The research was conducted to get a better understanding of the perspective of students pursing higher education and how they perceive the changes brought about in NEP 2020, it also tries to understand the loopholes of NEP as perceived by students. It is concluded that implementation of multidisciplinary system, research-intensive undergraduate programmes, autonomous colleges and other such changes are deemed to be the a pathway for the development of students and increase their skills and employability in Indian as well as Global level by bringing Indian education at an international level as well as having foreign campuses in India. With the implementation of NEP all the said changes will be the key factors in having a more skilled, educated, well-rounded and confident individuals, as an educated youth will lead India to be a successful economic and developed nation.

LIMITATIONS AND SCOPE FOR FURTHER STUDY:

The study is limited to Mumbai area only. As compared to population of the study, the sample size is less. The study is also limited to college students whose opinion could be biased or selected without knowledge of the final outcome. The same type of study may be conducted in

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different geographical areas and the study can also be carried out from the view of college professors and other professionals.

REFERENCES:

- Sunita Khatak, Naman Wadhwa and Rajesh Kumar (2022), "NEP 2020-A Review cum Survey Based Analysis of Myths and Reality of Education in India."
- Pawan Kalyani (2020), "An empirical study on NEP 2020 [National Education Policy] with special reference to the future of Indian education system and its effects on the Stakeholders."
- Alok Kumar (2021), "New education policy (NEP) 2020: A roadmap for India 2.0."
- B. L. Gupta, Ajay Kumar Choubey (2021), "Higher education institutions–some guidelines for obtaining and sustaining autonomy in the context of NEP 2020."
- Rupesh S. Wankhade (1 September 2021), "Higher Education and NEP-2020."
- Aithal, Sreeramana, Shubhrajyotsna (2 December 2020), "Implementation strategies of higher education part of national education policy 2020 of India towards achieving its objectives."
- Anjana Neira (2022), "The Challenges of Linking Theory to Practice: NEP 2020, NHEQF and the Undergraduate English Classroom."
- Akash Kumar (2022), "Digital Education: Vision, Perspectives and Problems in Changing Paradigms of NEP-2020."
- Dr. Smitha S (2020), "National Education Policy (Nep) 2020-Opportunities and Challenges in Teacher Education."
- Dr. Kavitha Balakrishna (2021), "Empowering Emerging India through Excellence in Education-Reflections On NEP 2020."

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MARTIAL ARTS IN MUMBAI: YOUNGSTERS' AWARENESS, INTEREST, AND ROLE OF SCHOOLS & OTHER EDUCATIONAL INSTITUTIONS.

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ABSTRACT:

Martial arts are the improvement of hand-to-hand fight for combat and self-defence purposes. There are many varieties of martial arts, every wonderful and generally coming about for exceptional purposes. This study is a brief concerned with Martial Arts and its awareness amongst the youngsters in Mumbai. Along with the interest of the young individuals, the study considers the role of schools and other educational institutions in spreading awareness and providing adequate information about different Martial Arts concepts around the world.

Keywords: *Martial arts, Martial arts in schools, Safety, Self-defence.*

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1.INTRODUCTION:

The term "**Martial Arts**" refers to a variety of fighting strategies and techniques that have evolved over time and between civilizations. Martial arts come in a variety of forms, each with its own distinctive history, methods, and philosophy. This is a quick rundown of some of the most well-known martial arts styles:

1.1 Kalaripayattu

Kalaripayattu is an Indian martial art with a 3,000-year tradition. The martial art uses a variety of methods, such as punches, kicks, grappling, and firearms. Kalaripayattu is still practised today as a form of physical exercise and self-defence and has influence various martial arts, including karate and kung fu. Bodhidharma – The prince of Sugandha which is originated in Kerala today was the founder of Kalaripayattu.

1.2 Kung Fu

Kung Fu is renowned for its wide variety of styles and methods, which include both striking and grappling ones.

1.3 Karate

In the early 20th century, Okinawa, Japan, was the birthplace of Karate. It stresses speed, power, and discipline and includes punches, kicks, and blocks. Karate comes in a variety of forms.

1.4 Taekwondo

Korean martial style known as taekwondo emphasises kicking skills. It is one of the most well-liked martial arts worldwide. Taekwondo also teaches grappling, blocks, and hand punches.

1.5 Krav Maga

Created in Israel, this self-defence technique stresses swift and powerful strikes to weak points in the body and is based on techniques that may be applied in everyday situations.

And others include **Judo**, **Muay Thai**, **MMA**, etc.

The advantages of Martial Arts include safety, self-defence, health, and fitness, etc.

But despite being an advantageous concept, Martial Arts are not being practiced largely within the country. This might be following various factors, and this study emphasises on the same. The reasons might include lack of awareness and adequate information amongst and for the youngsters. Hence, this study also includes the role of schools and other educational institutions in spreading awareness about the same.

2.OBJECTIVES:

- To understand the different Martial Art concepts, their benefits, and the difference between them.
- To study the interest of youngsters around Mumbai in Martial Arts.

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- To understand the level of understanding of youngsters within Mumbai with context to Martial Arts.
- To know about the efforts taken by schools/colleges and other educational institutions in Mumbai to familiarise students with different Martial Arts concepts.

3. REVIEW OF LITERATURE:

i. In the paper of Kung Fu Family Training and Self-Defense author Tim Kittelstad stated that Proper martial arts attention is quintessential for a practitioner's success and safety. Neglecting focus can end result in final dying inside oneself. Developing single and huge recognition is indispensable to be conscious of environment and particular attacks, stopping war and keeping off worst-case scenarios.

ii. A study by Kimberly Ball and Jeffrey Martin states that the risk for sexual assault and rape for women has been in spacious so with the help of Martial Arts self- defence techniques we can prevent sexual assault and reduce fear related to Sexual Victimization in women.

iii. According to Indian Express, A Police Officer said that the duo was observing the Jain from outside the shop. As he went back in the room they stepped in.one of them shut the glass door so his screams could not be heard. They gagged his mouth with a cloth and tied his hand and legs with tape. Thefts were not intended to kill but when he put up a fight they picked a sharp weapon from his shop and assaulted him 10-12 times killing him in the shop. They tried to open 2 lockers but could not, after which they stole 2kg silver. Today the case is still running in the court and they are out at bail.

4.GAP ANALYSIS:

It was found that there is lack of research papers on spreading awareness about martial arts within the country as a whole. Research scholars have worked a lot on finding out about Martial Arts, but it does not seem visible that any of the researches work towards spreading the word about it. We believe that Martial Arts is a beneficial concept and has scope for betterment of the nation.

5.HYPOTHESIS:

H_1: There is a significant association between interest of youngsters in Martial Arts and their awareness about the same.

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H_2: There is a significant association between interest of youngsters relating to Martial Arts, and the role of schools and other educational institutions in spreading awareness about martial arts.

6.RESEARCH METHODOLOGY:

The research design is descriptive, both primary and secondary data have been collected for this research.

6.1 Primary Data:

- ✓ Primary Data has been collected through **survey** and interview method for this research. A survey was conducted, containing questions regarding the youth's interest in Martial Arts and its accessibility. The target respondents of this survey were adolescents and the youngsters within the city of Mumbai.

Sample Size: 81

- ✓ **Interviews** were taken randomly, in which the following questions were asked from the respondents:
  1. Do you know about the concept of Martial Arts? Tell us about it.
  2. What type of Martial Arts are you aware about? Can you name them?
  3. Have you ever heard about Kaleripayattu?
  4. How do you know about Martial Arts?
  5. What are your comments on Martial Arts Awareness in India?

Sample size: 5

6.2 Secondary Data:

In order to gain more knowledge on the different Martial Arts concepts, various E-books, articles and websites were referred. To know more about people's effort on spreading the word about Martial Arts, research papers, news and articles, along with magazines were considered as well.

7.LIMITATIONS OF STUDY:

The study is limited geographically and in terms of sample size, due to time constraints.

8.DATA ANALYSIS:

To test the hypothesis and analyse the data, Chi-square tests were applied, using the SPSS data analysis software.

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Table 1:

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.037[a]	9	.018
Likelihood Ratio	15.476	9	.079
N of Valid Cases	80		

Table 2:

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35.836[a]	16	.003
Likelihood Ratio	33.879	16	.006
N of Valid Cases	80		

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9.OBSERVATIONS, INTERPRETATIONS AND FINDINGS:

- Major responses i.e. 78.8% of the responses were received from the 18-24 age group.
- 80% of the respondents were students, whereas the remaining 20% are working individuals.
- 22.5% of the respondents agreed that they are aware of the Kalaripayattu, whereas 63.7% of the respondents agreed that they are aware of the Kung Fu, 88.5% of the respondents agreed that they are aware of the karate, 57.5% of the respondents agreed that they are aware of the Taekwondo, 18.8% of the respondents agreed that they are aware of the Muay Thai, 1.3% of the respondents agreed that they are aware of the Jiu Jutsu, Jeet Kune Do, 1.3% of the respondents agreed that they are aware of the Mudgal ,1.3% of the respondents agreed that they are aware of most of the given options.
- 58.2% of the respondents have learnt about Movies/T.V Shows whereas 20.3% of the respondents have learnt about Martial Arts from School, and 11.4% of the respondents have learnt about College/Other Educational Institutions.
- 51.2% of the schools were found not involved in spreading awareness about Martial Arts, whereas those involved were 25%. Students of the remaining 23.8% of students were unsure if their schools are involved in the same.
- When asked to rate their interest in Martial Arts, 8.8.% of respondents rated 1 (not interested), 8.8% of respondents rated their interest 2, 41.3% rated 3, 18.8% rated 4, and high level of interest in Martial Arts was observed in 22.5% of respondents, who rated their interest as 5.
- 15% of the respondents are practicing Martial arts, whereas 85% of the respondents are not.
- 33.3% of the respondents are not interested to practice Martial Arts whereas 28.8% of the respondents don't know about Martial art but they want to learn and 22.7% of the respondents want to learn but don't know the procedure to join in Martial Arts.
- 32.4% of the respondents are willing to join Martial Arts after knowing its benefits whereas 17.6% of the respondents are not interested in practicing Martial Arts. The remaining 50% of the respondents
- 1.3% of the respondents were found practicing Kalaripayattu,11.8% of the respondents are practicing Kung Fu, 26.3% of the respondents are practicing Karate, 17.1% of the respondents are practicing Taekwondo, 2.6% of the respondents are practicing Muay Thai, 1.3% of the respondents are practicing Kickboxing, 1.3% of the respondents are practicing other Martial Arts, and the remaining 60.5% of the respondents are not practicing any of the Martial Arts.
    - 33.9% of the respondents practice in Academy, 19.6% of the respondents are practicing in school, and the remaining, and 10.7% of the respondents are not practicing.

➢ **Result of Analysis: Both H_1 and H_2 have been accepted.**

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10.CONCLUSIONS:

Martial Arts as a concept is beneficial at many levels. Training in Martial Arts might help an individual defend themselves, keep fit and healthy and altogether build a stronger nation. To summarise, the study focuses on the interest of youngsters in Mumbai, with context to martial arts, its awareness and the ways the schools and educational institutions promote martial arts. The findings suggest that interest of youngsters in Martial Arts is less even when it is a beneficial concept, and there is a significant role of awareness spread by educational institutions with regards to martial arts. The suggestions of the study provide possible solutions to both increase awareness and interest of youngsters in Martial Arts.

11. SUGGESTIONS:

In order to increase awareness and interest amongst youngsters in Martial Arts, and to encourage them towards it, the following methods can be used:

These are some ways schools and other educational institutions can promote martial arts.

1. Introduce less expensive martial arts coaching packages in faculties and colleges, become aware of nearby trainers for one-of-a-kind age groups, such as Taekwondo or Karate for greater training students, and Kalaripayattu and Kung Fu for predominant students.
2. Plan and execute the classes: Plan and raise out the martial arts lessons. Make certain to adapt the instructions to the group's members' necessities and preferences.
3. Promote through posters, social media, and word-of-mouth, promote martial arts instructions to the large community.

By using these techniques, one might also motivate others to study martial arts as a section of their bodily health events and aid unfold cognizance of the many exclusive martial arts and the benefits they offer.

12.FUTURE SCOPE:

This research can be further used by the government to form policies on inclusion of Martial Arts in education system, the findings and suggestions of this research might help institutions know about the facts and stats about students and include Martial Arts in curriculum using the suitable methods.

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13.REFERENCES:

- https://sifuochwingchun.com/martial-arts-awareness-aware/
- https://www.researchgate.net/publication/235782815
- https://indianexpress.com/article/cities/mumbai/two-held-for-robbery-murder-of-jeweller-in-nalasopara-7467407/

SHOPPERS WITH DISABILITIES: A STUDY ON EXPERIENCES, BEHAVIOURS AND NEEDS

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ABSTRACT:

Disability is a state wherein a person is completely dependent on someone else to achieve their own desires. The paper describes the study to understand the adjustment of visually impaired people. The survey for the paper was conducted by primary survey and secondary survey. It focuses on the following variables barriers to the visually impaired, braille program, need to assist the visually impaired people in different sections of the society, and suggestions. For blind people, handicapped people, old age shopping is a difficult task for them inside the shopping malls. Because they don't know the location of the product, whether it is available or not, current offers, they feel tired to stand in a queue for billing. So, they want other Persons to find the location, to navigate way inside the shopping mall, billings.

Keywords: *Visually Impaired, Braille, Buying Decision, Blindness, Disabilities, Adjustment, Shopping, Barriers.*

1.INTRODUCTION:

1.1 INTRODUCTION TO VISUAL IMPAIRMENT: -

The term visually impaired refers to an individual with low vision and limited mobility. There are two terms in visually impairment that one needs to understand first object vision. It is the ability to understand the object one is seeing but does not know its kind or further details, for example having a sense of a person walking but the gender, age stays unidentified. Second is travel vision, it refers to the ability to move without being dependent on cane or a dog or another person. Some sources reveal that Blindness and Visual

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Impairment (VI) in India reduced by 47.1% and 51.9%, respectively, in 2019, in overall population as compared to WHO’s figures of 2010. A visual impairment that "substantially limits one or more of the major life activities" is considered a disability as defined by the 1990 Americans with Disabilities Act (ADA) However, India is yet to achieve WHO's goal of reducing blindness to 0.3% of the total population, as the present figures stand at 0.36%. The major causes of blindness included cataract (66.2%), followed by corneal opacity (8.2%), cataract surgical complications (7.2%), posterior segment disorders (5.9%), and glaucoma (5.5%).

1.2 CAUSES OF VISUAL IMPAIRMENT: -

According to WHO, each person's experience with vision impairment is unique and depends on a variety of circumstances. This includes, for instance, the accessibility of interventions for prevention and treatment, access to vision rehabilitation (including aids like eyeglasses or white canes), and whether the person has partial or complete visual impairment would be dependent on the following reasons:

- Cataract
- Diabetic retinopathy
- Glaucoma
- Uncorrected refractive errors

Diabetic Retinopathy:

Diabetic retinopathy is an eye disorder that develops as a result of consequences from diabetes patients' rising blood sugar levels. The blood vessels in the retina, a light-sensitive component of the eye, are impacted by diabetic retinal disease.

Glaucoma:

A series of eye disorders known as glaucoma harm the optic nerve. For clear vision, the optic nerve, which transmits visual data from the eye to the brain, is essential. High pressure in your eye is frequently associated with damage to the optic nerve. Yet, glaucoma can develop with normal eye pressure as well. Even while it can strike anyone, older persons are more likely to develop glaucoma.

1.3 WHAT IS BRAILLE?: -

For those who are blind or visually challenged, Braille labels are self-adhesive labels containing embossed Braille lettering.

Blind and partially sighted people can read Braille by touching raised dots that form a distinctive tactile writing system.

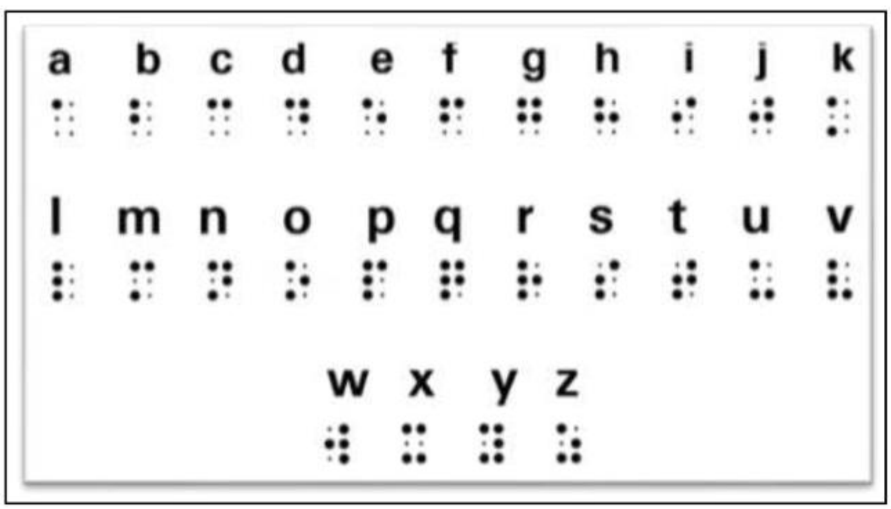
Advantages include:

- Braille encourages the development of accessible and effective reading and writing.
- Braille enables pupils to use the same written materials in class as their colleagues who are cited.
- Braille literacy can be essential for success and future jobs.
- Teaching the grammatical rules to the blind in Braille is an efficient method.

Disadvantages include:

- The inability of a sighted individual without training to read Braille labels.
- Braille with incorrectly drawn dots might be confusing.
- Not every store can afford a Braille label system.
- The inability to obtain Braille labels makes it difficult for people who are blind to communicate.
- The importance of mastering Braille is underemphasized.

(Fig. 1.3.1)



2.REVIEW OF LITERATURE:

✓ **V. Lobo, R. Prabhu, Polu Bal Kumar Reddy (2019)**

The researcher focuses on the fact that Many people like working woman, men everyone will show more interest in shopping. for blind persons, handicapped persons, old age shopping is the difficult task for them inside the shopping malls. Because they don't know the location of the product, whether it is available or

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not, current offers, they feel tired to stand in a queue for billing. The aim of the research paper was to design a systematic and accessible shopping trolley for the blind people.

- ✓ **R.K. Pandey (2018)**

The researcher indicates that there was a significant difference in the adjustment of the visually impaired students in the area of home, school and personal in special and integrated set-up. The adjustment of visually impair varied according to setting. The main purpose of this study was to investigate how school (special/integrated) placement influences the adjustment of visually impaired students. The present study is a humble endeavour in this respect.

- ✓ **Mustafa Ürey and Maşide Güler (2018)**

The researcher focuses on the problems which are faced by the students who are visually impaired. The main aim of this research paper was to investigate the mental problems faced by the students.

- ✓ **Doaa A. Khattab, Julie Buelow, Donna Saccuteli (2015)**

The paper discusses that most grocery stores do not make special assessments for people with vision impairment. According to the literature review, no grocery stores have been designed to provide access to visually impaired people to shop independently. The purpose of this paper is to present a study that sought to understand the barriers that shoppers with vision impairment face in the grocery store-built environment.

- ✓ **Stacey Menzel Baker, Debra Lynn Stephens, and Ronald Paul Hill (2001)**

The researcher focuses on the definition of visual impairment and the impact on the consumption function of disabled people.

3.RESEARCH METHODOLOGY:

Need of the research: -

The purpose of this research began with understanding the barriers which were:

- Freestanding displays block the aisles – During the sales of season goods the freestanding display creates confusion to navigate.
- Double Counting of item causes misrepresentation for payment of bill - At times, the items are not verified regularly by the biller taking the person with disabilities granted which can fall down to become a criminal activity.
- Some products may be on the floor after being dropped from the shelves – The items may come in the way while crossing between aisles which may cause the person with visual impairment to get lost.

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- Moving around to find the needed product is really challenging, especially when the products are arranged seasonally.

Objectives of the research: -

- To understand the barriers faced by the visually impaired person as a consumer.
- To give suggestions and provide possible technological solutions for the betterment of visually impaired person.

Methods of data collection: -

- **Primary Data** is collected through a questionnaire filled by the person with visual impaired.
- **Secondary Data** is collected from newspapers, articles, government websites etc.

Research design: -

The research design deployed was exploratory research design. It is descriptive in nature.

Data analysis methods: -

The data is collected from a person with visual impairment Ms. Pooja Shetye (Housewife) to generalize the findings and draw the appropriate conclusion of the research study.

4.FINDINGS:

According to the results, most participants felt that a Braille label on clothing would help them shop for the garments they want. Participants said that they would want to see information on clothing characteristics, such as colour, cost, and care, on Braille labels. It was clear that visually challenged people have trouble figuring out preferred clothing characteristics on their own. This study discovered that participants' primary choice for identifying garment characteristics, such as colour and cost, was dependence on their families. So, the visually handicapped would benefit from using a Braille system when shopping for clothing. As an example: - Big Bazaar initiated the “Sabke Liye” segment ‘for everyone’. The Republic Day sale preview was exclusively for all disabled customers in all its stores so that they can experience leisure and in a safe environment. Training of employees for Pwd’s. Over 60 sessions were conducted, and large-scale sensitization drives were undertaken to train each member of the 30,000 of the company. Avesha is the flagship program which sensitizes the entire organization on disability and is conducted quarterly at every Big Bazaar store in the country. Currently, there are more than 300 People with disabilities working with Big Bazaar.

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(Fig. 4.1) (Source of the image https://www.patientsengage.com/news-and-views/when-store-welcomes-shoppers-disability)

5.LIMITATIONS OF THE RESEARCH:

- There is a lack of willingness to share their personal experiences.
- There is no uniformed system to contact the disabled / visual impaired people in Mumbai.
- Data collection becomes a challenge.
- There may not be any reliable source of secondary data.
- There is lack of convenience while forming a network with the visual impaired / disabled people.

6.CONCLUSION:

People who do not have vision since birth may find it difficult to understand verbal and visual descriptions. In India, we may believe that visual impairment is a permanent limitation for a person. In today's time there are many such facilities that have broadened the horizon for the visually impaired, one such discovery is Braille. It is the system of printing little round marks that are higher than the level of the paper they are on, and which blind people can read by touching them. There is a need for creating awareness for braille as a

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good number of India’s population is still unaware of this language. Learning braille is not a punishment and it is not a last resort but a tool of equality, independence, and liberation. Today's market is scattered with diverse kinds of consumers and an enormous section of Pwd’s often find it difficult or yet embarrassing to ask for help every time they enter a store. The need of training the trained is an optimal strategy to attract the specific section of society. In our opinion, every supermarket should at least have 2-3 staff members with expert training to cater the needs of people with disabilities. For example in case of people with autism sounds of announcements, trolley movements and sounds of cash till can be minimised to an appropriate level as people with autism are extra sensitive to sensory stimuli.

7.SUGGESTIONS:

Online shopping is a viable solution for people with visual impairment as it is convenient for the reasons such as all the product list are listed in the menu without being dependent on anybody else, it provides 24/7 hours service to the users, it cut down an aspect of physical mobility, people with visual impairment can easily get their choice of product with just one click this makes them less dependent on others, this also caters as a solution to various other problems such as :

- Accessibility issues.
- Uncertainty in stock of products in the supermarket.
- Difficulties in reading printed product labels, price tags, sale promotion brochure, or details.

RFID:

The use of RFID (Radio Frequency Identification) technology is a fully untapped field of potential solutions to issues faced by sighted people every day. RFID aids in wayfinding and navigation. One of the biggest problems for people with vision loss is wayfinding. The position of the tagged area is important to an RFID detector. Objects that may be handled or moved can also have tags affixed to them to help identify them and provide information like the colour and expiration date. While there is user to RFID, a straightforward RFID tag attached to a cane can still be seen by a sighted person because the system uses haptic feedback to determine whether the user is on the right route.

8.OUR OPINIONS:

Here are some suggestions, in our opinion, for meeting the requirements of those with visual impairments: -

- Remove any obstructions from aisles as much as feasible.

- Utilize colour contrasts in product packaging and the built environment.
- Ensure that user-accessible customer service is placed close to the entrance.
- Utilize text with larger type.
- Employ audio labelling.

9.REFERENCES (BIBLIOGRAPHY):

1. V. Lobo, R.Prabhu, Polu Bal Kumar Reddy "A Smart Shopping System for Visually Impaired" International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-8, Issue-11S2, September 2019
2. R.K. Pandey "Comparative Study of Adjustment of Visually Impaired Students" Universal Journal of Educational Research 6(11): 2562-2571, 2018 DOI: 10.13189/ujer.2018.061121
3. Mustafa Ürey and Maşide Güler "A Qualitative Study on How Students with Visual Impairments Perceive Environmental Issues." Published online August 28th, 2018.
4. Doaa A. Khattab, Julie Buelow, Donna Saccuteli "UNDERSTANDING THE BARRIERS: GROCERY STORES AND VISUALLY IMPAIRED SHOPPERS" ISSN: 2013-7087 DOI: 10.17411/jacces.v5i2.105
5. Stacey Menzel Baker, Debra Lynn Stephens, and Ronald Paul Hill "Marketplace Experiences of Consumers with Visual Impairments: Beyond the Americans with Disabilities Act" Vol. 20 (2)
6. Shadakshari, Dr. Shashidhara H R Survey on Smart Assistance for Visually Impaired Person International Research Journal of Engineering and Technology (IRJET) Volume: 07 Issue: 05 May 2020 e-ISSN: 2395-0056 p-ISSN: 2395-0072
7. En Peng, Patrick Peursum etal "Product Barcode and Expiry Date Detection for the Visually Impaired using a Smartphone".

10.REFERENCES (WEBLIOGRAPHY):

1. https://www.mayoclinic.org/diseases-conditions/glaucoma/symptoms-causes/syc-20372839#:~:text=Glaucoma%20is%20a%20group%20of,even%20with%20normal%20eye%20pressure.
2. https://www.techtarget.com/iotagenda/definition/RFID-radio-frequency-identification
3. https://disabilityaffairs.gov.in/content/page/adip.php
4. https://disabilityaffairs.gov.in/content/page/braille-press-scheme.php
5. https://openresearch.ocadu.ca/1506/1/Khattab-UnderstandingTheBarriers_2015.pdf

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A STUDY ON GROWTH OF VENTURE CAPITAL INVESTMENT ON GLOBAL LEVEL

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ABSTRACT:

A form of private equity financing known as venture capital (VC) is given to high-potential, early-stage businesses that have the ability to grow quickly and become key players in their industry. Investors in venture capital often fund start-up companies with novel concepts, goods, or services that have the potential to both disrupt and expand current markets. Moreover, venture investors are crucial in fostering and directing the growth of start-up businesses. They contribute not only financial resources but also priceless business know-how, contacts in the sector, and mentorship. This assistance can be crucial in guiding entrepreneurs through the difficult obstacles of creating a profitable company. In conclusion, venture capital is an essential part of the contemporary economy, fostering the development of fresh, creative businesses with the potential to open up new markets and spur economic expansion. This study shows the analysis of development of Venture Capital Investment in India.

Keywords: Venture Capital, Investment, Fund

INTRODUCTION

The first venture capital businesses in the United States appeared in the middle of the 20th century, beginning the history of venture capital (VC). Several affluent families and individuals started making investments in young, creative businesses with significant development potential after World War II. Georges Doriot, a professor at the Harvard Business School, established American Research and Development Company (ARDC), one of the first venture capital firms, in 1946.

With the founding of companies like Kleiner Perkins and Sequoia Capital, the venture capital business started to take shape during the 1960s and 1970s. These companies made investments in a range of high-tech startups, including, among others, Intel, Apple, and Genentech. The success of these investments contributed to establishing the venture capital sector's standing as a crucial source of funding for emerging, creative businesses.

A flood of new startup enterprises was spurred by the expansion of the technology industry during the 1980s and 1990s, which led to a boom in venture capital. Many prosperous technology businesses, including Microsoft, Amazon, and Google, grew with the help of venture capital firms during this time.

With active VC companies functioning in numerous nations today, the venture capital sector is a global phenomenon. Notwithstanding the difficulties and setbacks the industry has had over the years, its vital role in promoting economic growth and innovation is still very much in force.

STAGES OF VENTURE CAPITAL

Financing VC may be categorized as according to the level wherein its miles being invested. Generally, its miles of the subsequent 6 types –

1) SEED FUNDING - seed financing or seed capital is the capital contributed to assist entrepreneur(s) lead introductory sporting activities for putting in a corporation. This can contain object studies and improvement, statistical surveying, commercial enterprise, marketable approach creation, and so forth Seed subsidizing can also additionally likewise accept through the real owners or their loved ones and companions.

2) START-UP CAPITAL - Fire up capital is often applied conversely with seed financing. In any case, there are minor contrasts. Ordinarily, marketers gain stir up capital once they have completed the cycles that encompass seed subsidizing. It has a tendency to be applied to make an object model, appoint crucial management paintings and so forth

3) FIRST STAGE, FIRST ROUND OR SERIES A - First level is furnished to groups which have a product and need to begin industrial production, sales, and marketing.

4) EXPANSION FUNDING - growth capital is the fund required through a agency to increase its operations. The price range may be used to faucet new markets, create new merchandise, spend money on new device and technology, or maybe accumulate a brand new agency.

5) LATE-STAGE FUNDING - Late-level investment is obtainable to groups which have carried out achievement in industrial production and sales. Companies on this level can also additionally have notable increase in sales however now no longer display any profit.

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6) BRIDGE FUNDING - Also referred to as mezzanine financing, bridge investment enables an agency to fulfil its short-time period prices vital to create a preliminary public offering (IPO).

REVIEW OF LITERATURE

Paul Gompers and Josh Lerner (2001) Empirical research into the venture capital industry has made considerable strides over the past decade. The manners in which venture capital funds are raised and structured, the capital is invested in young firms, and these investments are concluded are now much better understood. But at the same time, much remains to be learned. In other cases, new research questions have been posed by the recent rapid changes in the venture capital industry.

Dr. Abhijit Mishra (February 2022) The Union Budget for 1999-2000 stressed the need for higher investment in venture capital activity. As it is difficult to access capital market to raise funds for technology development/ demonstration, especially for small and medium industries, VCF has a major role to play in this area. The National Venture Fund for Software and IT industry (NVFSIT) launched in the current financial year merits mention in this context.

Joshua Lerner (1994) this paper examines three rationales for the syndication of venture capital investments, using a sample of 271 private biotechnology firms. Syndication is commonplace, even in the first-round investments. Experienced venture capitalists primarily syndicate first-round investments to venture investors with similar levels of experience. In later rounds, established venture capitalists syndicate investments to both their peers and to less experienced capital providers.

John H. Cochrane (January 2005) This paper measures the mean, standard deviation, alpha, and beta of venture capital investments, using a maximum likelihood estimate that corrects for selection bias. The bias-corrected estimation neatly accounts for log returns.

William A. Sahlman (October 1990) Venture-capital organizations raise money from individuals and institutions for investment in early-stage businesses that offer high potential but high risk. This paper describes and analyses the structure of venture-capital organizations, focusing on the relationship between investors and venture capitalists and between venture-capital firms and the ventures in which they invest.

RESEARCH GAP

The above research paper mainly describe investment through venture capital in the early 2000. The latest development and innovation made in different sectors has changed rapidly the investment in those sector is not present in the paper that gap is described in this paper. The investment at

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global level in different sector is being covered in this paper. The trend of investment through venture capital financing is identified in this paper.

STATEMENT OF THE PROBLEM

Investment as a whole know assume a vital part being developed of the general development of an economy. Venture Capital Funding assist an economy with helping the start- up. In India there has been a blast in the detail up business because of such expansion in fame the need of subsidizing has expanded more than ever. Venture Capital Funding assume an exceptionally critical part here because of funding the ascent of unfamiliar interest in India business has filled quickly lately. Ascend in Venture capital speculation shows the likely ascent of Indian start-up. Bring venture capital in a start-up also helps in bring experienced leadership and advices from the investor which help the company to grow even further.

SIGNIFICANCE

Investment venture is huge for business who are trying to raise asset to extend their business. It tends to be useful to propel their innovation to turn out to be economically doable. Funding give the monetary foundations, yet in addition aid the executives, specialized and others. Concentrate on help to dissect the pattern of speculation through investment, to acquire information different stages for funding financing.

OBJECTIVES

This research study has the following objectives which are as follows-

1) To analyse the growth and amount of venture capital investment in different sectors in India.

2) To evaluate the growth of venture capital in Asia

3) To derive a comprehensive picture of Global Venture Capital Industry

Hypothesis

H_{01}: There is a no decrease in the venture capital investment India from 2015 to 2022.

H_{02}: The venture capital investment is not increased rapidly due to start up sector in e-commerce during lockdown at a global level.

RESEARCH METHODOLOGY

The nature of the study is analytical. This study depends on secondary information. The secondary information was gathered from Hand book of SEBI and various approved sources. . The Data and

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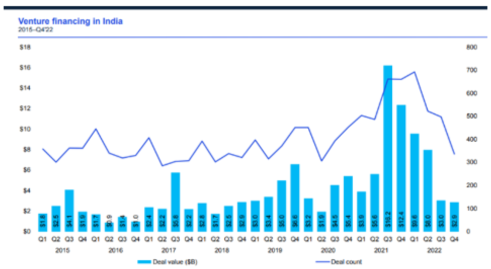
Graph are utilized to determine perception for a long time 2015 to 2022. There are different justification behind the ascent of financial backer in India such business person's qualities, item or administrations, market attributes, the executives' abilities, monetary thought, financial climate and institutional and administrative climate. The data has collected from global level.

VENTURE CAPITAL: Analysis & Observation

Venture Capital Financing in India is being growing rapidly from 2015 to 2021. Venture Capital investments were down in 2022, despite this decline, 2022 marks the second-best year for VC investments in India to date.



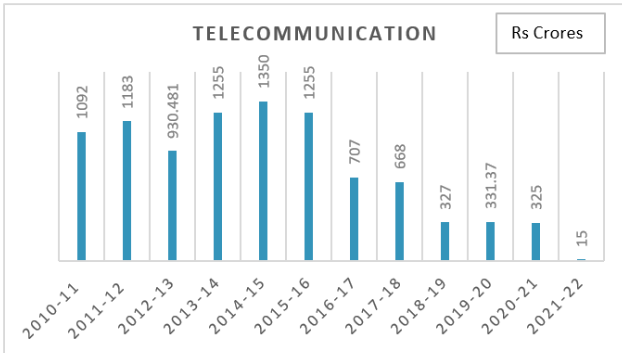
SOURCE: KPMG

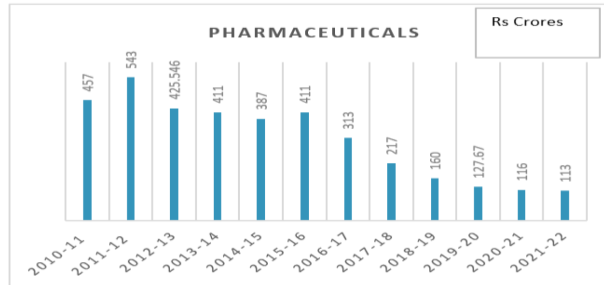
"This (decline) was primarily due to a fall in deal sizes as the volume of deals remained fairly Flat," said Vivek Soni, Partner and National Leader, Private Equity Services, EY. In addition to global factors, domestic factors like the poor performance of IPOs of recently listed new economy companies has also affected VC sentiment – that till recently were seeing IPOs as a viable exit option. H_{01} is partially accepted because the venture capital investment was continuously increased till 2021, after that period it was started to decease.

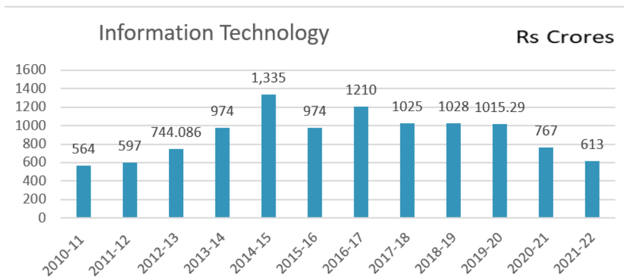
The sector wise investment is shown the main sector such as Information Technology, Pharmaceuticals, Telecommunication, Real Estate. The investment in all these sector has shown a drop last year due to various reasons such as the global instability, the rise of inflation and recession. These all played a huge role in the decreasing trend in the investment.

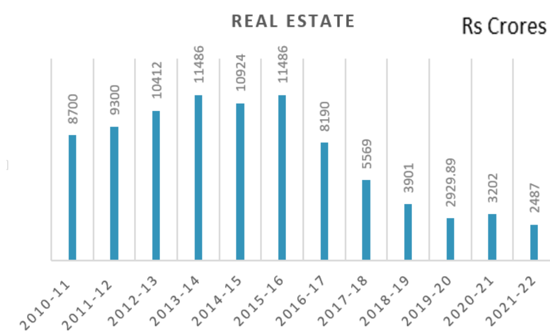
Period	VENTURE CAPITAL FUND									
	Information Technology	Telecommunication	Pharmaceuticals	Biotechnology	Media/Entertainment	Services Sector	Industrial Products	Real estate	Others	Total
2010-11	564	1,092	457	186	903	1,168	947	8,700	11,559	**25,576**
2011-12	597	1,183	543	188	853	1,991	1,129	9,300	13,135	**28,920**
2012-13	744	930	426	210	928	2,130	1,217	10,413	14,339	**31,336**
2013-14	974	1,255	411	223	1,011	2,553	1,273	11,486	16,800	**35,986**
2014-15	1,335	1,351	387	204	930	3,008	1,287	10,924	17,137	**36,563**
2015-16	974	1,255	411	223	1,011	2,553	1,273	11,486	16,800	**35,987**
2016-17	1,210	707	313	150	391	2,738	1,018	8,190	14,096	**28,813**
2017-18	1,025	668	217	77	414	2,546	870	5,569	10,294	**21,679**
2018-19	1,028	327	160	163	367	2,495	970	3,901	9,526	**18,938**
2019-20	1,015	331	128	162	250	1,802	743	2,930	8,060	**15,420**
2020-21	767	325	116	111	235	1,725	722	3,202	6,753	**13,956**
2021-22$	613	15		88	132	1,349	546	2,487	5,002	**10,344**

$ as on December 31, 2021
Source: SEBI







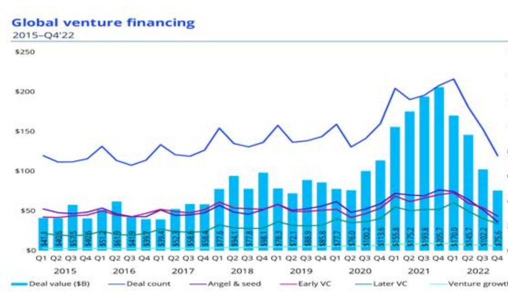


The Venture Capital financing in Asia has also seen a drop in investment from 2021 to 2022. The investment grew rapidly from 2015 to 2022 but due to Russia Ukraine war the decrease in the gas supply, the US- China trade war all these contributed to the decline in investment.

SOURCE: KPMG

In top 10 in Asia to receive the highest venture capital investment are China, India, Singapore and South Korea.

The similar trend has been observed in Global Venture Financing there has been a decline in investment in 2022 as compared to 2021 but it is noticed that investment in 2022 it is on the same level as the pre pandemic level in 2020.



SOURCE: KPMG

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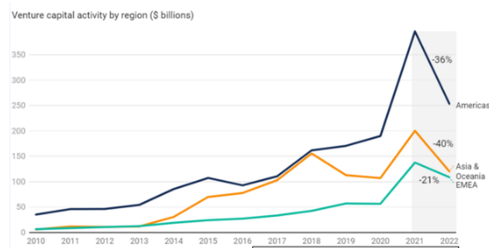
The H_{02} is rejected because the data is clearly showed that there is a visible growth in Venture capital investment due to start up sector in e-commerce during lockdown at a global level.

Vertical	% last 12 months growth	% last 24 months	2022	2021	2020	2019	2018
Energy	-8%	136%	51.2B	55.7B	21.7B	18.2B	17.7B
Semiconductors	-16%	77%	11.1B	13.1B	6.3B	4.2B	4.9B
Sports	-22%	55%	6.8B	8.7B	4.4B	4B	4.2B
Hosting	-25%	-1%	2.6B	3.4B	2.6B	2.4B	3.4B
Legaltech	-26%	54%	3.8B	5.2B	2.5B	3B	2.4B
Media	-27%	62%	17.5B	24.1B	10.8B	15.7B	23.4B
Gaming	-31%	66%	10.7B	15.6B	6.5B	3.8B	8.6B
HR Tech	-31%	122%	7.9B	11.5B	3.6B	5.8B	3.4B
Healthtech	-33%	-1%	85.8B	127.2B	86.5B	58.4B	57.4B
Security	-34%	70%	23.8B	36.2B	14B	12.9B	10B

SOURCE: dealroom.com

The Global investment in different sector the highest in Energy followed by semiconductors, sports, hosting, etc.

The Venture Capital activity is America in the year 2022 decline by 36% and in Asia & Oceania is declined by 40% and in EMEA [Europe, Middle East, and Africa] is declined by 21%.



SOURCE: dealroom.com

Global Top 10 Countries to receive investment

Countries	% change last 12 months	% change last 24 months	% change last 5 years	2022	2021	2020	2019
United States	-35%	32%	261%	234.5B	360.1B	177.5B	157.2B
China	-40%	-22%	109%	48.9B	82B	62.3B	65.9B
United Kingdom	-27%	72%	313%	29.9B	41.2B	17.4B	17.9B
India	-49%	55%	299%	24B	46.8B	15.4B	16.7B
France	7%	144%	368%	15.1B	14.1B	6.2B	6B
Germany	-42%	60%	413%	11.7B	20.1B	7.3B	9.2B
Canada	-31%	99%	329%	10.9B	15.8B	5.5B	6.7B
Israel	-25%	62%	320%	8.1B	10.8B	5B	4.3B
Singapore	-20%	87%	272%	7.6B	9.5B	4.1B	5.7B
South Korea	-38%	147%	416%	6.2B	10B	2.5B	3.4B

SOURCE: dealroom.com

OBSERVATIONS

Venture Capital Financing has increase in the recent years. In India & Global there is a major growth in the start-up culture due to this there has been massive increase in investment through venture capital. In India real estate sector is highest which receive highest venture capital investment. Investors through venture capital financing has also been on there rise. Due to pandemic there was

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a hit in the investment but as the situation normalises the investment will be more in the coming years. The global investment in 2022 is seen a decline due to various geo-political issues that raised in the world in 2022

CONCLUSION

Venture is a process of processing, the result of which is uncertain but to which the risk or risk of "loss" lies. "Money" means the resources to start a business. The investment reserve in the new years has decreased this was the outcome from different variable. Regardless of all the obstacle - pandemic, worldwide emergencies and presently the new emergencies in Ukraine has made the securities exchange vacillation definitely however trust still there and the Venture Capital Investment made by financial backer is on the positive note. Speculation made in organization help them monetary as well as with the administration with ability individuals. Subsidizing can expect a more innovative and developmental part in a farming country like India. It could help the reclamation of incapacitated units through people with considerations and come back organization capacities. Another locale where VCFs can expect a basic part in arising countries is the assistance region including the movement business, dispersing, and clinical benefits. The experiences of made countries and the point by point logical examination of subsidizing in India, regardless, show that the going with parts are expected for the accomplishment of interest in any country. They are Entrepreneurial custom, unregulated monetary environment, disinvestments streets, money related forces, wide based tutoring, speculation bosses, headway tries, association industry linkage and inventive work works out. The Global investment drop is at the same level as pre pandemic

Limitation & Scope for further study

The scope of the study is to understand the Venture Capital Investments in Asia and Global. The study is based on the Venture Capital Investment in different sectors in India and around the globe the study is mainly based on secondary data. The study takes into consideration only the venture capital investment from 2015 to 2022. There are different means of financing are available for an entrepreneur but this study covers only venture capital financing other types of financing are excluded in this study.

REFERENCES

1] Haltiwanger, J. C., Hurst, E., Miranda, J., & Schoar, A. (2017). *Measuring entrepreneurial businesses: Current knowledge and challenges*. The University of Chicago Press.

 ISBN NO: 978-93-5810-851-4

2] Sahlman, W. A. (2002, April 22). *The structure and governance of Venture-Capital Organizations*. Journal of Financial Economics. https://www.sciencedirect.com/science/article/pii/0304405X90900658

3] *Insights*. KPMG. (n.d.). https://home.kpmg/xx/en/home/insights.html

4] Asia and the world face growing risks from economic fragmentation, IMF. https://www.imf.org/en/Blogs/Articles/2022/10/27/asia-and-the-world-face-growing-risks-from-economic-fragmentation.

5] *How venture capital works*. Harvard Business Review. (2021, December 20) https://hbr.org/1998/11/how-venture-capital-works

A STUDY OF SATISFACTION LEVEL OF THE PASSENGER TRAVELING BY VISTARA AIRLINE

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ABSTRACT:

The paper talks about the problems faced by passengers while traveling by Vistara Airlines and the satisfaction level of the passengers of Vistara Airlines, a premium airlines operating in India. A questionnaire was developed and administered to a sample of Vistara passengers. The questionnaire assessed passenger's satisfaction levels with the booking process, check-in process, boarding process, in-flight experience, and customer service provided by Vistara Airlines. The study also collected demographic information from participants, such as their gender, age, purpose of travel, and frequency of travel. This research also provides the insight of the problem and gives suggestions to overcome the problem. This study provides the information of suggestion which can be adopted by Top Airlines to enhance passenger journey. Which can increase the market share of Vistara Airlines.

Keywords: : *Vistara Airlines, Passengers, Indian Aviation, Airways, customer satisfaction*

1.INTRODUCTION:

1.1.Introduction to Vistara Airline

The airline was established in 2013 when Tata Group and Singapore Airlines decided to fulfill their shared dream of bringing a premium flying experience to air travellers in India. The Tata Group, with its rich history in aviation, had always desire to return to the aviation sector after Tata Airlines was renamed Air India and eventually nationalised. Both Tata Sons and Singapore Airlines believed in the potential of the Indian aviation sector to grow exponentially. On 9th January 2015, Vistara Airlines took off its maiden

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flight between Delhi and Mumbai, In the beginning of its operations. In a short span of time, the airline successfully flew over two million passengers by June 2016, and as of May 2019, it has captured a 4.7% share of the domestic carrier market, making it the sixth largest domestic airline in India. The airline offers connectivity to 34 destinations, boasting a modern fleet comprising of Airbus A320, Airbus A321 neo, Boeing 787-9 and Boeing 737-800NG aircraft. Vistara Airlines prides itself on its customer-centric approach and strives to offer its passengers an exceptional flying experience with its premium services and innovative offerings

1.2. Introduction to Tata Group

The TATA group is a big company that started in 1868 and is based in India. It has more than 100 companies all over the world and makes more than US$100 billion in revenue. They have over 695,000 employees in more than 150 countries.

The Tata group is famous for doing business in an ethical way. A big Tata company, called Tata Steel, is considered one of the world's top 135 'most ethical' companies.

The Tata group own well-known brands like Jaguar, Land Rover, favre-Leuba, Titan, Tetley, Taj hotels, Vivanta, voltas, and Vistara. They work in many different areas like automotive, financial services, fast-moving consumer goods (FMCGs), hotels and realty, retail, telecom and information technology.

1.3. Introduction to Singapore Airlines Limited

In 1972, Singapore Airlines (SIA) commenced operations with a modest fleet of just 10 aircraft, serving 22 cities in 18 countries, primarily within the Asia-Pacific region. However, over the years, SIA has grown into a world-renowned travel brand that is widely acclaimed for its exceptional service standards. Today, SIA is recognized as one of the best airlines in the world and has won numerous awards from the travel industry.

In 2018, SKYTRAX awarded Singapore Airlines the title of the best airline in the world. And airlinerating.com has ranked SIA as the third best airline globally.

SIA is part of the Star Alliance, a group of airlines that work collaboratively to connect passengers to even more destinations worldwide. Through this partnership, SIA provides its passengers with an extensive global network of flights and seamless travel experiences, further solidifying its position as a leading international airline

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2.REVIEW OF LITERATURE:

M Hasan, MN Khan & R Farooqi,(2019), "Service Quality and Customer Satisfaction in Low Cost Airlines: A Critical Review of Extant Literature." The level of satisfaction of passengers in India from in–flight quality of services provided for passengers travelling in (Jet Airways, Vistara, Air India) pursue a global GDP in airlines industry.

Paparoidamis, Chumpitaz & Ford,(2015), "Service Quality, Customer Satisfaction, Value and Loyalty An Empirical Investigation." The airline industry need a lot of money and is very competitive. To keep going in this industry, companies need to try their best to give really good serives all the time. When they do this, customers are happier and more likely to stay with an airline, which makes the company more money and helps it grow.

Malyadri P and Satyanarayana P (2014), Through this research study, the researcher concluded Kingfisher Airlines and Indigo Airlines are the Leaders when contrasted with Air India, Jet Airways, Spice Jet and Go Air in the Services offered to the clients with top appraisals in the Services blend factors, accordingly these two airlines are adjusting to the Customer Satisfaction to a degree.

Archana & Subha,(2012), "A study on service quality and passenger satisfaction on Indian Airlines." Across the world, the research on airlines service quality has generated tremendous interest as In this capital-intensive industry, providing superior services are imperative for airline to remain competitive and sustain their operation.

Chang and Keller,(2002), The airline industry poses a challenge in terms of defining and measuring quality services due to its inherent heterogeneity, intangibility, and inseparability factors. As a result, service quality in the airline industry is best determined by the customers who experience it first-hand.

Dennett, Inesoan, Stone, and Colgate,(2000), "Pre-Bookable Services in the Chartered Airline Industry: Increasing Satisfaction through Differentiation", suggest that as rivalry made by deregulation has gotten progressively extraordinary, service quality in the airline business has likewise gotten more consideration. Airline organizations additionally endeavored to separate their services using modernized reservation frameworks which were likewise intended to make client dedication in the dispersion channels.

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3. RESEARCH METHODOLOGY

3.1. PURPOSE OF THE RESEARCH

Vistara Airlines market share is 4.7% in domestic sector whereas Go First Airline has 10.8% market share, Spicejet Airline has 13.6% market share, Air India has 18.6% market shares and Indigo Airlines has 40.9% market share as on march 2019.

Vistara Airlines operates 34 destinations with 54 Aircraft it has a market share of 4.7% as on march 2019 where as Go First Airline operate 27 destinations with 60 Aircrafts and has market share of 10.8%, Spicejet operate 53 destinations with 78 Aircrafts and has market share of 13.6%. Air India operate 102 destinations with 176 Aircrafts and has market share of 18.6%. And Indigo Airlines operates with 86 destinations with 172 Aircrafts and has market share of 40.9% as on March 2019.

3.2. OBJECTIVES OF THE RESEARCH

To know the satisfaction level of passenger traveling by Vistara Airlines.

To assess the services quality provided by Vistara Airlines.

To suggest the solution for the problem which are faced by the Vistara Airlines to captured the market and grow there share in market.

3.3. METHODS OF DATA COLLECTION

Primary data is collected through questionnaire filled by the Vistara Airlines passengers.

(Primary data refers to original and finished and first-hand collected directly from the source through methods such as surveys, interview, experiments, or observations.)

Secondary data is collected from Journals, Magazines, Newspapers, DGCA website, and Air India websites.

(Secondary data refers to information that has already been collected, compiled, and analysed by others, and can be obtained from sources such as books, journals, websites, or database.)

3.4. RESEARCH DESIGN

The research design deployed was exploratory research design. It is descriptive in nature.

3.5. DELIMITATIONS OF THE RESEARCH

The research is conducted on 50 Vistara Airlines passengers.

3.6. LIMITATIONS OF THE RESEARCH

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The research has physical and economical constraints.

3.7. DATA ANALYSIS METHODS

Data is collected from Vistara Airlines passengers to generalize the findings and draw conclusions of the research study.

4. FINDINGS

49% of the passengers feel the fare of Vistara Airline is expensive. 9% and 12% of the passengers feel that fare is cheap and competitive on the other hand 30% of the passengers think that the fare is affordable.

62% of the passenger's book there ticket on online platform. 21% of the passenger book there ticket from the travel agent.

40% of the passengers were very satisfied with the booking process. 21% of the passengers were satisfied with the booking process. 10% of the passengers were unsatisfied with the booking process

70% of the people were satisfied with the check-in process. 8% of the people were unsatisfied with the boarding process.

65% of the passengers liked ground services provided by vistara Airline only 5% of the passengers are unsatisfied with the ground service.

20% of the passengers were very satisfied with the boarding process. 35% of the passengers were satisfied with the boarding process. 4%of the passengers were unsatisfied with boarding process.

68% of the passengers feel that departure and arrival time of vistara Airline is on time 22% are satisfied with the punctuality and only 9% of passengers had problem with the departure and arrival.

25% of the passengers were very satisfied with the in-flight experience. 50% of the passengers were satisfied with the in-flight experience. 5%of the passengers were unsatisfied with the in-flight experience.

80% of the passengers feel the cleanliness and the hygiene in the aircraft is very good and only 4% of the passengers have negative view related to cleanliness and hygiene.

20% of the passengers feel that the services provided by the cabin crew is excellent.49% of the passengers feel the cabin crew services are good. 26% of the passengers feel that the cabin crew services are satisfied and 5% of the passengers are not satisfied.

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71% of the passengers are happy with quality of foods and beverage provided in the journey by Vistara Airline and only 5% of passengers are unsatisfied.

5.CONCLUSION

Vistara Airline is in profit for first time. Since they have started operating from January 2015.because they have capture the right market at the right time. We can conclude that the Airline have received generally positive reviews from its passengers. The study found that vistara Airline scored high marks for its punctuality, Booking process, check in process and in-flight services. Service provided by ground staff is also good, but they need more training to handle different situation. Food and Beverages given by Vistara Airlines is of international standard Good taste and Quality. We can also conclude that Vistara's customer service received compliments for being helpful, friendly, and responsive to passenger needs. The Aircraft used by the Airline are maintained properly according to the ICAO and DGCA norms. Cleanliness and Hygiene are maintained properly in the Aircraft. However, the study also highlighted areas where Vistara Airline could improve its services. Some passengers reported issues with ticket price, check in process, and legroom. They feel that the airline tickets are expensive.

6.SUGGESTIONS

- Vistara airline can differentiate itself from its competitors by offering unique features or services such as increase in-flight entertainment, more comfortable seating, and increase legroom.
- Interior of old aircraft should be renovated by the airline and with the latest equipment's like LED Televisions, on-board WIFI, LED lighting for to reduce weakness of the passengers while travelling.
- Vistara airline can expand its route network to include more destinations in India and abroad. This could help to attract new customer and gain market share in region.
- Vistara Airline can focus on improving its operational efficiency to reduce cost and offer more competitive prices.
- Vistara Airline can focus on operating flights on high demand routes where there is a strong passengers demand and limited competition to increase market share and profit.

7. BIBLIOGRAPHY:

M Hasan, MN Khan & R Farooqi,(2019), "Service Quality and Customer Satisfaction in Low Cost Airlines: A Critical Review of Extant literature"

 ISBN NO: 978-93-5810-851-4

Paparoidamis, Nicholas & Cáceres, Ruben & Ford (2015). Service Quality, Customer Satisfaction, Value and Loyalty an Empirical Investigation in a Service Failure context.55.

Malyadri P and Satyanarayana P, (2014) “Service Quality Perceptions of Domestic Airline Consumers in India - An Empirical Study.” International Journal of Economics and Management Science, ISSN 2162 - 6359, vol 3(3)2014, doi: 10.4172/2162 -6359.1000189.

Archana R. and Subha, M.V. (2012).A study on service quality and passenger satisfaction on Indian A i r l i n e s. I n t e r n a t i o n a l J o u r n a l o f Multidisciplinary Research, Vol. 2 No. 2, pp. 50-63.

Chang, Y. and Keller, M. R. (2002). “A survey analysis of service quality for domestic airlines”, European Journal of Operational Research, Vol. 139, pp. 166-177.

Dennet, C.E., Ineson, M., Stone, G.J., and Colgate, M. (2000), “Pre-Bookable Services in the Chartered Airline Industry: Increasing Satisfaction through Differentiation”, the Service Industries Journal, Vol. 20 (2), pp. 82-94.

8. WEBLIOGRAPHY

- www.airvistara.comS
- www.tata.com
- www.singaporeair.com
- www.dgca.org

A STUDY ON THE ATTENTION SPAN OF THE STUDENTS DURING LECTURE

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ABSTRACT:

The traditional lecture has been criticized for its perceived lack of effectiveness, and many institutions have reduced their lectures to 15 min. However, the literature does not support a 10- to 15-min attention limit, and the greatest variability in student attention arises from differences between teachers and not from the teaching format itself. The instructor's job is to enhance their teaching skills to provide a satisfying lecture experience.

Keywords: *: Traditional Lecture, curriculum reform.*

INTRODUCTION:

Academic Literature is replete with articles and books supporting and propagating the conclusion that Lectures should adhere to the 10- to 20-Min Attention Span that is Characteristic of Modern Students. These publications agree on a Quantitatively Precise 10-20 Min Time Course for a Variable (Attention) that is Nebulous and never quantitatively defined. However, they do not provide any Primary Data on Attention

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but are content to all cite the same Single Initial Report as the Basis for the 10- To 15-Min attention Span Assertion. For example, McKechnie states that Hartley and Davies' Review of Research on the Attention of Students During Lecture Reports that Attention Typically Increases From The Beginning of The Lecture To 8 Minutes Into The Lecture and Decreases After That Point. Thus, the Propagated Concept of A 10-To 20-Min Attention Span Ultimately Appears to Rely On A Single Key Manuscript Published In 1978 Describing the waining of attention during a lecture.

2. REVIEW OF LITERATURE

- ✓ **Hartley and Davies (1978)** examined the attention span of university students during lectures. They found that students' attention declined significantly after 10-15 minutes of the lecture, and after 30 minutes, their attention dropped to approximately 50%. The researchers recommended that lecturers should incorporate breaks or interactive activities to maintain students' attention.
  Bradley and Lang (2000), the researchers used electroencephalography (EEG) to measure the attention span of students during lectures. They found that students had a shorter attention span for uninteresting lectures, and longer attention spans for lectures that were perceived as interesting. They also found that students who had higher levels of cognitive ability had longer attention spans.
  Ruscio, Jones, and Endres (1999) investigated the relationship between students' attention span and their learning outcomes. The researchers found that students who had longer attention spans had better learning outcomes than those with shorter attention spans. They also found that students who were more motivated to learn had longer attention spans.
  Weinberg and Hajcak (2011) used event-related potentials (ERP) to measure the attention span of college students during lectures. They found that the amplitude of the P300 ERP component, which is associated with attention, decreased over time during the lecture, indicating a decline in attention span. They also found that students who were more interested in the lecture had higher P300 amplitudes.

3. RESEARCH METHODOLOGY

3.1 PURPOSE OF RESEARCH

The student’s not finding lectures not interesting or not informative enough to attend

The attendance within the collage students of age 16-21 is very less and many students are having less attendance than 75%

3.2 OBJECTIVES OF RESEARCH

1) This study demands students' full attention.

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2) The value of attention span and related research findings.

3) Determining the elements that influence a student's attention span.

4) Analyzing the effect of attention span on academic performance.

3.3 METHODS OF DATA COLLECTION

PRIMARY DATA is collected through a google form.

SECONDARY DATA is collected through websites, and research papers.

3.4 RESEARCH DESIGN

The research design deployed was analytical. It is descriptive in nature.

3.5 DELIMITATIONS OF THE RESEARCH

The people involved in the research paper are students so the topic is been understand and we had a greater prospective

3.6 LIMITATIONS OF THE RESEARCH

The research is carried out using both secondary and primary data. Primary data was gathered through a field survey using questionnaires. The study's limitations are that there was less time to complete the study, that there were very few respondents to respond to the research survey, and that there was less research on the topic of research. The research has physical and economical constraint

3.7 DATA ANALYSIS METHODS

Data is collected from google from and through websites, and research papers.

4. <u>FINDINGS AND ANALYSIS</u>

4.1 Lecture Problems 4

(fig 4.1)

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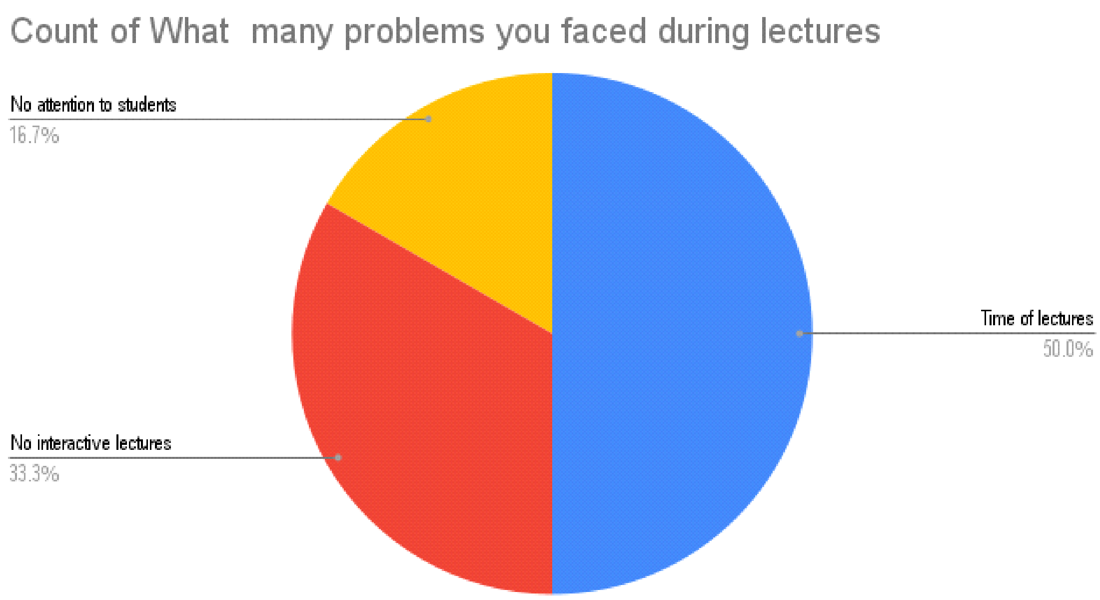
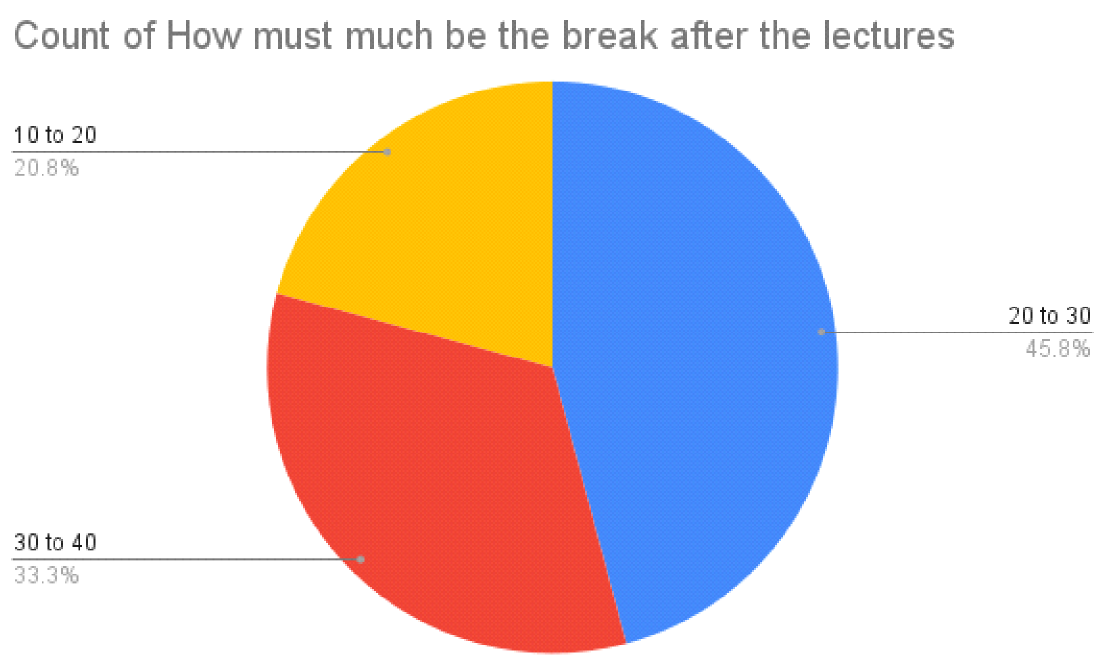


The above pie chat shows what factors that affect the student Attention spam

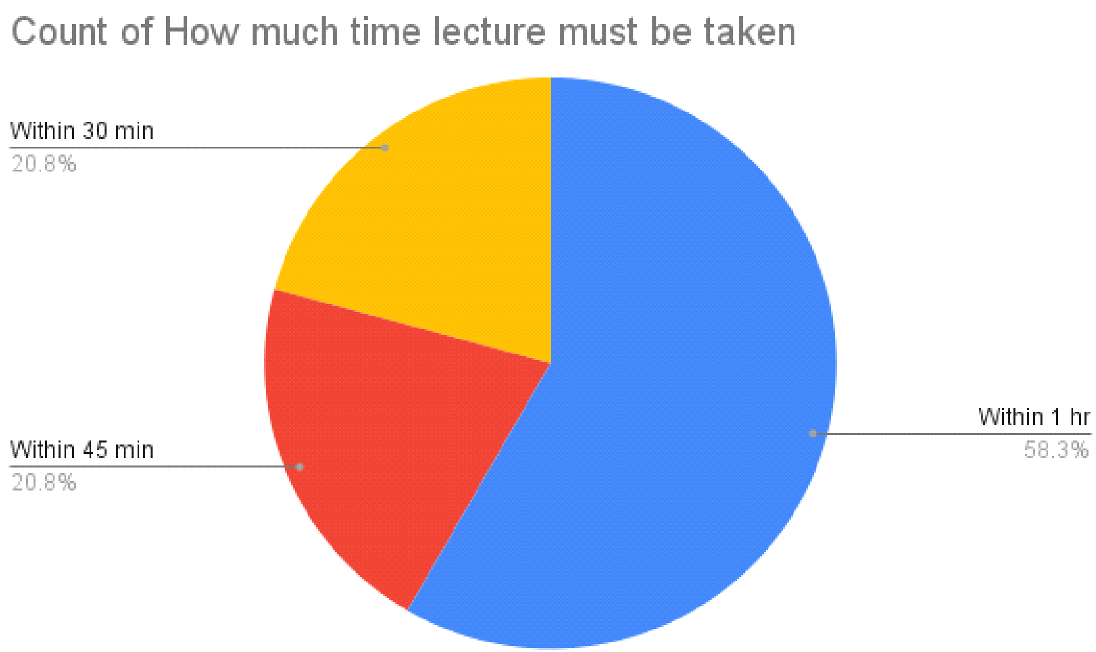
4.2 Break issue after the Lectures

(fig.4.2)



The above pie chat shows that the total attendance of 70-person class room is affect after the lunch break

4.3 LECTURE TIME



(fig4.2)

the above pie chat shows how the students are thinking about the lecture time and states that lecture time is not a big factor

5. CONCLUSION

The fact that students' attention varies during lectures does not support the 10- to 15-minute attention estimate. Probably the only appropriate application of this characteristic is as a rhetorical technique to motivate instructors to devise strategies for maintaining student attention in the classroom. Apart from that, teachers must do everything they can to improve students' willingness to pay attention while also attempting to comprehend what pupils are truly thinking throughout the class.

6. WEBLIOGRAPHY

http://www.ijtrd.com/papers/IJTRD16531.pdf

http://www.iiakm.org/ojakm/articles/2017/volume5_1/OJAKM_Volume5_1pp101-111.pdf

https://link.springer.com/article/10.1007/s10639-020-10361-7

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A STUDY ON THE SOCIAL MEDIA INFLUENCER INFUENCE ON YOUTH AFTER ANALYSING YOUTH BEHAVIOUR

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ABSTRACT:

This paper talks about the influencer's impact on youth through social media by analysing the behaviour of the growing adults. This research also provides the insight of the problem and give suggestions to overcome the problem. This study is done to highlight the dependency level of social media influencer on youth. For this study, primary data and secondary data have been used.

INTRODUCTION:

Young followers may feel compared to influencers because they frequently present a tidy, fun, and appealing version of their lives. Celebrity influence on young people has been hotly debated up until recently.

Nowadays, social media stars are more influential than traditional celebrities. Social media platforms like Youtube, Instagram, and Twitter provided opportunities for regular people to gain notoriety, which led to the emergence of social media influencers.

Anxiety, depression, trouble sleeping, and a negative body image in young people have all been linked to this increased social comparison.

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Influencers on social media, especially among young people, have a significant impact on many people. Even movie stars are working with influencers to promote their movies.

Great responsibility accompanies great power. On the other hand, influencers harm children's minds.

Influencers can have an impact on consumers of all ages' purchasing decisions through the psychology of influence. The most efficient way to connect with the crucial millennial and Gen Z audience is through influencer marketing. About 70% of teen YouTube subscribers claim to prefer the opinions of influencers to those of more established celebrities. Additionally, idealism and fake perfection make young people feel insecure.

Influencers on social media may propagate an ideal that is unattainable.

2.REVIEW OF LITERATURE:

2.1 BY NIVETABH (2 August 2021)

Until recently, the impact of celebrities on youth is vastly discussed. Now, social media celebrities have more influence on people than traditional celebrities. Social media websites such as YouTube, Instagram, and Twitter gave opportunities to common people to earn fame and thereby resulted in the rise of social media influencers.

Social media influencers have a great impact on many people and especially youngsters. Even film celebrities are collaborating with influencers to promote their films.

2.2 By Samia (19 August 2022)

The impact of celebrities on the youth of India has been vastly discussed by people across the globe until recently. The recent years witnessed a growth in the number of social media influencers. The social media platforms over the internet created a common platform for every common person to create their content. Furthermore, with the waves of the pandemic setting in and the film industry coming to a temporary standstill, influencers gained popularity like never before.

2.3 By Aymen azeem (10 August 2022)

It’s been almost a decade since the impact of social media on our lives has increased exponentially. If we look back merely 10 years, not everyone was interested in content-making and becoming a social media influencer. Not to mention this, but technological upheaval has revolutionized our lives and introduced us to the other side of the world.

Social media has given an equal platform to everyone to come forward and showcase their skills. This platform gave birth to social media influencers. Gradually, the social podium widened its scope in the form of multiple social applications.

2.4 By Alexander parry (2 August 2021)

In this world of technology, where almost every teenager has access to social media, there has to be an impact of it, either positive or negative. And since the current rise in social media influencers and the power of the influence, this impact is significant. Previous generations used to obsess over celebrities and stars, but nowadays, social media influencers have more influence than traditional celebrities, as they seem relatable to the audience. So let's see how social media influencers impact teens.

Until recently, the impact of celebrities on youth is vastly discussed. Now, social media celebrities have more influence on people than traditional celebrities. Social media websites such as YouTube, Instagram, and Twitter gave opportunities to common people to earn fame and thereby resulted in the rise of social media influencers.

Social media influencers have a great impact on many people and especially youngsters. Even film celebrities are collaborating with influencers to promote their films.

3. RESEARCH METHODOLOGY:

3.1. PURPOSE OF THE RESEARCH

Because young people and teenagers use social media more frequently, they get a lot of information from various sources that could have an impact in one way or another. Both negative and positive effects may result from this. The study's goal was to determine how dependent young people are on social media.

3.2. OBJECTIVES OF THE STUDY:

1. To comprehend how social media influencers and their recommendations affect consumers' purchase intentions.

2. To comprehend the degree to which different genders in Generation Z trust social media influencers.

3. Researching which social media influencer group has the biggest following.

3.3. METHODS OF DATA COLLECTION:

Secondary data is gathered from journals and websites. And we conduct surveys to gather primary data.

3.4. RESEARCH DESIGN:

The research design deployed was exploratory research design. It is descriptive in nature.

3.5. DELIMITATIONS OF THE RESEARCH:

This search was performed by collecting 30 subjective responses of students under the age of 20.

3.6. LIMITATIONS OF THE RESEARCH

We encountered a few challenges while developing this research study, one of which was the subjectivity of teens' perceptions of influencers, which can range from positive to negative. Therefore, drawing

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conclusions was very challenging because many of the teenagers occasionally denied that they were being influenced by others. This denial was the biggest obstacle we faced, and it was later overcome with the help of Quora and the input of teen guardians.

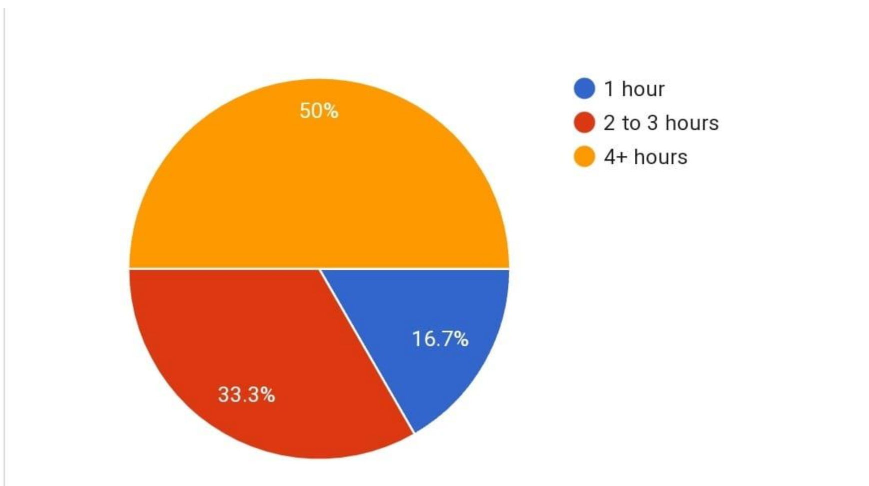
3.7. DATA ANALYSING METHODS

For the purpose of generalising the results and drawing conclusions about the research study, data was gathered through survey forms and journals of teens using different social media platforms

4.FINDINGS AND ANALYSIS

In order to understand the opinions of students between the ages of 18 and 21, we conducted a survey using Google forms. As we can see, not only do their preferences change with age and gender, but so do their perceptions.

(fig. 4.1)



j. The majority of users spend between 4 and 5 hours per day on social media, and 50% of responses fall into this category. The remaining 33% responses come in between 2 and 3 hours, and the remaining 16% responses come in at just one hour per day, which is essentially very little in today's generation.

(fig. 4.2)

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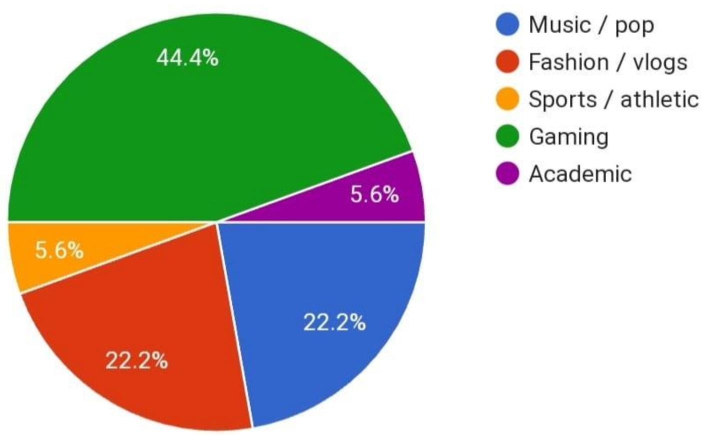
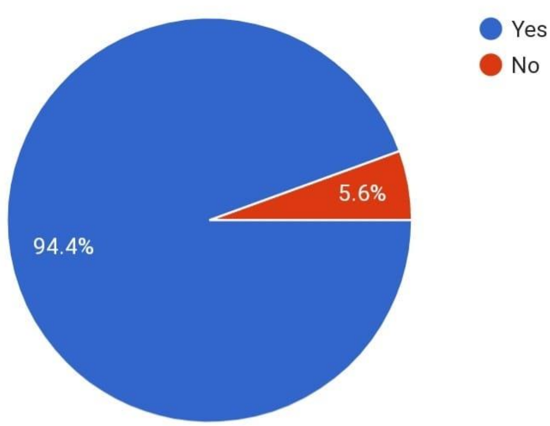


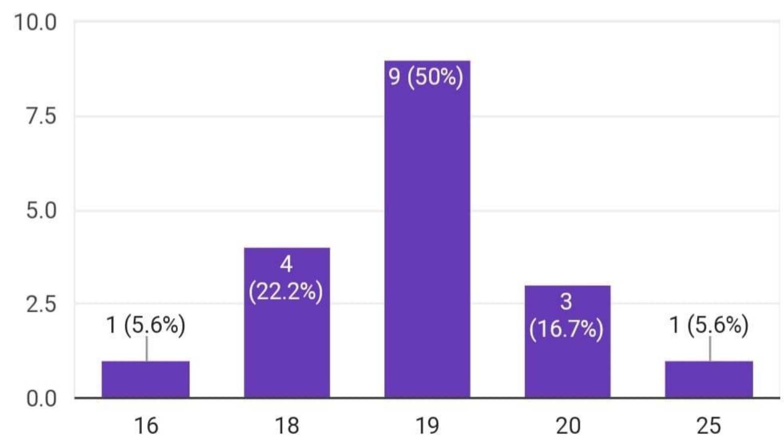
k. The results of a survey conducted to determine what types of content people prefer to watch revealed that 'Gaming' was the most popular, followed by 'Fashion'-related content, vlogs, and the second-highest content watched by people. The same percentage of people also watch 'Music and Pop,' and the two last categories that received less support were 'Academic' and 'Sports,' which are equally watched, according to the survey.

(fig.4.3)



4.3. According to our survey, those who spend time on social media by watching vlogs are all influenced by the influencers they follow or watch, and this influences them as a whole. 94.4% of respondents agree that they are influenced by these influencers as a whole, while the remaining 5.6% disagree.

(fig. 4.4)



4.4. The majority of social media users, or 70% of all users, are between the ages of 18 and 20. The 16 to 18 age group is also growing. This age group is the most active on social media. Which demonstrates how social media is now having an impact on children.

5.DATA ANALYSIS:

1. A list of the respondent's information: The information from the survey reveals respondent details, including which group and age range of people use social media. This is expressed in terms of a bar graph and a percentage for ease of understanding.

(Table5.1)

AGE GROUP	. PERCENTAGE
16	5.2%
18	22.2%
19	50%
20	16.7%
21-25	5.6%

2. Frequency of time : How much time do people use social media the respondent details after the survey we found most of the people spend their half of the time on social media and the details with

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respect to the time limit how much time they spend per day for easy understanding this is expressed in terms of percentage bar diagram

(Table5.2)

Hours.	percentage
1hr	16.7%
2 to 3hrs	33.3%
4+ hrs	50%

3 The preferred content. Which type of content and influencer people use to follow and watch after the survey reveals that the majority of people spend their time watching gaming content and following gaming-related influencers and getting influenced. Respondent information regarding which sector of content is most watched and followed by people is shown below for easy understanding and expressed in terms of percentage bar diagram.

(Table5.3)

ntents / Influencers	rcentage
ısic and Pop.	2%
shion /Vlogs	2%
orts / Athletic	%
ming.	4%
ademic.	%

4 Affected by influential people For ease of comprehension, the summary respondent information regarding the "Yes" or "No" option, which determines whether the influence of these influencers affects them as a whole or not, is shown in the below data and expressed in a way that will immediately show you the influencer's positive or negative side.

(Table5.4)

particulars	percentage
Yes	94%
No	5.6%

6.CONCLUSION

Influencers on social media have the ability to affect young people's daily lives. However, a lot of young people are becoming more conscious of the power of social media influencers. They can thus choose the good and reject the bad. Influencers must, however, uphold moral standards.

Social media's rising popularity in recent years has made it possible for users to access a wealth of data from various sources. The audience's behaviour, attitudes, and decisions have all been impacted by this evolution in some way, especially the young people. As a result, this research paper makes a variety of literary contributions.

First off, this paper outlines the most salient traits of social media influencers and examines how they affect teenagers' behaviour using both primary data gathered from VSIT students as well as a subjective response. However, this paper identifies the reasons why teenagers follow certain social media influencers. This study puts a fresh methodology to the test.

In actuality, it employs a cognitive strategy based on structural analysis. Although the topic's complexity was a problem, cognitive maps made it easier to understand. We can sum up by saying that because a young person's mind can be easily evaded in our daily lives, we have the power to control the influence.

7.WEBLIOGRAPHY

https://link.springer.com/article/10.1007/s12144-023-04273-1

https://eduindex.org/author/nivetabh/

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A STUDY ON INCREASING DEMAND OF SPANISH LANGUAGE IN INDIA

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ABSTRACT:

This research paper examines the reasons behind the increasing demand for Spanish language in India. The paper analyzes the challenges and opportunities for learning Spanish in India. The study is based on a qualitative analysis of secondary data sources, including academic literature, reports, and news articles. The paper argues by a range of factors that includes the increasing economic relations between India and Spanish-speaking countries and another factor could be the growing demand for Spanish language skills in job world. There is limited availability of Spanish-speaking opportunities in India. The paper concludes by outlining some of the opportunities that exist for promoting Spanish language learning in India, including collaborations between educational institutions, government initiatives, and the growth of online language learning platforms.

1.INTRODUCTION:

Spanish language has been gaining popularity in India over the past few years. As India is a linguistic country, India has been always open to learning new languages. However, the demand for Spanish language learning has caught the attention of educators, companies and businesses. This research paper aims to explore the demand for Spanish language in India, the challenges faced by learners, and the opportunities that exist for promoting Spanish language learning in the country.

- Drivers of Spanish Language Learning in India:

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The increasing economic ties between India and Spanish-speaking countries are a key driver behind the growing interest in Spanish language learning in India. Spain is India's seventh-largest trading partner in the European Union, with the trade amount of $6.3 billion in 2019 between the two countries. This has led to a growing demand for Spanish language skills among Indian businesses and professionals.

Another important driver of Spanish language learning in India is the popularity of Spanish culture and music. Spanish-language music, movies, and TV shows have been an attraction for the young people. The Indians are curious to learn more about the Spanish-speaking world.

The growing demand for Spanish language skills in the job market is another important driver of Spanish language learning in India. With an increasing number of Indian companies doing business with Spanish-speaking countries, the need for employees with Spanish language skills has grown.

- Challenges Faced by Spanish Language Learners:

Despite the growing interest in Spanish language learning in India, learners face a number of challenges in their language learning journey. The lack of awareness for Spanish is one of the major challenge. While English and French have been more popular foreign languages taught in Indian schools and universities, Spanish has not received the same level of attention.

Another challenge faced by Spanish language learners in India is the absence of professional test for the language. This creates a lack of consistency in accessing Spanish language skills among learners.

- Opportunities that exist for promoting Spanish language:

1. One of the most effective ways to promote Spanish language in India is through Education.
2. Spain is a popular tourist destination, and promoting Spanish language can help attract more tourists from India to Spain.
3. Spain is an important trading partner for India, and many Indian companies have business relationships with Spanish companies.

2.REVIEW OF LITERATURE:

The increasing demand for Spanish language in India has been a topic of interest for researchers. The following is a brief review of some of the relevant literature:

- Anjali Krishnan and Vishal Gupta (2019) in their article titled " A Study on the Demand for Spanish Language in India". They found that the primary drivers were the economic and cultural ties

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between India and Spanish-speaking countries, the popularity of Spanish culture and media, and also the increasing demand for Spanish language skills in the job world.

- Prabhat Kumar Sinha (2020) in his article titled " Challenges and Opportunities for Spanish Language Learning in India" analyzed the challenges such as the shortage of qualified teachers, lack of professional tests, and limited learning material. He also identified opportunities for promoting Spanish language learning in India, such as online language learning platforms, and collaborations between Indian and Spanish educational institutions.
- Akanksha Singh (2000) in her article titled " Demand for Foreign Language Courses in India: A Study of Spanish and French" compared the demand for Spanish and French language courses in India. She found that French was more popular, and the demand for Spanish language courses was growing rapidly.
- Kulkarni, S. (2018). " Spanish Language in India: An overview of its history, status and future prospects." International Journal of Applied Linguistics and English Literature.
- Sengupta, S. (2019). "Why Spanish is becoming a popular language among Indian students." The Economic Times.

3.RESEARCH METHODOLOGY:

1.1. Purpose of the research:

- The purpose of this research is to understand the number of learners of Spanish language in India in the coming future.
- The main objective of this research is to understand how strong are the economic relations of India-Spain, and also to analyze the cultural and professional opportunities for the learners.

1.2. Objectives:

- To understand the reason for the learners to learn the language.
- To understand the challenges that are faced by the learners while learning the language.
- To understand the opportunities that are there for the learners after they complete the levels of the language.

1.3. Methods of Data Collection:

Primary Data was collected through Google Forms with the help of a survey.

Secondary Data was collected from websites and articles.

1.4. Limitations of the research:

The research has physical and economical constraint.

4.FINDINGS AND ANALYSIS:

- Spanish is a global language and it is the third most spoken language in the world. Spanish learners are curious to learn the language and migrate to the foreign places.
- Spanish's demand is growing day by day and the learners are getting open to career and educational opportunities.
- Spanish language is comparatively easy to understand and learn compared to languages like French and German.
- After French language gaining the popularity, now Spanish language is set to come on the ground to make themselves open to great opportunities in future.
- Spain is the seventh largest trading partner in European Union.
- Multiple career paths like tourism, translation, and language teaching.
- Spanish offers a wealth of modern and traditional literature, music, and cinema.
- MBA, Law, and Spanish language courses offered by Spanish universities and private institutions have met worldwide attraction.
- Need of qualified teachers and learning material has to be made available for the learners.

5.CONCLUSION:

After conducting research on the increasing demand for the Spanish language in India, it can be concluded that there is a growing interest among Indian students and professionals to learn Spanish. Benefits of migrating to foreign places can be an advantage for the learners. Personal as well as professional opportunities can be gained after learning the language. As Spanish is the third most spoken language in the world, it is seen that the demand for Spanish language is going to increase in the coming years. As a result, there may be significant opportunities for individuals and organizations to benefit by investing in Spanish language education and training programs.

6.WEBLIOGRAPHY:

Here is a webliography of resources related to research on increasing demand for Spanish language in India:

"The Growing Demand for Spanish in India" by Vamos Spanish Academy

Link: https://vamospanish.com/the-growing-demand-for-spanish-in-india/

"Why the Demand for Spanish Language in India is Increasing Rapidly?" by Edu Spain

Link: https://www.eduspain.com/demand-for-spanish-language-in-india/

"India's Love for Spanish" by Instituto Cervantes

Link: https://india.cervantes.es/en/cultural_activities/indias-love-for-spanish.htm

"Demand for Foreign Language Skills in India" by Ministry of Skill Development and Entrepreneurship, Government of India

Link: https://www.msde.gov.in/assets/images/Demand_for_Foreign_Language_Skills_in_India.pdf

"Learning Spanish in India" by Spanish Council for the Promotion of the United States, Mexico and Spain

Link: https://www.spainculture.in/en/learning-spanish-in-india/

"The Spanish Language Education Market in India" by Education First

Link:https://www.ef.com/wwen/epi/regions/asia/india/special-topics/spanish-language-education-market-in-india/

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COMPARATIVE STUDY OF PERCEPTION OF SOVEREIGN GOLD BOND (SGB) & PHYSICAL GOLD.

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ABSTRACT:

Sovereign gold bond (SGB) is issued by Reserve bank of India (RBI) on behalf of Government of India. These government securities are denominated in grams of gold. The motive behind introducing the scheme is reduce the demand of physical gold. It is believed that Indians have a preference for physical gold as they attach sentimental value to it. If we talk about liquid money the first thought that will come to our mind that will be gold. Even during emergencies people sell gold to solve their problems, covid is a best example for the situation. So in this research paper we will analyze the trend of sovereign gold bond (SGB) and physical gold of last 5 years. We will get to know what consumer perception about sovereign gold bond scheme and physical gold. Do they even know about the scheme, even after knowing about the scheme are they willing to buy SGB over physical gold. From this research we will get to know about the reason behind why people still tend to choose physical gold over sovereign gold bond. Sovereign gold bond are better investment for consumer but buying of physical gold are traditions or on special occasion they purchase gold, Physical gold are very easy to buy and sell in the market.

Keywords: *Sovereign gold bond, Physical gold, Perception, Investment*.

1.INTRODUCTION:

Sovereign Gold Bonds and physical gold are two popular investment options for individuals looking to invest in gold in India. The government of India introduced the SGB scheme in November 2015 for investor to offer an alternative to physical gold. But the Indians have a preference for physical gold as they attach sentimental value to it. “Gold is predominantly the first preference of investment in a country like India. The research on sovereign gold and physical gold is an important area of study for investors, financial analysts, and policymakers alike. Sovereign gold refers to gold that is owned by a government or central bank, typically held in reserves as a store of value or used to back the country's currency. Physical gold is owned by individuals or institutions and held in the form of coins, bars, or other physical forms. Physical gold is often used against inflation and as a safe haven investment during times of economic uncertainty. Gold prices have been shown to be influenced by a range of factors, including changes in interest rates, currency fluctuations, and political events. Overall, the research on sovereign and physical gold provides investors and policymakers seeking to better understand the role of gold and the factors that changes in the price of this precious metal.

5 Year Data Collection

The bonds have gained popularity over the years. Awareness about the costs associated with physical gold and the ease of buying paper gold has contributed to this. Further, the bonds pay an interest of 2.5 percent over and above the capital gains expected through rise in the price of gold.

In FY16, the mop-up through sovereign gold bond issuance was Rs 1,295.75 crore. This has surged to Rs 12,991 crore in FY22. The pandemic has also contributed to increased investment in sovereign gold bonds. Above all, the clear trend is that a rise in physical gold prices has meant that investors are more willing to invest in gold bonds as well. The average price of a gram of gold was Rs 4803 in FY22, which is 82 percent higher than what was in FY16. The Reserve Bank of India (RBI) has set the price of gold for successive gold bond issuances higher as well keeping with the rise in international bullion prices. While gold prices have risen in response to the sharp rise in inflation globally, a strong dollar is acting as a check. Nevertheless, the latest sovereign gold bond issuance that is currently open is expected to see robust interest. The nominal value of the bond will be Rs 5,091 per gram of gold which is higher than previous issuances. It would be interesting to see if the issuance matches that of the pandemic years.

2.REVIEW OF LITERATURE:

1. CS Isha Shankar & SK Shukla (2017) : -

They have studied that the demand for gold increases as the income of rural areas increases. In India the increase demand of gold is due to religious significance as it has high ornamental value.

2. Megha Jain, Saurabh Jaiswal (2023):

Gold has always been preferred over paper currency. The study is to analyse the relationship of gold prices with crises. This study shows that how gold can become saviour during time of global crises like COVID 19.

3. Ninan, (2018):

Sovereign Gold Bond Scheme is an Alternative to Physical Gold Investment in Kerala: The research main objective is about physical, paper and SGB and awareness. The findings were 75.3% lack awareness about SGB, majority that is 90.7% have investments in physical gold only. The conclusion explained SGBS is a preferred option for investment.

4. Sudindra & Naidu, (2019):

The main objective of the study is to find out how Sovereign Gold Bond is superior to other forms of Gold Investment. The methodology used was secondary data. It concluded that SGBs are superior to other forms of Gold Investment as SGB are better in terms of purchase price and benefit of no TDS and can be used as security for availing loan.

5. M Nishad Nawas (2013):

There are various forms of gold investment, some of the factors which need to be aware of, expertise of investing and pros/cons of gold investment. The study concludes that many investors prefer jewellery, gold coins than Exchange traded funds.

6. Kajal Chaudhary (2017):

How gold is emotionally attached and symbol of status of Indians. Many Indians prefer Gold investment to Bank deposits. Gold deposit scheme and Gold metal loan abolished by introducing Gold monetization scheme, Sovereign Bond Scheme, and India Gold Coin scheme. It was concluded that the schemes introduced by Government will assist households to get interest as well as tax rebate.

7. M Avabruth (2015):

The study concluded that next preferred investment to Physical gold and Exchange traded funds is Sovereign Gold Bond Schemes. SGBs offers higher return and highest safety/security, since Government backed these bonds. Success of Sovereign Gold Bond is dependent on emotional attachment of investors and significant improvements over previous gold deposit scheme.

8. R. Kannan & Sarat Dhal (2008):

The study in their paper suggest that gold demand is influenced by real income and interest rate, exchange

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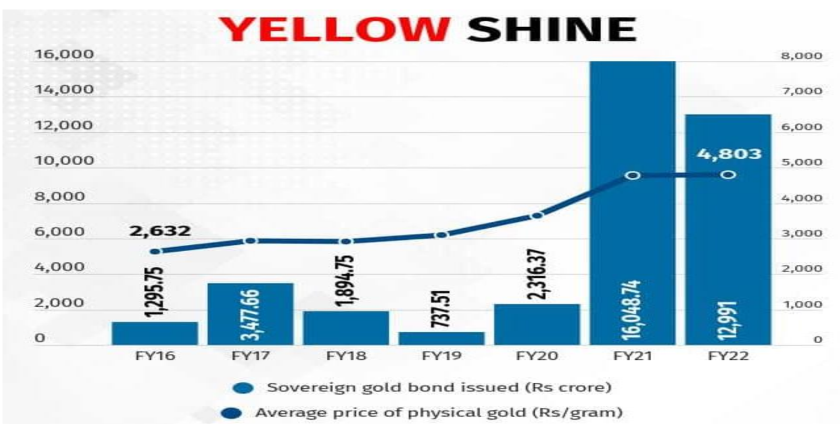
rate, income tax and government spending. The response of demand for gold to these variables tells how gold serves as a saving instrument in India.

9. Aghila Sasidharan (2015):

The studied investment pattern of Thiruvanthapuram and Ernakulum districts of Kerala. It was found that investors prefer to invest in gold, and family and friends influence the decision making process of investing in gold.

10. Arindam Bandyopadhyay and Dipankar Coondoo (2020):

This paper provides a comprehensive review of the Indian Sovereign Gold Bond scheme, the authors compare the benefits of investing in SGBs with those of investing in physical gold and other investment options. The study finds that SGBs offer several advantages over physical gold, such as lower storage and transaction costs, fixed returns, and tax benefits.



3.OBJECTIVES:

- ✓ To understand the perception of consumer towards sovereign gold bond and physical gold.
- ✓ To study the trend of sovereign gold bond and physical gold for last 5 years.
- ✓ To compare the performance of physical gold or sovereign gold bond.

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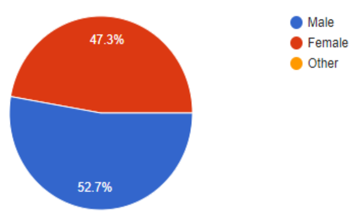
4. RESEARCH METHODOLOGY:

- The research is based on primary as well as secondary data.
- In primary data I am using questionnaire to know and compare about consumer perception regarding physical gold and sovereign gold bond (SGB).
- In secondary data I am collecting information from some of the research papers, journals, articles, newspapers.

5.ANALYSIS RESULTS:

- **GENDER:**

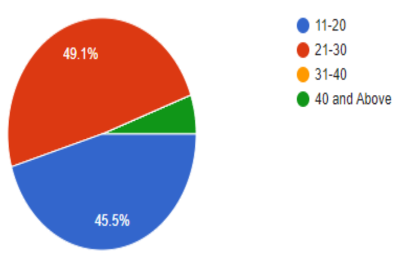
From the 55 responses there are 26 female i.e 47.3% and 29 male i.e 52.7%.



GENDER	RESPONDENT	PERCENTAGE
MALE	29	52.7
FEMALE	26	47.3
OTHERS	0	0

- **AGE:-**

From 55 responses there are 25 in 11-20, 27 in 21-30, 0 in 31-40, 3 in 40 & above.



E	SPONDENT	RCENTAGE
20		45
30		1
40		
& Above		5

- **INCOME:**

AGE	RESPONDENT	PERCENTAGE
Up to 2 lakhs	8	14.5
2 lakhs-4 lakhs	6	10.9

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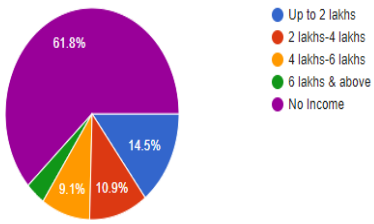
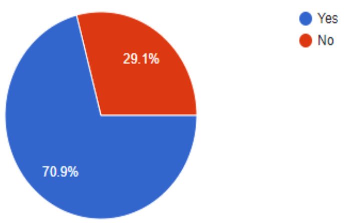


4 lakhs-6 lakhs	5	9.1
6 lakhs & Above	2	3.7
No Income	34	61.8

In the below table we can see number of respondent under category i.e. up to 2 lakhs is 8, 2 lakhs-4 lakhs is 6, 4 lakhs-6 lakhs is 5, 6 lakhs & above is 2 and no income is 34.

- **SAVINGS:**

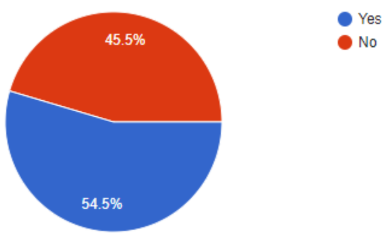
As per the chart most number of respondent save money that is 39 and the respondent who do not save is 16.



Savings	Respondent	Percentage
Yes	39	70.9
No	16	29.1

- **Do you know what sovereign gold bond (SGB) is?**

There are 30 respondent who know about sovereign gold bond (SGB) and 25 respondent who have no idea about sovereign gold bond (SGB).



Do you know SGB?	Respondent	Percentage
Yes	30	54.5
No	25	45.5

- **From where do you to know about sovereign gold bond?**

Respondent got to know about SGB from advertisement & poster, News, Family & Friends, Don’t have idea i.e. 7,16,10,22 respectively.

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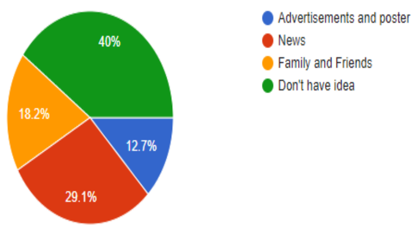
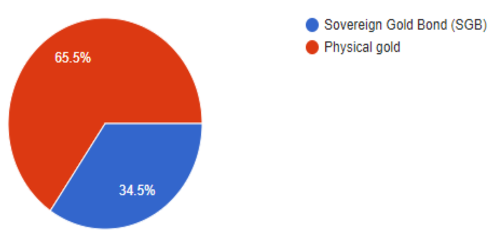


Where do you got to know about SGB?	Respondent	Percentage
Advertisements & Poster	7	12.7
News	16	29.1
Family & Friends	10	18.2
Don’t have idea	22	40

- **What will you prefer to buy?**

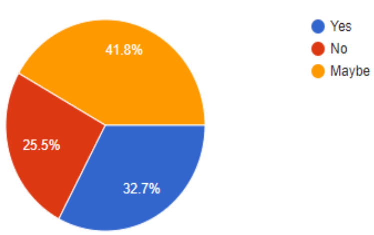
  As per the diagram physical gold is most preferable as it has been chosen by 36 respondent and 19 respondent choose sovereign gold bond.



Preferences	Respondent	Percentage
SGB	19	34.5
Physical gold	36	65.5

- **Do you think physical gold as a risk free investment?**

  18 respondent think gold is a risk free investment, 14 don’t think it as a risk free investment and remaining 23 are confused as they think it might be risk free investment.



Physical gold a risk free investment?	Respondent	Percentage
Yes	18	32.7
No	14	25.5
Maybe	23	41.8

- **What would you prefer giving as a gift?**

46 respondent prefer giving physical gold as gift and rest 9 think of SGB as giving as gift.

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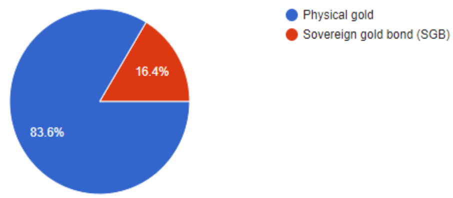

Prefer giving as gift	**Respondent**	**Percentage**
Physical gold	46	83.6
SGB	9	14.4

- **What must be the reason for most of the consumer choosing physical gold over sovereign gold bond?**

These are some of the responses of choosing physical gold over sovereign gold bond (SGB).

✓ Old mentality	✓ They can use physical gold as their jewelry
✓ Buying physical gold rather than sovereign gold because of old traditions	✓ Risk free
✓ Because it is one off the oldest form of investment and they will have the assurance that the investment is save or not.	✓ Physical gold is something peoples can use it to make jewellery to wear it whereas SBG is digital format of gold
✓ For future generation it will benefit them	✓ It's safe and secure as it's handled by RBI?
✓ They might not have knowledge about sovereign gold bond	✓ Because it is still believed as a safe option
✓ The Indians, specially the women, really are fond of gold jewellery. More than an investment women buy gold as an accessory. Since, they cover a very large market the preference for the sovereign gold bond is lesser.	✓ Physical gold has higher liquidity compared to sovereign gold bonds. As SBG has lock-in-period from their coupon payment dates. Trading in the secondary market is possible only post that. Moreover, the redemption process involves 1 day lag between application and credit of the redemption amount in the bank account.
✓ Physical gold can be easily liquidated.	✓ Materialistic pleasure of owning something valuable
✓ Instant selling when in need	✓ Only know about physical gold
✓ Status	✓ I don't trust in bond related things
✓ Sovereign gold bond can be risky compared to physical gold	✓ Physical Gold is not just for saving it is actually used as jewellery
✓ Gold physically available in their hand	✓ Old traditional mentality

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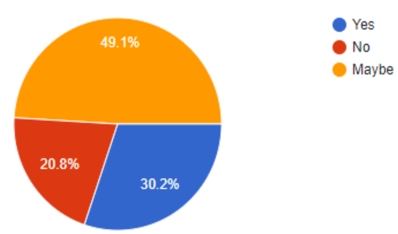
✓ I have no idea what is SGB	✓ Less awareness
✓ Most of the People prefer physical gold over sovereign gold bond because the physical gold is like we can wear it and it feels good.	✓ Because online is sometimes fraud and not safe to invest
✓ As most consumer are unaware of sovereign gold bond.	✓ The SGB offers a superior alternative to holding gold in physical form. They don't buy gold as an investment
✓ Mostly people in India knows physical gold	✓ Personal preference
✓ Because everyone knows about physical gold insist of sovereign gold bond	✓ Assurance of ownership

- **Would you prefer buying sovereign gold bond over physical gold?**

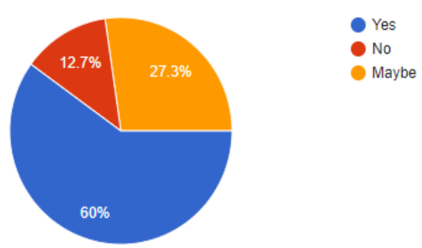
SGB over physical gold	Respondent	Percentage
Yes	16	30.2
No	11	20.8
Maybe	26	49.1

16 respondent said yes to prefer SGB over physical gold and 11 said no to it, while the remaining 26 might prefer SGB over physical gold.



- **Does buying physical gold makes you happy?**

33 respondent said yes and 7 said no while asking that buying physical gold make them happy while the rest 15 said maybe.



Physical gold makes you happy?	Respondent	Percentage
Yes	33	60
No	7	12.7
Maybe	15	27.3

6.FINDINGS:

From the above analysis we got to know that most of the respondent do not have the idea about sovereign gold bond (SGB) and therefore the responses are more likely towards side of physical gold. There are some respondent who have the idea of sovereign gold bond but they prefer purchasing physical gold over sovereign gold bond. The reason they gave for choosing physical gold higher liquidity, old mentality and tradition, it can be used as jewellery, for future generation it will benefit them, most of them don't have idea, etc. They prefer physical gold for giving gift over SGB.

7.CONCLUSION:

From these research we got to know that most of the consumer are unaware about the sovereign gold bond scheme (SGB). The government should educate consumer and investor more about the scheme so they get to know more about the scheme of sovereign gold bond. As per research people are giving preference to physical gold over SGB. The motive behind releasing the scheme is to reduce the purchase of physical gold but as per research it seems that the awareness about the scheme have not been spread properly. The consumer and investor are still in old belief.

8.REFERENCES:

- https://www.outlookindia.com/business/sovereign-gold-bond-vs-physical-gold-which-is-a-better-investment-choice--news-184656
- https://www.researchgate.net/publication/332794271_Is_Sovereign_Gold_Bond_is_Better_Than_Other_Gold_Investment
- http://www.internationaljournalssrg.org
- Journal JETIR follow UGC CARE List, UGC-CARE journal, ugc care, ugc care approved list, ugc approved journal, ugc care Journal, UGC-CARE, UGC Approved UGC CARE, UGC-CARE, UGC Approved List of Research Journal, ugc approved journal, research journal
- https://www.moneycontrol.com/news/business/markets/chart-of-the-day-sovereign-gold-bonds-gain-traction-8717661.html
- https://www.bankbazaar.com/gold-rate/sovereign-gold-bond-scheme.html

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DEMONITIZATION – A SUCCESS OR FAILURE

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ABSTRACT:

On November 8, 2016, the Indian government made the bold decision of demonetization, announcing that all Rs.500/- and Rs.1000/- banknotes would cease to be legal tender in India at midnight. Demonetization is a monetary policy in which old currency notes are removed from circulation and replaced with new ones. In India's history, there have been two major demonetization events, the most recent in 2016, when the government withdrew 86% of the currency in circulation, reducing it to a piece of paper with no purchasing power. The move was justified by the government as a means of combating black money, counterfeit currency, and terrorism financing. However, the economic impact of demonetization has been a hotly debated topic.

Keywords: *Effect of Demonetization in India.*

1. INTRODUCTION:

The Indian government announced the demonetization of high-denomination currency notes of Rs. 500 and Rs. 1000 on November 8, 2016, accounting for approximately 86% of total currency in circulation at the time. Demonetization was intended to reduce the circulation of black money, counterfeit currency, and terrorism financing in the Indian economy. The move caused significant disruption in the Indian economy, and the consequences are still being debated.

Demonetization was a daring move by the Indian government, which attempted to address the issue of black money in the economy. Black money refers to the money that is earned by illicit means, such as tax evasion, corruption, and money laundering. The circulation of black money in the economy results in a loss of revenue for the government and adds to the expansion of the parallel economy. Demonetization was supposed to bring dark money into the legitimate system and promote tax compliance.

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The aim of the measure was also to prevent the spread of counterfeit money and the financing of terrorism. Counterfeit currency is a major problem in India and is often used to finance terrorist activities. Demonetization was hoped to eliminate fake money and reduce the financing of terrorism.

2. REVIEW OF LITERATURE:

A significant body of literature exists on the topic of demonetization in India. Studies have examined the impact of demonetization on various sectors of the economy, including agriculture, industry, and services. Some studies have focused on the impact of demonetization on specific regions of the country, while others have looked at the broader macroeconomic effects of the policy. Overall, the literature suggests that while demonetization has had some positive effects, it has also caused significant disruptions, particularly to the informal sector.

Amartya Sen, 2016: The demonetization of currency was a despotic act as the government. Demonetization goes against trust. It undermines the trust of entire economy. Only an authoritarian government can silently cause such damage to the people- with millions of innocent people being deprived of their money and being subjected to suffering, inconvenience.

Viramani, A,2016: The way it was implemented is not surprising such action are always secret till announced so that insider do not take advantage of the information at the cost of the outsiders. The wire quoted Viramani as saying, speaking on its short-term impact on business community, viramani said" How it will affect require a deeper study, but the first thing one knows is when you demonetize such a large proposition of currency, the immediate effect is a collapse of retail trade in goods & services. He further said the currency needed for everyday transaction must be replaced quickly. The longer the currency is delayed the more the negative effect".

Hosanagar,k, 2017 : The year 2017 has overall been a 'good year' for India. But the biggest wild card is demonetizations. It is unclear how it will play out. But the impact on economic activity and GDP Demonetization brings will be temporary and the long-term benefits such as an increase in cashless activity will be more permanent.

Sarkar and Dutta (2017): Discussed the impact of demonetization on healthcare and pharmaceutical industry and interpreted that general impact on the healthcare and pharmaceutical sectors was considerably high in initial days but as days passed the apparent impacts and suffering weakened. They also studied the correlation between healthcare sector and the overall market and found it to be moderately high. They suggested health insurance as a strategy to fight such uncertainties in future.

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Antony, etal (2017): Have studied the impact of demonetization on banks and stated diminishing asset quality, reduction in the demand for credit and enhanced deposit base, reduction in profitability as some of the effects of demonetization. They have supported the findings with tables depicting gross NPA and net NPA of various banks in Sep 2016 and Dec 2016; demand for credit in MSME and agriculture sector in Sep 2016 and Dec 2016; current, savings and term deposits in various banks in Sep 2016 and Dec 2016 and concluded that demonetization brought in sufficient funds in the hands of banks but it increased the quantum of stressed assets which adversely affects the goodwill of banks.

Sarkodie (2018): Discussed the demonetization and the poor strata of the society, has explained his study conducted on labour class of Lovely Professional University Campus through formal and informal interactions. He has also depicted the impact of demonetization on several economies of the world and the reasons for their failure and concluded that though demonetization was a great step but it did not eradicate black money and negatively affected the poor.

Rastogi (2018): Studied demonetization, reasons behind the decision and its impact on Indian economy, the impact of demonetization on black money, terrorist activities, note bank politics, fake currency, India's economic growth, stock market and cashless economy, depicted the status of currency in circulation before and after demonetization and asserted that demonetization was implemented on the perfect time as economy was growing well and could absorb the short term shocks.

3. OBJECTIVES:

- To study the impact of demonetization in various sectors of India.
- To analyze whether demonetization was a success or failure.

4. METHODOLOGY:

- This paper is based on primary data. And is collected from survey techniques.
- This paper is also based on secondary data. The data is collected from various secondary sources such as books, research paper, websites, articles etc.

5. DATA ANALYSIS:

The findings of the study suggest that demonetization has had some positive effects, particularly in terms of reducing corruption and increasing tax compliance. However, the implementation of the policy was flawed, and the government failed to adequately address the challenges faced by businesses in the informal sector.

According to our analysis 78.1% students of 18-20 age group are aware of demonetization which happened in 2016.

48.9% people said that the impact of demonetization was bad while 37.5% people said that demonetization had good effect. 37.5% people said that corruption might have reduced because of demonetization, while 25% people said that corruption has not reduced.

6. CONCLUSION:

India being the largest democracy in the world must face some problems in one way or the other. It is not possible to ensure 100% success for any scheme. In India, the demonetization of high-value currency notes in November 2016 was a major policy decision aimed at curbing corruption, black money, and counterfeit currency. However, the implementation of the policy was poorly managed, resulting in several negative consequences for the economy.

Overall, the success or failure of demonetization depends on the objectives set by the government and the implementation of the policy. In the case of India, demonetization failed to achieve its objectives and had a negative impact on the economy. It is therefore important for policymakers to carefully consider the potential consequences of such policy decisions before implementing them.

6. WEBLIOGRAPHY:

https://m.rbi.org.in//Scripts/Publications.aspx?publication=Reports

https://www.ijert.org/research/impact-of-demonetization-on-indian-economy-IJERTCONV5IS11045.pdf

https://theprint.in/pageturner/afterword/demonetization-major-surgery-just-pain-killer-needed/40855/

https://www.ijser.org/researchpaper/Demonetisation-in-India-Its-Success-and-Failure.

https://www.ijert.org/impact-of-demonetization-on-indian-economy

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INCREASE IN HEART ATTACK RATE AMONG YOUNGSTERS IN INDIA.

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ABSTRACT:

This paper conveys the information about increasing heart attack and stroke rates in overcome the uncertainty youngsters in INDIA. This also provides an insight about problems and the causes in increased rate of heart attack and stroke. It also gives suggestion and remedial measures to overcome the uncertainty.

INTRODUCTION:

Heart attack is an a dangerous condition ,heart occurs due to lack of blood flow to your heart muscles , the lack of blood flow is due to various different factors but it is usually due to blockage of your heart arteries , without blood supply the muscles of heart will begin to die .

If the blood is not resorted it could cause a serious and permanent damage to your heart In India heart attack is one of the leading cause of death. Cases of heart attack and strokes among youngsters and middle age people are becoming more and more prevalent and heart attack are impacting both vaccinated and non-vaccinated people as well. According to World Health Organization, India accounts for one fifth of the 17.9 million cardiovascular diseases-related deaths globally, especially in younger generation.

Today the people are not following a good dietary plan, this have caused many health issues to the people in India. The people in India are having food which are high in fats and cholesterol, which causes heart related problems. The required amount of nutrients which are there in fruits and various green vegetables are not taken by the people. This impacts physical and mental health of the people. Not much focus is given on yoga and exercise by the people, which are very vital for are mental and physical health. The youngsters who are having a good dietary plans doing good amount of yoga or exercise are better in shape and are less prone to the risk of heart attack and stroke. On the other had those who lifts extreme weights that are above their capacity level are prone of having a heart attack.

REVIEW OF LITERATURE:

- There are many researchers who have conducted the research on understanding the increasing rate of heart attack and strokes among young and middle-age people based on the symptoms signs and measure to avoid and overcome the problem.
- According to **Joy Li Juan Quah, Susan Yap and Marcus Eng Hock Ong**."We found a comparable knowledge of stroke and heart attack signs and symptoms in the community, countries having same economic conditions and strata . However, there are still few parts of India which need health care education."
- **Ralph s Paffenbarger Jr, Alvin L Wing, Robert T Hyde(1978)**: pointed out that the men who consume less than 2000 kilocalories per week were at 64% higher risk of having heart attack, consuming more kilocalories is also harmful
- **Nancy E Alvis, Kevin W Smith, John B Mckinlay(1989)**: Suggest that what can be the major risk of heart attack, people would be able able to protect themselves when the risk and measures of heart attack are conveyed to them
- **Rose Wiles, Ann-Louise Kinmonth(2001):** To study the understanding of the patients regarding Heart attack,would help us to know the awareness people have regarding health care and proper health care education could be provided to them.
- **Kathleen Dracup, Debra K Moser, Mickey Eisenberg, Hendrika Meischke, Angelo A Alonzo, Allan Braslow(1995)**: pointed out why the people delay in seeking treatment for heart attack symptoms, as people might not take the symptoms seriously and consume regular and home remedies to prevent it as they are not aware about how serious the symptoms are and their effects.
- **Ravi Gupta,** consultant cardiologist WOCKHARDT hospital, MUMBAI CENTRAL, citied diabetes, sedentary lifestyle, air pollution, stress heavy workout. And steroids, as factors contributing to increase cases of heart attack in younger generation of India.

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RESEARCH METHODOLOGY:

3.1. OBJECTIVE OF THE RESEARCH

- To understand the factors and causes leading to the increasing rate of heart attack among youngster
- To understand and recognize the symptoms and warning signs of heart attack.
- To suggest the strategies and measures to overcome and avoid heart attack

3.2. PURPOSE OF RESEARCH

- The number of deaths due to heart attacks in India in the last four years have being 28000 which is now increasing at a high rate, Even after the medical and technological advancement in medical stream ,over 8 lakh people die every year in India due to heart attack in India.

3.3 METHOD OF DATA COLLECTION

- Primary data: Information collected through questionnaire and personal interview.
- Secondary data: Through various available research papers, websites.

DATA ANALYSIS:

Data is collected from the website and newspaper of times of India and a questionnaire.

FINDINGS:

- The most common symptoms of heart attack are cold sweats ,nausea or vomiting light head, anxiety , indigestion and unexplained fatigue however few people are not aware about the symptoms they do not take it seriously
- Most of the people has stated unhealthy food and diet as the main reason of heart attack and eating less oily food as the measure to overcome it
- People are not aware about the organisations which provide information about heath care
- People are not willing to do regular exercises to improve their health.
- The people who are not maintaining a healthy diet and people who do not workout are more prone of having a heart attack.
- Prior to the covid-19 pandemic heart attacks were the leading cause of death but the rates effectively decreased but the rate took a sharp turn after covid-19.

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- In the year before the pandemic, there were 143,787 heart attack deaths, within the first year of pandemic the number increased by 14% to 164,096.
- Few recent deaths due to heart attack among youngsters are:
- A 23 years old girl died at her wedding reception due to heart attack while dancing.
- A youth in Uttar Pradesh Meerut died while walking with his friends due to heart attack.
- Many actor superstars also died due to heart attack within past few years.

CONCLUSION:

- We found out that people had knowledge about the symptoms and causes of heart attack and were aware about the measures and strategies to prevent heart attack, however there were some people not aware about the measures to be taken and were not aware about what to do if the person next to them or they themselves are having a heart attack.
- More public health care education should to provided to people in detail
- The most primary reason of heart attack among youngsters is their prevalent sedentary lifestyle and unhealthy diet also the stress and anxiety among youngster is being increasing rapidly
- Heart attack cases increased rapidly after Covid-19 pandemic, Cardiovascular health of people declined and they were more prone to get heart attacks. The people are suddenly collapsing due heart attack, even if they are healthy and following good diet. People are getting sick after a year of taking covid-19 vaccine. The people can get heart attack out of nowhere. So the people should take a good care of their health.

SUGGESTION:

- People should get regular health check up, health check up would them to diagnose the problem if any.
- Government should take an initiative to educate people about health care, special campaigns should be organised for people to provide them information about first -aids and measures to be taken during uncertainty.
- People should avoid the consumption of toxic and harmful substances (drugs, alcohol).
- People should maintain their weight and avoid consumption of junk food as much as possible, they should plan a healthy diet.
- People should take the symptoms and warnings signs seriously.

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WEBLIOGRAPHY:

www.ncbi.nlm.nih.gov

www.timesofindia.com

www.abplive.com

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IMPACT OF JUNK FOOD ON YOUNGSTERS IN SOCIETY

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ABSTRACT:

This paper talks about the impact of junk food on youngster of the society. This research also provides the insight of the problem and gives suggestions to overcome the problem. Overall, the widespread consumption of junk food has significant and far-reaching consequences, both for individual health and the broader society. Reducing the consumption of junk food and promoting healthier eating habits can lead to improved health outcomes, reduced healthcare costs, and a more sustainable food system.

***Keywords*:** *Junk food, Health problems, Type 2 diabetes, High blood pressure, Heart disease, Cancer, Mental health, Depression, Anxiety, etc.*

1. INTRODUCTION:

Junk food has become a important part of modern society. With fast food restaurants, convenience stores, and high-calorie foods that are easily accessible and affordable. These highly processed, calorie-dense foods are often cheap, convenient, and widely available, making them a popular

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choice for people of all ages which make problematic situation .While these foods may be convenient and provide instant satisfaction, the long-term effects on health can be disastrous.

Junk foods are also known as discretionary foods, which means “they didn’t meet nutrient requirements as per they needed”. Youngsters are often the targets of snaky advertising tactics by junk food companies, which show our celebrities and icons promoting junk foods.

2. REVIEW OF LITERATURE:

1) Larson et al. (2011) found that higher consumption of fast food and sugary drinks was associated with poorer academic performance and a higher likelihood of skipping breakfast.

2) Fraser et al. (2010) found that adolescents who consumed more fast food had a higher risk of developing asthma and eczema.

3) Fulkerson et al. (2009) found that adolescents who ate more fast food were more likely to have higher body mass index (BMI) and engage in less physical activity.

4) Kelishadi et al. (2014) found that consuming fast food was associated with an increased risk of developing metabolic syndrome, a cluster of conditions that increase the risk of heart disease, stroke, and diabetes.

5) A study by Zota et al. (2020) found that higher consumption of fast food was associated with increased levels of phthalates, a class of chemicals that can disrupt the endocrine system and lead to adverse health effects.

3. RESEARCH METHODOLOGY:

3.1 PURPOSE OF THE RESEARCH

To make youngsters aware about the impact of junk food. The nutritional intake of many youngsters in India is not on par with the national guidelines. The reasons youngsters make this decision of consuming junk food regularly are unclear. This paper aims to discuss these issues.

3.2 OBJECTIVES OF THE RESEARCH

- To understand why many of the youngsters are obsessed with junk food

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- To study how the junk food made such a strong impact on youngsters
- To study how various advertisements attracts youngsters on consumption of Junk food

3.2 METHODS OF DATA COLLECTION

Primary Data is collected by conducting a survey through Google forms.

Secondary Data is collected from Newspaper, websites.

3.4 RESEARCH DESIGN

The research design deployed was exploratory research design. It is descriptive in nature.

3.5 LIMITATIONS OF THE RESEARCH

This research has physical, economical and time constraint.

3.6 DELIMITATIONS OF THE RESEARCH

This research is conducted from the data collected from various website on the internet related to various websites showing a statistical data on junk food consumption.

3.7 DATA ANALYSIS METHODS

Data is collected from various website and news sources to generalize the findings and draw conclusion of the research study.

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4. FINDINGS AND ANALYSIS:

1. The findings of study shows that it is more preferred between youngsters to eat outside especially in Casual dine restaurants with an average price and a comparatively less number of youngsters prefer roadside stalls. With casual dine being the most preferred among the two with 30% of youngsters opting for it.

2. There is a vast difference in the number of times youngsters used to opt for junk food when they were small children compared to when they are in college.

3. Most of the youngsters like Junk Food with more than 80% of the crowd indicating the same only. Whereas, only 20% of the youngsters said that they don't like junk food which proves that a larger number of young generation in today's age like junk food.

4. There is a lot of students who replace their regular meal and avoid home cooked food to opt for junk food and this tendency to skip a proper cooked meal for consuming junk food is mostly seen in college students. Study showed that 50% of college students skip their meal.

5. Being in college severely affects the eating behaviour of the youngsters on different level depending upon their certain lifestyles. More than 25% of the youngsters are greatly affected by this as they get very less time for other activities during and after college.

6. It is also found that due to the easy access and availability of junk food outside colleges, more of the students opt for junk food. Also due to less time gotten in breaks/recess, price factors and peer pressure these students consider consuming more junk food.

7. Factors like Hygiene, Quality, Taste, and Variety in menu are the most considered while deciding a place to eat outside.

8. It was found that many of the students are ready to opt for nutritional and healthy foods if they are more easily available as junk food is. Also 20% of students are not at all ready to change their behaviour towards junk food, even after knowing its ill effects.

5. CONCLUSION:

Although junk food or fast food tastes very good. Eating junk food once in a while is fine but consuming junk food too frequently can result in various health problems. junk food contain high amount of sugar, salt, and fat, etc. They should include the long-term consequences of the daily diet. it is low cost and convenient in the short-term, but highly inconvenient and costly in the long-term. Therefore, people should endorse healthy consumption habit by keep controlling their consumption of junk food/fast food. It was observed that youngsters replace regular meal with junk food .Male youngsters are more concerned about the hygiene of the eat out than **SUGGESTIONS:**

Here are some suggestions on how to reduce the impact of junk food:

1. **Increase awareness:** Educate people about the health impacts of junk food and the benefits of a healthy diet. This can be done through public health campaigns, school programs, and other educational initiatives.

2. **Encourage healthy eating:** Encourage people to eat more whole foods, such as fruits, vegetables, whole grains, lean proteins, and healthy fats. Make healthy foods more accessible and affordable.

3. **Implement policies:** Governments can implement policies that promote healthy eating, such as taxes on sugary drinks, restrictions on marketing to children, and incentives for healthy food production.

4. **Improve food labelling:** Make it easier for people to make informed choices by improving food labelling, including clearer and more accurate information about ingredients, calories, and serving sizes.

5. **Increase physical activity:** Encourage people to be more physically active, which can help reduce the risk of chronic diseases associated with junk food consumption.

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6. **Support food literacy:** Teach people how to cook healthy meals, how to read food labels, and how to make informed choices about what they eat. By taking a comprehensive approach that addresses the various factors that contribute to the consumption of junk food, we can reduce the negative impacts of junk food and promote a healthier food system. Female youngsters. Various options in menu, nutritional value and easy accessibility has impact on both male and female youngsters. If there are discount on the junk food items then male youngsters.

7.WEBLIOGRAPHY:

- https://www.coursehero.com/file/p6momf8/In-conclusion-there-are-several-causes-of-eating-junk-food-but-the-effects-are/
- https://issuu.com/irjet/docs/irjet-v6i31119
- https://kids.frontiersin.org/articles/10.3389/frym.2022.694523
- https://gepsfllgirlsfastfood.weebly.com/conclusion-and-solution.html

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MENTAL HEALTH IN GEN Z

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Keywords: *Gen Z, Mental Health, Bullying, Technology and Mental Health, Social Media, Peer Pressure*

1.INTRODUCTION:

Mental Health is a concept which is increasingly coming into white light in today's times. Many people today are suffering in this area and are unable to articulate their problems due to lack of recognition, awareness and knowledge and persisting stigmas. Much of them being students and children. In this article, we have collected data from peers and students in order to take a grasp of the factors which affect the mental health of Gen Z.

We took certain parameters or factors affecting mental health while collecting data in order to find out the proportion in which each of these factors are affecting Gen Z's mental health. The purpose of this research is to identify the problems faced, causes and effects of them and to generate possible suggestions and solutions that we believe can improve the scenarios effectively, on the basis of relevant data collected.

2.LITERATURE REVIEW:

Technology: Some studies have shown a link between high use of social media and symptoms of anxiety and depression. Other studies have linked increased screen time (not only social media) to negative effects on mental health. However, opinions are divided and more research is needed before we can reach a definitive answer.

Financial concern: Feeling beaten down by money worries can adversely impact your sleep, self-esteem, and energy levels. It can leave you feeling angry, ashamed, or fearful, fuel tension and arguments with those closest to you, exacerbate pain and mood swings, and even increase your risk of depression and anxiety.

Relationship: Relationships struggles are the single largest source of stress for a staggering 87 per cent of GenZ with 1 in 3 stating that their mental wellbeing is greatly impacted if they break up with their partner. Their mental health is significantly impacted due to toxic relationships.

Work environment: Studies suggest Gen Z workers are disproportionately affected by high levels of stress and anxiety. Nearly half (46%) say they are stressed or anxious all or most of the time, with women more severely impacted than men. This emerging generation has higher expectations for the workplace than ever before.

Sexuality: Being supported and safe to explore and express your sexuality can be good for your mental health. It can reduce distress, anxiety, and depression. Many Lesbian, Gay, Bisexual, Transgender, and Intersex (LGBTI) people live happy and rewarding lives, with growing acceptance.

Childhood Trauma and PTSD: In the most extreme cases of childhood trauma, distressing events can lead to post-traumatic stress disorder (PTSD). According to the National Center for PTSD, up to 15% of girls and 6% of boys develop PTSD following a traumatic event.

Bullying: It is documented in multiple studies that adolescents who are cyberbullied by their friends or peers are at greater risk for mental problems including lower levels of self-esteem, feeling of loneliness, depression and suicidal ideation.

Sexual assault: Widespread reports of sexual harassment or abuse have also played a big role in the young adults' stress levels, as 53% blamed this issue for their stress. Only 39% of adults overall say the same. As for climate change, 58% of Gen Z says it's a significant source of stress, in comparison with 51% of adults overall.

- **Research Methodology**: Descriptive Design
- **Population** : Youth of Mumbai (Not definite)
- **Sampling Method** : Convenient Sampling
- **Sample Size** : 70-80
- **Research Tool Used** : MS Excel, MS Forms

3.DATA ANALYSIS:

We prepared a questionnaire in order to examine the problems faced by people and their opinions in some areas. Let’s look at the responses and analysis of the data collected.

- **Do you feel acute stress in your day-to-day life?**
  - **Yes 52%**
  - Maybe 41%
  - No 6%

  Maximum (more than 52%) people feel acute stress in their day-to-day life.
- **What do you think causes you stress in your current day-to-day life?**
  - **Peer-Pressure/Work Environment 24.5%**
  - Relationships 10.3%
  - Uncertainty of the future 19.42%
  - Family expectations 15.42%
  - Past traumatic experiences 10.9%

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- Financial Concerns 13.14%
- I don't feel stress 4%
- Other 2.3%

Maximum people say that peer pressure is the main reason for their day-to-day stress.

❖ **Do you feel anxiety?**

- **Yes 39%**
- Often 32%
- Very often 13%
- No 16%

Around 80% of people feel anxiety. Anxiety is a feeling of worry, nervousness or unease about something with an uncertain outcome.

❖ **Do you feel depressed most of the time?**

- **Yes 22%**
- No 39%
- **Maybe 39%**

Around 61% feel depressed most of the times. This can be an indication of a slightly degrading mental health.

❖ **Have you ever experienced bullying in your school/college life?**

- **Yes, I have 14%**
- **Yes, to some extent 20%**
- No 65%

Around 34% of people agree they have experienced bullying in their school/college life.

❖ **Do you think that the current generation/Gen Z is facing mental health issues in present time?**

- **Yes 91%**
- No 9%

❖ **How many hours do you spend on watching mobile phones/laptops?**

- Less than 2 hours 26%
- 2-4 hours 22%
- **4-6 hours 29 %**

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- More than 6 hours 23%

❖ **How many hours do you spend on social media?**

- **Less than 2 hours 43%**
- 2-4 hours 33%
- 4-6 hours 14%
- More than 6 hours 9%

❖ **What do you think can be the effects of experiencing bullying in childhood?**

- **Low self-esteem 45%**
- People- pleasing behaviors 28%
- Lack of trusting capacity 28%

❖ **Do you think likes and comments of your friends on social media affect your mental health?**

Strongly agree 13%

Agree 19%

Neutral 26%

Disagree 13%

Strongly disagree 17%

Insecurity is uncertainty or anxiety about oneself, self-image or lack of confidence. It can have a negative impact on mental health when it happens in excessive amount.

❖ **Do you think spending more time on social media affects your relationships with family and friends?**

Strongly agree 20%

Agree 39%

Neutral 30%

Disagree 7%

Strongly disagree 3%

❖ **Do you think over expectations of parents and family affects the mental health of Gen Z?**

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Strongly agree	36%
Agree	35%
Neutral	23%
Disagree	3%
Strongly disagree	3%

- **According to you, what are the main causes of Depression and Anxiety in Gen Z?**
  - Technology 14%
  - **Past traumatic experiences 17.4%**
  - Financial concerns 14%
  - Relationships 12.56%
  - **Peer Pressure/Work Environment 18.36%**
  - Parental Behaviors 5.31%
  - Hidden Sexuality 2%
  - **Uncertainty of the future 16.5%**

Majority of people feel that "peer pressure" is the main reason for depression and anxiety in Gen Z followed by "past traumatic experiences".

4.FINDINGS AND CONCLUSION:

It was found out that 95% of the respondents agree that they feel acute stress in their day-to-day life. Topmost reasons were peer pressure, uncertainty of the future, family expectations and financial concerns.

Other findings:

80% of the population feels anxiety.

20% of the population feels depressed most of the time.

34% of the population agreed to have experienced bullying in their childhood.

45% of the population believes that low self-esteem is one of the side effects of bullying.

32% of the population's mental health is affected by likes and comments of their friends on social media.

71% of population's mental health is affected by over expectations of parents and family.

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We surveyed the population asking which is the main reason for inclined depression and anxiety of Gen Z. The responses inclined most towards peer pressure, past traumatic experiences like bullying and sexual assault, uncertainty of the future (career-wise) and technology.

5.CONCLUSION:

Based on the data collected, we'd like to conclude by saying that the mental health of Gen Z is being affected by some dominating factors like peer pressure, bullying experienced, expectations of family and parents and excess usage of mobile phones/laptops/computers and spending more hours on social media.

According to a survey in 2017 by Royal Society for Public Health, "Social media platforms exacerbated anxiety and depression, deprived them of sleep, exposed them to bullying and created worries about body image and fear of missing out. This is the impact excess usage of social media can create." Sleep deprivation is another effect of excessively using technology.

Unhealthy peer pressure is also found out to be the biggest stress generator in Gen Z according to our survey. Financial stress and over expectations from family can create tension in the mind and create a feeling of 'I'm not enough' in a person's mind. This can only lead to more disappointment.

Another blow to to a person's mental health is experiencing bullying. Bullying can refer to physical, verbal and emotional abuse. 45% of the population thought that 'low self-esteem' is the main effect of experiencing bullying while 28% inclined towards 'people-pleasing behaviors' and rest of them with 'lack of trusting capacity'.

Other factors opted were childhood trauma and relationships (dating life). The no. of people facing childhood traumas have increased and much of the people suffering regarding this find it hard to communicate their problems due to stigmas, lack of appropriate help, fear of being misunderstood, fear of being mocked or seen as "weak".

Many people develop PTSD (Post Traumatic Stress Disorder) and have little knowledge about how to tackle it.

With appropriate help provided and finding a way to reduce barriers like stigmas around mental health, victim blaming, lack of encouragement to get help etc. these issues can be tackled with and provided attention to, for the betterment of the society including Gen Z.

6. SUGGESTIONS AND RECOMMENDATIONS:

Keeping the data and results of this research in mind, we'd like to recommend following suggestions:

- ❖ Introduction of mental health as an optional subject for schools and colleges (where it is affordable). Inclusive of topics like creating boundaries, human rights, emotional health, saying 'no', etc.

- ❖ Ways to encourage people to treat other people with compassion and kindness especially the ones who are suffering from issues regarding this and not judging, shaming and blaming them into thinking its their own fault.

- ❖ Creating more safe place for people to open up about their problems. Not belittling and invalidating their issues. Generating more self-awareness campaigns for people to identify their problems and situations that are causing them pain in order for them to arrive at solutions. This will also help to reduce various stigmas around mental health through the spreading of awareness.
- ❖ Counsellors in colleges and schools.
- ❖ Prohibition of bullying in places where it is still found to be continued.
- ❖ Normalizing taking sick days for mental health. Recognition by companies and work places.
- ❖ Increasing awareness among Gen X.
- ❖ Reduction of screen time.
- ❖ Awareness that people's value do not lie merely in their marks and grades and how much they are successful in life. Education is more about learning than competition and encouraging them to enhance themselves in the field of their choosing and working for it with their own growth at the center of their goals. This can help Gen Z for tackling peer pressure.
- ❖ Providing humanitarian knowledge about how to deal with difficult people and situations in real life in college can help Gen Z to deal with their challenging work environment.

7. REFERENCES

- Dr Sue Peacock, Modern technology and mental health, https://www.circlehealthgroup.co.uk/health-matters/health-and-wellbeing/modern-technology-and-mental-health#:~:text=How%20does%20technology%20affect%20mental,symptoms%20of%20anxiety%20and%20depression.&text=Other%20studies%20have%20linked%20increased,negative%20effects%20on%20mental%20health
- Head to Health, Sexuality, https://www.headtohealth.gov.au/supporting-yourself/support-for/sexuality#:~:text=and%20deeply%20personal.-,Sexuality%20and%20mental%20health,rewarding%20lives%2C%20with%20growing%20acceptance
- ET Brand Equity. Com, Oct 10 2022, https://brandequity.economictimes.indiatimes.com/news/research/87-per-cent-genzs-feel-relationships-are-the-biggest-cause-of-stress-report/94765304
- Help guide, Financial concern, https://www.helpguide.org/articles/stress/coping-with-financial-stress.htm#:~:text=Feeling%20beaten%20down%20by%20money,risk%20of%20depression%20and%20anxiety
- Marisa Dellatto, Forbes, Work environment, https://www.forbes.com/sites/onemind/2022/07/22/the-future-of-work-depends-on-supporting-gen-z/?sh=10951cc0447a#:~:text=Studies%20suggest%20Gen%20Z%20workers,the%20workplace%20than%20ever%20before
- Cheryl K, How childhood Trauma Affects Mental Health and Wellness, August 6 2021, Childhood Trauma, https://cornercanyonhc.com/blog/how-childhood-trauma-affects-mental-health-and-

ISBN NO: 978-93-5810-851-4

wellness/#:~:text=Childhood%20Trauma%20and%20PTSD,PTSD%20following%20a%20traumatic%20event

- Chanda Maurya T. Muhammad Preeti Dhillon and Priya Maurya, Bullying, http://erse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/RRXQNT
- Andrea Diaz, Sexual assault, https://edition.cnn.com/2018/10/30/health/generation-z-stress-report-trnd/index.html#:~:text=Widespread%20reports%20of%20sexual%20harassment,with%2051%25%20of%20adults%20overall

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FORECASTING PRICES OF AIRLINE TICKETS

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ABSTRACT:

The Airline Ticket fare increases or decreases every day depending upon various factors like the timings of the airline, duration, or flights. The accuracy in prices is not there even though people usually go to some agents for booking as they book the flight ticket at lower prices. So this problem leads to the innovation of our idea 'Forecasting prices of Airline Tickets'. In this system, a predictive model is created by applying a machine learning (ML) algorithm by collecting previous historical data of airlines. Approximate timing for flight tickets buying or purchasing from the consumer's point of view is difficult because buyers lack information about future price predictions. We are mainly focused on uncovered trends in flight ticket prices and suggest to the users the best possible prices. According to research some airline booking companies or websites do not provide fair prices for tickets. The prices may vary from economic class to luxurious class. Remarkably, the trends of the fares are sensitive to the route, days and time of departure, and whether there is a holiday on departure day. The project also states the fact that there are specific periods of the day where fares are expected to be maximum or minimum. The users can make a significant choice of when the price will be lowest according.

INTRODUCTION:

Since the irregulation of the airline industries, flight ticket pricing strategy has developed in complicated structures involving greatly experienced rules and mathematical models that runs the flight ticket. Although studies have discovered that these strategies are widely known to be affected by various factors. Factors related to marketing, economics, and social trends have played important roles in running flight prices. Some traditional variables like distance still play a significant role but are not the only factor responsible to dictate pricing strategy. Most studies and information have mainly focused on a specific market. Research or information in the market segment is very limited. The term market is defined as the airport or market

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pair between the origin of the flight and the destination. Being able to forecast the flight ticket price trend at a specific market segment level is critical for airlines to adjust resources and strategies for a specific route. However, different existing studies on market segment price forecasting use heuristic methods based on statistical models, like linear regression, and are based on assumptions that exist a linear relationship between independent and dependent variables, which in the majority of cases may not be correct. Recent advanced methods in Machine Learning (ML) and Artificial Intelligence (AI) make it possible to deduce rules and variations in models on flight ticket prices based on a huge number of features. without covering hidden relationships among the features automatically. According to our knowledge, all available work imposing machine learning methods for flight ticket price forecasting is based on:

l. proprietary datasets that are not available publicly.
m. Data records of transactions crawled from online travel booking sites.

In this project, we address the problem of market segment-level flight price forecasting by using the available datasets and a machine learning novel framework to forecast market segment-level flight ticket prices. More specifically, our framework takes or extracts information from the two specific data sets, that are collected from the Kaggle. The datasets have been utilized for various studies like historical prices of flight tickets, departure and destination locations, the Name of the airline, etc. Our project aims to create a comprehensive profile of every market and use machine learning techniques or methods to forecast the average flight ticket prices at the market segment level.

LITERATURE AND SURVEY:

Ref, No.	Title	Year of publishing	Algorithm	Accuracy	Conclusion and further study
1	Automatic Detection of Airline Ticket Price and Demand: A review	18-19 November 2018	Random Forest Regression Tree and Bagging Regression Tree	85.91% 87.42%	Classified existing models into customer-side and airline-side models based on their designed goals. The result showed that this research area has not been greatly explored and that there exist

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					several aspects which need to be thoroughly investigated including performance issues, dataset issues, and usage of dynamic external features such as social media data, and search engine queries.
2	Forecasting of Airfare Prices Using Time Series	7-9 October 2015	Time series with the ARIMA model	-	It used the ARIMA model which increased the accuracy of prediction. Capture temporal trends in the model by allowing time-delayed observations to supplement or replace the most recently observed value for each included feature.
3	An Ensemble Learning Based Approach for Building Airfare Forecast Service	29 October 2015 - 01 November 2015	Vector Machine (SVM) and K Nearest Neighbours (KNN)	-	Introduced an ensemble-based approach for constructing airfare forecast service. Considered airfare forecast as a time series problem and focused on mining potential patterns of the price changes by machine learning techniques.

4	Optimization of ticket purchasing strategy based on machine learning	03-05 October 2017	Random Forest Algorithm, Random Forest, AdaBoost, and SVM KNN	0.946 0.958 0.798 0.720 0.762	Model of Ticket purchasing strategy based on class variable rules and random forest prediction algorithm, in this model we add new important features such as price jump values and jump intensity values. Random forest algorithm, AdaBoost algorithm, SVM algorithm, and KNN forest models were used to predict purchase decisions.
5	A Data-Mining Approach to Travel Price Forecasting	18-21 December 2011	KMeans clustering algorithm and random forest	-	The prediction application is designed to be deployed as a standalone web service. Any internet user accessing this web service through a client website or application will be able to request a prediction for a given flight
6	Prices, prices and prices: A study in the airline sector	10 May 2012-17 August 2013	Time series	-	The analysis has highlighted the importance of three kinds of behaviors in pricing structure and policy, and the dynamic

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					evolution of their weights in the price
7	An Adaptive Context-Aware Ensemble Regression Model for Airfare Price Prediction	15-17 December 2017	Random forest and bagging	84%	combine context modeling, clustering, and ensemble techniques and propose ACER, an adaptive context-aware ensemble regression framework. ACER finds features suited as context information so context-aware models can be trained.
8	An Airfare Prediction Model for Developing Markets	2018	Decision Tree, K-Nearest neighbors, Random Forest	-	Classified existing models into customer-side and airline-side models based on their designed goals. Then discussed the strengths and weaknesses of the existing work
9	Dynamic Pricing Considering Strategic Customers	24-27 July 2016	Time Series	-	Supply exceeds demand, the retailer's revenue decreases with the increase in the proportion of strategic consumers, and the optimal prices increase with the increase of the proportion of strategic consumers.

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10	Data-driven Modeling of Airlines Pricing	2015	Regression Model	95%	Price dependence on the earliness of ticket purchase differs dramatically for local and international flights, for the period under study
11	Timing When to Buy	2011	SAS Evaluation by Backward Induction	-	Proposed a utility-based framework that discounts the value of the product if its purchase is deferred and incorporates the savings accruing from the potential drop in the price of the product.
12	Design and Implementation of Ticket Price Forecasting System	31 Feb 2013	ARMA algorithm and random forest algorithm	-	A ticket price forecasting model based on the ARMA algorithm and Random Forest algorithm. The system of ticket price forecasting is designed and implemented to provide strong support for air tickets purchase

This research paper analyses previous papers to find out the algorithm's outcomes and further studies.

METHODOLOGY:

Random Forest Regression Algorithm: It can perform both regression and classification using multiple decision trees and the technique is called Bootstrap Aggregation which is commonly known as Bagging.

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This method involves training each decision tree with a different dataset. the basic thing is it combines all decision trees in determining the output rather than relay on a single decision tree. Machine Learning algorithms are applied to the dataset to predict the dynamic fare of flights. This gives the predicted values of flight fare to get a flight ticket at minimum cost.

In the initial process, the user needs to open the login page by entering the respective user's name and password in order to proceed further

After the login process, we need to enter Departure Date, Arrival Date, Source, Destination, Stoppage, and Which Airline you want to Travel?

(fig. 3.1)

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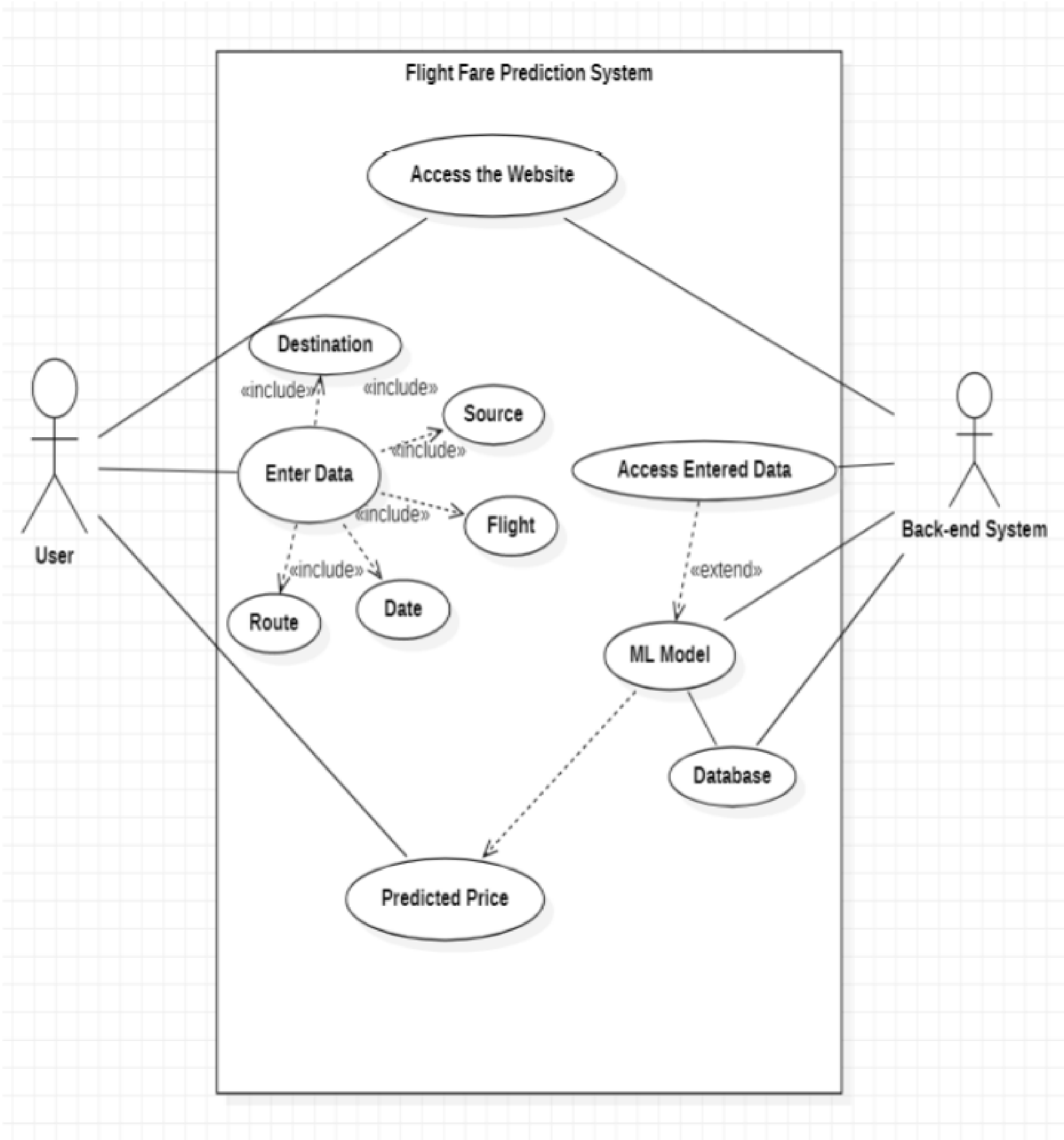
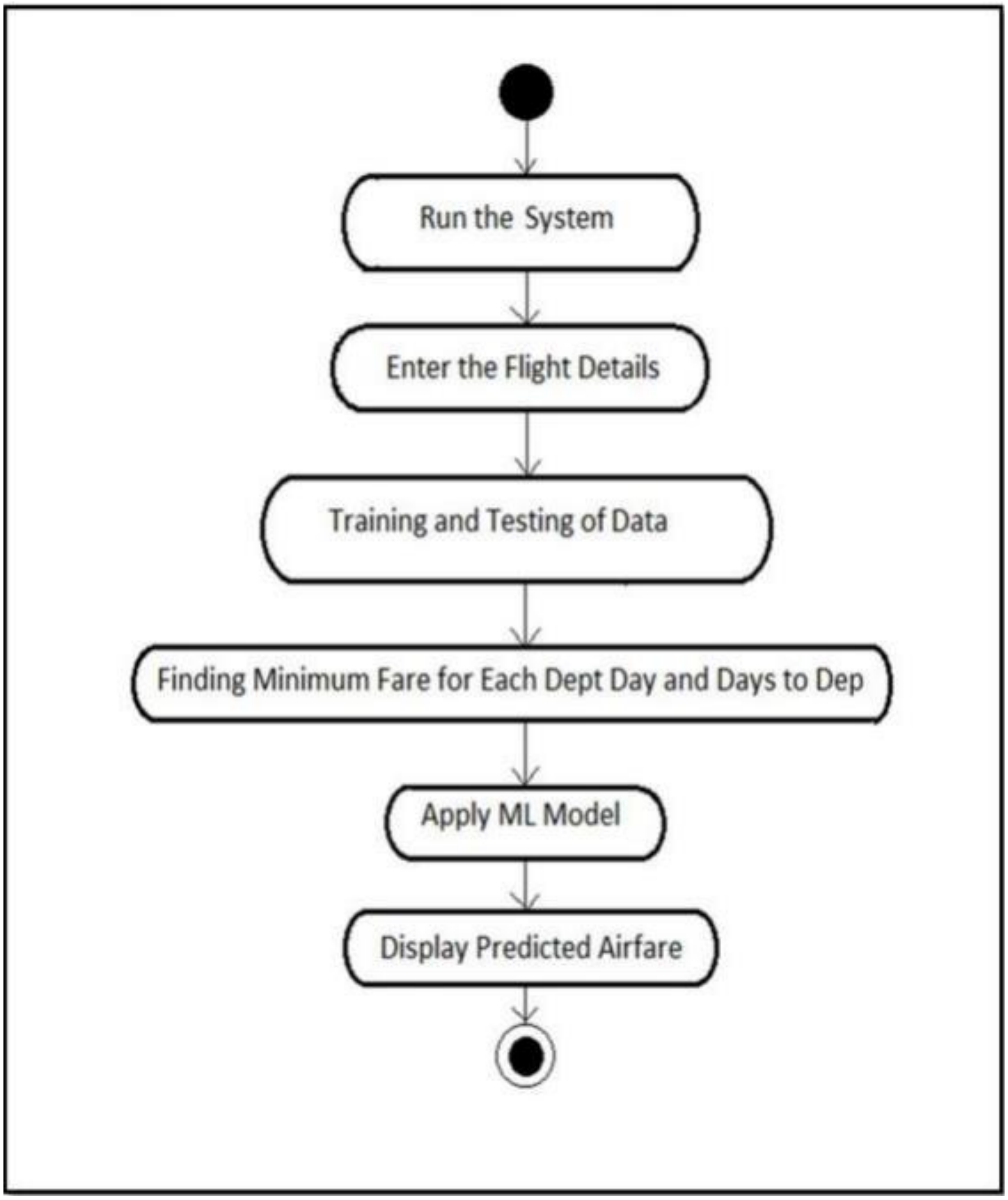


(fig. 3.2)



CONCLUSION:

For this paper, an extensive study was carried out with dataset collection from Jupyter and the Random Forest Machine Learning model was used for deployment. Using visualization, we were able to determine the features which influence airfare prices the most. With experimental analysis, it can be concluded that Random Forest Regression model achieves good accuracy. The future aim is to work more on feature selection and model accuracy. We also plan to extend the study by working with larger datasets and a greater number of experimentations on the same to procure more accurate airfares which will in turn help users to get an estimated cost of their next airplane travel and can benefit them to make the best deal. We also plan to level up web applications' user interface to provide a premium user experience. We can also consider various other crucial features that affect airplane ticket prices like public holidays, number of luggage, number of hours till departure, crude oil price, etc. to get the best results. In the near future, there is also a plan to host the web application.

REFERENCES:

1. J. A. Abdella, N. Zaki and K. Shuaib, "Automatic Detection of Airline Ticket Price and Demand: A review," 2018 International Conference on Innovations in Information Technology (IIT), Al Ain, United Arab Emirates, 2018, pp. 169-174, doi: 10.1109/INNOVATIONS.2018.8606022.
2. A. Gordiievych and I. Shubin, "Forecasting of airfare prices using time series," 2015 Information Technologies in Innovation Business Conference (ITIB), Kharkiv, Ukraine, 2015, pp. 68-71, doi: 10.1109/ITIB.2015.7355055.
3. Y. Chen, J. Cao, S. Feng and Y. Tan, "An ensemble learning based approach for building airfare forecast service," 2015 IEEE International Conference on Big Data (Big Data), Santa Clara, CA, USA, 2015, pp. 964-969, doi: 10.1109/BigData.2015.7363846.
4. Y. Li, P. Zhu and S. Qin, "Optimization of ticket purchasing strategy based on machine learning," 2017 IEEE 3rd Information Technology and Mechatronics Engineering Conference (ITOEC), Chongqing, China, 2017, pp. 1230-1234, doi: 10.1109/ITOEC.2017.8122553.
5. T. Wohlfarth, S. Clemencon, F. Roueff and X. Casellato, "A Data-Mining Approach to Travel Price Forecasting," 2011 10th International Conference on Machine Learning and Applications and Workshops, Honolulu, HI, USA, 2011, pp. 84-89, doi: 10.1109/ICMLA.2011.11.
6. Narangajavana, Yeamduan, Fernando J. Garrigos-Simon, Javier Sanchez García, and Santiago Forgas-Coll, "Prices, prices and prices: A study in the airline sector," Tourism Management, vol. 41, pp. 28-42, 2014.
7. T. Liu, J. Cao, Y. Tan and Q. Xiao, "ACER: An adaptive context-aware ensemble regression model for airfare price prediction," 2017 International Conference on Progress in Informatics and Computing (PIC), Nanjing, China, 2017, pp. 312-317, doi: 10.1109/PIC.2017.8359563.
8. Vu, Viet Hoang, Quang Tran Minh, and Phu H. Phung, "An airfare prediction model for developing markets," in International Conference on Information Networking (ICOIN), 2018.
9. Y. Wang, "Dynamic pricing considering strategic customers," 2016 International Conference on

Logistics, Informatics and Service Sciences (LISS), Sydney, NSW, Australia, 2016, pp. 1-5,

10. A Lantseva 㓦 et al.,“Data-driven Modeling of Airlines Pricing” Procedia Computer Science 2015,, 66:267-276.minimize ticket purchase price." ACM SIGKDD International.
11. Agrawal, R., Ieong, S., & Velu, R. (2011). *Timing when to buy. Proceedings of the 20th ACM International Conference on Information and Knowledge Management - CIKM ’11.* doi:10.1145/2063576.2063681
12. Gu Zhaojun, et al. "A forecasting model of air ticket price based on time series."[J]. Journal of Civil Aviation University of China, 31.2(2013):80-84.

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A STUDY ON CHALLENGES TO START UP IN INDIA

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ABSTRACT:

India is a country of many great legends that were famous all over the world because of their work, sharp mind & high skill. Youths in India are very talented, high skilled & full of innovative ideas. But they don't get opportunity due to lack of solid support & proper guidance in right direction. In this way, BJP government launched “START UP INDIA STAND UP INDIA” scheme on 16 January 2016 to help the youth of India to go in right direction using their new & innovative ideas. This scheme was launched to motivate & promote new comers towards business &grow their career as well as economy of the country. This programme is a big start to enable Start-ups through financial support so that they can use their innovative ideas in right direction. There are tremendous opportunities for Start-up entrepreneurs in India. The key areas are Like Textile, Media, Health Sector, Event Planner, Tourism, Automobile etc. So, there are various opportunities where entrepreneurs can start their Start-ups. But along with opportunities there are some challenges also that Start up entrepreneurs may have to face like Infrastructure Deficit in India, Risk Factor and Right Talent Acquisition etc. The study will focus on Start-up India scheme, opportunities available under this scheme as well as challenges may have to be faced & suggestions to overcome the challenges to make the Start-up India programme successful help the youth of India to go in right direction using their new & innovative ideas. This scheme was launched to motivate & promote newcomers towards business &grow their career as well as economy of the country. This programme is a big start to enable Start-ups through financial support so that they can use their innovative ideas in right direction.

Keywords: *Start up, challenges, women*

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INTRODUCTION:

A start-up company or start-up or start-up is a young company that is just beginning to develop. Start-ups are usually small and initially financed and operated by a handful of founders or one individual. These companies offer a product or service that is not currently being offered elsewhere in the market, or that the founders believe is being offered in an inferior manner. In the early stages, start-up companies' expenses tend to exceed their revenues as they work on developing, testing, and marketing their idea. As such, they often require financing. Start-ups may be funded by traditional small business loans from banks or credit unions, by government sponsored Small Business Administration loans from local banks, or by grants from non-profit organizations and state governments. Paul Graham says that "A start-up is a company designed to grow fast. Being newly founded does not in itself make a company a start-up. Nor is it necessary for a start-up to work on technology, or take venture funding, or have some sort of "exit". The only essential thing is growth. Everything else we associate with start-ups follows from growth.

Startup India is an initiative of the Government of India. The campaign was first announced by Indian Prime Minister, Narendra Modi during his 15 August 2015 address from the Red Fort, in New Delhi. The action plan of this initiative, is based on the following three pillars:

1. Simplification and Handholding.

2. Funding Support and Incentives.

3. Industry-Academia Partnership and Incubation.

An additional area of focused relating to this initiative, is to discard restrictive States Government policies within this domain, such as License Raj, Land Permissions, Foreign Investment Proposals, and Environmental Clearances. It was organized by The Department for promotion of industry and internal trade (DPI&IT). A startup defined as an entity that is headquartered in India, which was opened less than seven years ago, and has an annual turnover less than 25₹crore (US$3.5 million). Under this initiative, the government has already launched the I-MADE program, to help Indian entrepreneurs build 1 million mobile app start-ups, and the MUDRA Banks scheme (Pradhan Mantri Mudra Yojana), an initiative which aims to provide micro-finance, low-interest rate loans to entrepreneurs from low socioeconomic backgrounds. Initial capital of 200₹billion (US$2.8 billion) has been allocated for this scheme. The start-up scenario in India has gone a huge makeover, now people are not alien with the concept of start-ups. Earlier people had no idea what this concept is all about, thanks to the rise in media's encouraging coverage towards start-up recently. The concept of start-up is somehow different for Indians

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and not so different for people of developed economies. Start-ups are something to do with new product/process for the entire market or fraction of the market.

LITERATURE REVIEW:

The education system is one of hindrance for start-ups. In college, students are usually trained with advanced techniques, but lack of marketing, sales and operational ability and leadership skills needed to advance their own enterprises. In addition, conservative lifestyle also contributes as one of obstacles. As a culture of family remains, family remains sceptical to change and prefer options that can provide a steady income rather than engaging risk. This places pressure on the budding entrepreneur who fall victim to the dichotomy of providing for the family instead of following some "whimsical" dream (Au & Kwan, 2009). One of the major challenges is that there is severe shortage of start-up support networks and entrepreneurship ecosystems. In many western countries, there are special institutions serve as incubators, start-up accelerators, start-up competitions for entrepreneurs to put their ideas to test and obtain necessary guidance. In India, incubators, start-up accelerators, and start-up competitions are slowly making their way into the first-tier cities, but there truly are not enough to go around. As a result of this shortage, many start-ups fail at the "idea" stage of their business. The ecosystem usually does not directly provide funding to start-ups; they just serve as platforms that link investors and entrepreneurs so that entrepreneurs can obtain necessary funding to test out their ideas. The lack of these facilities makes it more difficult for entrepreneurs to find investors. In return, investors are more difficult to find entrepreneurs as well. Even if entrepreneurs can find investors, they will face an entirely different set of challenges. Indian culture inherently does not promote entrepreneurship. Conversely, it encourages stability, employment at large state-owned or private organizations and, above all, teaches people to be risk averse. Even if young Indian individuals have intention to start their own business, their family usually places a considerable amount of negative pressure on them to forget entrepreneurship and look for a "stable job" instead.

Women Entrepreneur:

Melanne Verve Erin, Women entrepreneurs are a vital source of growth that can power our economies for decades, yet they face tremendous challenges to their full economic participation. The GEM Women 's Report provides important data which is critical to our understanding of women-run SMEs. V Krishnamoorthy and R Balasubramanian, identified the important women entrepreneurial motivation factors and its impact on entrepreneurial success. The study identified ambition, skills and knowledge, family support, market opportunities, independence, government subsidy and satisfaction are the important entrepreneurial motivational factors. The study also concluded that ambition knowledge and skill independence dimensions of entrepreneurial motivational has significant impact on entrepreneurial success.

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Jalbert, (2000) performed a study to explore the role of women entrepreneurs in a global economy. It also examined how women ‘s business associations can strengthen women ‘s position in business and international trade. The analysis is performed based on facts and data collected through field work (surveys, focus groups and interviews) and through examining the existing published research. The study has shown that the women business owners are making significant contributions to global economic health, national competitiveness and14 community commerce by bringing many assets to the global market.

Hirsch, (1986), compared & evaluated various research studies done on entrepreneurship including women entrepreneurship. Its summaries various studies in this way that female entrepreneurs are relatively well educated in general but perhaps not in management skills, high in internal locus of control, more masculine, or instrumental than other women in their values likely to have had entrepreneurial fathers, relatively likely to have first born or only children, unlikely to start business in traditionally male dominated industries & experiencing a need of additional managerial training.

Objectives of the study are as follows:

1. To study the financial problems faced by the start-ups in India.
2. To study the Women entrepreneurs in India.
3. To find out the reasons behind few or limited start-ups in India.

RESEARCH METHODOLOGY:

Type of study:-

The data collected in this research project is totally based on secondary data. The fact and figures are taken by the different resources.

Data used: - The data collected in this research project is totally based on secondary data. The facts and figures are taken by the different resources. (A) Meaning: Secondary data means data that are already available i.e., they refer to the data which have already been collected and analysed by someone else. When the researcher utilises secondary data, then he must investigate various sources from where he can obtain them. In this case he is certainly not confronted with the problems that are usually associated with the collection of original data. Secondary data may either be published data or unpublished data. Usually published data are available in: (a) various publications of the central, state are local governments;

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(b)various publications of foreign governments or of international bodies and their subsidiary organisations; (c) technical and trade journals; (d) books, magazines and newspapers; (e) reports and publications of various associations connected with business and industry, banks, stock exchanges, etc.; (f) reports prepared by research scholars, universities, economists, etc.

Challenges to women start up:

Start up is a challenge, and even more so if you are a woman. Despite their efforts and expertise, female entrepreneurs often struggle a lot more than their male counterparts to make it big and get recognized within the business community. Out of 100 entrepreneurs in India, only 7 are female, says the Mastercard Index of Women Entrepreneurs. As per the Google-Bain report, only 20% of businesses in the country are owned by women, while the 2021 report by the World Economic Forum also shows a massive gender gap of 72% in India's labour market. Below few are the reasons,

Poor Funding Prospects: - As unfair as it might sound, the funding scene in India has massive gender biases. Women-led businesses in the country lack access to capital due to the prejudices of investors and other factors. According to a report by Inn oven Capital, of all the companies that received funding in 2019, only 12% had at least one female founder. Many VC firms and angel investors are reluctant to invest in women-led businesses, while banks and financial institutions consider women less credit-worthy. Moreover, many Indian women don't have property or assets in their name, which comes up as a problem while applying for collateral loans or private financing.

Lack of Access to Professional Networks: - According to the Google-Bain survey, female business owners are less integrated with formal and informal networks. The survey further indicates that over 45% of urban small business owners suffer due to insufficient avenues of network development. Studies also show that most of the existing professional networks are dominated by men, making it difficult for women to access or navigate such spaces. Consequently, they miss out on opportunities to grow their business, find collaborators and vendors, and build social capital.

Lack of Education: - One of the biggest credentials for a modern entrepreneur is having prior experience in running a successful business. To supplement the lack of experience in running a business the entrepreneur should have professional experience of working in the relevant industry or a business management degree. Unfortunately, in India, the education of women does not get its due importance. This results in many budding female entrepreneurs lacking the education required for running a successful business. As women are getting access to higher education, they are leveling the playing field.

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Low Risk-Bearing Ability: - In order to invest in and run a successful business, the entrepreneur needs to be able to bear some inherent risk. Women often do not have financial freedom and do not have practice in making independent decisions. They also lack confidence in their own decisions, which makes them risk averse. This is gradually changing as with each passing generation women are taking charge of their finances and mitigating the risks.

SUGGESTIONS:

Entrepreneurs should conduct in-depth market research to understand the need of the society and then proceed to the product design phase. Entrepreneurs need to analyse their business idea and think out of the box. An ideal example can be the number of start-ups in the ecommerce industry, but rarely anyone focuses on logistics-based start-up ideas, where the need is. Start-ups should aim to hire those people who share the same zeal to make the start-up successful. Entrepreneurs should reach out to multiple venture capitalists and know who is better aligned towards the goals of start-ups.

Business process should involve meetings of the management team and technical teams on weekly basis to ensure a smooth workflow. Start-ups should be policy driven and offer same salaries to team members. It should offer incentives for performance-based work. Doing so will help manage the funding in an appropriate way. Entrepreneurs can enrol themselves at personality development classes to improve their soft skills or hire an experienced person for business communication. Entrepreneurs should keep a close watch on the growing demand for their product and focus on response time and capacity planning. An entrepreneur should keep up with changing market dynamics to see a decline in the demand for their product and take necessary steps to run the start-up profit.

CONCLUSION:

Start-ups are the future growth engines of our country and government should do all it can to foster the growth of entrepreneurship culture in India. Already Facebook, Google and Yahoo have acquired start-ups based in India and the likes of Flipkart, Inmobi, Mu Sigma show us that world class companies can have origins in India also. It just needs a little push in right direction. Government initiatives like the $1.68bn funds for the ‘Make in India’ and the new company law are a step-in right direction.

“The quicker you let go of old cheese, the sooner you will find new cheese”
-Spencer Johnson

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REFERENCES:

- ✓ https://www.startupindia.gov.in/content/sih/en/government-schemes/Wep.html
- ✓ https://www.googleadservices.com/pagead/aclk?sa=L&ai=DChcSEwjb6fGGoLv9AhWbmGYCHVFxCDkYABACGgJzbQ&ohost=www.google.com&cid=CAESauD2kqVLXJXZdYglPIR4bHv_C3VUjSev5zp5rEZCBqAfserzgvIie8R05u9nO69XqjCmyHnZFp3GXuvnKfyT0QXPA8u8n7KsPszYtj26dtMs-xWZWDki2laZXCSz6C9CDw_9QaUglA_-uZg&sig=AOD64_0fVYC7z7N7H92dl0bnHP_2__ieXg&q&adurl&ved=2ahUKEwipruuGoLv9AhX47zgGHakoBGQQ0Qx6BAgJEAE
- ✓ https://www.businessnewsdaily.com/5268-women-entrepreneur-challenges.html

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A STUDY OF GAMBLING AND IT'S EFFECTS

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ABSTRACT:

This research we will understand the reason why people are addicted towards gambling and the places where gambling is more prominent, and also to know the age group of the people involved in gambling. This research will also give knowledge about the source of information for gambling.

Keywords: *Gambling, effects.*

INTRODUCTION:

Gambling is the addiction which control the human behavior. It is problematic for the health and social problems like depression, suicide, family conflicts, financial problems, alcohol and other drug use etc. In the gambling the people risk their money in ludomania, casino, slot, lottery, board gambling, roulette, bookmaker, betting, etc and their purpose is to win. The player who plays the gambling is known as "gambler". It becomes the habitual process where the winner gets money and looser loses their money.

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Richest gambler in the world is William Benter is an American professional gambler and philanthropist who focus on horse betting. Benter earned nearly $1 billion through the development of one of the most successful analysis computer software programs in the horse racing market. AbhinavIyer is the no.1 gambler in India. He won the world series of poker and the bracelet, making him the first professional poker player to win one.

In India only three states, Goa, Daman and Sikkim allow casinos. There are two casinos in Sikkim called Casino Sikkim and Casino Mahjong and around ten in Goa, of which six are land based and four are floating casinos that operate on the Mandovi River. Betting on Horse Racing is one of the few legal betting activities in India.

28% GST is charged and collected on betting and gambling under the HSN code 999692 on the total stake or bet value.

REVIEW OF LITERATURE:

I. **MARK GRITTITHS, ADRIAN PARKE** this research paper has blamed technology for the role in development of gambling practices and also says that technology helps in providing new market opportunities to people. It also said that because the internet is available for a cheap price in India it is convenient even for the poor class people to do gambling. Internet gambling is one of the fastest growing part in the world of gambling.

II. **MARK GRITTITHS** in his research paper about adolescent gambling highlights even if gambling for adolescent is against the law yet they are looked on to gambling, it also shows how they gamble and what can be done about it. He provides an overview of adolescent gambling worldwide in addition to individual case studies, treatment approaches and an insight into how the gaming industry includes young people to gamble.

III. **JOHN W WELTE** in his research paper risk factors for pathological gambling, gives various risks caused due to gambling and also gives different effects gambling can have on a person’s life. It says minority and low social economic status (SES) group members have higher levels of gambling pathology than other groups after all other factors are considered. It also says casino gambling is associated with a high risk of gambling pathology. Lottery, cards, bingo are associated with a moderate high risk of gambling pathology.

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RESEARCH METHODOLOGY:

Purpose of the research: -

The perception of the game and any differences between players and nonpayer's which measured through the losing money in of gambling and becoming rich through gambling. It is an activity where the purpose is to win. Netherlands, Russia, Philippines, Singapore is the biggest gambling countries in the world.

Objectives of the research: -

- To understand the people interested in playing gambling.
- To know the age group of the people interested in gambling.
- To analyze whether the gambling influence the human behavior.
- To know the reason behind the addiction towards the gambling.

Methods of data collection: -

Primary data was collected through Google form and personal interviews with people who are into gambling and who in the past owned a club.

Secondary data gathered information from various site for the topic.

Research design: -

The research design deployed was analytical research design. It is descriptive in nature.

Delimitations of the research: -

Interviewed person involved in the world of gambling.

Limitations of the research:

Involves a less group of people.

Data analysis method: -

Data is collected from various websites to generalize findings and draw conclusion to the research study.

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FINDINGS AND ANALYSIS:

- As the data received was from the youth most of them were not interested in gambling. There were some who were interested. Around 85.3% were not interested, the rest might be interested in gambling
- According to the data received most of the people think that spending more time and money on gambling makes them feel the same amount of excitement as other activities in life
- Around 82.4% think that Gambling has an negative impact on the behavior of each person. Also 76.5% also say that gambling effects on the persons reputation also
- Many of them in the survey were not even aware that a small lottery ticket may include in gambling, also playing simple games like Tambola (Housie), simple card games may also inclue in gambling because all these games have money involved in it.
- Most of the people want to do gambling to earn money, they think gambling will make them instantly rich.
- People start gambling because of their friends, because they say that there is always a fear of missing out. This fear makes people try and fall for it.
- Total revenue made only in the Casino Games segment is projected to reach US$32.31M in 2022.
- After some interviews we got to know that after gambling there are two outcomes one is either a person might get rich and the second one is that it might lead a Peron to commit suicide. Got to know 2-3 stories where people have committed suicide, between 17 and 39 % of those who gamble problematically have been reported to have suicide ideation and between 2 and 57% have reported suicide attempts.
- Also nowadays due to the increase in technology gambling has become very convenient and easy for many users, also during times like world cup or IPL there is lots of betting that goes on for the matches, there is a series on match betting and fixing (Inside Edge).

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CONCLUSION:

According to the research done the involvement of 17-20 years old in gambling is quite high. There are many people who are interested in gambling but have not tried to gamble. Gambling has a huge impact on the attitude and personality of a person. Gambling is not only done by a particular class of people i.e. all class be it poor people or rich people all try and want to do gambling, in fact the poor feels that gambling might make you rich, but at the end all should know that gambling is just a game of luck and it is not something that one should be dependent on.

SUGGESTIONS:

- The demand for gambling can be reduced by spreading awareness, educational work, and the development and implementation of public health policies
- Raising awareness- properly informing adolescents, parents and teachers about the real risks of gambling and ludomania
- Improving certain existing laws related to gambling
- Giving proper help to the people you know are involved in gambling, tell them the disadvantages and the risk that gambling brings along with it.

WEBLIOGRAPHY:

- https://www.ncbi.nlm.nih.gov
- www.frontiersin.org
- https://www.gamblingresearch.org.au
- https://www.buffalo.edu

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IMPACT OF COVID-19 ON SAVINGS AND INVESTMENTS PATTERN IN MUMBAI

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ABSTRACT:

The outbreak of COVID-19 has triggered the saving and investment patterns of individuals. This research was undertaken to find the impact of COVID-19 on saving and investment decisions in INDIA . Now people spend money pondering – how, where and when to spend. Due to this change in spendings and savings quite obviously happened. WORLDWIDE lockdown helped to reduce the massive spread of COVID-19, but it disturbed the entire business activity which made business and jobs suffer to a greater loss extent. Even to find relationships between factors which make individuals insecure at times of their investment's decisions such as risk, fraud, liquidity of bank security were also considered in this study. The purpose of writing this is to analyze the effect ofCOVID-19 impact on savings and investment of individuals . The aim is to understand to what extent savings help a normal citizen ride out the massive storm of COVID-19 and what are the changes that have happened in the savings and investment patterns.

1. INTRODUCTION

Believed to be in Wuhan city of China, COVID-19 or CORONA VIRUS an infectious disease came and then pandemic happened due to which it is growing and the effect that it has no life. COVID-19 has affected millions of people across the world and claimed lakhs of lives, leaving families broken and the world deeply wounded. Virtually, it has brought the world to a standstill. Apart from its effect on the physical health of the people, it has also hit very hard to the economy where it hurts most. As India took a very aggressive stance to slow the spread of COVID-19 , the economic activity came to halt and was brought to its knees . As Mumbai is a very known city in INDIA , all businesses and small to big companies faced many losses

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due to this virus . Many workers faced bad paths in their life. Some people who come to Mumbai for work also return to their places. Many investors faced difficulties in their investment plannings and savings of middle class people . Many families and individuals have to dive into their meager savings to sail through this uproar of COVID-19 , and this has once again highlighted the benefits of smart savings and investments . The testing of hypotheses was also carried out and resulted in several factors influencing investment decision making excluding culture and consumer understanding, as they had an insignificant impact on investment decision making. Let us first understand the different levels of effect on different dimensions of life .

2. REVIEW OF LITERATURE

- ✓ **RAJEEV KUMAR** States that the behavior of savings and investment has kept the people in INDIA in a safer zone. Even the youngsters realized the significance of savings and investment. It insists on saving money to face any future crisis. Suggested to avoid frequent shopping and unload for advertising emails or websites which influence buying more. Minimize the expenses on festivals or functions etc. Set one day in a week as ‘ nil expenses day” . Avoid unnecessary purchases and storing in excess choose products at a reasonable rate. Saving a drop and compounding in years makes a pond.
- ✓ **GURBAXAN**I Focus on how the global epidemic is changing the behavior of individuals, from a socio-economic view point. Discussions were made about the social and economic impact on homes, income , education and employment . This research helps to innovate and is very good for any future epidemic diseases.
- ✓ **GAURI PRABHU AND VECHALEKAR. N. M(2014)** A sample of 150 individuals mutual funds investors were surveyed through a pre-tested questionnaire in Pune city during the period June 2013 to September 2013 .In their research it was found that various factors affecting perception of investor regarding investment in mutual fund are -importance of liquidity ,importance of higher return , importance of risk and company reputation .They say that mutual fund investment is less risky than than directly investing in stocks and is therefore a safer option for risk averse investor.

- ✓ **MEUTIA (2016)** Interest rate, profit loss share , Mudarabah deposit and rate of return were the variables used in his analysis and the dependent variable was decision making. Data was obtained from Indonesia’s monthly statistical bulletin between 2012 and 2015. After regression analysis the findings were the negligible impact of rate on return on Islamic bank deposit and interest rate also has negligible effect on bank deposit.

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- ✓ **ZOHAIB YASEEN AND SYEDA RABIA NAQVI(2018)** This research focuses on the factors affecting individual investors investing in banking sectors . The information was collected from customers and financial officers of the traditional and banking sectors through the survey process. The testing of hypotheses was also carried out and resulted in several factors influencing investment decision-making excluding culture and consumer understanding , as they had an insignificant impact on investment decision-making.

3. STATEMENT OF THE PROBLEM

When the epidemic hit for the first time, financial savings first jumped into the first quarter of 2020-2021 , but continued to prove successive estimates in the next two quarters . According to the first RBI estimate, housing savings were 8.2 % of GDP in the third quarter, after 10.4% of GDP in the second quarter (expired in September 2020) and 21% in the first quarter. In total real estate finance declined to RS 4,44,583 crore in the December quarter from RS 4,91,906 crore in the September quarter and RS 8,15,886 crore in the June quarter. For making huge profit people invest in stock market, derivatives, portfolio etc. but the risk involved here. So, this study helps in knowing the factors that make people uncomfortable during their investment decisions and to find that even when the interest rates have decreased because of COVID19 will their investment pattern will be affected whether they will still prefer to invest in banking or they will invest in any other sector.

4. OBJECTIVES

- To study the perception of investment and saving patterns.
- To analyze the impact of rate of interest on saving and investment pattern due to COVID 19.
- To determine the driving forces that affect investment decisions in Mumbai.
- To understand the factors that make individuals insecure during their investment.

5. SCOPE

The study is to understand the saving and investment patterns before and after the corona / COVID19 pandemic and the awareness of the investment and savings avenues among the people in Mumbai. The impression made by the circumstances created by the coronavirus. The lifestyle changes which lead to saving more.

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6. HYPOTHESIS

1. HO – There is no significant impact of the reduced interest rate on investment patterns in the banking sector due to COVID19.
2. H1 – There is a significant impact of the reduced interest rate on investment patterns in the banking sector due to COVID19.

7. RESEARCH METHODOLOGY

Research design – Experimental research , Data collection – Primary and secondary data , Population – All types of people including banking , individuals , households , Target Sample – All the people of the age group 18 and above , Data collection – Questionnaire , Evaluating data – Editing and coding by using SPSS and MS WORD and EXCEL.

8. ANALYSIS AND RESULTS

• Graphical representation of collected information using bar charts.

• Statistical tools used are correlation and regression for analysis.

In this, with the help of a questionnaire , data from 174 respondents were gathered to determine the impact of COVID19 on the investment trend due to reduced interest rate and to determine the factors influencing investment decisions in the banking sector. To evaluate it correlation and regression test has been applied and graphical representation of collected data through bar chart has been done.

GENDER, AGE, OCCUPATION, INCOME OF THE RESPONDENT

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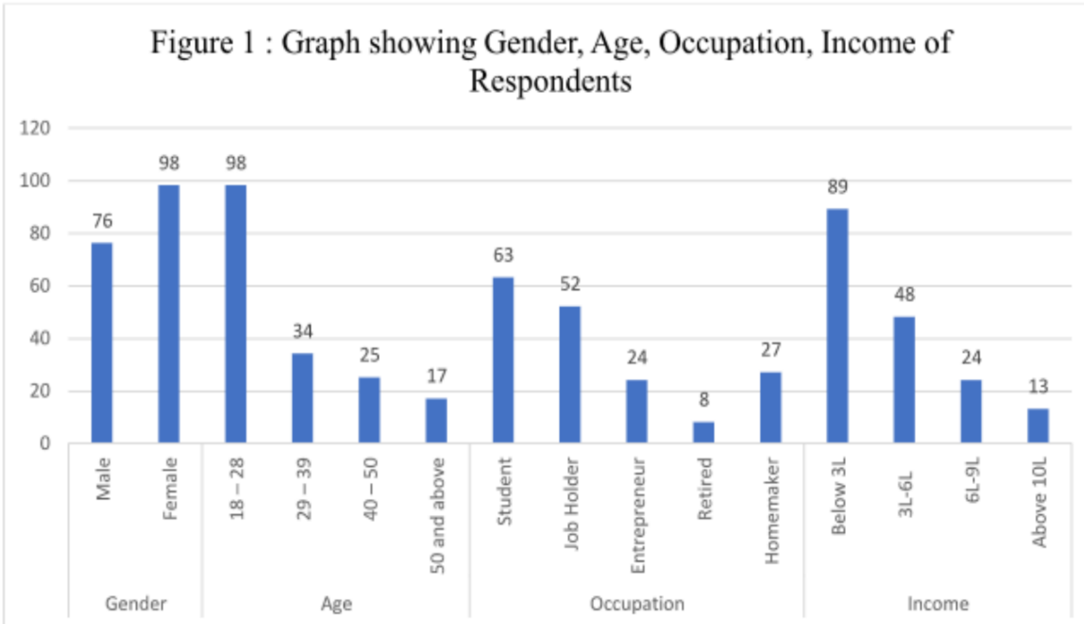

Hypothesis testing

REGRESSION TEST

HO – There is no significant impact of the reduced interest rates on investment patterns in the banking sector due to COVID19.

H1 – There is a significant impact of the reduced interest rate on investment patterns in the banking sector due to COVID19.

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.209	.044	.037	.817
A. Predictors: (Constant) , Rate of interest				

ANOVA

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Model	Sum of Squares	DF.	Mean Square	F	Sig.
Regression	4.186	1	4.186	6.272	.013
Residual	91.440	137	.667		
Total	95.626	138			

A. Dependent Variable: affected investment pattern B. Predictors (Constant), Rate of Interest

Inference

From the regression test it can be seen that R value is 0.209 which is less than 0.05 so the regression coefficient is positive and there is 4.4% (r) impact of reduced interest rates on investment decisions in the banking sector. As significance value is 0.013 which is less than 0.05 so null hypothesis is rejected which says there is no significance impact of the reduced interest rates on investment decision in banking sector due to COVID 19 whereas alternative hypothesis is accepted which says there is significant impact of the reduced interest rates on investment decision in banking sector due to COVID19.

CORRELATION TEST

		Pre covid	Post covid
Pre covid investment pattern	person correlation	1	.380
	Sig.(2-tailed)		.000
	N	139	139
Post covid investment pattern	person correlation	.380	1
	Sig.(2-tailed)	.000	
	N	139	139

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Correlation is significant at the 0.01 level (2-tailed) .

Inference:

There is no significant relationship between number of times investors invest in banking sector Pre and Post COVID19 whereas alternative hypothesis is accepted which states that there is significant relationship between number of times investor invest in banking sector Pre and Post COVID19.

9. FINDINGS

• From the analysis it has been seen that 56% of the respondents were female whereas male were only 44% trying to give equal weightage to both and majority of the respondents fall under the age group of 18 to 28.

• Income was below three lakhs of 51% of the respondent as 36% of the respondent were students followed by job holders who were 30%

• 63% of the respondents prefer to invest in the public sector while 37% prefer to invest in the private sector because public sector banks function with the aim of ensuring banking accessibility throughout the country whether it is urban or rural.

• The majority of respondents opt for fixed deposits in banks who invest between 0 to 10% and their purpose of investment is for earning returns.

• 80% of the respondents prefer to invest in the banking sector and that could be because they consider it as a safe investment and during their investment , they either taken advice from their family and friends or depend on their own decision .

• The majority of respondents strongly agree that factors such as risk, fraud, liquidity of bank , service quality and security make individuals insecure while making investment decisions in bank.

• 59% of respondents strongly agree that outbreak of COVID19 has affected the investment pattern and there is 4.4% impact of reduced interest rate on investment pattern in the banking sector as from the data of Pre and Post COVID19 it has been seen that investment pattern of the majority of the respondent has change because they preferred investing yearly rather than monthly Pre COVID due to reduced interest rate.

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10. SUGGESTIONS

CHANAKYA says " Be ever active in the Management of the economy because the root of wealth is economic activity: inactivity brings Material Distress . Without an active policy , both current prosperity and future gains are destroyed ."

Today's investors are looking for investment strategies that cover Environmental Social and Governance (ESG) themes. Social and ethically responsible sectors, resource protection – both environmental and employee, and corporate ethics are at the forefront of investing themes. Investors are seeking safety , wealth preservation and waiting for a portfolio strategy that is resilient and sustainable . Even if this comes at the cost of lower returns.

FINANCIAL CALCULATIONS IS ESSENTIAL : Need proper work on financial structure of Individual either in boom period or in pandemic situation individual set he goal about their respective income and expenditure and investment structure so that they can sustain their income and live their life without steady income with the help of adequate saving and investment plan.

ALTERNATE PLAN FOR INVESTMENT IN EDUCATION AND AVOID EXPENSES : Investing more may be difficult in their term . Alternative may have to be considered . Like , if your child plans to go to college abroad and you were earlier thinking of funding the entire expenses ,, you may now ask him to look for scholarships or take out a loan .

BUY ADEQUATE LIFE COVER: If you have begun earning , consider buying term insurance right away – in anticipation of the fact that you will have dependents and liabilities in the future . The premium for term insurance is lower when you buy it at a younger age , and it remains constant for the entire life .

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11. CONCLUSION:

Whenever a financial crisis hits us ,the first enemy is our mind. Win over , get into a positive mindset and get going . Soon from a financial crisis ,Individuals will discover financial success. Kautilya, or Chanakya, is known as one of the foremost economists of mankind. Nearly 2,400 years ago, he discovered the principles of how to handle any financial matters. He is telling us to ‘be ever active’ in good or bad times . Don't delay starting again , Because the activity is directly related to economic growth. If we are inactive our well-being will be lost. And , due to inactivity , our future gains will also be destroyed . Activity is the key to success in the present and future as well. Let's hope to see the best future of Finance worlds in individuals' lives. In today's time people have become so much aware of technology that they mainly prefer online mode for their investment option. Before making any kind of investment they search the website of a particular bank for any information so the bank should make sure that they provide all relevant website information. During this pandemic people who never used to prefer online mode also were preferring it to avoid crowds so it's the responsibility of the bank to make sure that no fraud happens and their mobile application and website are well protected to develop trust among the individuals so that they feel comfortable in their investment .

12. LIMITATIONS :

• The study does not cover people from all over Mumbai

• It was for limited period of time

13. REFERENCES:

• Kumar R . Impact of pandemic (COVID19) on saving and investment pattern a study on investors of Pune city . Int . J . Creative Res . Thought . 2021

• GURBAXANI (2021) “ A Study on the impact of COVID19 on a small town in INDIA

• GAURI PRABHU AND VECHALKAR . N . M Perception of Indian investor towards investment in mutual funds with special reference to MIP Funds , ISRO Journal of Economic and Finance , 2014

• MEUTIA , I . Empirical research on rate of return interest and international Journal of Accounting Research 2016

• ZOHAIB YASEEN AND SYEDA RABIA NAQVI , Factors Affecting investment decisions in banking sector.

IMPACT OF PARENTAL ABSENCE ON CHILDREN'S GROWTH & DEVELOPMENT

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ABSTRACT:

This study examines the psychological, behavioral, and educational development of left-behind children, occurring from parental absence because of jobs or passing away of one or more parents or simply child living separately from parents due to their respective jobs or educational purposes or if the parents are divorced. Research has suggested that long term separation, from parents has the following adverse effects: depression, loneliness, anxiety, anger, behavioral problems at school, low academic achievement motivation, lack of self-esteem, misbehavior, truancy, and stealing.

Keywords: - *Parental absence, children's development, Children's mental health and behavior, causes and effect of parental absence.*

INTRODUCTION:

In early childhood, Parental care and absence plays the most important role as it fosters cognitive as well as non-cognitive capabilities of children. A vast literature studies show that parental absence in early childhood affects children's growth and development negatively in academic status, health status, and day to day behavior. This study was conducted to find how adversely parental absence affects children's growth and development and the various outcomes of parental absence. In this study, we found out that left behind

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children have more mental stress which affects their cognitive test scores, and they are less likely to attend college. The various outcomes of parental absence differ across gender, education of parents, and many more effects for girls, urban students, and migrated children. Children who are absent parents are also more likely to be mentally depressed and unhappy. Students with parental absence are more likely have a lower self-assessment on their behavior and campus life, such as more likely to be late for school, low confidence, less likely to get good grades and appraisal from teachers, and issues with class integration and socializing with others.

The causes of parental absence can vary which includes Death, Addiction of drugs and alcohol, Work life, Students living far away for the purpose of job or education, Divorce, Other personal reasons as such parent's mental health status and extra martial affair. The causes include everything due to which a child is ignored.

This study helps us in understanding the different causes and effects of parent’s absence and how it affects the development of their children.

REVIEW OF LITERATURE:

Families are all different and it's not always possible for there to be two actively involved parents in a child's life. Although this is known to be the most ideal situation from which children can thrive and develop to be well rounded adults, there are many situational factors which prevent dual parenting from being possible for some families. Good Therapy reports that such circumstances often lead to diminished self-esteem for children of all ages, as they suffer from a diminished identity and sense of self. Any level of family instability will inevitably take its toll on a child's development. There are many reasons that a parent may be absent from their child's life but within the slew of reasons that this may occur, two common factors seem to exist; this is beyond the control of the child, and it inevitably takes a toll on their self-esteem. The behavior of a child that has been negatively affected by the absence of one of their parents tends to be less desirable, as they struggle with a diminished support system. According to How to Adult, “no matter what the cause, a child whose parent is absent suffers a number of negative effects, among which can be a lowered sense of self-esteem." An absent parent almost always signifies an imbalance in child-rearing, as the entire weight of responsibility falls upon the remaining parent, putting pressure on their capabilities to take on this additional role.

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Children thrive on parental engagement, praise, and support to receive the emotional encouragement they need to feel good about themselves. Getting emotional support from both parents provides a huge boost to the self-esteem of the children involved.

A child's confidence is diminished when they are lacking the love and support of one of their parents. Experts at Good Therapy reveal that; "without the experience of parents responding to a child's spirit and achievements (whether taking first steps, laughing at their jokes, making a diorama, or going on a first date), children are deprived of the building blocks for self-confidence and self-esteem." A child that is praised and encouraged by both parents grows to have a stronger emotional foundation, which gives them a more confident feeling and outlook on life. When a child's self-esteem has taken a hit, and they don't feel as though they are special, capable, and worthy, they tend to become more introverted and begin to lack the motivation to pursue their dreams. Often becoming more complacent and lacking the drive to set and pursue goals will hinder their ability to excel in all aspects of their lives. This includes their education, social network, and their future careers. Of course, this also has a huge impact on the child's ability to form a healthy, stable relationship with their significant other during their adult years as well. Missing the love and support of one of their parents leaves a love void in a child's life. This increased level of awareness that they are "missing something" takes a toll on their emotional development, leaving them feeling less loved than children that have both parents involved in their daily interactions with them.

"Children with low self-esteem often struggle with challenges and may have a hard time finding solutions when they experience problems. They are more likely to be self-critical or to become passive, withdrawn or depressed." If the parents are not present for their guidance or giving advice, they might find themselves isolated while facing any trouble or while dealing with any problem. both parents are present, there is a more well-rounded support system for kids to tap in to, and they're offered two sets of perspectives when they seek advice and problem-solving guidance. This is a more textured, multi-faceted approach which adds a more dynamic mode of critical thinking. An absentee parent results in more limited options being available, creating a void that can't always be filled. Such children make poor decisions and rely on some else outside their family circle for closure and for emotional support. They might end up falling into peer pressure and with the wrong friend circle just for the need of attention and so that they can feel belonged and loved.

Parents not only encourage and enhance the child's personality but also influence their psychosocial development. Children and adolescents who live with both biological parents tend to have a more stable level of wellbeing, whereas those in single parent families have a lower level of well-being during both childhood and adulthood. The experience of losing a parent can have an intense effect on the psychological development of a child. Children in single parent homes may develop a sense of insecurity, feel alone, and show immaturity in their behavior. In so doing, they are often less prepared to adapt to the demands of society and to emotional regulation. Emotional maturity represents the ability of people to check and manage their emotions, to assess the emotional state of other individuals, and to exert control over their own judgment and actions. The theory of emotional maturity by Franz Alexander posits that individuals reach psychological maturity only when they attain a specific level of intellectual formation and can maintain a certain level of emotional outlook. The relationship between parents and adolescents is reflected as a feature of social/emotional development. According to one study, emotional immaturity can lead to feelings of loneliness among adolescents, and emotional immaturity and loneliness together can influence the person's satisfaction with life. Specifically, an emotionally immature person tends to feel lonelier and has less ability to regulate emotions than emotionally mature counterparts. Individuals who have deficits in their relationships may experience different forms of loneliness: emotional or social loneliness. The theory of loneliness suggests that insufficient requirement of specific social relationships can bring about specific kinds of feelings of loneliness. This study intends to assess the differences in emotional maturity of adolescents because of parental status in the home. Limited research has examined this relationship, especially in the context of a culture such as Pakistan. Being a collectivistic society, parents in Pakistan have the major role of contributing to the healthy development of their adolescent children. At the same time, they are sometimes overinvolved in their children's triumphs and failures, which can have both positive and negative consequences. Adolescence is a vulnerable age during the development of an individual, being a time that is simultaneously stressful and exciting and that requires oversight from parents. This stage of life is both socially significant and psychologically complex. Encouragement and reinforcement from parents are crucial for adolescents and, if not present, can lead to various psychological disorders such as anxiety, depression, low self-esteem, and low self-confidence.Parents with more psychological instability have negative impact on their children. This is not the case in basic families or normal families where both the parents are present and who foster and guide their children. Children with family issues feel anxiety and loneliness. Overall these students with family problems are at expanded hazard of encountering less fortunate social, physical and mental wellbeing contrasted with children living in families not impacted by parental

Absence or psychological maladjustment. The point of this study was to archive grown-up children's encounters about their nurturing jobs in connection to their lived childhood encounters with parental mental illness. Grown-up children's viewpoints on their nurturing encounters and difficulties can be utilized to illuminate the advancement regarding support administrations. However, various encounters were noticed, the all-encompassing feeling of being a parent served as a remarkable character and to individual recuperation, despite specific difficulties. The first subject, 'this is me', featured grown-up children's longing to leave their own imprint when it came to nurturing their children. Albeit a few members featured positive components in their folks'. Research on migrant children demonstrates the way that parental relocation can work on their health. Contrasted and abandoned children, the children who move to urban communities with their parents May have better everyday environments and instructive conditions and get more consideration from their parents. In this way, these migrant children might have better actual health, Mental health, and mental capacity. Through counterfactual investigation, few researchers have found that imbalance of chance in healthful results in China will increment by over 19% if rustic children relocate to urban communities. Migrant children are more probable to experience low quality food than left-behind children, and exorbitant calorie admission can cause Overnutrition, heftiness or different illnesses. Furthermore, migrant parents have Less opportunity to assist their children with their schoolwork or go with their children, which is Not helpful for the mental health and mental capacity of these migrant children [Studies have discovered that parental movement makes rustic children face physical, mental, and mental wellbeing hindrances and chance social issues. Cell phone fixation is one of these issues sof behaving. The migrant guardians give their children PDAs to speak with them, so country children may likewise confront a gamble of cell phone fixation. As per the 47th measurable report on China's Web improvement, as of December 2020, the quantity of Web clients in China was 989 million, what's more, Web clients younger than 19 represented 16.6% of the aggregate, of which children younger than 10 represented 3.1%. At the point when their folks relocate into the city, truth be told for non-ranch work, these children need parental management and restraint, which makes them look for social help from the Web, prompting cell phone habit in rundown, there is a wealth of concentrates on the connection between parental Movement and the health of rustic children, however there are still a few issues to be further Examined.

First and foremost, health is a condition of complete physical, mental, and social prosperity and not just the absence of sickness or illness. The current writing generally talks about Health according to a solitary point of view.

RESEARCH METHODOLOGY:

Purpose of Research:

This research was conducted to understand the relationship children share with their parents and how parents being absent in their children's life affects them mentally and physically which might hamper their growth in educational and personal aspects of their life.

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Objectives of Research:-

1. To understand the causes of parental absence in their children's life.

2. To understand the effects of parental absence on children's mental and physical health.

3. To study how the parental absence affects children in their educational, personal and relationship development.

Methods of data collection:

1. Primary Data:

Survey was conducted to collect the primary data. Questionnaire was prepared with general and Likert scale questions.

2. Secondary Data:

Secondary Data was collected through journals, by reviewing already existing research papers and publications.

Sample size for data Collection was 63.

Convenience Sampling method was used for data collection.

Research Design:

Research Design used was Experimental Research Design to understand the causes and effects.

Limitations of the Research:

The research has time, physical and economical constraints.

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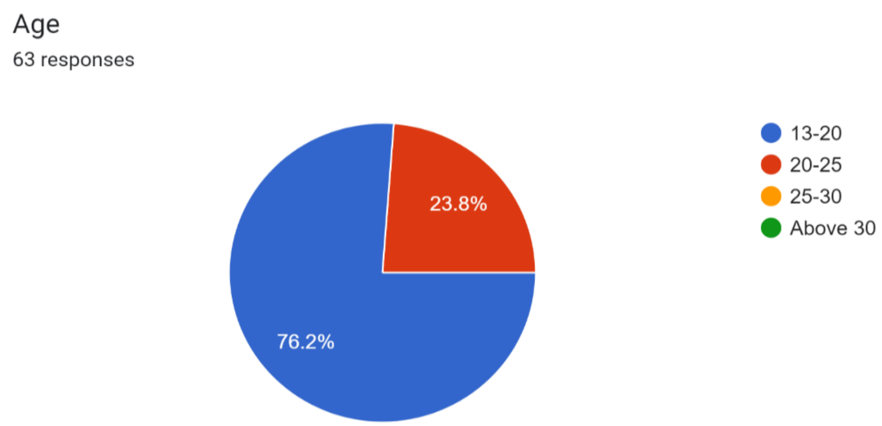
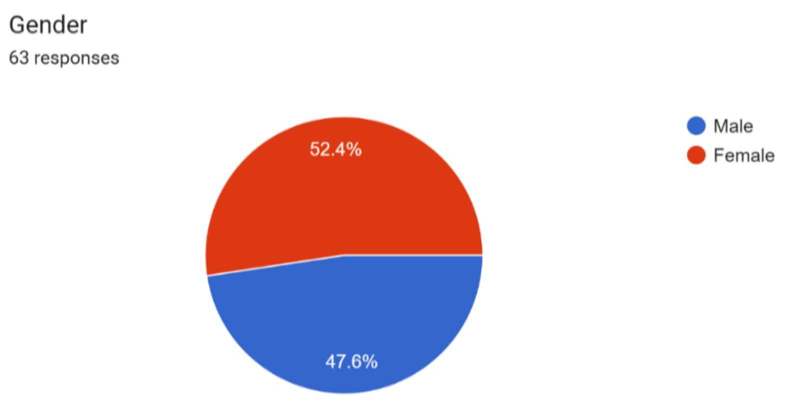
DATA ANALYSIS:



- 23.8% respondents belong to the age group of 18-25
- 76.2 % of people belong to the age group of 13-20.
- So, majority of the data collected is collected from the age group of 13-20.



- There are more female respondents than male.
- There are 52.4% female respondents and 47.6% male respondents.

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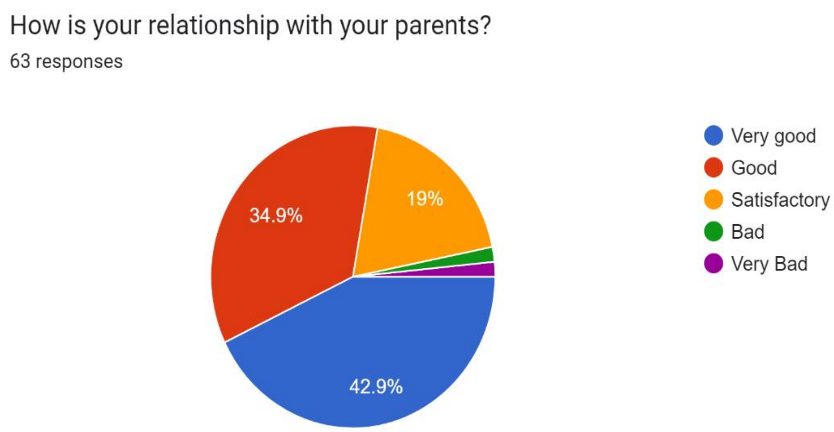
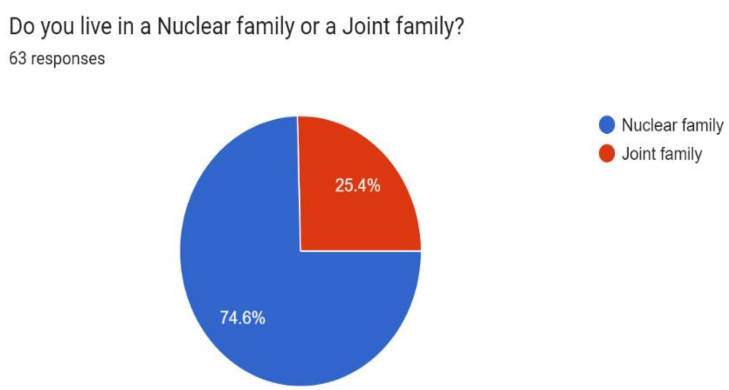


- 42.9% of respondents have a very good relationship with their parents.
- 34.9% have a good relationship with their parents.
- 19% have a satisfactory relationship with their parents.



- Most of the respondents live in nuclear family than Joint family. 74.6% live in a nuclear family.
- The rest of the 25.4% live in Joint family.

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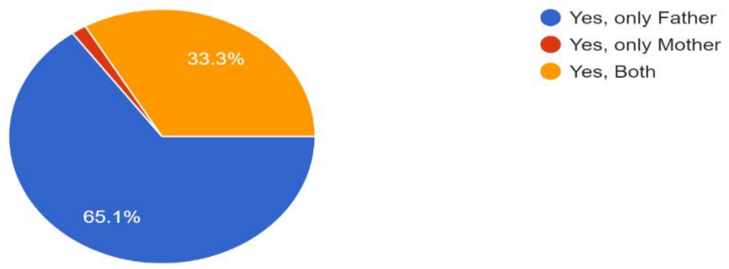
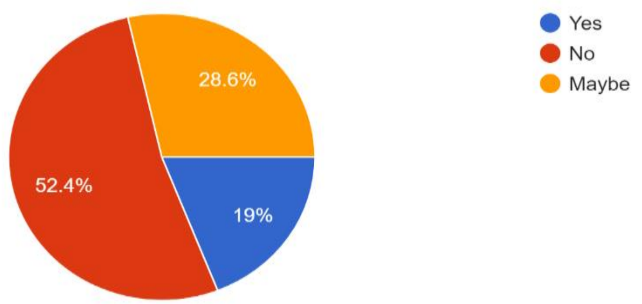
Are your parents working?
63 responses



- Most of the respondents have only Father as their working parent with 65.1%.
- Both parents with 33.3%.
- Only Mother with 1.6%.

Does your parents professional life affect your mental health?
63 responses



- 52.4% of respondent’s parent's professional life doesn't affect their mental health.
- 28.6% of respondent’s parent's professional life affects their mental health.
- 19% of respondent’s parent's professional life may or may not affect their mental health.

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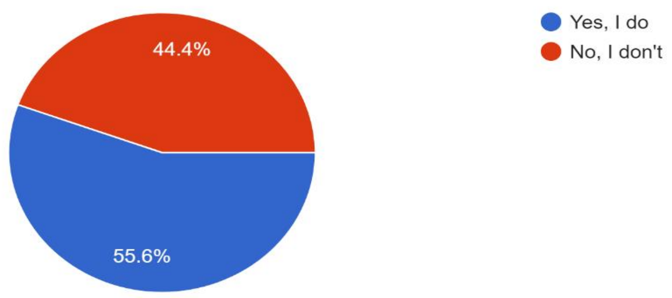
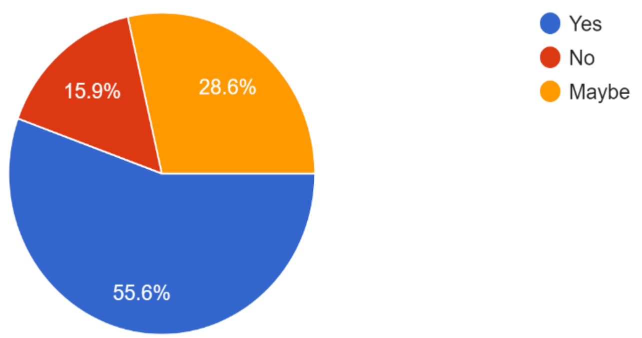
Do you share day to day life events with your parents?
63 responses



- More number of respondents share their life events with their parents which is 55.6%
- The remaining 44.4% do not.

Do you get enough quality time with your parents?
63 responses



- 55.6% respondents get enough quality time with their parents.
- 28.6% respondents maybe get enough quality time with their parents.
- 15.9% do not get enough quality time with their parents.

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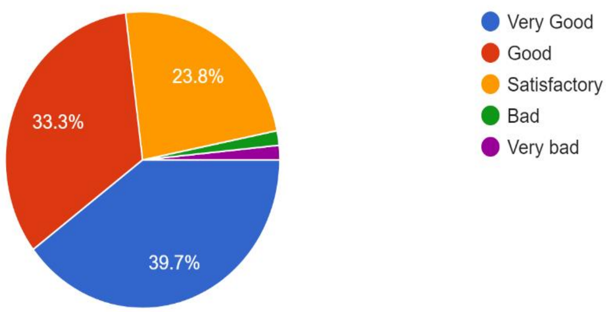
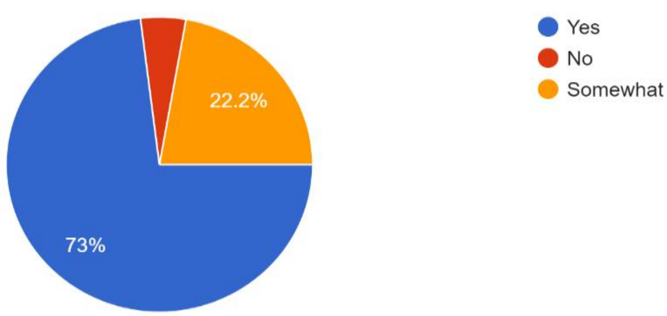
How do you feel after spending quality time with your parents?
63 responses



- This is a Likert Scale question.
- The findings are that most of the respondents, which is 39.7% feel very good.
- 33.3% feel good.
- 23.8% feel satisfactory.

Are your parents supportive?
63 responses



- 73% of respondents have supportive parents.
- 22.2% of respondents have somewhat supportive parents.
- 4.8% of respondents have non-supportive parents.

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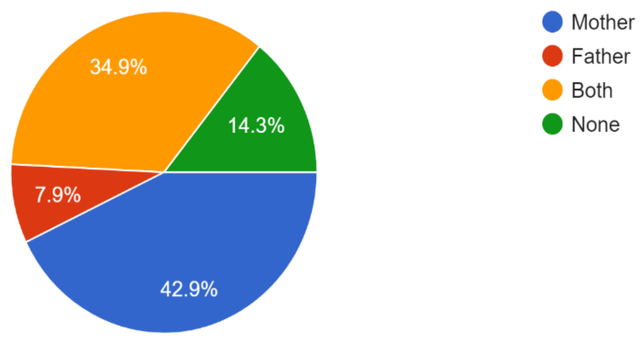
Do you share a closer bond with your mother or father?

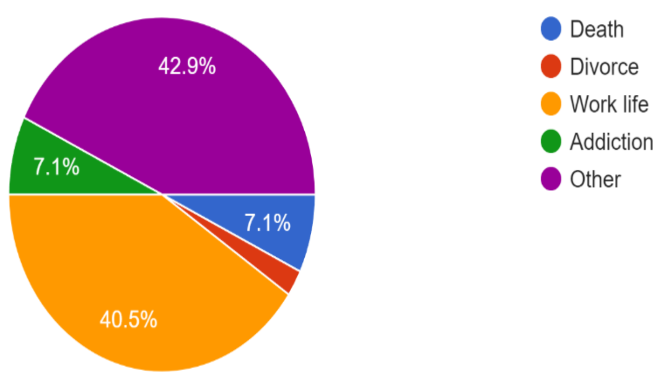
63 responses



- Most of the respondents, 42.9% share a closer bond with their mother than father that is 7.9%.
- Some of them share with both that is 34.9 and some with none that is 14.3%.

If you have an absent parent, what is the reason behind their physical or mental absence?

42 responses



- 42.9% may have an absent parent due to other reasons or may not have an absent parent.
- 40.5% respondents have absented parents due to work life which is the highest
- 7.1% have due to addiction and death.
- The least is due to divorce that is 2.4%

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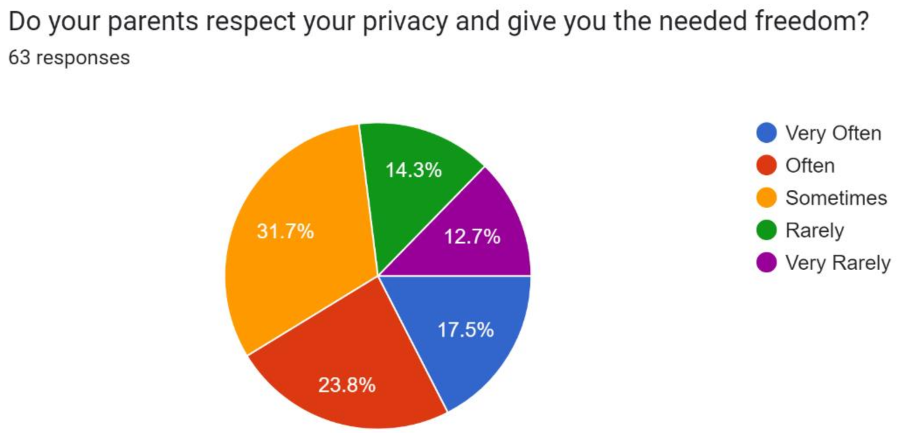
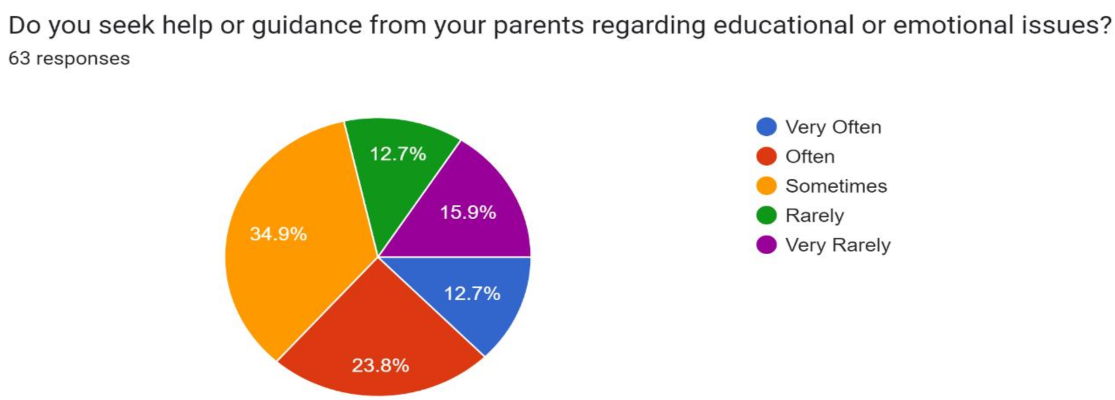


This is a Likert scale question where the findings are:-

- 31.7% sometimes parents respect privacy and freedom.
- 23.8% often, 17.5% very often.
- 14.3% rarely and 12.7% very rarely.
- This means most parents respect privacy and give the needed freedom only sometimes.



This is a Likert Scale question the findings are: -

- 34.9% sometimes.
- 23.8% often.

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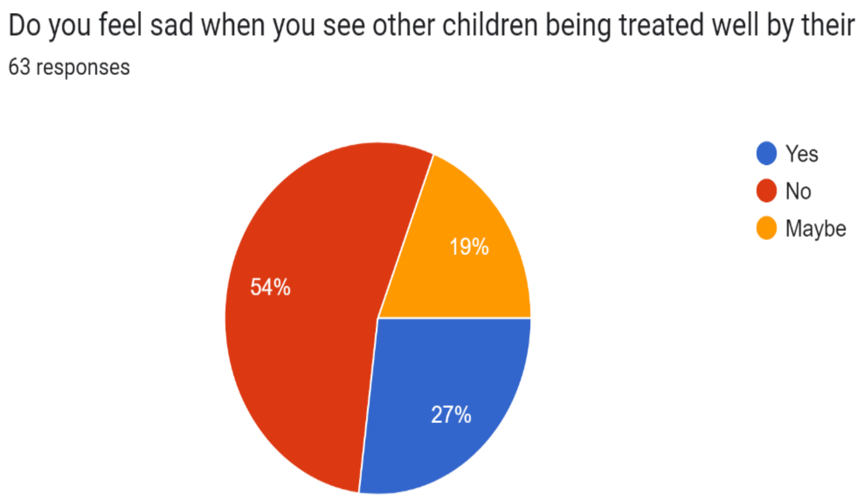
- 12.7% very often.
- rarely and 15.9% very rarely.
- which means most of the children sometimes, depending on the situation, feel comfortable seeking help from parents.



This is a general question were: -

- 54% of respondents do not feel jealous or sad.
- 27% do feel jealous or sad.
- 19% maybe feel jealous or sad.

<u>CONCLUSIONS:</u>

This study is based on the absence and the way of behavior of parents towards children. 95% of the mental health of children totally depends upon the Parent's behavior. According to this research parents are the important factor in growing life of children but many time parents are absent or separated from children.

The main reasons for parental separation or absence are because of Jobs, divorce, Death, and bad relationship status. This parental separation led to the many effects in the children's life such as anxiety, stress, tension, depression and sometimes children indulge in taking some bad decision in their life such as

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taking drugs, cigarette. Children seek help from others to stimulate their mental health. Children who are well groomed and disciplined since childhood in the presence of parents hold on to their disciplines, behaviors, morals and ethics and principles in their later life . The relationship gap between parents and children must be filled, this will lead to be a stable mental health and a happy life of children.

SUGGESTIONS:

1. Every child is their parent's responsibility; parents should not only support their children by monetary means but also spend quality time and give enough attention.

2. Children moving out of their homes for educational or career purposes must be supported by parents by keeping in touch through calls, video calls, texting, etc.

3. Parents having time constraints due to work pressure should include their children in their mundane activities like grocery shopping or cooking which will make the children feel noticed.

4. Divorced Parents should practice co-parenting as the child should not feel ignored by either the mother or the father.

5. Parent's must check more often on their children and build a comfortable safe instead of fearful space so that the children can share and seek help from their parents for anything they want.

REFERENCES:

https://www.mdpi.com/1660-4601/16/5/839/pdf

https://www.tandfonline.com/doi/pdf/10.1080/1369183X.2022.2076070

https://www.mdpi.com/2227-9067/10/1/44/pdf

https://www.researchgate.net/profile/Lesley-Wilkes/publication/277086607_Childhood_Parental_Mental_Illness_Living_with_Fear_and_Mistrust/links/560df6e208ae6cf6815423fe/Childhood-Parental-Mental-Illness-Living-with-Fear-and-Mistrust.pdf

https://childrightsngo.com/the-impact-of-parental-alienation-on-children/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7559575/#:~:text=The%20results%20show%20that%20parental,likely%20to%20attend%20a%20college.

https://www.academia.edu/download/72537842/The_Impact_of_Parenting_Stress_A_Meta-an20211014-6302-1is73wx.pdf

https://www.moms.com/listeners-on-call-service-listens-talks-lonely-parents/

ISBN NO: 978-93-5810-851-4

https://www.parisschoolofeconomics.eu/docs/verarueda-mariajulieta/vera-julieta--when-fathers-are-gone--the-consequences-of-paternal-absence-during-the-early-years.pdf

https://www.researchgate.net/publication/312357880_The_Effect_of_Parental_Absence_on_Child_Development_in_Rural_China_The_Effect_of_Parental_Absence_on_Child_Development

https://www.cdc.gov/childrensmentalhealth/features/mental-health-children-and-parents.html

https://scholarworks.umass.edu/dissertations/AAI3325277/

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A STUDY ON WORK LIFE BALANCE AT VSIT

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INTRODUCTION

Work-life balance is a concept that refers to the harmony and equilibrium between an individual's work and personal life. It is an essential aspect of an employee's overall well-being and quality of life, as it allows them to maintain a healthy balance between their professional and personal responsibilities.

Employees with a good work-life balance experience reduced stress levels, better job satisfaction, and improved mental health, which positively impact their productivity and performance at work. Achieving work-life balance requires a deliberate effort on the part of the individual and their employer, as it involves creating a supportive and flexible work environment that accommodates an employee's personal needs and priorities.

Overall, work-life balance is an important consideration for both employees and employers, as it impacts employee retention, engagement, and productivity. Employers who prioritize work-life balance are more likely to attract and retain top talent, while employees who prioritize work-life balance are more likely to enjoy a fulfilling career and a high quality of life.

Work-life balance is the state of equilibrium between an individual's work responsibilities and their personal life outside of work. It is important for employees to maintain a healthy work-life balance as it promotes overall well-being, reduces stress levels, and prevents burnout. Employers can promote work-life balance by offering flexible work arrangements and benefits such as wellness programs, paid time off, and childcare services. A healthy work-life balance can lead to higher levels of employee engagement, improved retention rates, and increased productivity, benefiting both employees and organizations

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OBJECTIVES OF THE STUDY

The objective of studying employee work-life balance is to understand how employees balance their personal and professional responsibilities, and how it affects their well-being, job satisfaction, and productivity.

- To understand if employees having a better work-life balance at VSIT.
- To study if the organization cares about work-life balance of its employees at VSIT.
- To identify the factors which effect such things and also which contribution to work-life balance
- To improve productivity, efficiency, competitiveness, morale and hence gain a competitive edge
- To study seeks to identify factors that contribute to work-life balance
- flexible work arrangements
- job autonomy
- social support
- workload management
- The study aims to identify the benefits of work-life balance for employees, such as reduced stress levels, improved mental and physical health, higher job satisfaction, and better performance at work. It can also identify the potential negative effects of poor work-life balance, such as burnout, turnover, absenteeism, and decreased productivity.

HYPOTHESES:

Employees who have a good work-life balance are likely to be more productive and motivated at work than those who don't.

Flexible work arrangements, such as remote work or flexible schedules, can positively impact employees' work-life balance and overall job satisfaction.

Employees who have a poor work-life balance may experience higher levels of stress, burnout, and dissatisfaction with their job.

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LIMITATIONS OF THE STUDY

There are several limitations to studying employee work-life balance, including: Work-life balance is a subjective concept, and what one person considers to be balanced may not be the same as another person's definition. Therefore, it can be difficult to measure and compare work-life balance across individuals or organizations.

Honest reviews of the employees had helped a lot in collecting such information and they shared their experienced they having the VSIT. Sharing of such useful information helped us for making a better project report.

Self-reporting bias: Many studies rely on self-reported data, which can be subject to bias. Employees may not accurately report their work-life balance due to social desirability bias or other factors.

Sample size and selection bias: Studies often rely on a small sample size, which may not be representative of the larger population. Additionally, the sample may be biased towards certain groups, such as employees in a particular industry or demographic.

A study on literature:-

Joy at work: Organising your worklife

Authors: Marie Kondo and Scott Sonenshien

From the renowned organizer herself, Marie Kondo teams up with Scott Sonenshien to uncover how simple clutter might be draining your productivity and joy. The authors share stories and strategies to make space for work productivity by tidying up. As a by-product, **happier and more productive work periods will help keep your job from oozing into your personal time**. Could something as simple as keeping an organized desk and workspace impact your re work-life balance? Sometimes , it’s the most straightforward answers that solve the most complex challenges. Give the book a read and see if the authors can convince you.

 ISBN NO: 978-93-5810-851-4

The Balance Point: Master the Work-Life Balance, Love What You Do, and Become an Unstoppable Entrepreneur

Author: Jordan Ring

In *The Balance Point*, Ring focuses on helping entrepreneurs and freelancers build balance throughout their schedule and productivity goals. Rather than trying to give 100% to everything, the author presents the 80/20 rule, along with **15 strategies for embracing the best work-life balance for each individual**. Central to the book is Ring's focus on discovering the balance point where you can maximize your output and potential. And it's filled with practical, actionable tips to apply to each area where you might be struggling.

Life Matters: Creating a Dynamic Balance of Work, Family, Time, and Money

The authors: A. Roger Merrill and Rebecca A. Merrill

If we make our life under control, we will definitely feel more happy and more freedom. This book will help you to figure out some essential questions, for example, how to be successful at work while being fulfilled at home, how to live without stressing over money and time, how to find the tools that will help balance life, and many more.

The authors are reliable experts in time management. They work with four major aspects of life: family, money, work, and time. They recommend working with children to create a family mission statement, to arrange regular family meetings, to share activities, etc. This book is not a quick read, but its pieces of advice are quite relevant and you can easily apply them to daily life.

RESULT OF THE STUDY

In this study majority of the respondents gives positive responses to the survey majority of the respondents Says when the in workplace they are good mood Some Said they are neutral on this .

Many of the respondents said that they talk about there difficulties to there superior and there superior helps to reduce there stress.

Majority of them are satisfied with there work hours and some people are neutral about it and few are disagree.

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More than 50% of respondents said they take their work at home sometimes and others dose not prefer to take work at home or overtime .

Many of the respondents Said that sometimes they miss there personal events because of their work and many of them Said rarely they miss their events.

Majority of the said that the organisation take care of their personal commitments.

More than 60% of respondents said that the organisation make changes in their workload to improve their work life balance.

Majority of them (80%) said that the organisation take care of their mental health and wellbeing.

50% of respondents are satisfied with there current work life balance and 30% said they are neutral on it and said they didn’t satisfied More then 95% of respondents check their mail even they leave from their work,.

Majority are the respondents are dose not wait for their completion of office hours and leaving for the day.

90% of respondents said that their is room in their organisations to support their work life balance and mental health

CONCLUSION

In conclusion, studying employee work-life balance is a complex and multifaceted process that involves several limitations. The subjectivity of work-life balance, self-reporting bias, sample size and selection bias, cross-sectional design, lack of standardization, and cultural and contextual differences are some of the factors that can make it challenging to measure, compare, and promote work-life balance effectively. However, despite these limitations, research on work-life balance is essential to understanding the factors that affect employee well-being, job satisfaction, and productivity.By addressing the limitations of current research, identifying best practices, and developing standardized measures, organizations and researchers can promote better work-life balance for employees, leading to a happier and healthier workforce.

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REFERENCES

https://forms.office.com/Pages/DesignPageV2.aspx?subpage=design&FormId=LKs7Hkn_bE2CelAX5v2FnKfE72VHQr9Ai4vHvbflcvhUNlczQklWNlFTWUZYOEpGUVVIQjBTNTkwRy4u&Token=92b1299af8bd487d898acfeb07635827

https://www.jetir.org/papers/JETIRY006057.pd

https://www.emerald.com/insight/content/doi/10.1108/XJM-10-2020-0186/full/html

https://www.ourbetterworld.org/series/mental-health?gclid=CjwKCAiAjPyfBhBMEiwAB2CCIm_rDFjv4edTvP8uOUq0UMoQs3AaINqbJ4N89uOxZgcSOts4HDiExxoCSG0QAvD_BwE

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A STUDY ON STRATEGIC MANAGEMENT TOOLS USED BY WOMEN ENTREPRENEURS

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ABSTRACT:

Strategic management is a comprehensive approach to manage a company with the aim of its high positioning in the market. Regardless of the level of development, market share and business scope, all aspiring businesses should have a defined strategy. With the help of it, they will be able to plan and organize their activities, and the business moves they make on the "market chessboard" will be tactical, purposeful and, in the final instance, successful. The smallest "figures" in the market competition - entrepreneurs, can gain the most out of this management process. In today's market conditions, male entrepreneurial businesses dominate over women, and this is partly due to the numerous stereotypes that the public, investors, and other market participants have about women's ability to successfully manage entrepreneurial businesses. The conducted research aims to provide insight into the strategic management process in women's entrepreneurship and to increase the awareness of women entrepreneurs about the importance of conducting strategic management activities.

The importance that women entrepreneurship assumes in the economic growth of the country especially in developing economies, promoting social inclusion and combating poverty and discrimination. The objectives of the study were to identify business strategies adopted by women entrepreneurs to remain sustainable and completely effective in the market. The study also identifies the impact of financial challenges on failure of women entrepreneur.

Keywords: *entrepreneurs, entrepreneurship, women.*

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Acknowledgements:

We would like to first and foremost express our sincere gratitude to our guide Prof.Riddhi Gada for her numerous suggestions, implications, and words of support during the entire process .The outcomes would not have been the same without her advice and faith in our work.

Second, we want to thank everyone who took the time to participate in the interviews. The most significant information of all has been contributed to our thesis by each and every one.

Last but not least, we would want to convey our gratitude to everyone who helped with the thesis process, including the guide, and family members.

INTRODUCTION:

Entrepreneurship development is a process that improves an entrepreneur's knowledge and skill set related to the creation, administration, and management of a business venture while taking into consideration the risks involved. This is accomplished through training sessions and programmes that highlight entrepreneurial skills. If you decide to work in this profession, you will be helping aspiring business owners develop their skills and overcome obstacles to starting their own enterprises.

The modern market can be compared with a chessboard. It is made up of numerous figures of varying significance, size, influence, and ambition. Women entrepreneurs can confront this stereotypes and fight for their field on the "market chessboard" with appropriate strategic management. Strategic management is, therefore, one of the crucial activities that can support the survival of women's entrepreneurial businesses. It creates conditions for securing competitive advantage and takes care of the profit potential of a particular business entity. Women entrepreneurs who approach this process promptly are already several steps ahead of their competitors. Women are generally regarded as the strongest pillar.

OBJECTIVES:

1. To analyze the growth of women in business.
2. To study the development of various small size businesses and their development pattern.
3. To inculcate the feeling of being independent among women.

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RESEARCH METHODOLOGY:

The study tries to focus on women development and increasing the main focus is to find out about the innovative mind-set, expertise, income generation and most importantly the need to do business. A primary survey was conducted by the researcher for this study.

Sample size: The sample size for the survey were 10 women who have initiated the business and are carrying out successful business along with timely up gradation, expansion and expertise from Mumbai region.

Sampling Technique:

Interview Method was used to collect responses, the researcher has physically managed to meet the women entrepreneurs and ask them various questions.

Data Collection:

Data was collected through Interview method by physically meeting them and a structured questionnaire circulated through google form. The link for the questionnaire was sent to all the target audience using social media platforms like WhatsApp and Instagram.

Limitations:

1. The sample size is small i.e. 10 respondents (women entrepreneurs) from Mumbai region.
2. The analysis is based on the perception and opinions of a limited number of respondents.

DATA ANALYSIS:

ENTERPRISE NAME	Kalp Mukhwas
OWNER NAME	Kalpana Dharod
NO YEARS IN INDUSTRY	16 years
PRODUCT	Homemade Mouth Fresheners

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INSPIRATION	Self-motivated , need for money
EVOLUTION OF THOUGHT	Started small scale by selling door to door, among relatives etc.
EXPANSION STRATEGIES	Products are supplied now all over Mumbai, Maharashtra, India. Products are now sold through Stalls, Goodwill.
PROFIT MARGINS	200% profit
FAMILY SUPPORT	Not initially , but now house entirely runs on business , husband left job and joined business
WORK LIFE BALANCE	Initially found it difficult, now very smooth, almost 50 women are working under me today.
BARRIERS	Health Stress Mental torture from family Financial issues

ENTERPRISE NAME	Samruddhi sweets
OWNER NAME	Pragna Maru
NO YEARS IN INDUSTRY	20 years
PRODUCT	Homemade Sweets, Snacks, papads etc.
INSPIRATION	Self-motivated , need for money

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EVOLUTION OF THOUGHT	Started small scale by selling door to door, among relatives etc.
EXPANSION STRATEGIES	Products are supplied now all over Mumbai, Maharashtra, India. Products are now sold through Stalls, Goodwill.
PROFIT MARGINS	100% profit
FAMILY SUPPORT	Not initially , but now house entirely runs on business , husband left job and joined business
WORK LIFE BALANCE	Initially found it difficult, now very smooth, almost 50 women are working under me today.
BARRIERS	Health Stress Mental torture from family Financial issues

ENTERPRISE NAME	Smita’s Corner
OWNER NAME	Smita Bhalekar
NO YEARS IN INDUSTRY	15 YEARS
PRODUCT	Fast food and Soft drinks
INSPIRATION	No one
EVOLUTION OF THOUGHT	Her own students demand

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EXPANSION STRATEGIES	Expansion through concentration & cooking skills
PROFIT MARGINS	1000 rs. Per day
FAMILY SUPPORT	Family is very supportive
WORK LIFE BALANCE	Very Easy to maintain
BARRIERS	Stock, Packaging, Perishable items, unpredictable demand

ENTERPRISE NAME	Sejals's Designer Boutique
OWNER NAME	Vandana Parab
NO YEARS IN INDUSTRY	8 years
PRODUCT	Clothes, Sarees, etc.
INSPIRATION	Her Parents who always supported and were very kind during her hard times.
EVOLUTION OF THOUGHT	When she started her business, she never thought of getting such a genuine response from her customers and then she further decided to get more involved in her business to earn profit
EXPANSION STRATEGIES	• New branches placement • Investing in various designs

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	• Search of franchise Spreading news about the business more through social media.
PROFIT MARGINS	She was always positive in her life and hence she always thought of achieving high profit of around (Max 1,00,000- 1,50,000 per month) as she was the only responsible parents in her house, she targeted the goal.
FAMILY SUPPORT	When she was a child studying in Higher Secondary Section told her parents that she wants to become a businesswoman and her Parents never stopped her from doing things and then she finally started her own Tailor shop by her daughter's name 'Sejal Tailor'.
WORK LIFE BALANCE	Being a woman, she always had big responsibility towards her family, the time she gives to her business as compared to that she gives more time to her family as she feels happy being with her family.
BARRIERS	There are problems in everyone's life but when I asked her this question, she was totally opposite of what I thought. She in her life never faced any issues because she did not let any issues faced by her being a polite and patient woman, she only focused on her work and achieve her goals

ENTERPRISE NAME	Deliure

OWNER NAME	Puja Kamble
NO YEARS IN INDUSTRY	3 years
PRODUCT	Software
INSPIRATION	I think what inspires me the most are our customers. I specifically set aside time to read customer chats, reading the positive comments of course is awesome, but I also get a lot of value from the things that we can improve on. I read those conversations and get inspired to do things better, change things and develop products based on that feedback. That inspires me every day.
EVOLUTION OF THOUGHT	The realisation that finance is very important, to earn the finance being very different is very essential.
EXPANSION STRATEGIES	Targeted the right audience
PROFIT MARGINS	Family support has been helpful throughout the journey , 20-40%
FAMILY SUPPORT	She has very good support from family then she handle everything easily.
WORK LIFE BALANCE	The software product development landscape is more overcrowded than ever before. In order to succeed, start-ups need to differentiate themselves from the competition. They must

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	offer a unique value proposition that meets a specific customer's needs.
BARRIERS	• Knowledge of the full stack. • Ability to learn, adapt and grow. • Business acumen.

ENTERPRISE NAME	DAS TOURISM AND TRAVEL INDUSTRY
OWNER NAME	Urmila Das
NO YEARS IN INDUSTRY	5 years
PRODUCT	Ticket Booking
INSPIRATION	Parents , Other women who evolved to be successful entrepreneurs
EVOLUTION OF THOUGHT	Financial independence was required
EXPANSION STRATEGIES	First started with neighbors, friends Slowly informed family Took help of social media
PROFIT MARGINS	15% per ticket
FAMILY SUPPORT	Family has always been very supportive
WORK LIFE BALANCE	Easily manageable
BARRIERS	Delayed payments from clients

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	Family members frequently ask for concessional rates Lack of professionalism.

CONCLUSION:

The purpose of strategic management is reflected in the exploitation of "Today's" potentials and in creating "tomorrow's" opportunities for all businesses, regardless of their development, size, and market share or business sphere. The core of the concept of strategic management in Entrepreneurship is the strategic plan. Entrepreneurial businesses run by women are, according to numerous disincentives from the external environment, forced to plan every next step which they will make while competing on a "market chessboard". Without an adequate strategy, their defeat is certain, and the ungrateful market position of the "pawn" is chronic and the only one they can hope for. Due to these circumstances, the women entrepreneurs are directing all available capacities towards formulating a strong strategy that neither competitors nor numerous external "attacks" will be able to harm.

To be successful in sustainable business practices often requires entrepreneurship and innovation. This chapter provides an overview of entrepreneurship and innovation as it relates to sustainable business. The discussion is most relevant to sustainable businesses focused on offering new products and services in response to societal concerns. The importance of entrepreneurship and innovation also applies to companies that change how they produce products and services. The latter companies can use innovative practices and entrepreneurship to establish their brand name and to be market leaders in doing things that create shared value for society and their companies and also, over time, contribute to changes in practices in their industry.

REFERENCES:

- https://www.researchgate.net/publication/324678740_Women_Entrepreneurship_in_India_Problems_Essential_Strategies
- https://www.researchgate.net/publication/324678740_Women_Entrepreneurship_in_India_Problems_Essential_Strategies
- https://openai.com/blog/chatgpt/
- https://www.researchgate.net/publication/351626403_Strategic_management_in_women's_entreprene
- https://www.researchgate.net/publication/324678740_Women_Entrepreneurship_in_India_Proble

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ms_Essential_Strategies

- https://www.researchgate.net/publication/324678740_Women_Entrepreneurship_in_India_Problems_Essential_Strategies

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IMPACT OF RELIGION ON BUSINESS DECISIONS AND GLOBALIZATION

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ABSTRACT:

While evaluating the variety of institutional and cultural factors that have an impact on entrepreneurial activity, religion cannot be overlooked. While the association between religion and entrepreneurship has long been proven by researchers, it is not well understood how religion affects entrepreneurial actions. In this research paper, the potential contributions of religion to a globalized society are examined. It covers the main theories of religion and global development and focuses on how these changes have a mutually reinforcing effect on religious values and the process of globalization. In recent years, interest in entrepreneurship has increased, particularly at business schools. This article's goal is to examine how spirituality and religion have an impact on the world of entrepreneurship.

Keywords: *Religion, Business Decisions, Entrepreneurship, Religion, Business Ethics, Spirituality, and Globalization.*

1. INTRODUCTION:-

The Latin word Ligare, which means to join or link, is the root of the word religion. This phrase has historically been used to describe the union of the divine and the human. There is a lot of disagreement over what constitutes a religion in both theological and lay settings. Although religions frequently assert that their doctrines were directly formed from revelations given by God(s) to a chosen human messenger, the origin of religion in general and for specific religions is typically debatable (s). By definition, adherents of the religion accept the claims in full or in part, literally or metaphorically. Religion is a significant social institution with strong standards and religious teachings that define expectations for behavior and have a significant impact on each individual in society. Whether a person lives in a religious or non-religious environment, religious beliefs are present in their daily lives. The historical contributions of religious principles and institutions to the development of a new international order, the religious content of current discussions of the world order, and the potential contributions of religiously motivated individuals as key players in globalization are all topics to be covered in this research paper. The conclusion of this research paper will demonstrate the crucial and unavoidable functions that religion plays in the process of globalization. The influence and importance of religion in the current global transition cannot be overstated. In a world that appears to be getting smaller due to globalization, such an opportunity also offers avenues for dialogues and mutual learning, though this may not be commonly achieved. Globalization within religious traditions offers the opportunity of sharing both differences and commonalities for specific traditions. It emphasizes numerous corporate and personal aspects while concentrating on this interaction. Religion has a significant impact on people's daily lives and is closely related to their financial situation.

My conscious business practices are based on my religious convictions, which are also reflected in how I treat my employees and our customers. My activities were guided by honesty, integrity, and respect, and they contributed to the development of a constructive environment that represented my ideals. Whether historically or not, all religions are under pressure to view themselves as universal in principle in the context of globalization. There is a universal purpose for religion. In the context of globalization, all religions are increasingly under pressure to see themselves as universal in principle, whether historically they have been or not. Modern policies are currently harming corporate relationships and dominating the market. Only dishonesty is to blame for this.

2. REVIEW OF LITERATURE:-

Religions must make advantage of the communication made possible by modern technology to put a greater emphasis on people and the pluralistic aspects of their teachings—values like human dignity and human freedom—as a way to manage religious diversity and prevent bloodshed. The influence of religion on

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corporate decisions and globalization has drawn the attention of academics and researchers from many different disciplines. According to the research, religion has a big impact on how businesses function and make decisions. Its effect can be seen in a variety of business areas, including managerial techniques, marketing, and global trade.

a) **The connection between religion and business.**

- Article by **Detlef Gürtler**
- Illustrations by **Olaf Hajek**
- "Praying to God alone is unlikely to change the fortunes of your business, but the sense of purpose and other values embedded in various religions can be a dynamic, if not a spiritual, force for good – and they may even provide a competitive advantage".

b) **Religion and Globalization: World religions in historical perspective**

- by authors **John L. Esposito, Darrell J. Fasching, Todd Lewis**

The twenty-first century is witnessing a resurgence and globalization of religion. Religion has spread throughout the world and has a growing impact on both private and public life. Revealing the significance of religion in the contemporary world, Religion, and Globalization: World Religions in Historical Perspective explores seven major religious traditions as dynamic, ongoing forces in the lives of individuals and the collective experience of modern societies. This publication includes Christianity, Judaism, Islam, Hinduism, Buddhism, East Asian Religions, and emerging religious movements. It was written by three highly regarded experts who are also the authors of World Religions Today, Second Edition. It takes a novel approach by using historical coverage of the various traditions as a framework to show students how religions have changed over time and continue to influence politics, society, and beliefs.

c) **Business and Religion – the intersection of faith and finance**

- edited by **Matthew C. Godfrey and Michael Hubbard Mackay.**

"Business and Religion: The Intersection of Faith and Finance" is a compilation of speakers' presentations. Complete with various black-and-white photographs, this book delves into details and aspects of church business and financial history. "Business and Religion" begins with two stimulating chapters by Bishop Gerald Causse, the presiding bishop, and Sharon Ann Murphy, a financial historian who specializes in the early American republic. While each author covers similar time frames, they do so in very different ways and with remarkable

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insights and historical stories.

d) Religion and Globalization (1st edition)

− edited by **Veronique Altglas**

Religion is now commonly acknowledged as "the great globalizer" because it transforms space and identities as it crosses geographic and cultural barriers. Religions modify themselves and their cultural surroundings, especially as they become global. They do this by adapting to new social circumstances and interacting with other civilizations. Furthermore, religions and the people who follow them are very receptive to globalization, whether they see it as a threat to their unique identities or as a chance to spread a message to all people and establish a "global religion." This brand-new four-volume set from Routledge compiles all the essential works on globalization and religion into a convenient "mini library." Each chapter articulates theoretical and empirical points of view: theories seek to understand the nature of the relationships between globalization and religion, while a variety of case studies highlight the significance of religion in the creation of modern global conditions.

3. RESEARCH METHODOLOGY:-

3.1. Purpose of the research:-

The main purpose of this research is to understand the impact of religion on business and globalization. Religion advises against purchasing or selling commodities or services that don't seem fair in the context of enterprises. One effect of this implication for religion has been to promote religious plurality through globalization.

3.2. Scope of Study:-

The scope of this study is to examine how religion affects corporate choices and globalization. The study will concentrate on the numerous ways that religion has influenced business strategies, advertising campaigns, and global trade. The study will also look at how these effects affect companies doing business in various areas and cultures.

The study will employ a range of research techniques, such as a literature review, case studies, and interviews with industry executives and specialists. The study's objectives are to shed light on the intricate connections between religion, business, and globalization as well as to pinpoint practical business tactics for doing so. Overall, the evidence indicates that religion has a considerable impact on how business decisions are made and how the world is governed. The study will help us understand

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how firms may successfully navigate the complicated religious and cultural terrain of the global marketplace by looking more closely at this link.

3.3. Objectives:-

This research paper aims to study the impact of religion on business decisions and globalization.

1. To examine the impacts of religion on business and globalization.
2. To reduce the downfall in business due to religious impact on business.
3. To reduce discrimination amongst religion, race, etc.

3.4. Methods of Data Collection:-

The secondary data has been collected from various books and sites, different published research papers, and spokesperson sayings.

3.5. Research Design:-

The research design deployed was exploratory. It is descriptive. The relationship between religion and business will be covered in the first section of the paper, which will then be followed by a study of how religion affects business choices. The final section of the essay will look at how religion has affected globalization.

3.6. Limitations of the research:-

There are physical, mental, political, environmental as well as economic constraints.

4. FINDINGS:-

a) Political stability is necessary for economic progress.
b) The findings above show that the local environment and conditions must be better accounted for/engaged, even while faith is not the only aspect to be addressed in a risk assessment or an emerging market strategy.
c) Business executives occasionally base their decisions on their religious beliefs.
d) Due to cultural and religious differences, many Western businesses have encountered difficulties doing business in the Middle East.
e) Globalization has been significantly influenced by religion.

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f) Globalization of religious practices and beliefs has facilitated cultural interchange and improved understanding of many religions and cultures.

g) Political and economic conflicts have been sparked by religious disagreements.

5. CONCLUSION:-

The benefits of incorporating religion into business are numerous. It increases your credibility, lowers your risk because you won't employ unscrupulous means, and most importantly, it keeps you happy and at peace. Business decisions and globalization are significantly influenced by religion. Each employee must be treated equally without any discrimination. Consumer behavior, business social responsibility, and decisions about the worldwide expansion can all be influenced by religious values and beliefs. Both as a catalyst for conflict and as a factor in cultural exchange, religion has shaped globalization. Understanding how religion and business interact becomes ever more important as the globe becomes more globally connected.

WEBLIOGRAPHY:-

a) (PDF) Religion and Globalization (researchgate.net)

b) Effect of Religion on Decision-Making (ukessays.com)

c) The connection between religion and business | Roland Berger

d) (PDF) The Influence of Religion and Business Ethics towards Entrepreneurship (researchgate.net)

e) The word religion comes from the Latin word Ligare (badgleyb.net)

TRACK 4

CREATIVE TECHNOLOGY

DEEP DIVE INTO NEUROMORPHIC COMPUTING

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ABSTRACT

Multiprocessor architectures that are inspired by the brain and spinal cord have the potential to revolutionize computing and artificial intelligence. This paper presents an overview of existing architectures (SpiNNaker) that emulate the behaviour of neurons and synapses in the Brain. The study covers the difficulties and possibilities for further research while highlighting the benefits and drawbacks of various architectures. To replicate the behaviour of neurons and synapses as well as the connectivity patterns of the Brain, the suggested architecture design mixes analogue and digital circuits. The architecture is designed to have plasticity, allowing it to adapt and reorganize itself in response to changes in input and experience. This paper also cover potential use, drawbacks, advantages and architectural difference between Van Neuman and Neuromorphic Computing

Keywords: Neuromorphic Computing, Neuron, SpyNNaker, Atificial Intelligence, Architecture Design.

INTRODUCTION

1. The human brain is a complex system that is capable of processing vast amounts of information and performing a wide range of functions.. The brain is composed of multiple regions that are specialized for different functions, such as perception, movement, and cognition. Neurons and synapses are the basic building blocks of the brain, and they are responsible for transmitting and processing information. Neuromorphic computing is a field that seeks to emulate the behavior of neurons and synapses in artificial systems.

2. In this paper, we present an overview of existing multiprocessor architectures that are inspired by the brain. We discuss the strengths and limitations of these architectures and highlight the challenges and opportunities for future research.

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BACKGROUND

The interdisciplinary field of neuromorphic computing integrates electrical engineering, computer science, and neurology. The development of computer systems that are modelled after the brain and are able to process information similarly to biological systems is the aim of neuromorphic computing. Analog and digital neuromorphic computing architectures fall into two groups. Although digital architectures replicate the activity of neurons and synapses using digital circuits, analogue architectures use analogue circuits to model the behaviour of neurons and synapses.

The SpiNNaker project is an example of existing architecture that draws inspiration from the brain and spinal cord. A massively parallel computing system called SpiNNaker was created to mimic the behaviour of biological neural networks. The device can simulate networks of up to one billion neurons in real time and is made up of specially built digital circuits that mimic the behaviour of synapses and neurons.

RESEARCH METHODOLOGY

The methodology involved a systematic review of relevant literature using the following steps:

Identification of relevant search terms and databases: The search terms used were identified based on the research question and objectives. The databases searched included IEEE Xplore, ACM Digital Library, Scopus, and Google Scholar.

Search strategy: The search was conducted using a combination of keywords, Boolean operators, and wildcards to ensure a comprehensive search.

Selection of relevant articles: The articles were screened based on inclusion/exclusion criteria, such as relevance to the research question, publication date, and language.

Data extraction and synthesis: Relevant data were extracted from the selected articles, including author names, publication year, research methodology, and key findings. The data were synthesized to identify key themes and trends in the literature.

ARTIFICIAL NEURON

An artificial neuron is a mathematical function conceived as a model of biological neurons, For a given artificial neuron k, let there be m + 1 inputs with signals x0 through xm and weights wk0 through wkm.

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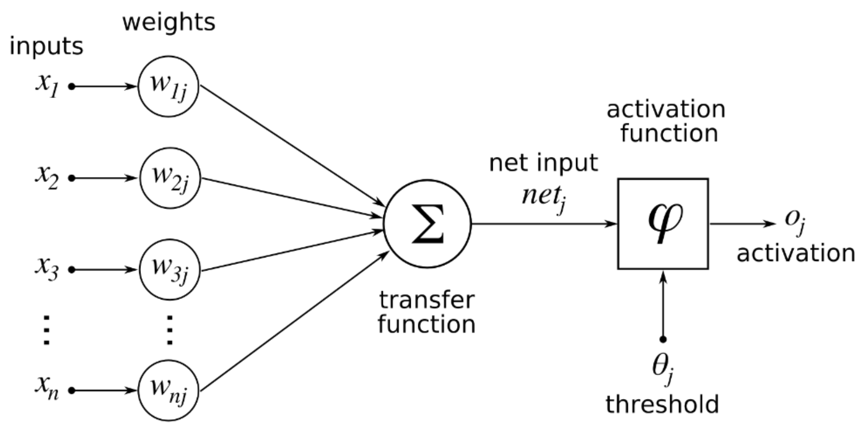
Usually, the x0 input is assigned the value +1, which makes it a bias input with wk0 = bk. This leaves only m actual inputs to the neuron: from x1 to xm.

The output of the kth neuron is:

$$y_k = \varphi\left(\sum_{j=0}^{m} w_{kj} x_j\right)$$



Where (phi) is the transfer function (commonly a threshold function). [1]

ARCHITECTURE

Neuromorphic hardware is the physical component of a neuromorphic computing system that is designed to mimic the structure and function of biological neurons and synapses. Neuromorphic hardware is typically designed using specialized electronic circuits that are optimized for fast, low-power operation.

The main building block of neuromorphic hardware is the artificial neuron, which is designed to mimic the function of biological neurons. An artificial neuron typically consists of three main components: a cell body, dendrites, and an axon.

The cell body is responsible for processing incoming signals and integrating them to determine whether to send a signal to other neurons. In a neuromorphic system, the cell body is typically implemented using an analog circuit that can perform computations in real-time.

Dendrites are the branches that extend from the cell body and receive signals from other neurons. In a neuromorphic system, dendrites are typically implemented using memory elements such as resistors,

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capacitors, and transistors. These elements are used to store the strength of the connections between neurons.

The axon is responsible for transmitting signals from one neuron to another. In a neuromorphic system, axons are typically implemented using digital circuits that can transmit signals quickly and efficiently.

Another key component of neuromorphic hardware is the synapse. Synapses are the connections between neurons, and they are responsible for transmitting signals from one neuron to another. In a neuromorphic system, artificial synapses are typically implemented using specialized electronic circuits that can be programmed to mimic the behavior of biological synapses.

There are several different types of artificial synapses, including resistive memories, phase change memories, and memristors. Resistive memories store information as a resistance value, while phase change memories store information using changes in the physical state of a material. Memristors are specialized electronic components that can change their resistance based on the strength of the input signal.

In addition to artificial neurons and synapses, neuromorphic hardware also includes specialized circuits for learning and training. These circuits are designed to modify the strength of the connections between neurons based on input signals. This enables the system to learn and adapt to new information without the need for explicit programming.

Overall, neuromorphic hardware is a complex and specialized field of computer engineering that is focused on developing computer systems that can mimic the structure and function of the human brain. By using specialized electronic circuits to replicate the behavior of biological neurons and synapses, neuromorphic hardware has the potential to revolutionize a wide range of industries, from robotics and healthcare to image and speech recognition.

ARCHITECTURE OF SPINNAKER PROJECT

SpiNNaker (Spiking Neural Network Architecture) is a neuromorphic computing platform that is designed to simulate large-scale spiking neural networks in real-time. The architecture of SpiNNaker is based on a massively parallel, distributed computing model that allows for the efficient simulation of large-scale neural networks.

The building block of SpiNNaker is the SpiNNaker chip, which is a custom-designed integrated circuit that contains 18 processing cores and 128 MB of SDRAM memory. Each processing core is designed to simulate a large number of artificial neurons, and the SDRAM memory is used to store the state of the neurons and the connections between them.

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It is a massively parallel computing platform that can simulate up to a billion neurons in real time23. It consists of an array of ARM9 cores, communicating via packets carried by a custom interconnect fabric23. Each core can model up to 1000 neurons using leaky integrate-and-fire models with conductance-based synapses.

The SpiNNaker system architecture has three main building blocks: chips, boards and machines1. A chip contains 18 cores, each with 32 KB instruction memory and 64 KB data memory, as well as a router that can handle up to 72 million packets per second13. A board contains 48 chips, arranged in a hexagonal torus topology, and provides power and communication interfaces1. A machine consists of up to 1200 boards connected by Ethernet cables, forming a scalable network that can support up to one million cores14.[1]

The processing cores in SpiNNaker are organized into clusters, each processing core in a cluster is connected to its neighbors using a high-speed network-on-chip (NoC) interconnect, which allows for the efficient exchange of information between processing cores.The SpiNNaker architecture also includes specialized hardware for managing the communication between processing cores and clusters. This hardware includes a router, which is responsible for routing information between processing cores, and a multicast engine, which is used to broadcast information to multiple processing cores at once.

One of the key features of SpiNNaker is its support for event-driven programming, which allows for the efficient simulation of spiking neural networks. In an event-driven system, processing cores only need to compute and communicate when there is new input or when a neuron has fired a spike. This allows for the efficient use of resources and enables SpiNNaker to simulate large-scale networks in real-time.

Overall, the architecture of SpiNNaker is designed to support the efficient simulation of large-scale spiking neural networks in real-time. By using a massively parallel, distributed computing model and specialized hardware for managing communication between processing cores, SpiNNaker can simulate complex neural networks with high accuracy and efficiency.

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To program SpiNNaker, researchers can use a software development kit (SDK) that includes tools for building and simulating spiking neural networks. The SDK includes a high-level programming language called PyNN, which allows researchers to specify the structure of the neural network and the behavior of individual neurons and synapses.

Overall, the architecture of SpiNNaker is designed to support the efficient simulation of large-scale spiking neural networks in real-time. By using a massively parallel, distributed computing model and specialized hardware for managing communication between processing cores, SpiNNaker can simulate complex neural networks with high accuracy and efficiency.

THE SPINNAKER CHIP

The SpiNNaker chip is designed to simulate large numbers of artificial neurons in real-time. Each processing core in the chip is responsible for simulating a group of neurons and their associated synapses.

To simulate a neuron, the processing core uses a simplified mathematical model that captures the basic behavior of a biological neuron. This model is based on the leaky integrate-and-fire (LIF) neuron model, which describes the behavior of a neuron in terms of the flow of electrical charge across its cell membrane.

The LIF neuron model consists of two main components: a capacitance and a resistance. The capacitance represents the cell membrane, while the resistance represents the ion channels that allow ions to flow in and out of the cell. When an electrical signal, or "spike," is received by the neuron, it causes a flow of current across the cell membrane, which changes the voltage of the neuron. If the voltage of the neuron exceeds a certain threshold, it generates a spike of its own and sends it to its downstream synapses.

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To simulate this behavior, the processing core in the SpiNNaker chip uses a set of differential equations to model the flow of electrical charge across the neuron's cell membrane. These equations are solved in real-time using a numerical integration algorithm, which calculates the voltage of the neuron at each time step.

The processing core also simulates the synapses that connect the neuron to its downstream neurons. Each synapse is modeled as a weighted connection between two neurons, with the weight representing the strength of the connection. When a neuron generates a spike, it sends the spike to all of its downstream synapses, which then modify their internal state based on the weight of the connection. This modification in turn changes the voltage of the downstream neurons, which may generate spikes of their own and propagate the signal further through the network.

Overall, the SpiNNaker chip simulates neurons and synapses using a simplified mathematical model that captures the basic behavior of biological neurons. By simulating large numbers of neurons in real-time, the SpiNNaker chip enables the simulation of complex spiking neural networks for machine learning applications.

APPLICATIONS

- Artificial intelligence: The architecture can be used to build systems that are capable of intelligence, decision-making, and problem-solving.
- Robotics: The architecture may be used to control robot behaviour and provide them with the resources they need to interact more efficiently and intuitively with their surroundings.
- The architecture can be used in medical diagnostics to identify neurological issues by identifying patterns in brain activity.
- Autonomous Vehicles: The architecture may be used to control how autonomous vehicles act and provide them the manoeuvrability needed to cross difficult terrain.
- Stock price forecasting and market trend analysis are two examples of financial forecasting that the architecture is useful for.

POTENTIAL DRAWBACKS

The following are some potential drawbacks of neuromorphic multiprocessor designs drawn from the brain and spinal cord:

- Despite the potential of neuromorphic computing, its scalability is constrained by issues including power consumption, communication bandwidth, and manufacturing limitations

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- Lack of standardisation: Because neuromorphic architectures are still relatively new, there are no set guidelines for designing and implementing them. It might be difficult to compare architectures and create software that is cross-platform due to the lack of standardisation.
- Restricted programmability: Neuromorphic systems are frequently built to execute certain neural algorithms, and working with their programming interfaces can be difficult. Developers may find it challenging to produce apps that fully utilise the architecture's potential due to this restriction.
- Limited flexibility: Neuromorphic architectures are typically designed to be optimized for a specific task, such as image recognition or signal processing. This design can make it challenging to reconfigure the architecture for other applications.
- High complexity: Neuromorphic architectures are highly complex and require significant expertise to design, implement, and optimize. This complexity can make it challenging for developers who lack experience in neural network design and optimization to take advantage of the architecture's capabilities.

FUTURE WORK

- To progress the subject of neuromorphic computing and the suggested architecture design, future work in the following areas can be investigated:
- Optimization: To increase the performance and effectiveness of the suggested architecture design, optimization is possible. The connectivity patterns, the computing power, and the communication network can all be optimised to achieve this.
- Learning Algorithms: A significant area of future study will be to create learning algorithms that operate with the suggested architecture design. In reaction to changes in input and experience, the algorithms should be able to modify the connectivity patterns and processing units.
- Hardware Implementation: The architecture design can be implemented using custom-designed hardware, which can improve its performance and energy efficiency. Developing specialized hardware for neuromorphic computing is an important area of future work.
- Integration with Other Technologies: It can be integrated with other technologies, such as sensors, actuators, and communication systems, to enable new applications and use cases.
- Scalability: It can be scaled up to enable larger networks and more complex computations. Achieving scalability is an important area of future work for the field of neuromorphic computing.
- Hardware Implementation: The performance and energy efficiency of the suggested architecture design can be enhanced by using specially designed hardware. Future development will focus heavily on developing specialised hardware for neuromorphic computing.

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- Integration with Other Technologies: To enable additional applications and use cases, the suggested architecture design can be combined with other technologies, such as sensors, actuators, and communication systems.
- Scalability refers to the ability to scale up the architecture design in order to support larger networks and more intricate computations. Scalability is a crucial area of research for the science of neuromorphic computing in the future.

DIFFERENCE BETWEEN VAN NEUMAN AND NEUROMORPHIC COMPUTING

The classic von Neumann architecture is significantly different from neuromorphic computing in a number of ways.

- Memory and computation: The von Neumann architecture physically separates memory from computation, requiring data to be moved back and forth to be processed. This causes a memory bottleneck and lowers the system's performance. In neuromorphic computing, processing components are dispersed throughout the memory and memory and computation are merged. This removes the memory bottleneck and allows the system to run computations in parallel.
- Sequential instructions are carried out by a central processing unit as part of the von Neumann architecture's processing model (CPU). Processing in neuromorphic computing is based on the actions of biologically inspired spiking neural networks. These networks can carry out computations in parallel and are event-driven, allowing for quicker and more energy-efficient processing.
- Energy efficiency: The von Neumann architecture is not energy efficient because it was created for general-purpose computing. On the other side, neuromorphic computing is intended to resemble the resource-conserving behaviour of biological neural networks. Comparing neuromorphic computing to conventional von Neumann architectures, significant energy savings can be achieved by utilising the principles of sparsity, parallel processing, low-precision arithmetic, and event-driven architecture.
- Neuromorphic systems are able to adapt to changing settings and tasks thanks to their on-chip learning capabilities. Its adaptability allows the system to develop over time without the need for outside processing or training.
- Overall, the distinctions between von Neumann architecture and neuromorphic computing make neuromorphic computing an excellent choice for particular workloads that call for real-time processing, low power consumption, and adaptivity. However because it is not a general-purpose architecture, neuromorphic computing might not be the best choice for all computer jobs.

CONCLUSION

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In conclusion, neuromorphic computing has shown promise in creating high-performance, energy-efficient computing systems that can handle challenging machine learning tasks. An illustration of such a system is the SpiNNaker neuromorphic computer, which was created especially to simulate massive spiking neural networks in real-time.

The SpiNNaker chip, clusters, router, multicast engine, software development kit (SDK), PyNN programming language, and input/output devices are all parts of the SpiNNaker architecture. Each component, which offers the processing power, communication infrastructure, and programming tools necessary to construct and programme the neural network, plays a crucial part in enabling the modelling of spiking neural networks.

Using a simplified mathematical model based on the leaky integrate-and-fire (LIF) neuron model, the SpiNNaker chip simulates neurons and synapses. The SpiNNaker device can mimic a huge number of neurons in real-time using this model, which captures the fundamental behaviour of organic neurons.

With possible applications in domains including robotics, neuroscience, and machine learning, the SpiNNaker neuromorphic computer marks a significant leap in the field of neuromorphic computing overall. We can anticipate seeing progressively more sophisticated and powerful neuromorphic computing systems that are capable of carrying out ever-more-complex tasks with increased effectiveness and precision as the area continues to develop.

REFERENCES

[1] S. B. Furber *et al*., "Overview of the SpiNNaker System Architecture," in *IEEE Transactions on Computers*, vol. 62, no. 12, pp. 2454-2467, Dec. 2013, doi: 10.1109/TC.2012.142.

[2] The SpiNNaker Project

[3] Artificial Neuron Wikipedia

[4] Srinivasa, N., Muralimanohar, N., & Balasubramonian, R. (2016). A Neuromorphic Processor Architecture for On-Chip Learning. IEEE Micro, 36(5), 8-20. S. Stoyanov, V. Valkanova, Ganchev, M. O'Droma, H. Zedan, "Agent-Oriented Middleware for Mobile eLearning Services", 2009 33rd Annual IEEE International Computer Software and Applications Conference.

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INVESTORS AWARENESS ABOUT VARIOUS DEBT INSTRUMENTS

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ABSTRACT:

This project attempts to find investors awareness and perspective about various debt instruments that are available in the market. Questionnaire survey method is used to obtain the views of working population.There are various financial instruments where investors can invest according to their needs, objectives. The investor should know all the avenues wherein they can invest and attain their purpose and objectives.The emphasis is on investors awareness about instruments as for investing, one needs to have the knowledge about those securities. Investors has various needs. Some wants extraordinary returns, and some wants a steady and a regular flow of returns. This paper focuses on the latter.

Keywords: *Debt market, investors, Debt instruments, risk, returns*

INTRODUCTION:

An investor is a person who makes investment or parks his funds into various investment avenues with an intention of capital appreciation. Investment instruments available are gold, real estate, shares, bonds, debentures, post office schemes, mutual funds, etc. Some instruments offer higher returns but involves huge risk known as equity market instruments, some offer lesser, secured returns at a lower risk level known as debt market instruments.

Debt market is a place where investments in loan both new issues i.e., primary, and existing i.e., secondary takes place. Debt instrument's rate of return is not dependent on the company's performance. Hence, they are less volatile in nature as compared to equity investments. Debt instruments are issued by government or corporates at a fixed coupon rate. In the event of liquidity, bondholders are paid first.

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After the issuance of bond, the remaining period to maturity is called as tenor or its term to maturity. The principal amount that will be repaid at the end of the maturity is called as par value or face value. A bond trading at more than its par value is said to be trading at a premium and a bond trading at a value less than its par is said to be trading at a discount. The bond that is trading exactly at par is said to be trading at par.

There are three sources of returns from investing in a bond:

1. Coupon and principal payments.
2. Interest earned on coupon payments that are reinvested over the investor's holding period for the bond.
3. Any capital gain or loss if the bond is sold prior to maturity.

Credit risk

The risk associated with losses due to failure of borrower to make timely interest plus principal repayment. Credit risk consists of:

Default risk is the probability that the borrower fails to pay interest and principal during maturity.

Loss severity also known as loss given default, refers to the value a bond investor will lose if the issuer defaults. In simpler terms, it is the loss which is not recovered by the lender on default by selling the collateral.

Bonds with credit risk trade at a higher rate of return as compared to bonds that are risk free. Investing in corporate bonds is riskier as compared to government bonds. Hence, government bonds get RF i.e., risk free rate of return and corporate bonds get RF+ Credit spread(Market risk premium) they require more returns as they are taking higher risk.

To summarize the above:

Credit rating:

Credit rating agencies assign ratings to the bonds with similar credit risk.

Triple A rated bonds is the highest rating. Baa3/BBB- or higher rated bonds are considered as investment grade bonds. Bonds rated Ba1/BB+ or lower are considered non-investment grade bonds also known as high yield bonds or junk bonds.

Various Debt instruments

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Bonds: Bonds are issued by both corporates as well as government. It is a promise to repay the loan. In case of default, the lender is entitled to repayment by company's assets.

Debentures: Debentures are used to raise short term capital to fund specific projects. This debt is backed only by the credit and general trustworthiness of the issuer.

Fixed Deposits: Fixed deposit is an instrument that is offered by banking or non-banking financial corporations that pays a higher rate of interest as compared to savings account.

If the money is withdrawn before its maturity, the bank will levy heavy penalty.

Certificate of Deposits: Certificate of deposits is equivalent to conventional bank savings account. These are covered by insurance and are nearly risk free. CDs differ from savings account in such way that they have a set term (3 months, 6 months, and 1-5 years) and in most cases a fixed interest rate.

Commercial paper: Commercial paper is a short term financial instrument used by businesses to raise capital over a one year period. It is an unprotected form of debt instrument that is issued as a promissory note. Commercial paper has a minimum maturity of 7 days and a maximum maturity period of one year.

Mortgage: Mortgage is a loan secured by a piece of real estate. These debt instruments are used to fund the acquisition of real estates. As mortgage is secured by real estate, if the borrower defaults on payments, the assets can be seized and sold to recover the loan.

Debt Mutual funds: Debt mutual funds invest the pooled money in fixed income avenues like government securities, corporate bonds, and a part in money market instruments. Debt funds or fixed income funds are considered as less volatile as compared to equity.

Public Provident fund: The PPF scheme is a popular long term investment avenue. In this investment avenue, a small sum of money is put aside to create wealth in the long term. The returns are guaranteed by the government of India and hence is one of the safest investment avenues in India.

Objectives

To understand Debt instrument market in India.

To study investors perception/ awareness about various debt instruments.

Hypothesis

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H1: As age increases, people invest more in debt instruments.

H2: Debt instruments offer better and safe returns.

LITREATURE REVIEW

- ✓ **Prof. Vedashree Mali, Shreya Shukla (September 2022)**

This study tries to understand the level of awareness among investors about debt mutual funds. People are aware of the instruments but wants to invest in such avenues where they can earn decent returns with lower risk. Investors are aware of debt mutual funds, but they prefer investing in gold, PPF and fixed deposits as these have been the traditional investing options also there is lack of knowledge about these debt mutual funds.

- ✓ **H. Kent Baker, Greg Filbeck, Andrew C. Spieler (2019)**

This study specifically focuses on debt markets and instruments. Debt securities offer a scope for diversification. Where the equity investments offer high returns but with no assurance and high risk, the debt instruments provide the investors with a sense of safety as it assures with fixed returns on their investors but will be lower as compared to the equity because of lower risk factor.

- ✓ **Suraj Katuwal (October 2018)**

This paper studies different investment avenues and investors preference for investment. It was observed that common stock is the most preferred investment followed by debenture, bonds, government bonds. The main factor while investing is higher returns and minimum risk. Higher returns are possible with equity investments and lower risk is possible with debt instruments.

- ✓ **Dr. Anthony Rodrigues (August 2015)**

This paper studies the corporate bonds market in India. The findings of the study were that the retail investors participance in the corporate bond market is shallow. It was found out that the corporate bond market in India is not very deep. The FIIs had been lured to invest in this segment to make the corporate bond market attractive.

- ✓ **Prof. Sanket L. Charkha (July 2018)**

This paper studies investment pattern and awareness of different avenues of investors in Pune. It was seen that the investors were well aware about the investment avenues available in Pune but it was observed that many people prefer investing their money in bank and real estate. This is because safety of their investment is an important factor.

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- **Aishwarya Lakhmani, Ekansh Choudhary, Voona Srikar (April 2020)**

This paper studies the investment preferences of people in Lucknow City. It was found out that the investors between 20-40 prefer investing in equity whereas the investors in their sixties prefer investing in fixed income securities. The retired people do not prefer equity at all.

- **Abhinandan, Aiman AL-Asbahi, Ebrahim Al-Gamal (January 2019)**

This paper has explained Investment patterns of different classes of people. It was concluded that the investors of India still prefer traditional investing options like bank deposits. The investment behaviour varies from people to people according to their risk appetite and awareness of different instruments. Various awareness programmes must be conducted in order to remove the fear factor from the potential investors.

- **Dr. Alan S. Gutterman (October 2022)**

Investors with an aim of achieving fixed income will prefer debt instruments over shares. Issuance of debt securities help in tax savings. This study describes the features, advantages of debt as well as equity instruments for the investors to get a clear view of both and decide where to invest as per his needs and convenience.

- **Sonali Patil, Dr Kalpana Nandawar (September-October 2014)**

The study was undertaken with the key objective as to find the preferred investment avenues among the salaried class and their level of awareness about these avenues. It was concluded that the investors prefer safe regular income instruments. They mostly prefer investing in bank deposit, gold, and real estate where there is minimum risk.

- **Yasmeen Ansari (July 2019)**

The purpose of this study is to find out whether people make superior investment decisions as they grow older as they gain investment skills or whether it deteriorates with their age. The results indicated that people of all age group prefer investing in government securities, mutual funds because of sure returns in comparison to other avenues. It was shown that there is a significant relationship between age and investment avenues, investment knowledge. It is advised to have a diversified portfolio.

RESEARCH METHODOLOGY:

This study is based on primary as well as secondary data. The questionnaire survey is primary or first-hand data, and the descriptive information is the secondary data. For primary data, a

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questionnaire survey was done of 43 respondents in Mumbai, Maharashtra. The target audience is working population.

DATA ANALYSIS:

The data has been collected from working population. As they are in their earning phase,

they tend to invest more for their betterment.

The following table is the summary showing all the data of the questionnaire.

Particulars	Category	Count	ercentage
Gender	Male	28	53%
	Female	25	47%
Age	10-20	5	9%
	21-40	36	68%
	41-60	12	23%
Qualification	Graduation	33	62%
	Post-Graduation	20	48%
Salary	Up to 1 Lakh	11	24%
	1-5 lakhs	9	20%
	5-10 lakhs	16	36%
	10 Lakhs+	9	20%
Do you save?	Yes	52	98%
	No	1	2%
% Of income invest	0-20	35	66%
	20-40	13	25%
	40+	5	9%
Are you aware of debt instruments?	Yes	32	60%
	No	16	30%
	Maybe	5	10%
Preference of investment	Debt	5	9
	Equity	19	36
	Mix of both	29	55
Is debt instrument safer and	Yes	28	52

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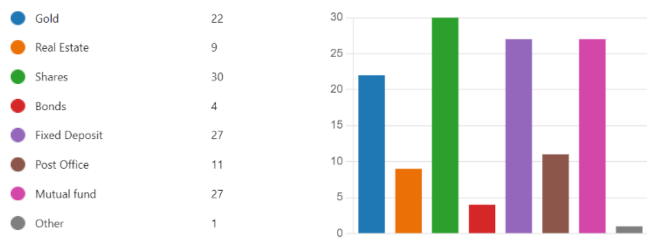
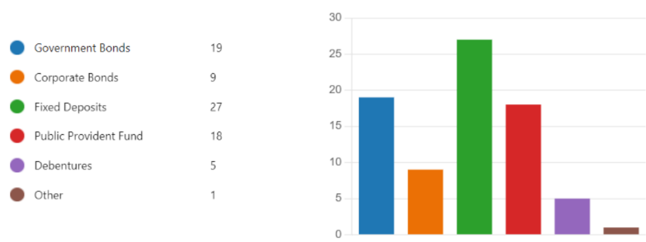
offer better returns?			
	No	4	8
	Maybe	21	40

Investors invest in various investments which is reflected in the following graph.



The debt instruments in which the investors invest their money is reflected in the following graph.

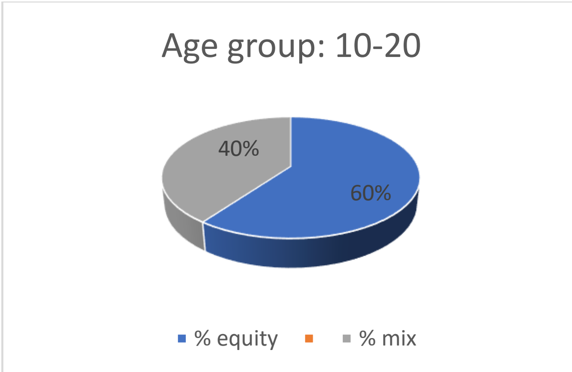


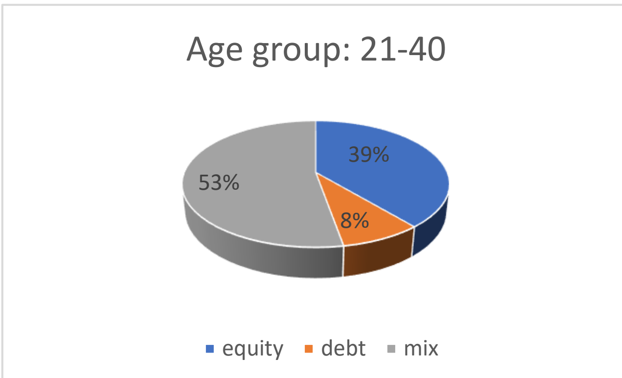
It is observed that the investment preference of the sample of respondents (55%) is mix of debt and equity. It is a rational decision as through equity investors earn higher returns but in exchange of more risks. In case of any losses, debt instruments cover up as it offers fixed and secured returns. Few investors are risk takers as they only invest in Equity those investors are about 36%. Rest 9% investors play safe by only investing in Debt instruments.

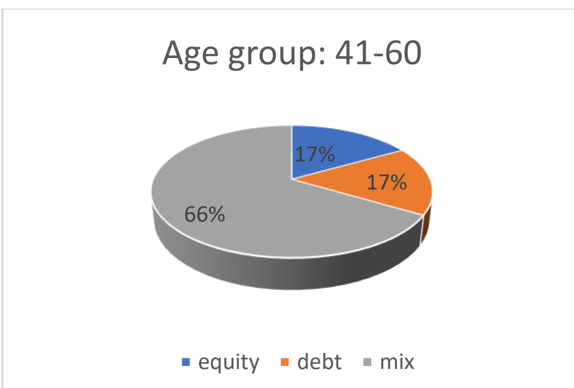
The popular debt instrument among the respondents is Fixed deposits. Majority investors are aware of debt instruments.

HYPOTHESIS TESTING :

H1: As age increases, people invest more in debt instruments.







It is observed that in the age group of 10-20, 60% prefer equity and rest prefer mix of both debt as well as equity. As the age group increases to 21-40, 53% investors prefer mix of equity and debt, 39% prefer equity and the rest 8% prefer only debt. Further as the age increases to 42-60, 66% investors prefer mix of equity and debt, and remaining investors equally prefer debt and equity. Hence, our H1 is rejected. As age increases, it is observed that people prefer a mix of both debt and equity.

H2: Debt instruments offer safe returns.

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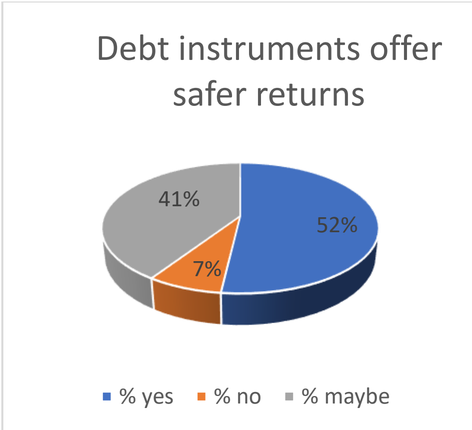

The most popular feature of debt instruments is its ability of pay fixed and secured returns. The above pie chart shows that 52% investors agree that debt instruments offer safer returns. 41% are unsure because of lack of financial literacy and the rest 7% totally disagree. Here majority investors agree. Hence, H2 is accepted.

FINDINGS:

- Most of the investors prefer investing in both debt as well equity as it leads to portfolio diversification.
- People invest in their money in various instruments available. It is a good sign as idle money is harmful.
- Majority investors know about debt instruments. Investors before investing must know about the investments. However, 32% are completely unaware and 9% might have slight knowledge about the debt instruments.
- Fixed deposit (51%), Government bonds (34%), PPF (32%) are the most popular debt instruments among the investors.
- There are many reasons to why investors prefer investing in Debt instruments. The most common ones were:

1. Provides secured returns.
2. Provides Stable and consistent returns.
3. There is a guarantee of getting your capital back.
4. Safer investment and better returns.

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CONCLUSION:

This research studies the investors awareness about the debt investments and their perceptions. It is seen that people have good knowledge about the instruments in which they are investing their money. Still there are a few investors who are unaware. India has been seeing a great growth in both money and capital markets. With time it will keep on increasing.

REFERENCES:

- Study of Assessment of Awareness and Perception About E-

Trading and Debt Mutual Funds Among Domestic Investors (September 2022)

- Debt Markets and Investments (2019)
- Investors' preference for investment in financial instruments (October 2018)
- Financial Instruments: A study on corporate bond issues and challenges in India (August 2015)
- A Study of Saving and Investment Pattern of Salaried Class People with Special Reference to Pune City (India) (July 2018)
- A study on Investment preference by the people in Lucknow City, India (4 April 2020)
- Analysis of Investment Pattern of different Class of People: A review (January 2019)
- Equity and Debt Securities (October 2022)

A guide for successful entrepreneurs. Sustainable Entrepreneurship Project

- A study on Preferred Investment Avenues among Salaried people with reference to Pune, India (September- October 2014)
- Age and the Investment Patterns- An Empirical Analysis (July 2019)

ECTOLIFE: STUDY OF REDEFINING HUMAN REPRODUCTION WITH ARTIFICIAL INTELLIGENCE

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ABSTRACT:

There is enough discussion done on Human reproduction system. Also, how technology has changed the overall idea of it. But have you come across technology which will directly produce a baby with whatever features their parents dreamed of? Ectolife, is the production of children using an artificial womb. Ectolife has been the topic of discussion in the biotechnology and reproductive medicine professions lately. It is beneficial for parents who are unable to conceive naturally or for those who do not prefer the traditional childbirth method. This paper explores the current state of Ectolife, including the various techniques and technologies used to create artificial babies, the moral and legal issues raised by their use, and the possible social effects of this technology. The paper examines the advantages and disadvantages of it including its potential to help those who struggle with infertility or genetic disorders. It illustrates the challenges and debates about Ectolife. This paper offers a summary of Ectolife and provides insights into the consequences and difficulties of producing artificial offspring.

Keywords: *ectolife, AI baby, biotechnology, clinical lab.*

INTRODUCTION:

EctoLife is a concept that offers parents to ‘produce’ customized babies with the help of artificial wombs. It is world's first artificial womb facility powered entirely by renewable energy. Ectolife allows the infertile couple to conceive a baby and become the true biological parents of the offspring. It is perfect for women who had their uterus surgically removed due to cancer or other complications. With ectolife, premature births, and c-sections won’t be an issue. Every pod is designed to replicate the exact conditions that exist inside the mother's uterus. The facility features 75 highly equipped labs. each state-of-the-art lab can accommodate up to 400 growth pods or artificial wombs. A single building can incubate up to 30000 lab-grown babies. Ectolife allows your baby to develop in an infection free infection-free pods made of materials that prevent germs from sticking to their surfaces. The pods are equipped with a screen that displays real-time data on the baby's development progress. Ectolifes' goal is to provide us with intelligent offspring that truly reflects our smart choices. It improves our bonding experience with the baby. With ectolife the baby will receive the best nutrients that can support their growth. each group of pods is connected to two central bioreactors the first bioreactor contains nutrients and oxygen which are supplied to the baby through an artificial umbilical cord. The development of Ectolife is the result of advances in gene editing, in vitro fertilization (IVF), and other biotechnologies that have enabled scientists and medical professionals to create embryos in a laboratory setting. While the idea of creating artificial babies is exciting, there are some important ethical and legal issues that we need to consider. One of the biggest worries is that we might end up creating "designer babies" that have specific traits or characteristics. This could create even more inequality and discrimination in our society. It is also possible that creating these babies could lead to the exploitation of women's bodies, as they might be used solely for reproductive purposes. We need to think about these concerns as we explore the potential of Ectolife. This paper is going to give you a complete picture of Ectolife, its advantages and disadvantages.

STATEMENT OF PROBLEM:

Having a child is not always possible or desirable for everyone, and there are a number of reasons why. Some people may face medical issues that make it difficult or impossible to conceive or carry a child, while others may choose not to go through the physical and emotional pain caused because of pregnancy and childbirth. In response to these challenges, scientists have been exploring the idea of creating artificial wombs that can support the growth and development of a fetus outside of the human body. While this technology has the potential to help those who cannot have a child in the traditional way, it also raises some important questions that we need to consider. One of the biggest concerns is the safety and well-being of the fetus in an artificial womb. We need to make sure that this technology is safe and effective before we start using it. Inequality and discrimination which could be the result of babies produced through artificial wombs should also be addressed. With ectolife miscarriages and low sperm count would not be an issue anymore. It allows you to fix any inherited genetic diseases. EctoLife provides you a safe, pain-free alternative that helps you deliver your baby without stress. The delivery process is smooth, convenient and can be done with just a push of a button. As we continue to explore the potential of artificial wombs, it is important that we consider all of these issues and ensure that the technology is developed in a responsible and ethical way. We need to find a balance between the benefits that Ectolife could bring and the concerns that it raises, so that we can move forward with this technology in a thoughtful and careful way.

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OBJECTIVES, ADVANTAGES AND FEATURES:

1. Ectolife allows the infertile couple to conceive a baby and become the true biological parents of the offspring.
2. It is designed to help countries suffering from severe population decline, including JAPAN, BULGARIA, SOUTH KOREA, and many others.
3. It can provide solution to women who had their uterus removed due to cancer or other factors.
4. Every growth pod features sensors that can monitor your baby's vital signs like the baby's heartbeat, temperature, blood pressure, breathing rate, and oxygen saturation.
5. The artificial intelligence-based system also monitors the physical features of the baby and reports any potential genetic abnormalities.
6. The pods are equipped with a screen that displays real-time data on the baby's development progress.
    a) These data are sent directly to your phone so you can track your babys health from the comfort of your zone.
    b) The app also provides you with a high-resolution live view of your baby’s development.
    c) A special section in the app allows you to watch the timelapse of your baby’s growth and share it with others too.
    d) Because babies can recognize languages and learn unfamiliar words while still in the n womb ectolife growth pods feature internal speakers that play a wide range of words and music to your baby.
    e) Through the app, you can choose the playlist that your baby listens to. You can also directly sing to your baby and make them familiar with your voice before birth. It improves our bonding experience with the baby.
    f) The 360^{o}camera that is fitted inside your baby's growth pod one can use your virtual reality headset to explore what it is like to be in the baby's place. To see what they standard what they hear.
7. Scientists discovered that these organisms produce a protein that protects them against damaging X-rays. Human cells have become more resistant to X-rays and can now suppress X-ray-induced damage by about 40 percent. If we could integrate this ability into a fully grown human being, we would overcome the danger of space radiation and travel to the farthest regions of the cosmos with minimal risks.
8. It is powered entirely by renewable energy. Thereby, not contributing to carbon footprint and implementing Green IT

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9. Empowering for men, women as well as babies-
    a) No longer would the reproductive cycle be tied to age. You could have a baby as late in life as you wanted.
    b) Couples may or may not be required
    c) No longer tied exclusively to reproductive health.
    d) Sex can be about pleasure, love, and emotion instead of the threat/joy of creating life.
    e) Babies would be wanted, or the process would not start.
10. Each baby receives custom nutrients fashioned as per their needs. Babies can be customized as one wishses, an 'Elite Package' would allow people to choose their baby's level of intelligence, height, hair, eye colour, physical strength and even skin tone.

ANALYSIS AND DATA:

In this part, we will analyze the data on the development of ectolife technology, including its success rates, risks, and complications. We will also examine the impact of this technology on society, including how it may affect reproductive rights and gender roles. This data is based on a group of people's individual opinions. This research will help us to better understand the opportunities and challenges associated with ectolife technology.

1. Summary of respondent's details

The following table shows the summary of respondent's details with respect to their age, gender and understanding of this matter. For easy understanding, this is expressed in terms of percentage.

Gender	Male	58%
	Female	42%
	Others	0%
Age	Under 18	4%
	Under 30	78%
	Others	18%
Knowledge about Topic	Unaware	67%
	Aware	33%

Summary of respondent's profile

As it was clear from the summary of respondent's profile, that few know about what ectolife is. So, we provided a brief about what ectolife exactly is and as a result, people got clear about their opinions, and we could judge what society thinks better.

2. People's reaction and acceptance to this technology

After circulating a survey, we received mixed opinions and reactions on ectolife. While some people found it very innovative and useful at the same time others thought it would just be a waste of time and money. Some people also stated that they think it is not a safe way of producing babies. Based on this survey we have created some pie charts and graphs that can create a clear image of the positive as well as negative responses we received.

- **Is this technology needed or is it just an addition to existing technologies? Is IVF better?**

Many people said that this technology is not a necessity, we can however use it as an addition to IVF while others thought that ectolife is something different and is useful. If we ever want to implement this technology, it is important that we increase public knowledge about how ectolife is different or better then IVF.

- **Technology's impact the mother-child relationship-**

As most of the people were concerned about what effect this technology would have on the mother child relationship, we decided to include this question in the survey so that we understand this matter better. Some people thought that this technology would affect the mother child relationship in a negative manner as there would be lack of emotional connection, also because of easy production of babies' carelessness would increase. On the other hand, some people had contrary opinion, according to them the mother won't be strained by pregnancy and will have more energy to focus on taking care of her baby as in the end her DNA is part of the baby's genome, and she would feel that connection. A few also thought that ectolife would not affect or have any impact on mother-children bond at all. To understand the ratio of these three opinions a pie chart is provided below.

- **Will this lead to inequality or discrimination?**

Discrimination and inequality are quite common in today's era. It is quite obvious that people would continue to do that in case of ectolife as well.

The above pie chart clearly shows that most people think that there would be inequality and discrimination as a result of this technology. People think that the babies produced through artificial womb have superiorities, as they can be customized as per users need. Not only this, the parents of the baby can choose particular characteristics to be included or excluded, this would simply be unfair to others as the traditionally born babies would have good as well as bad characteristics. And if people think or start thinking that these babies are superior then inequality will exist.

- **Acceptance**

For any technology to be successful it is important that people accept it, so after taking opinions from a few people we have concluded about, will the society accept it or will they as a society will accept this change.

LIMITATIONS:

Everything that has advantages also has disadvantages, below listed are few limitations/disadvantages of ectolife

1. Ethical Considerations of Artificial Wombs

The idea of artificial wombs might offer hope for many, but it also highlights a number of potential hazards. Some women may see using an artificial womb as a good option to continue a pregnancy instead of having an abortion. However, there are concerns that some women may feel pressure to use an artificial womb instead of having an abortion. It is important to make sure that all women have access to accurate information and the ability to make choices about their reproductive health without coercion or pressure from others.

2. Traditionally unacceptable

Society would not accept the change or advancement easily. it is important to note that there are various ethical and societal implications of using artificial wombs for reproduction, and some people may consider it morally unacceptable to create life outside of the human body. It is essential to carefully consider these issues and address any ethical concerns that may arise.

3. Population Explosion

There are 154 million orphans in the world and we are going to give birth to babies using artificial wombs, this would add to population and can result in population explosion as babies would become easy to produce, without any pain or suffering. Also people would want more of customized babies as they will consist of characteristics as per parent's wish, so the demand of having such babies will automatically increase. Also the rate of people adopting orphan children would decrease leading to increase in homeless children who would face much more competition.

4. Discrimination

Artificial wombs could make the gap between rich and poor even bigger. Rich people may choose to pay for an artificial womb while poor people may not have that option and will have to rely on a woman's body to carry the baby. This could make existing differences between socio-economic groups even worse, including differences in access to good nutrition and protection from diseases.

5. Inequality

As the babies produced through artificial wombs can be customized it gives them an advantage of only choosing good characteristics which would lead to inequality. The differences will not only be socioeconomic, but rather physical and mental. There will be a population with economic, physical and mental advantageous with which it will be impossible to compete naturally, it would be two varied species of humans existing on same planet.

CONCLUSION:

EctoLife, the 'world's first artificial womb facility' is just a concept for now, which offers a way for parents to produce customized babies. It provides an option for parents to have children without going through pregnancy or even conception and also helps people suffering from cancer or infertility to have their own biological child. Despite these potential benefits, however, there are also some limitations and disadvantages that should be considered. Like the inequality and discrimination caused due to it and traditional in acceptance. While the technology behind artificial wombs is still evolving, it promises to improve reproductive outcomes and reduce risks associated with traditional pregnancies. However, it is important to carefully consider the advantages as well as disadvantages of this technology and address any ethical or societal concerns that may arise.

REFERENCES:

- scienceandstuff.com (9-Dec-2022), Exclusive: Concept Unveiled for the World's First Artificial Womb Facility
- economictimes.com (20-Dec-2022), World's first artificial womb facility is a creepy glimpse of pregnancy in future.
- firstpost.com (14-Dec-2022), Baby in a Pod: What is EctoLife, the world's 'first artificial womb facility'?
- nationthailand.com (16-Dec-2022), EctoLife : the world's first artificial womb facility?
- reuters.com (22-Dec-2022), Fact Check-Video presenting fictional 'artificial womb facility' taken out of context
- designboom.com(14-Dec-2022), INSIDE ECTOLIFE: THE FUTURE OF CHILDBIRTH?

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- nature.com (20-Sep-2016), Extremotolerant tardigrade genome and improved radio tolerance of human cultured cells by tardigrade-unique protein.

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ROBOTICS IN WARFARE

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ABSTRACT:

The 21st century is a century for robotics. Robots have long borne the potential to bridge the gap between the cybernetic world (the internet of things) and the physical world. Defense and security organizations depend upon science and technology to meet operational needs, predict and counter threats, and meet the increasingly complex demands of modern warfare. Artificial intelligence and robotics could provide solutions to a wide range of military gaps and deficiencies. At the same time, the unique and rapidly evolving nature of AI and robotics challenges existing policies, regulations, and values, and introduces complex ethical issues that might impede their development, evaluation, and use by the Canadian Armed Forces (CAF). Early consideration of potential ethical issues raised by military use of emerging AI and robotics technologies in development is critical to their effective implementation.

Keywords: *Robotics, War, AI, CAF, Military.*

INTRODUCTION:

A robot, is any automatically operated machine that replaces human effort, though it may not resemble human beings in appearance or perform functions in a humanlike manner. By extension, robotics is the engineering discipline dealing with the design, construction, and operation of robots. The concept of artificial humans predates recorded history (see automaton), but the modern term robot derives from the Czech word robota (“forced labor” or “serf”). Robotics is the design, construction, and use of machines (robots) to perform tasks done traditionally by human beings. Robots are widely used in such industries as automobile manufacturers to perform simple repetitive tasks, and in industries where work must be performed in environments hazardous to humans. Artificial intelligence is based on the assumption that aspects of human thought can be mechanized. Although AI has existed for decades in philosophical debate,

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mathematical models, and computer-science labs, it is only in the last five or six years that a massive increase in computer-processing power, access to a profusion of data, and advances in algorithmic techniques have together propelled AI to the forefront of public, media, government, and military attention. We anticipate that the relationship between AI and robotics will become interdependent with time, as robot become the hardware that uses, for example, machine learning algorithms to perform a manual or cognitive task. The various forms of AI have serious ramifications for warfighting applications. AI will present new ethical questions in war, and deliberate attention can potentially mitigate the most extreme risks. Driverless cars are anticipated to save hundreds of thousands of lives. AI already assists clinicians with medical diagnoses. Neural networks can scrutinize surveillance video and alert soldiers to specific frames that contain objects of interest such as vehicles, weapons, or persons. Facial-recognition software could alert soldiers when an individual of interest is observed in video surveillance or in real-time. AI might also help military personnel amalgamate and fuse large amounts of data from numerous sensors in a battlespace, and find relationships within the data, to help make more informed and more rapid decisions than if the data were processed manually. Furthermore, AI-enhanced robotic systems can be given dull, dirty, and dangerous tasks, reducing physical risk to soldiers and enabling them to concentrate their efforts elsewhere.AI is effective at certain tasks, such as image recognition, recommendation systems, and language translation. Artificial intelligence models are improving daily and have shown their value in many applications. The performance of these systems can make them very useful for tasks such as identifying a T-90 main battle tank in a satellite image, identifying high-value targets in a crowd using facial recognition, translating text for open-source intelligence, and text generation for use in information operations.

APPLICATIONS OF MILITARY PURPOSES IN INDIA AND DRDO:

With futuristic warfare in mind, India is working to develop robotic soldiers as part of efforts to boost unmanned fighting capabilities, joining a select group of countries in this endeavor. Under the project being undertaken by DRDO, robots would be developed with a very high level of intelligence to enable them to differentiate between a threat and a friend. These can then be deployed in difficult warfare zones, like the Line of Control (LoC), a step that would help avert the loss of human lives. "We are going to work for robotic soldiers. We will look for a very high level of intelligence in it than what we are talking about today... It is a new program and a the number of labs is already working in a big way on robotics," DRDO chief Avinash Chander said in an interview. Military & Security: Military robots include ground systems like Endeavor Robotics' PackBot, used in Iraq and Afghanistan to scout for improvised explosive devices, and BigDog, designed to assist troops in carrying heavy gear. Security robots include autonomous mobile systems such as Cobalt.

1. REMOTELY OPERATED VEHICLE (ROV) DAKSH:

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   - **a.** The ROV is versatile equipment for improvised explosive device identification and handling. It can also be utilized to survey and monitor nuclear and chemical contamination levels. The ROV has stair-climbing capabilities and can operate continuously for 3 hours.
   - **b.** The ROV can be controlled either by fiber optic communication over a 100m distance or can be controlled by wireless communication over 500m line of sight.
2. UNMANNED AERIAL VEHICLE (UAV) 'NETRA':
   - **a.** This mini UAV has been developed for surveillance applications. It is battery-operated, silent and is equipped with a Day Camera with zoom for detailed surveillance. It also has an optional Thermal Imager for night operations. IT A number of UAV systems have been supplied to Paramilitary Forces and Police and are currently in operation.
3. Surveillance Remotely Operated Vehicle (SROV) (on the verge of induction):
   - **a.** The DAKSH-SCOUT is remotely controlled from a portable Operator Console using RF. It has an adequate number of cameras suitably mounted on the platform for real-time viewing in front, at the rear and on either side.
4. Underwater: The favorite place for these robots is in the water. They consist of deep-sea submersibles like Aquanaut, diving humanoids like Ocean One, and bio-inspired systems like the ACM-R5H Snakebot.
5. Disaster Response:
   - **a.** These robots perform dangerous jobs like searching for survivors in the aftermath of an emergency.
   - **b.** For example, after an earthquake and tsunami struck Japan in 2011, Packbots were used to inspect damage at the Fukushima Daiichi nuclear power station.
6. Drones:
   - **a.** Also called unmanned aerial vehicles, drones come in different sizes and have different levels of autonomy. Examples include DJI's popular
   - **b.** Phantom series and Parrot's Anafi, as well as military systems like Global Hawk, are used for long-duration surveillance.
7. Medical:
   - **a.** Medical and health-care robots include systems such as the da Vinci surgical robot and bionic prostheses, as well as robotic exoskeletons.
   - **b.** A system that may fit in this category but is not a robot is Watson, the IBM question-answering supercomputer, which has been used in healthcare applications.

INTERNATIONAL SCENARIO:

Both China and Russia are pursuing militarized AI technologies. Visions exist of AI enabling autonomous systems to conduct missions, achieve sensor fusion, automate tasks, and make better, quicker decisions than humans. This isn't a science fiction imagining of what future wars might be like. It's a real scene that played out last spring as soldiers loyal to the Libyan strongman Khalifa Hifter retreated from the Turkish-backed forces of the United Nations-recognized Libyan government. According to a U.N. group of weapons and legal experts appointed to document the conflict, drones that can operate without human control "hunted down" Hifter's soldiers as they fled. Currently certified by the US Defense Department for remotely controlled live firing of lethal weapons, the Talon has been adapted to carry such payloads as an antitank launcher, a 40-mm grenade launcher, and remotely controlled M240, M249, M16, and M82A1 weapons. The Talon was used in search and recovery missions at the World Trade Center after the September 11 attack and was also deployed during the war in Afghanistan. Twenty Talon robots were deployed in Iraq at the beginning of 2003 and have accomplished over 10,000 missions. Mangolds says all the US military branches presently use the Talon. A smaller robot used for explosive-ordnance disposal and search and reconnaissance is iRobot's teleoperated PackBot. Weighing about 40 pounds, the PackBot garnered praise when one was recently lost on an "improvised explosive device" mission in Iraq. Tom Ryden, iRobot's director of sales and marketing for its government and industrial division, says, "We're happy that the robot could be in a situation so that a soldier didn't have to be—one robot lost means one soldier was not."

POTENTIAL APPLICATIONS:

The most promising applications include:

1. Search and Rescue: UAVs and UGVs equipped with cameras and sensors can be used to search for survivors in disaster-stricken areas. They can detect and locate survivors in the rubble, collapsed buildings, and other inaccessible areas.
2. Border Patrol: UAVs equipped with high-resolution cameras can monitor the borders and detect any illegal crossings. UGVs can be used to patrol difficult terrain and monitor sensitive areas.
3. Counter-terrorism: UAVs equipped with cameras and sensors can provide real-time intelligence during counter-terrorism operations.
4. UGVs can be used to neutralize explosive devices and minimize the risk to human life.

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5. Disaster Response: UAVs and UGVs can be used to assess the extent of damage caused by natural disasters and provide assistance in relief and rescue operations.

LIMITATIONS:

Limited mobility: Although robotics technology has advanced significantly in recent years, robots still face limitations in terms of mobility. For example, unmanned ground vehicles may struggle to navigate difficult terrain or climb stairs, and unmanned aerial vehicles may be limited by battery life or weather conditions.

1. **Reliance on technology:** Robots require sophisticated technology to operate, and any malfunctions or errors in the system can result in significant consequences. Additionally, reliance on technology can create vulnerabilities that can be exploited by adversaries.
2. **Lack of human judgment:** While robots can be programmed to perform specific tasks, they lack the ability to make decisions based on the complex nuances of human behavior and social interactions. This can limit their effectiveness in situations where human judgment is crucial.
3. **Ethical concerns:** The use of robotics in paramilitary forces raises ethical concerns, particularly around the use of autonomous weapons. Additionally, the potential for the humanization of war can be a concern when robots are used in place of human soldiers.
4. **Cost:** Robotics technology can be expensive to develop and maintain, and there may be a significant upfront cost to implementing robotics in paramilitary operations.
5. **Ethical and Moral Issues:** Despite all the enthusiasm in military circles for the next generation of unmanned vehicles, ships, and planes, there is one question that people are generally reluctant to talk about. What happens to the human role in the war as we are ever more intelligent, more capable, and more autonomous robots? The point is not that the machines are taking over, but that what it means to have humans 'in the loop' of decision-making in war is being redefined, with the authority and autonomy of machines expanding. The reality is that the human location 'in the loop' is already becoming that of a supervisor who serves in a fail-safe capacity in the event of a system malfunction. The growing use of robots also raises deep political, legal, and ethical questions about the fundamental nature of warfare and whether these technologies could inadvertently make wars easier to start. Can robots be programmed to act ethically in war? Researchers are attempting to develop rules of engagement for battlefield robots to ensure that their use of lethal force follows the rules of ethics. Stress does not affect a robot's judgment the way it affects a soldier's, so theoretically a set of rules can ensure that humans are not unethically killed in the battlefield. Even

if ethics can be neatly encoded in software, ISR data can be deceptive, while conditions and situations can change. The expansion of robotic intelligence and autonomy raises profound questions of what roles are appropriate to outsource to machines. These decisions must be made based not only on how effective the robots may be in battle but also on what this shift in responsibility would mean for their human commanders and the broad political, ethical and legal responsibility for their conduct.

CONCLUSION:

Robots are a critical component of 21st-century warfare. Already, unmanned systems are replacing human pilots and soldiers in some roles, and in the future they will take over many more. Battlefield reports the world over highlight the value of unmanned systems in the modern combat environment, especially their inherent features like persistence, versatility, and reduced risk to human life. The benefits of removing human soldiers from harm's way are obvious. Can war be fought by lots of well-behaved machines, making it 'safer for humans'? In the near future, military robots will include semi-autonomous and autonomous systems that rely exclusively on sensors and computer technology, not human operators, to complete missions. Today's PackBots, Predators, and Ravens are relatively primitive machines. The coming generation of "War-bots" will be immensely more sophisticated, and their development raises troubling new questions about how and when we wage war. The exponentially increasing use of robotics on the modern battlefield challenges our current understanding of technology and war. Robots can assist humans in many areas, especially in dangerous and hazardous situations and environments. But the fate of robotics, military especially, will depend on how it conceptually and organizationally integrates with manned systems within overall management and command and control.

REFERENCES:

1. https://drdo.gov.in/robotics
2. https://www.cambridge.org/
3. https://www.researchgate.net/publication.
4. https://www.researchgate.net/publication/276900436_Military_Robotics_Latest_Trends_and_Spatial_Grasp_Solutions
5. https://usiofindia.org/publication/usi-journal/robotics-in-warfare/

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HELPING HAND

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ABSTRACT:

Nature can wreak havoc in any way and at any time in our world. Natural disasters, whether a tsunami, earthquake, or thunderstorm, claim millions of lives each year. With the growing issue of global warming in this world, we are facing an increased risk of natural disasters. While Nature returns to normalcy, we begin to improve the condition of the affected people. Isn't it better, though, to take some precautions to protect our lives from Nature's wrath? In some cases, such as thunderstorms, the weather forecasting departments of all countries provide predictions to the public via television news channels. There are, however, other ways to protect yourself from the effects of natural disasters. You are aware that the modern era is highly reliant on technology. Helping Hand can be used to request assistance in routine situations such as jump starting a car, pulling a stuck vehicle, changing a tire, and so on. Helping Hand is a global platform that connects people who have access to cellular internet. Natural disasters that threaten public safety can take many forms. To varying degrees of success, organizations around the world work to provide public safety. The Helping Hand member community and platform enable NGOs with limited or no funding to dispatch and communicate with Helping Hand application users for pennies on the dollar.

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INTRODUCTION:

The Helping Hand is a hybrid safety application that links members of the citizen safety network with non-governmental organizations to create a stronger neighbourhood. The Helping Hand Application is a citizen safety network that connects NGOs and other organisations with network members. Once installed, it will run in the background and alert in emergency situations using background sampling. The group will react to situations quickly and with greater consideration for other people and animals. Personal information is never sold or exchanged, and information is kept secure. As a safety app, Helping Hand should be made available to all citizens. The helping hand platform offers a centralised location from which all assets (human and otherwise) can access without any difficult or expensive tools, as well as fees for services and other procedures or communications.

BACKGROUND

There are several natural disasters occurring around the world, many of which may not be covered by the news. Natural disasters are common and expensive in terms of lives and damage. The entire community will be affected by our response to a natural disaster for years to come. A significant hurricane can wipe a town off the map for many years. Researchers can examine many facets of a natural disaster by gathering and sharing data before, during, and after the disaster. areas include human behaviour, fair asset distribution, interorganizational communication, responsibility, and logistics. Every aspect of a natural disaster response should be under ongoing review and development. Communication is a major issue while dealing with natural disasters. There are numerous communication channels and venues. Getting people together quickly and affordably may be impossible. It is extremely difficult to communicate with the government, the general public, and volunteer organizations. In a natural disaster, everyone concerned needs each other's help to varied degrees.

PROBLEMS DEFINITION

Tragic events can happen at any time, as we have all seen in the news headlines over the years. Forget about the Marvel heroes. Real-life superheroes are what our nation needs to keep us safe from harm. Consider pursuing a degree in public safety if you want a job that allows you to support your community while having an exciting workday. But what exactly is public safety? What exactly falls under this field? In this article, we'll talk about this subject in more detail so you can decide if a career in public safety is suited for you.

What is Public Safety?

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At its core, public safety is defending the populace against threats like crime, natural disasters, and other possible threats. Public safety in the United States is the sole responsibility of specific governmental agencies and municipal authorities. Consider law enforcement personnel, security personnel, emergency response teams, fire departments, parole officers, and others. No of the position, the main objective of public safety experts is to reduce risk and safeguard the welfare of individuals, groups, and organizations.

What is the Public Safety Career Path?

If you can see yourself working in a role that keeps others out of harm's way, a public safety career may be for you. Perhaps you see yourself working in Homeland Security, protecting our borders from outside threats. Or maybe you have a passion for solving murder mysteries and dream of becoming a detective. Law enforcement and other public safety professionals play a key role in our society. Clearly, emergency, and protective services involve the cooperation of almost everyone in a society.

Careers in the public safety field include:

- Computer Security
- Corrections
- Customs and Border Protection
- Cyber Crime Investigation
- Drug Enforcement Agency
- Emergency Management
- Fire Science
- First Responders
- Immigration and Customs Enforcement
- Law Enforcement
- Security
- Transportation Security Administration

While some of these roles involve risk, they are certainly rewarding in their own rite. First responders come to the rescue when anyone is hurt or facing an emergency. TSA officials ensure safe travel to and from.

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Emergency Management professionals make sure we are prepared for national disasters. Just how are you going to land one of these incredible careers? While these all have their own set of requirements, you will want to start with step one – a great education. In some of the most remote regions in the world, peacekeeping operations are still in progress. Being a peacekeeper is a calling that frequently demands living and working in remote, hazardous areas. Fortunately, cellular network data services are available to a sizable section of the world's population, allowing the Helping Hand platform to serve as a safety, communication, and logistics platform.

Conducting peacekeeping missions requires careful consideration of security issues. To provide users control over their visibility, the Helping hand platform offers a variety of security and privacy options. Through the smartphone app, members of Helping Hand can join a team and are only visible to other team members. Members can join a group and are only visible to other members of the group.

PROPOSED SYSTEM

1. Volunteer registration: The app should allow volunteers to register and create a profile, providing information such as their skills, availability, and preferred types of volunteer work.
2. Volunteer opportunities: The app should provide a searchable database of available volunteer opportunities, organized by location, type of work, and other criteria.
3. Volunteer management: The app should allow organizations to create and manage volunteer projects, including posting project descriptions, communicating with volunteers, and tracking volunteer hours.
4. Communication: The app should allow volunteers and organizations to communicate with each other, including messaging, email, and/or in-app chat.
5. Feedback and ratings: The app should provide a system for volunteers and organizations to leave feedback and ratings for each other, helping to build a reputation and trust within the community.
6. Reporting: The app should provide reporting tools to track volunteer hours, project progress, and other relevant metrics.
7. Social features: The app might include social features, such as the ability to share volunteer experiences on social media or connect with other volunteers with similar interests.

These are just some of the features that might be included in a Helping Hand app. The specific design and implementation of such an app would depend on the needs of the target audience and the goals of the organization developing the app.

IMPLEMENTATION AND DISCUSSION

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- The user must first register their details, such as their email address, and create a password.
- They must then enter their emergency contact information onto the application.
- Upon a successful login, the aforementioned screen with the necessary assistance count appears.
- By which we may determine the type of assistance we require, and if we are able to provide it, we can simply let them know.
- Or use it to make a straight call to the emergency number.

- Following the assistance, we can provide feedback on how we are today, such as how I am now and whether everything is fine.
- Other choices, such as the incognito mode, which ghosts the user so that the other helpers won't see the message because the aid is already on the way.
- The other helpers who are available to assist will see this message.

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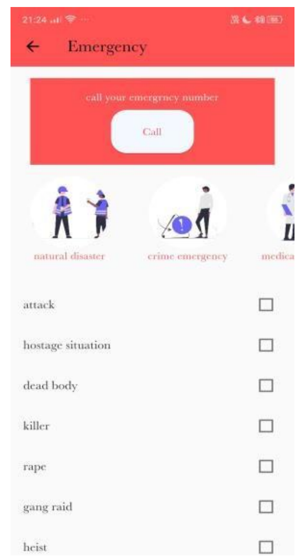
- In addition, the app has additional options, such as the ability to go from the position of citizen to that of organisation.
- Then, there are the posted alerts that assist other citizens.
- The user's profile, which contains details about the user.



- Several types of emergencies and the assistance we require are mentioned on this page.
- They cover a variety of topics, including crime, first aid, animals, donations, etc.
- Users can simply determine what kind of assistance they require by using this.

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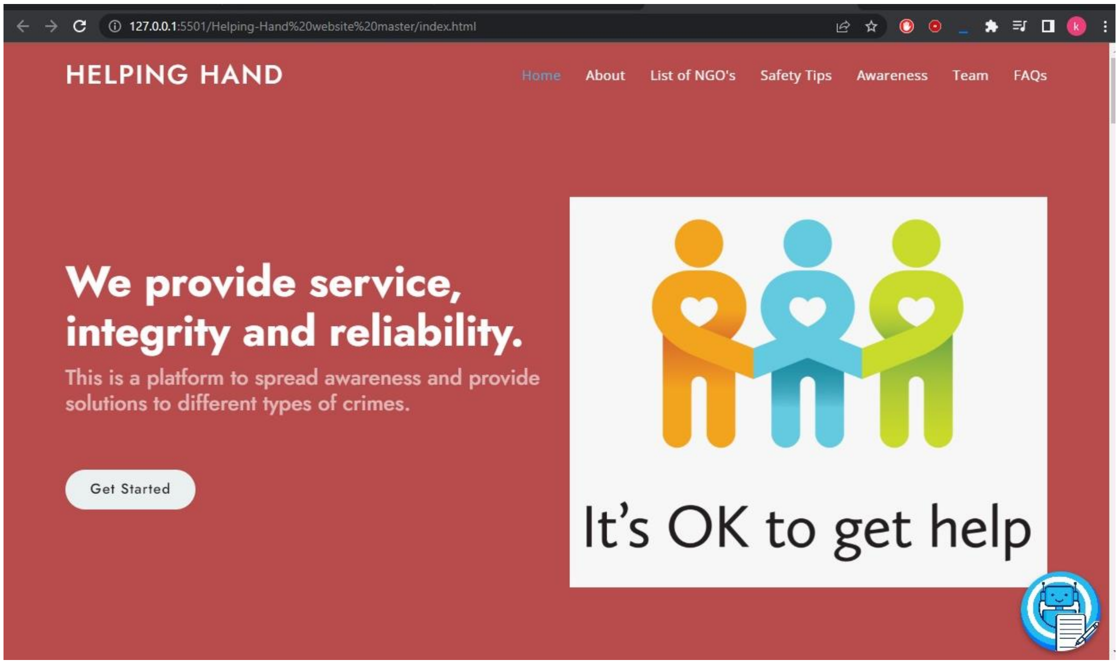
- After choosing the help we want, this is the following stage.
- This page allows us to click a picture of the real incident.
- Next, include a brief description of it and the duration for which you want other users to see the post.
- As a result, you are now prepared to post the support that you need.

WEBSITE



There is the website about our app which gives the information about the NGOs and other safety tips and awareness about the emergencies.

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CONCLUSION

In concusion, a Helping Hand app has the potential to make a significant positive impact on volunteerism and community service. By providing a centralized platform for volunteer registration, organization, and communication, the app can streamline the process of finding and participating in volunteer opportunities. Additionally, the app can help organizations better manage their volunteer programs, improving their ability to recruit, retain, and engage volunteers. Overall, a Helping Hand app has the potential to foster greater community engagement and social responsibility, and could be a valuable tool for both volunteers and organizations alike.

REFERENCES:

- Elaine Ritchie, J Knite. (2001). Artificial Intelligence, Chapter 2 , p.p 23 - 44. Tata
- McGrawHill.
- Software Engineering (Ninth Edition) by Ian Somerville.
- Software Project Management (Sixth Edition) by Bob Hughes, Mike Cotterell, Rajib Mall
- Lucidchart.com for UML diagram.
- "Helping Hands: A Mobile App for Volunteer Coordination." International Journal of Computer Applications, vol. 147, no. 3, 2016, pp. 21-25.
- "Helping Hand: A Mobile Application for Volunteer Management." Proceedings of the 2018 International Conference on Information and Communication Technology for Sustainable Development (ICT4SD), 2018, pp. 1-6.
- "Development of a Mobile Application for Volunteer Coordination and Management." Proceedings of the 2019 International Conference on Information and Communication Technology for Development (ICT4D), 2019, pp. 1-6.
- "Helping Hand: A Mobile Application for Volunteer Coordination." International Journal of Advanced Computer Science and Applications, vol. 9, no. 3, 2018, pp. 54-59.
- "Helping Hand: A Mobile Application for Volunteer Coordination and Management." International Journal of Advanced Research in Computer Science and Software Engineering, vol. 8, no. 1, 2018, pp. 141-146.

- "Design and Implementation of a Mobile Application for Volunteer Coordination and Management." International Journal of Computer Science and Information Security, vol. 16, no. 7, 2018, pp. 1-6.
- "A Mobile Application for Volunteer Coordination and Management." Proceedings of the 2017 International Conference on Information and Communication Technology for Development (ICT4D), 2017, pp. 1-6.
- "Helping Hands: A Mobile Application for Volunteer Coordination and Management." Proceedings of the 2016 International Conference on Information and Communication Technology for Development (ICT4D), 2016, pp. 1-6.

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VETERINARY PET'S CLINIC SYSTEM

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ABSTRACT:

Implementing an integrated veterinary pet clinic system is a requirement for the creation of an effective animal health, food safety, and traceability management system in the animal food production chain. This system must be able to collect, store, analyse, and retrieve data while also offering the chance for the accumulative acquisition of knowledge and the capability for its expert interpretation. The role of information systems in animal disease diagnosis, surveillance, and notification, control of national and international trade of commodities, food safety management, disease investigation, predictive microbiology, and quantitative risk assessment is crucial for the quality of veterinary services. Designed in accordance with and in conformance with worldwide requirements, standards, and guidelines, the animal illness notification system for the Veterinary Pet's Clinic System.

Life is getting too hectic to schedule in-person doctor's visits and keep up with necessary health care. There are currently no veterinary system apps for online medical consultations. This system involves designing a java-based web programme with features for making a reservation. A system for management of a veterinary clinic. To make easier the administration of clients, employees, consultation (animal care), services and products. Providing the following basic features: animals, owners and employees registration, services and products maintenance also management of the consults.

Keywords: *Veterinary Pet's Clinic System, Appointment, Admission, Web Application, Veterinarian, Diagnosis.*

1. INTRODUCTION

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The Veterinary Pet's Clinic System is a valuable tool for managing the medical history of animals and facilitating communication between veterinarians and pet owners. By having an online system to keep track of all the necessary information, veterinarians can provide better care for animals and make more informed decisions about treatment options. Additionally, pet owners can access their animal's medical history, make appointments, and receive important information regarding their pets' health. The system's ability to store data in a database ensures that all information is secure and can be easily retrieved when needed. The system can generate reports that provide management with valuable insights and information that can aid in decision making.

Overall, the Veterinary Pet's Clinic System is an essential tool for any veterinary clinic looking to streamline their operations, improve their services, and provide better care for pets. Indeed, the use of mobile applications can greatly enhance the functionality of the veterinary management system. By having a mobile application, pet owners can easily access their pets' medical records, schedule appointments, and receive important notifications regarding their pets' health. In addition, veterinarians can use mobile applications to manage their workflow more efficiently. For example, they can access patient information and treatment plans on-the-go, view their appointment schedules, and communicate with pet owners more easily. Moreover, mobile applications can be designed to provide additional features, such as telemedicine consultations and remote monitoring of pets' health conditions. These features can greatly improve the accessibility and quality of veterinary care, especially for pet owners who live in remote areas or have limited mobility. Overall, the integration of mobile applications into the veterinary management system can enhance the functionality and accessibility of the system, benefiting both veterinarians and pet owners.

The computerized system would also allow for the tracking of hours worked by the employees, the recording of overtime and the calculation of hourly wages. The system would also allow for the establishment of job descriptions and the classification of employees as either manager, supervisors. Finally, the veterinary clinic computerized system would allow for the management of products. The system would allow for the tracking of stock levels of drugs, equipment and supplies, the calculation of prices and the issuing of invoices. The system would also allow for the issuing of prescriptions and the calculation of unit costs. The veterinary clinic computerized system would also allow for the management of employees.

As part of the employment application process, the employees would be required to provide details about their qualifications, experience and training. The main objective of Veterinary pet's Clinic System is to

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design and develop an online web application to counter and solve the problems that affects the management.

2. REQUIREMENTS AND ANALYSIS

Generally, pet owner who visit the veterinary clinic have to fill in the registration form in order to register. For pet owners who already be a membership, staff need to find their name using alphabets manually. There is also redundant pet owner's data if the pet owners are not sure whether they have come to the clinic before. This is because the current registration is manual. Besides, most of the staff in the veterinary clinic still using paper works in their workflows such as keep pet records using book, write pet diagnosis record using form, manage an appointment using calendar books and so on.

So when a pet owners come to the clinic, staff maybe need use a few minutes to find the pets' records paper which is requires time. Moreover, there is a possibility of the appointment's booking will clash at the same time due to staff mistakes. Because of this manual operations are done by staff in veterinary clinic, it may slow down the procedure in many ways hence the manual process is cumbersome, tedious and slow. In addition, the staffs also facing a problem to acknowledge the data of pet owner and pet who comes to clinic due to there's no effective way to generate a clinic report. Usually, veterinary clinics provide a 'vaccination clinic card' to the pet owner once they have registered for vaccination and deworming appointment for their pets. The card must be brought over to the clinic for every appointment. This 'vaccination clinic card' contains their pet's medical history such as when was the last time they did the vaccination and deworming for their pets. Problem occurs when the pet owner lost or misplaced the cards and they must returns to home to take it or they must register for the second time if the vaccination card is completely gone. These procedures are time-consuming and more workloads need to be done by both pet owner and front-desk staff.

- Functional Requirements :
  - Record Customer Data.
  - Registration of Pet's Details.
  - Book an Appointment.
  - View an Appointment.
  - User Inquiry.
  - Doctor can check the pet's details, products, treatment history, etc.

- Non Functional Requirements :

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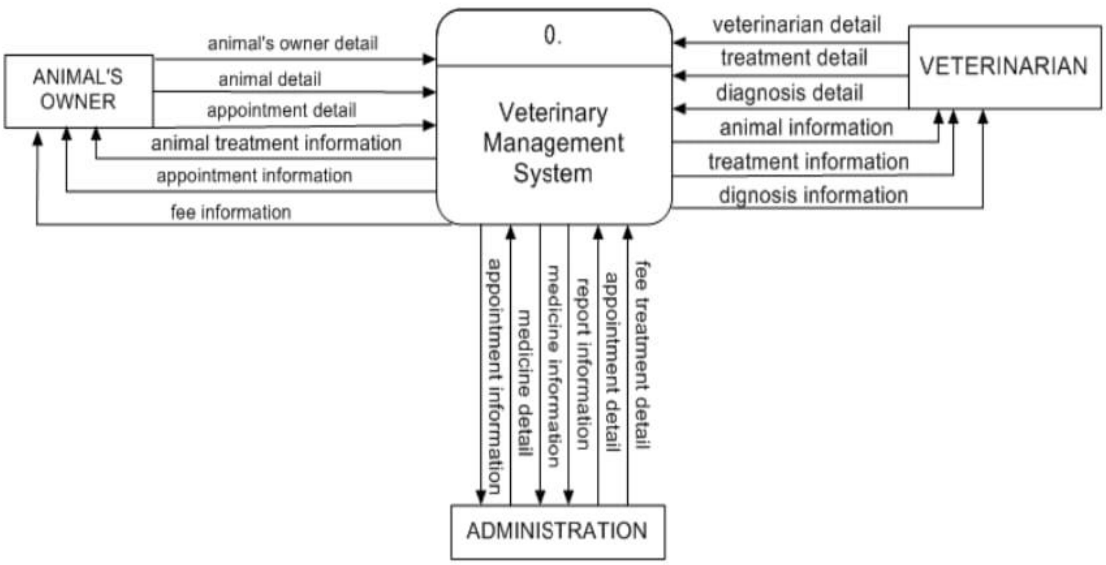
- Flexibility : The system is flexible and easy to used.
- Availability : The system is available at all the time.
- Usability : The system is easy to use and understandable for the staff.
- Maintainability : The system is easy to modify and maintain properly .

3. METHODOLOGY / FIGURES



❖ Admin Login Page

The Admin login has the authorized the application to keep track of all the individual application data. Which can be viewed by the customer from the dashboard. The Admin login page has the main implementation to track all the database about the customer and the data of the menu.

❖ Customer Page

In this modules have the Application menus which can help the view the information about the all requirements that the user wants. In Customer page customer can visit the page and get the idea about the cost, treatments or Grooming .

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- Sign Up Page

A sign up page(also known as a registration page) enables users and Organizations to independently register and gain access to our system .

- Grooming Page

In Grooming page there will we instructions regarding what kind of choice you prefer for your pet's as e.g Basic Groom, Partial Groom, Full-Service Groom and other medical information regarding pet's.

Owners of pets may also be users. The website has an online scheduling form that pet owners can fill out. Additionally, the website offers internet forms for canine grooming and lodging reservations. The Appointment page storing all the data and appointments of the pet's with specific reasons including grooming, emergency, healthcare check-ups, vaccinations. The Pet's Admission page storing the reasons for admission, admission date and all the required information in it. The User enquiry is used for checking the notifications of the clinic regarding the appointments and many more. The Staff details are also store in the user details.

The Below images shows the working of the project which has Registration page, Login Page, User Enquiry Details, Admission Page, Appointment Page and many more. On Dashboard we have added components in that we have Admission details, User details, Appointment details. Admission form will register the user . Then it shows the Admission and Appointment page to register the Appointments as per the requirement of user and doctor.

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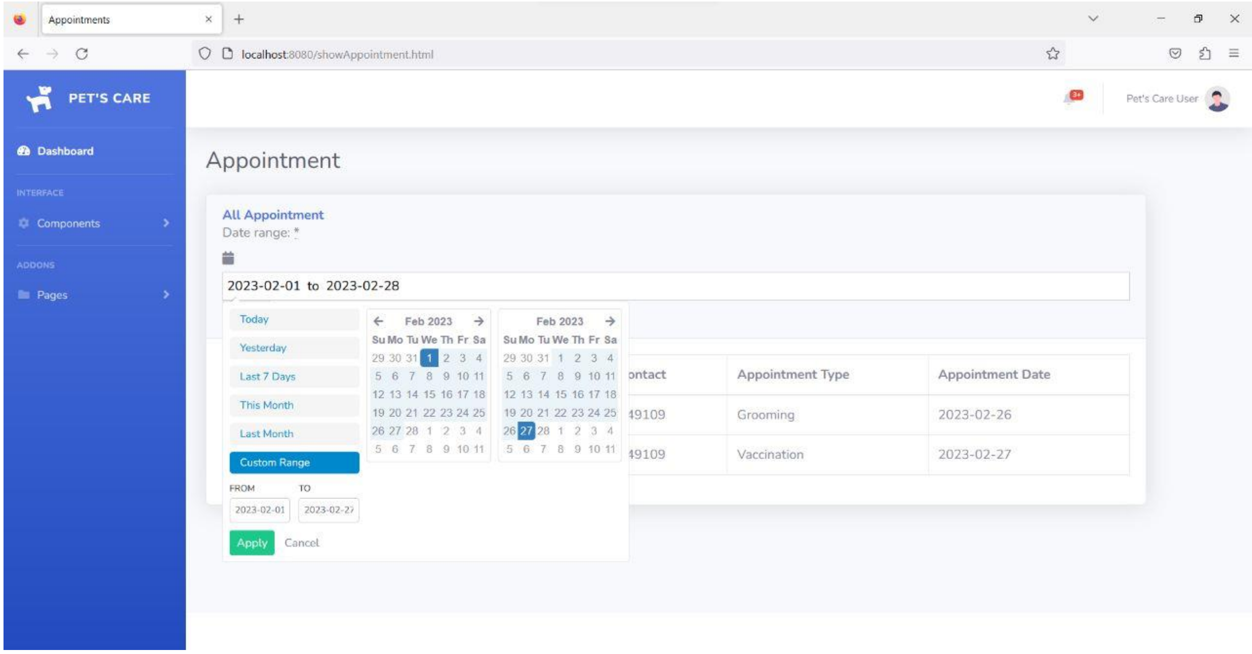
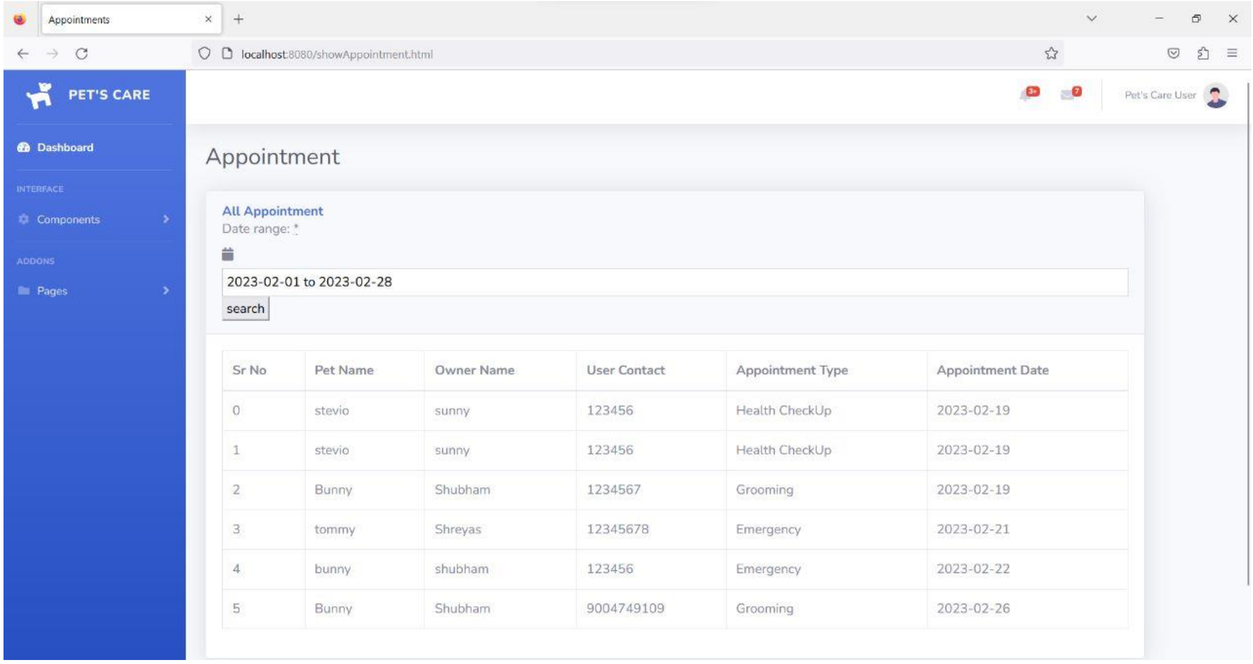
APPOINTMENT PAGE





Sr No	Pet Name	Owner Name	User Contact	Appointment Type	Appointment Date
0	stevio	sunny	123456	Health CheckUp	2023-02-19
1	stevio	sunny	123456	Health CheckUp	2023-02-19
2	Bunny	Shubham	1234567	Grooming	2023-02-19
3	tommy	Shreyas	12345678	Emergency	2023-02-21
4	bunny	shubham	123456	Emergency	2023-02-22
5	Bunny	Shubham	9004749109	Grooming	2023-02-26

4. CONCLUSION

Veterinary Pet’s Clinic System is a web-based system that helps users, especially veterinarian doctor because they can diagnose a disease based on the symptom of different type of animal. Moreover, can also save time for the animal’s owner to make appointments throughout the system. Veterinary Pet’s clinic System is a website that provides useful information to the users. It makes it easier for pet's owner to fill it right in front of their computer. This project was expected to be one of the most useful systems for veterinary clinic because clients can avoid wasting their time, energy and money. Clinic administrators can update any recent activities related to pets on the website front page. The Veterinary Pet's Clinic System is a web-based tool that benefits users, particularly veterinarians, who can use it to identify illnesses based on the symptoms of various animal species.The proprietor of the animal can save time by scheduling meetings online. Additionally, this system will arrange all of the information and keep it in a database. A website that offers its readers helpful information is called Veterinary Pet's Clinic System.

5. REFERENCES

[1] Joseph E. Wagner, “A Computer Based Collection, Storage, Retrieval and Reporting Accession Information in a Veterinary Medical Diagnostic Laboratory.”

[2] Charles M.Jacobs , Josephine A.Lamprey , A.Jacqueline Mitus , Alex Karys , David W Baird and Thomas W.Upton , “System for Screening of Medical Decision Making Incorporating a knowledge base.”

[3] Nallasamy Mani and Brian Lithgow, Medical and Health Care Application of Intelligent Information System.

[4] Nontey Omabae, “Process for Diagnostic System and Method Applying Artificial Intelligence technique to a Patient Medical Record and Easy to use Tool To Manage Veterinary or Human Medical Clinic and Hospitals.”

[5] Neil Bodick, Andre L. Marquis, “Interactive System and Method for Creating & Editing a Knowledge Base for Use of Computerized Aid to the Cognitive Process of Diagnosis.”

[6] Design and Implementation of Hospital Management System Using Java Olusanya Olamide.O1, Elegbede Adedayo. W2, and Ogunseye Abiodun. A3. Department of Electrical / Electronic and Computer Engineering, College of Engineering, Bells University of Technology, P.M.B.1015, Ota, Ogun State. Nigeria

[7] Veterinary hospital management software by Santosh p. Sarangamath and vivek m. Patil - 'Information Technology in Veterinary Science' (2009), New India Publishing Agency, New Delhi. ISBN 978-81-908512-4-4

[8] The O3-Vet project: A veterinary electronic patient record based on the web technology and the ADT-IHE actor for veterinary hospitals by M. Zaninellia∗, F.M. Tangorraa, S. Castanob, A. Ferrarab, E. Ferroc, P.G. Brambillac, S. Faverzanic, S. Chinosic, P. Scarpac, M. Di Giancamillod, D. Zanid, A. Zepponie, C. Saccavinif.

[9] Mr. Doc: A Doctor Appointment Application System Article in International Journal of Computer Science and Information Security, · December 2016

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MITTASSIST

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ABSTRACT:

Language is the main means of communication between two people. However, not everyone enjoys the privilege of being able to communicate easily. People with speech disabilities use sign language based on hand gestures with certain movements to represent the language in which they speak of gesture in sign language, a movement defined by hands, with a cross finger shape. But the lack of knowledge of sign language in our society might make them feel unheard or misfit in the society, as most of them aren't able to express themselves completely .This project aims to turn the hand gesture through electronic devices into a conversation to make communication between people with special needs and the general public in this paper. A practical system has been developed to allow deaf & mute people to use a device to talk to ordinary people. The device is called Mittassist. Mittassist is nothing but a wireless glove with flexible sensors and an accelerometer.

These sensors feel the movement of the hand and fingers, then programmed by the Arduino uno microcontroller. This microcontroller will translate these movements from hand to English, Hindi speech stigmatization and also there is electronic display which gives text to the corresponding gestures and outputs the sound in English & Hindi. The practical application of the device provides an effective means of communication for both the deaf and mute and ordinary people and reduces the gap between them.

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INTRODUCTION:

Speech is the basic means of dealing with people and communication between them. Therefore, a person who suffers from a lack of hearing ability or loss of hearing does not have good communication with people, and society naturally which leads to isolation, especially those with hearing disabilities if born deaf, they do not speak, and therefore cannot express or communicate with others where some people imagine when dealing with deaf and mute that their ability to understand less than normal human or that their intelligence is less than normal human a large proportion of the deaf and mute have a sharp intelligence and are characterized by piety not as many people think that their thinking is limited.

In recent years, there has been a rapid increase in the number of people with hearing loss and inability to speak. When a person talks to a normal person, he finds the average person difficult to understand and asks him to show gestures to his needs. People have their own language to communicate with us. The only thing is that we need to understand their language. The signal which used by deaf people, is a communication skill that uses gestures instead of sound to convey at the same time the combination of hand shapes ,directions, movements of the hands and arms smoothly but in most cases ordinary people find it difficult to understand sign language and people who cannot speak or lose their ability to speak in some cases it becomes difficult for them to convey their message within society.[1]

With the technological advance of modern times, people are increasingly depending on modern coping techniques, or dumb people who need to use them to help them overcome everyday difficulties and help them integrate socially and professionally. Where technology has become one of the basics of human life and designers have invented an integrated circuit called Arduino. In this technology, everything could be controlled remotely where the Arduino circuit uses some type of programming compatible with the remote sensor control. However, this paper will introduce a design of smart glove that would translate sign language gestures into speech and text with a high level of accuracy for recognizing gestures. Where, the data-glove approach uses a unique assembled electronic glove, which has sensors that give us the hand shape.

Most commercial sign language translation systems use the data-glove method, as it is simple to acquire data on the bending of finger and 3D orientation of the hand using gloves.

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MATERIALS & METHODS:

1. DATA GLOVE:

A data glove is an input device that is essentially a glove worn on the hand that contains various electronic sensors that monitor the hand's movements and transform them into a form of input for applications.[2].

2. ARDIUNO UNO:

ARDUINO is an open-source computer hardware and software company, project and user community that designs and manufactures microcontroller-based kits for building digital devices and interactive objects that can sense and control the physical world. Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be integrated into a variety of electronic projects.[4].

3.FLEX SENSORS:

Flex sensor is a patented analog device based on a resistive thick carbon element. As a variable printed resistor, the analog sensor Flex Sensor offers an excellent form factor on a thin and flexible substrate. When the board is bent, the sensor produces a resistive output that correlates with the bend radius. Here, the relationship between bending radius and resistance is inverse. The flex sensor is usually attached to the glove with a needle and thread.[3].

4.Accelerometer (MPU 6050):

The accelerometer (MPU 6050) is used as a tilt sensor in the gesture system. The MPU6050 is a Microelectromechanical System (MEMS) consisting of a 3-axis accelerometer and a 3-axis gyroscope. It helps measure acceleration, velocity, direction, displacement, and many other parameters related to the motion of a system or object. By measuring the acceleration due to gravity, the accelerometer can determine the angle of inclination with respect to the ground.[5].

5. Bluetooth Module (HC-05):

HC-05 is a Class 2 Bluetooth module, transparent wireless serial communication.

Pre-configured as a Bluetooth slave. After pairing with major Bluetooth devices such as PCs, smartphones and tablets, operation is transparent to the user. All data received via the serial input is transmitted wirelessly immediately. When the module receives wireless data, it is transmitted over the serial interface as received. User code specific to the Bluetooth module is not required at all in the microcontroller's user program.

6. SWITCH BUTTON:

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A push button switch is a type of switch that consists of a simple electrical or pneumatic switch mechanism that turns something on or off. Depending on the model, it can be operated with a snap action or detent. The button itself is usually made of a durable material such as metal or plastic.

OPERATION PRINCIPLE OF SYSTEM

In this paper, flex sensors assume the significant job the glove is fitted with flex sensors. Along the length of each forefinger and the thumb. The flex sensors give yield ,as voltage variety that changes with level of twist this flex sensor yield is given to the ADC channels of the microcontroller. It forms the sign and performs simple to advanced signs. Transformation further the prepared information is sent in a remote way to the collector area.

In this segment the motion is perceived, and the comparing yield is shown on the phone and at the same time it is played upheld through the speaker. Figure 1 illustrates Images of the system.[[16][17].

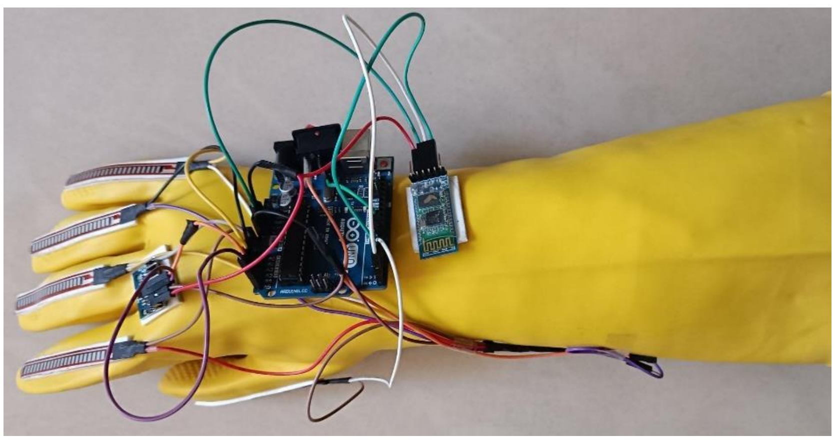

Figure 1 Images of the system.

TABLES & FIGURES:

1) Block Diagram of the Mittiassist:

The block diagram of the proposal system is shown in the Figure 2 below where the gesture vocalizer mainly consists of sensors (flex and an accelerometer) placed on the hand of the disabled person and a microcontroller to convert the hand movements into audio and visual data through an android application Ardiuno Bluetooth TTS.Flex sensors are placed on the glove which converts the parameter like finger bend hand position angle into electrical signal. At mega 328 controller receive the information data from Flex sensors where this controller processes these data and then send commands according to the particular gestures. There are five flex sensors for detecting bending of fingers.

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Each connects to a hand orientation sensing MPU 6050 built into the glove for gesture recognition. The received coordinates are transmitted to the mobile phone through the Bluetooth module (HC-05). Phone screens capable of displaying text messages are used to facilitate communication for people with hearing impairments. Read aloud through the speaker.

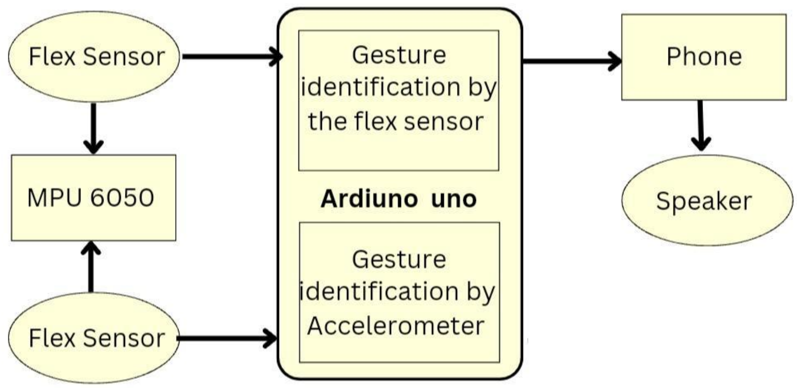

Figure 2 Block Diagram

2) Software Implementation Flowchart:

The functional flow of the program is shown in the topmost flowchart. After initializing the peripheral port, the microcontroller enters an infinite loop.

First, it receives analog values from the accelerometer and flex sensor set. It is first converted to an equivalent numeric value and then compared to the prefix value. Previous values have been extensively studied and experimented with various gestures using this prototype system by the authors. The experimental values obtained are studied based on this table designed to match successful orders with values from 0 to 14. If the comparison succeeds, the system displays a corresponding message on the phone screen and plays the dictionary. - Audio messages recorded via an audio processing unit.

The figure below shows a flowchart of the software implementation.

Figure 3 Flowchart of the software implementation.

CONCLUSION:

Sign language is a useful way to facilitate communication between the deaf community and the general public. However, there is a barrier between these communities and the general public that requires reliance on human translators. Technology has helped solve this problem. This article explores how to facilitate communication between the deaf and mute by using a smart glove that converts hand movements into words that can be understood.

The developed circuit has been connected and tested with many hand gestures as shown in the figure below, and the voice is clear for any gesture.

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Figure 4 illustrates Gesture

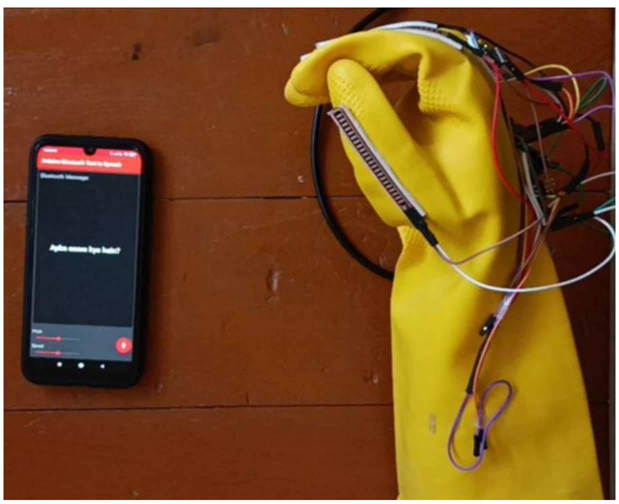

Figure 5 illustrates Gesture

Code size also increases. I implemented a toggle switch, so toggling between languages: English & Hindi. Only two languages can be switched on one switch.

FUTURE SCOPE:

We expect to create a database that will contain many gestures. Various sign languages such as American Sign Language and Indian Sign Language can be implemented.

etc. We plan to use AI, specifically NLP (Natural Language Processing) to create several regional and foreign language

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3D cases as well, using circuit boards instead of open wires to make MITTASSIST look better and better. comfortable.

REFERENCE:

1) .https://www.encyclopedia.com/international/encyclopedias-almanacs-transcripts-and-maps/developmental-and-physical-disabilities-blind-deaf-and-dumb-and-idiot
2) https://www.techopedia.com/definition/3634/dataglove
3) https://www.elprocus.com/flex-sensor-working-and-its-applications/
4) https://www.arduino.cc/en/Guide/Introduction
5) https://lastminuteengineers.com/mpu6050-accel-gyro-arduino-tutorial/
6) Indian Sign Languages using Flex Sensor Glove. International Journal of Engineering Trends and Technology
7) https://www.diva-portal.org/smash/get/diva2:913354/FULLTEXT01.pdf
8) https://www.researchgate.net/publication/265844280_A_process_to_communicate_with_deaf_mute_people
9) Rastogi, K., &Bhardwaj, P. (2016). A Review Paper on Smart Glove-Converts Gestures into Speech and Text. International Journal on Recent and Innovation Trends in Computing and Communication
10) https://www.researchgate.net/publication/262187093_Sign_language_recognition_State_of_the_art
11) https://ieeexplore.ieee.org/document/7916786
12) T. Chouhan, A. Panse, A. K. Voona and S. M. Sameer, “Smart glove with gesture recognition ability for the hearing and speech impaired,” Global Humanitarian Technology Conference - South Asia Satellite (GHTC-SAS), 2014 IEEE, Trivandrum
13) P. G. Ahire, K. B. Tilekar, T. A. Jawake and P. B. Warale, “Two Way Communicator between Deaf and Dumb People and Normal People,” International Conference on Computing Communication Control and Automation (ICCUBEA) , Pune
14) D. Bajpai, U. Porov, G. Srivastav and N. Sachan, "Two Way Wireless Data Communication and American Sign Language Translator Glove for Images Text and Speech Display on Mobile Phone,” Fifth International Conference on communication Systems and Network Technologies (CSNT)
15) A. K. Tripathy, D. Jadhav, S. A. Barreto, D. Rasquinha and S. S. Mathew, “Voice forthe mute,” International Conference on Technologies for Sustainable Development(ICTSD) , Mumbai,
16) Ata-Ur-Rehman, A. U. R., Afghani, S., Akmal, M., &Yousaf, R. Microcontroller and sensors based gesture vocalizer. In Proceedings of the 7th WSEAS International Conference on Signal

Processing, Robotics and Automation World Scientific and Engineering Academy and Society (WSEAS).

17) Walid K A Hasan, Abobaker Alraddad , Abdulfatah Ashour, Yachao Ran and etl "Design and Implementation Smart Transformer based on IoT". Accepted and presented in IEEE International Conference on Computing, Electronics & Communications Engineering 2019.

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POTHOLE DETECTOR USING ACCELEROMETER

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ABSTRACT:

Potholes are a major concern for road safety, causing damage to vehicles and accidents. In this research paper, we propose a new approach for pothole detection using a accelerometer. The gyroscope is an inertial sensor that can detect changes in the orientation of the device. By analyzing the data from the gyroscope, we can detect when a vehicle hits a pothole. We conducted experiments using a smartphone with a built-in accelerometer and mounted on a vehicle. The smartphone was placed in different positions, such as the dashboard and the center console, to simulate real-world scenarios. We collected data from the accelerometer while driving on roads with potholes, and analyzed the data to detect when a pothole was encountered. The results of the experiments show that our approach can detect potholes. We also evaluated the performance of our approach on different types of roads, and found that it is effective on both smooth and rough roads. Our approach has the potential to be integrated into vehicle safety systems to alert drivers of potholes and prevent accidents.

Keywords: *Pothole Detector, Gyroscope, GPS, Mobile Application, Machine Learning*

1.INTRODUCTION:

1.1 Problem Statement

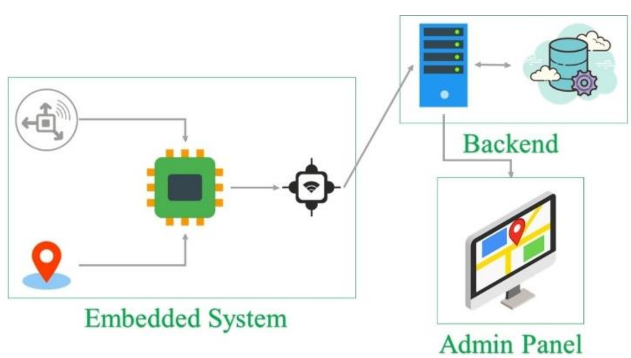
Poor road conditions are a public nuisance, causing passenger discomfort, damage to vehicles, and accidents. Ministry of Road Transport and Highways of India says 4,775 and 3,564 accidents occurred in the years 2019 & 2020, respectively, due to potholes.[1] Although we often complain about bad roads, we have no way to detect or report them at scale. Meanwhile, civic authorities are not always aware of present road conditions, and road repairs happen infrequently. As a result, we, as citizens, are left helpless.

1.2 Solution

To address this issue, we developed a system that captures data on a vehicle's movement from the accelerometer sensor to detect potholes and assess road conditions in real time. As the user drives, the model uses the sensor data to classify whether the road contains potholes. Then, the classification results are used to create data-rich maps that illustrate road conditions across the city. This system will empower civic officials to identify and repair damaged roads that inconvenience passengers and cause accidents. They can use this system to understand real-time road conditions and direct repairs to areas in need. The data itself can be crowdsourced from vehicles all over the city (think garbage trucks, Lyfts, Ubers, etc). This collaboration between the consumers and caretakers of road infrastructure could improve the delivery of this key public service.

2.STRUCTURE OF APPLICATION

1. **STRUCTURE OF APPLICATION**



The application we have made has a 3-tier architecture.

2.1 User Interface

Our user interface has 3 main sections-

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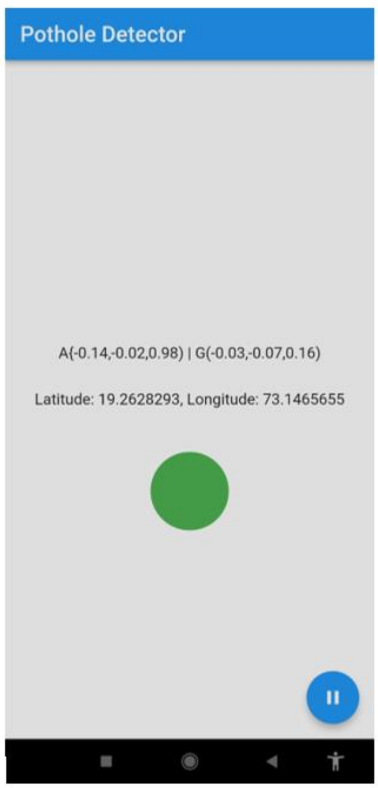
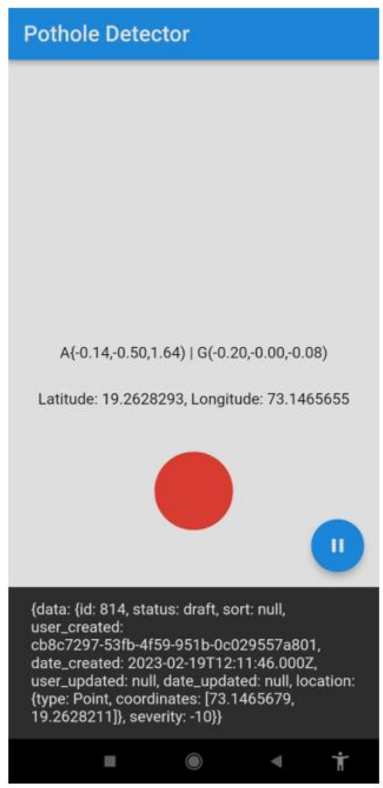
1) The first section shows the values of the accelerometer sensor in the x, y, and z directions every 0.25 seconds.[3]

2) The second section shows the position of the device. The position is shown as latitude and longitude values. It starts showing values only after the button is pressed which is placed southeast of the screen.

3) The third section shows a button that is by default green. It changes to red when the application detects a pothole. The user has to manually tap it to change it to green every time device detects a pothole and turns red.

The code for the user interface is written in dart by using the flutter framework.





2.2 Backend

The backend of the device takes the accelerometer values for potholes sent by the user interface and shows these values on the map by pointing to those locations. The code for the backend is written in node.js.[4]

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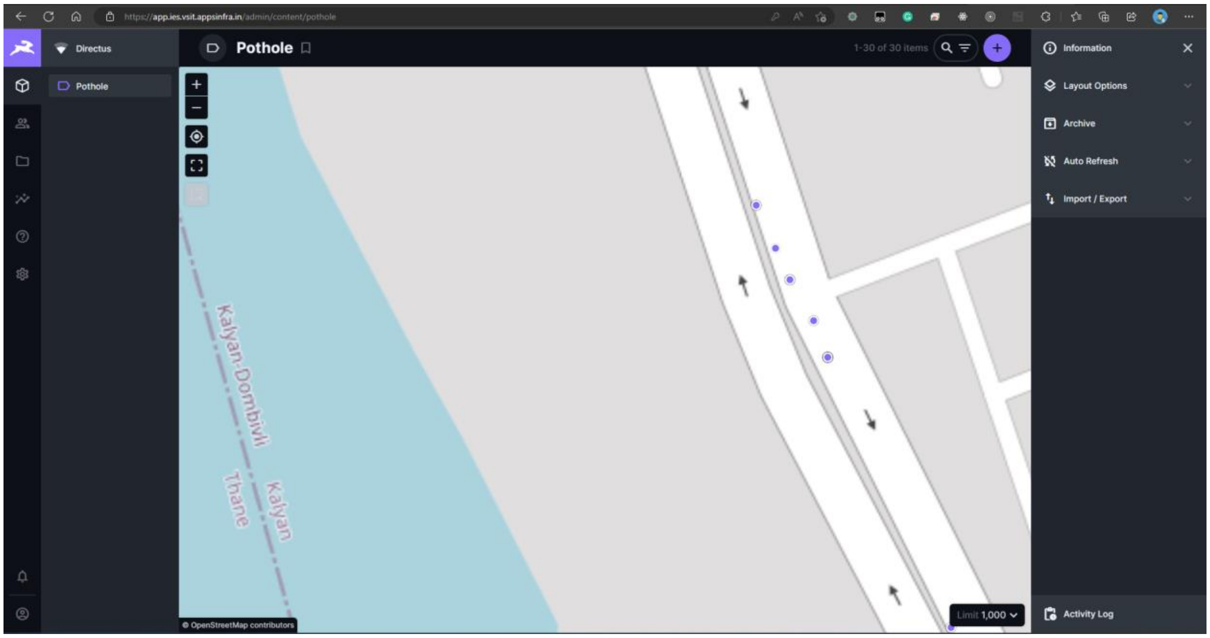


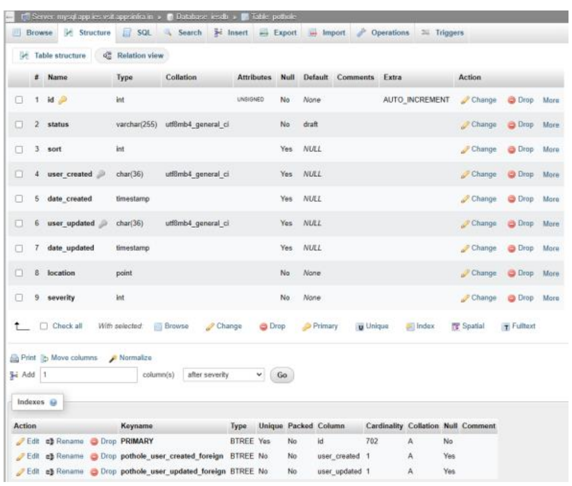
2.3 Database

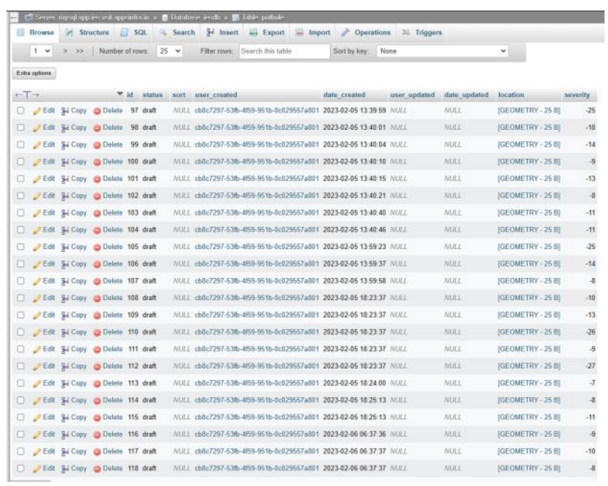
The database for this application is MySQL database.

The table for this application has the name Potholes which has 2 fields–

1. Point – It shows the location where the pothole has been located. It shows the location as a point.

2. Severity – It shows the magnitude of the pothole detected.





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3.WORKING:

For this device to work correctly, the user has to turn on their device location.

The logic for this application is that whenever the value of the accelerometer is more than 7 in the negative z-direction, the application detects a pothole in that location and sends the value of that location and accelerometer value to the database. The location is added in the Point field and magnitude is added in the Severity field. This location can be pointed on the map with the value of severity mentioned.

A value of 7 is chosen as most of the analysis about potholes shows that the value of the accelerometer is around 7 when it detects a pothole. Taking a value less than 7 would hence make the application detect potholes even when there is just a slight change in the road. Taking a value of more than 7 would not allow the application to detect potholes even when a pothole is present on road.

The direction is chosen as negative z-direction. It is because the application should not send the value of the accelerometer to the database when the value of the accelerometer is greater than 7 in the x or y direction. A value greater than 7 in the x or y direction can come when the driver is driving the vehicle fast or there is a sudden change in direction of the vehicle. Therefore, the z-direction is only left. The negative z-direction is chosen as potholes would always be in a downward direction. Taking direction as positive would make the application detect potholes even when a speed breaker is found.

4. FUTURE WORK:

In the future, we can use a machine learning model for predicting whether the anomaly in the values given by the application is for potholes or not. We can make a training app where the user clicks the start button to start taking the data from the application. The user can click on the pothole button present in the application whenever he/she feels that there was a pothole in the road. It will send that information to the database telling that there was a pothole in that place of the road and increment the value of the number of potholes present. This data can act as training data using which we can train our machine learning model (supervised machine learning). When the model is trained, our application will be able to differentiate whether the anomaly in the road is a pothole or not and it even can be used to understand the condition of the road.[5]

Another change we can make is that we can even send gyroscope values for training the model. This will make our application detect potholes even more accurately.

We can even use an embedded system to send these values to our application rather than taking the accelerometer/gyroscope values of the phone. This is because the phone can even give sudden changes in acceleration when it falls. These types of errors can be solved if the embedded system is directly attached to the vehicle in the place where the error is the least.

5.SECURITY CONCERNS:

Taking GPS location from users can have security implications. Here are some possible security concerns to consider:

1. Privacy: When we take GPS location from users, we are collecting personal information about their whereabouts and movements. This information could be used to create a profile of their activities and potentially compromise their privacy. It's important to be transparent about how we are collecting and using this information, and to obtain user consent before doing so.

2. Data breaches: Any time we collect personal information from users, there is a risk of that information being exposed in a data breach. If we do not taking proper security measures to protect user data, their GPS location information could be accessed by unauthorized parties or hackers. This could lead to misuse of user data, such as stalking, identity theft, or fraud. Or if our database of GPS location information were to be hacked, it could expose sensitive user information to malicious actors.

3. Legal implications: Depending on the laws and regulations governing the collection of GPS location data, we may be required to obtain user consent or provide users with the ability to opt-out of data collection. Failure to comply with these regulations could put us at risk of legal action.

4. Ethical concerns: Finally, there may be ethical considerations when it comes to collecting GPS location data from users. Users may not want to participate in a system that they perceive as unjust or oppressive, or that they feel violates their values or principles.

Overall, it is important to weigh the potential benefits and risks of taking GPS location from users before making a decision. If we do choose to collect this information, we have to make sure to have proper security measures in place, obtain user consent, and be transparent about how we are going to use this data.

We could also provide users with the ability to anonymously provide their location but it may lead to fake entries and fraudulent activities. Anonymous login makes it difficult to ensure the quality and accuracy of data, as there is no way to verify the identity of users or the information they provide. This can lead to inaccurate or incomplete data, which can impact the effectiveness of the system.

5.CONCLUSION:

In conclusion, a pothole detection system can be a valuable tool for building a bridge between daily customers of roads and civic authorities. By using sensors, cameras, and machine learning algorithms, the system can detect potholes and alert the relevant authorities for prompt repairs. This can improve road safety, reduce maintenance costs, and build trust between the public and government agencies. With the use of advanced technology, we can create more efficient and transparent systems for managing road infrastructure, ultimately leading to safer and better-maintained roads.

6. REFERENCES:

1. Shouvik Mani, Umang Bhatt, Edgar Xi, “Intelligent Pothole Detection”

2. Umang Bhatt, Shouvik Mani, Edgar Xi, Edgar Xi, “Intelligent Pothole Detection and Road Condition Assessment”

3. A. Mednis, G. Strazdins, R. Zviedris, G. Kanonirs and L. Selavo, "Real time pothole detection using Android smartphones with accelerometers," 2011 International Conference on Distributed Computing in Sensor Systems and Workshops (DCOSS), Barcelona, Spain, 2011, pp. 1-6, doi: 10.1109/DCOSS.2011.5982206.

4. Jakob Eriksson, Lewis Girod, Bret Hull, Ryan Newton, Samuel Madden, and Hari Balakrishnan. 2008. The pothole patrol: using a mobile sensor network for road surface monitoring. In Proceedings of the 6th international conference on Mobile systems, applications, and services

(MobiSys '08). Association for Computing Machinery, New York, NY, USA, 29–39. https://doi.org/10.1145/1378600.1378605

5. V. N. P. Mohan, Prashanth and R. Ramjee. Nericell: rich monitoring of road and traffic conditions using mobile smartphones. ACM conference on embedded network sensor systems, 6, 2008.

PREDICTING ACCURACY OF PRECISION AND F-MEASURE USING IMPROVED SUPPORT VECTOR MACHINE AND K-NEAREST NEIGHBOUR

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ABSTRACT:

The music industry has undergone major changes from its conventional existence and also in the form of music created in the last few years. The ever-growing customer base has also increased the market for different music styles. The aim of this study is to accurately predict music genres using Improved Support Vector Machine and K-Nearest Neighbour. In this research work, compare the performance of two classes of models. The first model is an Improved support vector machine which is trained end to end to predict the genre label of an audio signal, solely using its spectrogram. The second model is the K-Nearest neighbour. The sample size for each group is 20 and G power is 80%. The experiments are conducted on the audio set and report an AUC value of 0.894 for an assembler classifier which combines the two different approaches. From the Results it has been observed that the support vector machine algorithm gives accuracy of 69.24% and outperforms the K-Nearest neighbour with an accuracy of 66.51%. It shows the statistical significance $P = 0.001$ ($P < 0.05$) 2-tailed from an independent sample T test. The results proved that the improved support vector machine with a novel Mel-spectrogram approach for the classification of music genre obtained better accuracy than the K-Nearest neighbour approach.

Keywords: *Machine Learning, Classification, Improved Support Vector Machine, K-Nearest Neighbour, Music Genre, Novel Mel-spectrogram.*

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INTRODUCTION:

Genre classification is an important task with many real-world applications. (Singh et al. 2021; Song and Baek 2021) As the quantity of music being released on a daily basis continues to skyrocket especially on internet platforms such as soundcloud and spotify-a 2016 number suggests that tens of thousands of songs were released every month on spotify - the need for accurate meta-data required for database management and search/storage purpose climbs in proportion. Being able to instantly classify songs in any given playlist or library by genre is an important functionality for any music streaming/purchasing service and the capacity for statistical analysis that correct and complete labeling (Zhang et al. 2021; Kang et al. 2021) of music and audio is essentially limitless. Implemented a variety of classification algorithms admitting two different types of input. (Ma et al. 2021; Murphy 2012) explain various applications with a support vector machine and K-nearest neighbour, a basic feed-forward network. For the input of our algorithms, experimented with both raw amplitude data as well as transformed melspectrograms of the raw amplitude data. Then output a predicted genre out of 10 common music genres. It is found that converting our raw audio into mel-spectrograms produced better results on all our models (Duda 1986; Parsian 2015) used in various applications. In the past 5 year, about 75 articles are available in Google scholar, 77 articles are published by IEEE and about 27 articles are published by Springer. (Alpaydin 2016; Raschka 2015) In general, machine learning classifiers will perform well when they are able to understand what makes a data sample a member of a particular class and in many cases when classes tend to be easily separable from one another. When humans are able to recognize the genre of a given audio track, they typically do so based on high level aspects of the sound in question. (Géron 2019; Alpaydin 2014) .As per the literature, the previous work related to classification of music genre not considered many factors for better classification. (Harrington 2011; Molnar 2019; Shalev-Shwartz and Ben-David 2014; Yang et al. 2021) So there is a need for efficient classification of music genres using a Support vector machine algorithm for better accuracy. In the proposed work we found that converting raw audio mel-spectrograms produced better results. Support vector machine algorithm is a supplement of feedforward neural network that uses three layers input, output and hidden layer. This concept has been implemented for the proposed work.

Modules and Implementation:

This research work was conducted at the Networking Lab, Department of smart computing, VIT University, vellore. No ethical approval needed for this work. The dataset has been downloaded with the audio dataset from kaggle. (Harrington 2011; Molnar 2019; ShalevShwartz and Ben-David 2014; Yang et al. 2021; Goodfellow, Bengio, and Courville 2016; Makkinejad et al. 2021) Group 1 is the Improved support vector machine with novel Melspectrogram technique and group 2 is the K-Nearest neighbour algorithm. Using the G-power tool the sample size has been determined as 20 for each of the algorithms. The mean and

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standard deviation has been taken from the previous literature (Prabha et al. 2021; Molina et al. 2021) for calculating sample size with alpha value was 0.71, 89% as CI, power was 80% and enrolment ratio1. The minimum number of samples required for implementation are calculated in a linear calculator with g power 80%, maximum error rate is fixed as 0.2 and alpha - 0.5. In this paper, Anaconda Software and Jupyter notebook. Intel 7th generation and RAM used is 8GB for the testing process. The Support vector machine and K-Nearest neighbour algorithm received the pre-processed dataset with features as input.

Improved Support Vector Machine:

SVM is the most popular supervised learning algorithm used for classification as well as Regression problems. (Hogan et al. 2021; Shao et al. 2021) However, primarily itb is used for classification problems in machine learning. The goal of SVM is to create the best line or decision boundary that can segregate n dimensional space into classes so that it is easy to put the new data in the correct category in the future. This best decision boundary is called a hyperplane. (Wang et al. 2021) SVM chooses the extreme points/vectors that help in creating the hyperplane. Linear support vector machine is used for linearly separable data, which means if a dataset can be classified into two classes by using a single straight line then such data is termed as linearly separable data and classifier is used as (Wang et al. 2021; Wen et al. 2021) Linear SVM classifier. Improved support vector machine uses a novel Mel-spectrogram technique which converts low dimensional input space into high dimensional space. (Manjunath 2021) The input image and the converted image should be taken into various colour models. Convert the images obtained from different color space models into binary images. (Hettithanthri et al. 2021; Zhao et al. 2021; Koenen et al. 2021) Apply the specifications needed in order to detect target regions. Filter the binary image obtained by applying various morphological operators. Collect the parameters from pre-processing stages and pass them to an improved linear SVM function. Then, obtain the various kinds of music genres.

K-Nearest neighbours classifier:

The KNN algorithm is a non-parametric classification method which is used for classification and regression. (Jivani et al. 2016; “Nearest Neighbour,” n.d.; Minor, n.d.) In both cases, the input consists of the k closest training examples in the dataset. The output depends on whether K-NN is used for classification or regression. In KNN classification, the output is class membership. An object is classified by a plurality vote of its neighbours with the object being assigned (Chattopadhyay and Santra 2018; Utami et al. 2021) to the class most its KNN. If K=1, then the object is simply assigned to the class of that single nearest neighbour. In KNN regression, the output is the property value of that object. This value is the average of the values of Kn. KNN is a type of classification (Henze 1986; Piras, Furcas, and Giacinto 2015) where the function is only approximated locally and all computation is deferred until function evaluation.

Since this algorithm relies on distance for classification, uif the features represent different physical units or come in vastly different scales then normalizing the training data can improve its accuracy dramatically.

STATISTICAL ANALYSIS:

IBM SPSS is used for statistical analysis, Open CV, Python 3.9 is used for (Al-Hassani, Atilla, and Aydin 2021; Koenen et al. 2021) implementing the algorithms. The comparison of performance between Improved support vector machine algorithm and K-Nearest neighbour algorithm has been done in IBM SPSS 27.0.1.Target size, sample size, batch accuracy of the prediction outputs are dependent variables. Genres of music such as Hip-hop, Classical, jazz, Pop are the independent variables. The independent sample T test was performed to find the statistical significance between the groups.

RESULTS

Table 1 represents that the accuracy increases as the number of iterations increases. It represents the analysis of SVM with a novel Mel-spectrogram and KNN in terms of mean accuracy, Standard deviation and standard error mean values. Table 2 shows the mean differences, Standard error differences and significance values between two groups. The formula for calculating the accuracy for classification of music genre is presented in Eq. (1) as follows: Accuracy = Tp+Tn/Tp+Tn/Fp+Fn (1) Where Tp = True Positive, Tn = True Negative, Fp = False Positive, Fn = False Negative. Figure 1 represents the accuracy comparison of SVM and KNN algorithms. Improved support vector machines have high significance when compared to the K-Nearest neighbour algorithm.

DISCUSSION:

From the results, it is observed that SVM has achieved Accuracy of 69.24% and performed significantly better than KNN which had accuracy of 66.51% in predicting the classification of music genre. From previous findings it is evident that Improved support vector machine algorithm shows higher accuracy and higher efficiency in prediction of classification of music genres. In this paper the ability of support vector machines and K-Nearest neighbours to predict the classification of music genres is evaluated. (Ishimura 1984; Boccara, Ben Youssef, and Hamedoun 1979; Ismail and Hassan 2002; Myshlyavtsev and Zhdanov 1989) The accuracy values obtained from the dataset shows that Support vector machine is slightly stable compared to the K-Nearest neighbour since the variation in the accuracy value for the Support vector machine for various number of iterations is less compared to the K-Nearest neighbour Algorithm (Ishimura 1984; Boccara, Ben Youssef, and Hamedoun 1979). (Wang et al. 2021) shows that these are the extreme points/vectors that help in creating the hyperplane. The limitations of this work is that genres or styles that are not contemporary marketed in substantial numbers that have been excluded (Ishimura 1984; Boccara, Ben Youssef, and Hamedoun 1979; Ismail and Hassan 2002; Mashkovtsev and Zhdanov 1989; Tanaka and Kawabe 1983; Ismail, Bannora, and Hassan 2004) from this list such as video game music, music hall songs and show tunes etc. The future scope is to use an innovative idea during preprocessing for better results and also the other machine techniques can be used for implementation to make better performance.

CONCLUSION:

Based on the results obtained during the implementation, an improved support vector machine performed significantly higher accuracy 69.24% whereas an accuracy of a K-Nearest neighbour algorithm is 66.51%.

REFERENCES:

Al-Hassani, Raghad Tariq, Dogu Cagdas Atilla, and Çağatay Aydin. 2021. "Development of High Accuracy Classifier for the Speaker Recognition System." *Applied Bionics and Biomechanics* 2021 (May): 5559616.

Alpaydin, Ethem. 2014. *Introduction to Machine Learning*. MIT Press.

2016. *Machine Learning: The New AI*. MIT Press.

Biau, Gérard, and Luc Devroye. 2010. "On the Layered Nearest Neighbour Estimate, the Bagged Nearest Neighbour Estimate and the Random Forest Method in Regression and Classification." *Journal of Multivariate Analysis*. https://doi.org/10.1016/ j.jmva.2010.06.019.

Boccara, N., A. Ben Youssef, and M. Hamedoun. 1979. "Critical Temperature of a Dilute Magnetic System with Nearest-Neighbour and next-Nearest-Neighbour Interactions." *Physics Letters A*. https://doi.org/10.1016/0375-9601(79)90145-2.

Chattopadhyay, Sourav, and S. B. Santra. 2018. "Study of Fractal Ising Magnet with Nearest and next Nearest Neighbour Interactions." https://doi.org/10.1063/1.5032628.

Duda, A. 1986. "Spin-Wave Spectrum in Uniaxial Ferromagnetic Thin Films with Nearest-Neighbour and Next-Nearest-Neighbour Exchange Couplings." *Physica Status Solidi (b)*. https://doi.org/10.1002/pssb.2221380215.

Géron, Aurélien. 2019. *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems*. "O'Reilly Media, Inc."

Goodfellow, Ian, Yoshua Bengio, and Aaron Courville. 2016. *Deep Learning*. MIT Press.

Harrington, Peter. 2011. *Machine Learning in Action*. Manning Publications.

Henze, Norbert. 1986. "On the Probability That a Random Point Is the Jth Nearest Neighbour to Its Own Kth Nearest Neighbour." *Journal of Applied Probability*. https://doi.org/10.2307/ 3214132.

Hettithanthri, Oshadi, Sandun Sandanayake, Dhammika Magana-Arachchi, Rasika Wanigatunge, Anushka Upamali Rajapaksha, Xianjiang Zeng, Qiutong Shi, Huaming Guo, and Meththika Vithanage. 2021. "Risk Factors for Endemic Chronic Kidney Disease of Unknown Etiology in Sri Lanka: Retrospect of Water Security in the Dry Zone." *The Science of the Total Environment* 795 (July): 148839.

Hogan, Alexander H., Michael Brimacombe, Maua Mosha, and Glenn Flores. 2021. "Comparing Artificial Intelligence and Traditional Methods to Identify Factors Associated with Pediatric Asthma Readmission." *Academic Pediatrics*, July. https://doi.org/10.1016/j.acap. 2021.07.015.

Ishimura, Norikazu. 1984. "Spin-Lattice Coupling in an Ising Chain with Nearest Neighbour and Next Nearest Neighbour Exchange Interactions." *Journal of the Physical Society of Japan*. https://doi.org/10.1143/jpsj.53.1472.

Ismail, G., K. Bannora, and S. Hassan. 2004. "Dynamics of Ising Spin Chains with Nearest-Neighbour and next-Nearest-Neighbour Interactions in Random Fields." *Physica Status Solidi (b)*. https://doi.org/10.1002/pssb.200402083.

Ismail, G., and S. Hassan. 2002. "Metastability of Ising Spin Chains with Nearest-Neighbour and next-Nearest-Neighbour Interactions in Random Fields." *Chinese Physics*. https://doi.org/10.1088/1009-1963/11/9/318.

Jivani, Anjali Ganesh, Karishma Shah, Shireen Koul, and Vidhi Naik. 2016. "The Adept K-Nearest Neighbour Algorithm - An Optimization to the Conventional K-Nearest Neighbour Algorithm." *Transactions on Machine Learning and Artificial Intelligence*. https://doi.org/10.14738/tmlai.41.1876.

Kang, Yoojin, Hyunyoung Choi, Jungho Im, Seohui Park, Minso Shin, Chang-Keun Song, and Sangmin Kim. 2021. "Estimation of Surface-Level NO and O Concentrations Using TROPOMI Data and Machine Learning over East Asia." *Environmental Pollution* 288 (July): 117711.

Koenen, Lukas, Philipp Arens, Heidi Olze, and Steffen Dommerich. 2021. "Classifying and Predicting Surgical Complications After Laryngectomy: A Novel Approach to Diagnosing and Treating Patients." *Ear, Nose, & Throat Journal*, July, 1455613211029749.

Kramer, Oliver. 2013. *Dimensionality Reduction with Unsupervised Nearest Neighbors*. Springer Science & Business Media.

Makkinejad, Nazanin, Arnold M. Evia, Ashish A. Tamhane, Carles Javierre-Petit, Sue E. Leurgans, Melissa Lamar, Lisa L. Barnes, et al. 2021. "ARTS: A Novel In-Vivo Classifier of Arteriolosclerosis for the Older Adult Brain." *NeuroImage. Clinical* 31 (July): 102768.

Manjunath, G. 2021. "An Echo State Network Imparts a Curve Fitting." *IEEE Transactions on Neural Networks and Learning Systems* PP (July). https://doi.org/10.1109/TNNLS.2021.3099091.

Ma, Ying, Jianli Wang, Jingying Wu, Chuxuan Tong, and Ting Zhang. 2021. "Meta-Analysis of Cellular Toxicity for Graphene via Data-Mining the Literature and Machine Learning." *The Science of the Total Environment* 793 (June): 148532.

Minor, Daniel. n.d. "Biased Nearest Neighbour Search." https://doi.org/10.22215/etd/ 2015-10682.

Molina, Angel, José Rodellar, Laura Boldú, Andrea Acevedo, Santiago Alférez, and Anna Merino. 2021. "Automatic Identification of Malaria and Other Red Blood Cell Inclusions Using Convolutional Neural Networks." *Computers in Biology and Medicine* 136 (July): 104680.

Molnar, Christoph. 2019. *Interpretable Machine Learning*. Lulu.com.

Mucherino, Antonio, Petraq Papajorgji, and Panos M. Pardalos. 2009. *Data Mining in Agriculture*. Springer Science & Business Media.

Murphy, Kevin P. 2012. *Machine Learning: A Probabilistic Perspective*. MIT Press.

TABLES AND FIGURES:

Table 1. Comparison of accuracy on both SVM and KNN classifiers. The accuracy of the SVM classifier (69.24%) is higher when compared to KNN classifier (66.51%).

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Accuracy	SVM	20	69.24%	.47645	.21307
	KNN	20	66.51%	.46355	.20731

Table 2. Independent sample T test was done for logged data from simulation of 20 samples on both SVM and KNN with 95% confidence interval and 0.05 level of significance. The results produced a significance probability of P = 0 It shows the statistical significance P = 0 (P < 0.05 2-tailed) from an independent sample T test.

Accuracy	Levene's test for equality of variances		T-Test for Equality of Means					95% confidence interval of the Difference	
	F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std.Error Difference	Lower	Upper
Equal Variances Assumed	.020	.891	9.809	8	<.001	2.91600	.29728	2.23047	3.60153
Equal Variances Not Assumed	.114	.745	9.809	7.994	<.001	2.91600	.29728	2.23038	3.60162

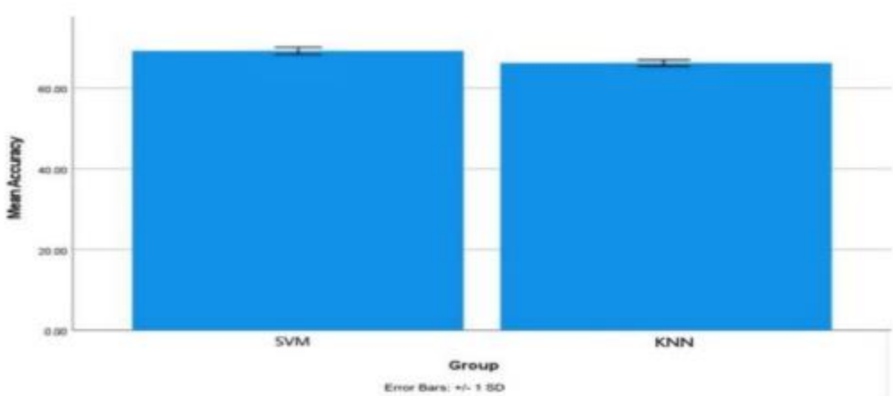

Fig. 1. Comparison of SVM and KNN in terms of mean accuracy. The mean accuracy of SVM is better than KNN. X axis: SVM algorithm vs KNN algorithm and Y axis: Mean accuracy, Error Bar +/- 1 SD.

AR-BASED OUTFIT SHOPPING

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ABSTRACT:

Due to the rapid growth of the internet and technology, people have become more comfortable with online shopping especially during the COVID-19 pandemic when online shopping was the only mean of shopping. Even with the advancement and benefits of online shopping, customers are facing difficulties with how the purchased item will look on themselves or deciding between different brands having different sizing standards, etc. So the objective of this paper is to present an AR Based Outfit Shopping web application using Augmented Reality that provides a virtual trial room for the customers to try on different clothing and accessories so they know exactly what they are getting before purchasing it. This is to improve customers' shopping experience by giving them the ability to virtually try clothing on in order to check for size, fit, or style. Augmented Reality is a technology that superimposes computer-generated information such as graphics over real-world surroundings. In this project, human body detection and motion tracking are integrated to fit the model of clothing and accessories to the customer's body in real-time by tracking the customer's body movements through the webcam on their computer/laptop.

Keywords: augmented reality, online shopping, virtual trial room, OpenCV.

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INTRODUCTION:

With the advancement of the internet and technology, we have the opportunity to not only reduce customer difficulties but also enhance the shopping experience for the customers. The purpose here is to bridge the gap between the virtual world and the real world using technology such as augmented reality. Nowadays, AR applications have been applied to various types of industries such as entertainment, retail, education, medicine and etc. For example, Snapchat provides fancy filters for users to apply over faces to take a picture using AR. In an AR-based environment, the virtual and physical information surrounding the user's current location becomes interactive and digitally manipulated. Users are able to experience a new and enhanced version of the natural world where the superimposed information provides assistance to users' daily activities.

Online shopping has now become a part of our daily life and today's increasingly vibrant economy. Clothing and accessories are first in terms of online purchase frequency. Their sales have increased up to 40% on online platforms but their rate of returns has also increased to 25% in Mumbai only. The main issue with purchasing clothing and accessories online is always a risky endeavor of the user's dissatisfaction with the sizing and fitting of the clothing/accessories purchased or the difficulty the customer faces with matching their complexion and figure or the problem where it is compulsory to physically try clothing on the body in order to check for size, fit or style is still not solved. Therefore this project "AR Based Outfit Shopping" is one of the effective solutions to solve this problem as it provides a virtual environment for the user to try different clothing and accessories which helps to simulate visualization of dressing from the safety of our homes. This will help the users to gain more confidence when purchasing their garments/accessories and reduce the returns of purchased products due to inadequate size or preference. It will provide an in-store experience for users within the safety of their homes. Technologies and languages used to create the proposed system are Augmented Reality, Python, HTML, Javascript, OpenCV, Dlib, Haar cascades datasets and CSS.

REVIEW OF LITERATURE:

Srinivasan K. and Vivek S. [6], in their proposed system, discussed the growth of online shopping and that if a person wants to purchase a dress with full satisfaction and also enjoy maximum utilization and justifies the need to develop an algorithm that virtually dresses people in the selected dress. It will provide a wide choice of online availability with the assistance of feeling how clothes would look.

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Ari Kusumaningsih and Eko Mulyanto Yuniarno [3], successfully developed a virtual trial room for the Madura batik dresses. The proposed system develops a trial room specialized for Madura batik clothes that improve sales performance and also promotes Madura's heritage. No use of high-performing computers in order to implement this virtual trial room as it includes fast computation methods needed for processing various 3D models.

D Werdayani* and I Widiaty [7], in their study, mentioned that the development of a virtual fitting application can be started from the development of learning media about fashion to the application in terms of business both in online stores, department stores, fashion houses, etc. The appearance in the Virtual Fitting Room can be in the form of 2-dimensional images, 3D dimensions, the use of a webcam, and various fashion models of various sizes, all of which aim to make it easier for consumers to search for clothes.

Aishwarya BS, Shreya Srinivas, and Prof. Preet Kanwal [1] in their study discussed the problems faced by the user while purchasing clothing online and proposed an application to help the users since trying clothes is not possible online, have a virtual look at how clothing would look on the user is better how it will have a great impact on the e-commerce web applications and how it will enhance the user's experience.

STATEMENT OF PROBLEM:

Shopping in stores can be tiresome for many customers as they have to frequently go through the trouble of physically changing into various clothing/accessories in order to inspect their fitting, and size and to see how the product actually looks on oneself as images of the same product on the cover model can be misleading as they customize it in a way that it makes it more appealing for viewers. The constant waiting in the queue for the trail room during rush hours or holiday season can waste a lot of customers' time. Even buying clothing/accessories online can cause a lot of frustration to the customer if they have a return it back due to size issues, the look of it oneself, or a dissatisfied feeling after wearing it.

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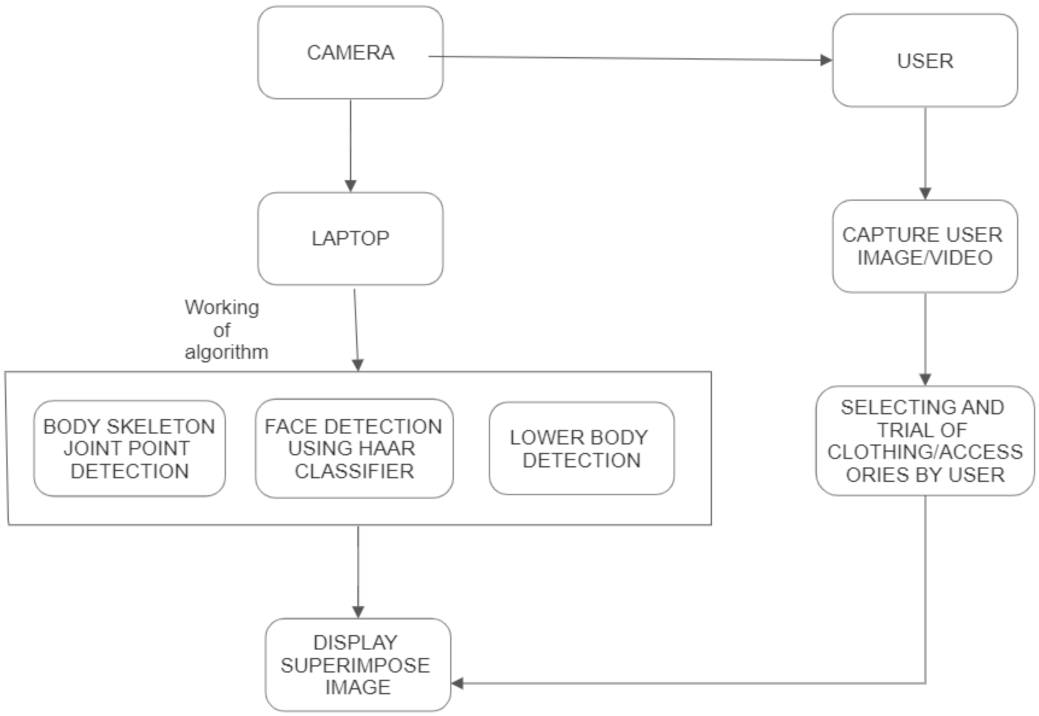
RESEARCH METHODOLOGY:



This system used Haar Cascade datasets for face detection for virtually trying on accessories. In this project, the clothing/accessories must be customized to match the skeleton joint positions since there are suitable datasets. The model is stored in a Portable Network Graphics (PNG) image as it preserves data and there is no loss in data when opened or closed. The information is sent to Image Capture Module and the module analyses each frame in the live video. Detection of an AR Marker is essential to determine the position, and where to place the virtual object. Once the AR Marker is detected, its location is provided as input to the Tracking Module. It calculates the relative posture of the camera in real-time. There are 2 inputs to Rendering Module. First is the calculated pose from the Tracking Module and the other is the Virtual Object to be augmented. The Rendering Module combines the original image and the virtual components using the calculated pose and renders the augmented image on the display screen of the laptop.

WORKING OF PROPOSED MODEL:

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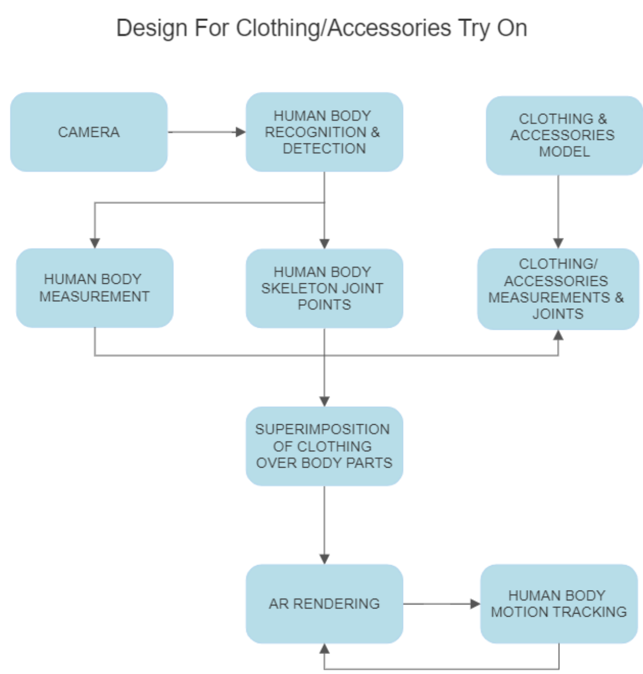
TensorFlow Lite is implemented to estimate the pose of a person in live video by estimating where body skeleton joint positions are. The joint positions detected which are indexed by "Part ID" has a confidence score from 0.0 to 1.0. There are 14 joint positions detected including top, neck, right shoulder, right elbow, right wrist, left shoulder, left elbow, left wrist, right hip, right knee, right ankle, left hip, left knee, and left ankle. OpenCV libraries are used to read the frame and feed the image data into the model to carry out pose estimation. To obtain the body measurements and skeleton joint position of the user's body, the camera will scan and detect the user's body. Autofocus and switching facing are the features of the camera used to obtain the skeleton joint points. With the help of computing the data of body skeleton joint points, clothing/accessories measurements, and body measurements, the model of clothing/accessories is superimposed over the user's body in order to fit the virtual model over the user's body. For superimposing the clothing/accessories model, it is converted into Bitmap class which is used to create realistic graphics and images. The virtual model will keep on rendering as per the body movements.



PRO's:

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AR-Based Outfit Shopping enhances the user's experience by providing an in-store experience within the safety of their houses.

It reduces return rates of the purchased products as users know exactly what they are buying and how it would look on them.

Due to the enhancement, the rate of sales will increase rapidly.

This application would provide more convenience to the users.

This technology can help brands acquire data about their customers and the products they buy.

By introducing a virtual trial room, the customers will perceive that particular company as more innovative and customer focused which in order creates a positive brand image.

CONCLUSION:

This report presents the augmented reality web application "AR Based Outfit Shopping" which provides a virtual trial room where the user can virtually try on clothing and accessories that are rendered on a screen over the live video of the user. The clothing/accessories model will be superimposed on the user's body according to their position and movements. In this report, we also discussed the problems faced by the users while buying clothing/accessories online and also the benefits and features of AR Based Outfit Shopping. This system also provides security to the users as there is always a risk of cameras being hidden in the trial room.

REFERENCES:

Aishwarya BS, S. S. (2022). Virtual Trial Room. International Advanced Research Journal in Science, Engineering, and Technology.

Anagaha Ramesh, A. R. (2017). 3D Virtual Trial Room. International Journal of Engineering Research & Technology(IJERT).

Ari Kusumaningsih and Eko Mulyanto Yuniarno. (2017). User Experience Measurement On Virtual Dressing Room Of Madura Batik Clothes. IEEE.

ISBN NO: 978-93-5810-851-4

Mann S, F. S. (2015). Wearable computing, 3d augmented reality, photographic/video graphics gesture sensing, and surveillance Proceedings of the Ninth International Conference on Tangible, Embedded, and Embodied Interaction 497-500.

Shreya Kamani, N. V. (International Journal of Advanced Computer Technology (IJACT)). VIRTUAL TRIAL ROOM USING AUGMENTED REALITY. 2019.

Srinivasan K. and Vivek. (2017). Implementation Of Virtual Fitting Room Using Image Processing. IEEE.

Widiaty, D. W. (2021). Virtual fitting room technology in fashion design. IOP Conference Series: Materials Science and Engineering.

Yashwant Kanduri, S. D. (2016). A modular Approach for Cloth Modelling in Virtual Fitting Room. h International Conference on Industrial and Information systems(ICIIS).

ACCIDENT DETECTION AND ALERT ANDROID APP

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ABSTRACT:

When a person meets an accident, he is usually not in a condition to interact with an application on his phone and ask for help. In such situation Accident is detected automatically in user app based on sound reading and sensor reading, user app continuously senses for such accidents. App then quickly assigns and sends notification to the nearby Ambulance, nearby hospital and also the police informing in case of an accident detected. Also, the User details are shared with hospital and police which helps hospital to see the medical records of the patient and police gets to see required details of the user in an accident. Also, user is given the option to stop the alert before being sent by app in case of a false alarm in notification bar. The alert message is sent by using gsm module gps sensors , etc There will be police , hospitals, users ,Admin ,Ambulance logins It will also have 15 to 30 secs timer before submitting the alarm so if there is any false alarm the user can cancel it before the timer It will detect using phones sensors.

Keywords-*Accident Detection, Sensors, GPS module, GSM module, Mobile Phone, SMS Alert.*

INTRODUCTION:

Along with increasing demands for automobiles, a drastic increase can be seen in road accidents. As per data given by the WHO (https://www.who.int/news-room/fact-sheets/detail/roadtraffic-injuries) 1.35 million people die every year due to road accidents. This number is sufficient enough to show the global

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crises of road safety & creates a need to improve the road safety facilities & rescue operation system. In most cases when a road accident occurs, the rescue team or the police authorities are not informed in time. Furthermore, the delay caused by the rescue team in reaching the accident site & the heavy traffic congestion in between the accident location and the hospital facilities increases the risk for the victim.

To overcome this issue, we have come up with this accident detection system which will help the victim get rescued well in time and reduce the risk of death caused by the road accidents. The system includes a sensor, sound meter, GPS, and GSM module. The sensors will detect the accident & sound meters will trigger an alarm.

The GPS will track the location coordinates and the GSM will send an alert notification to the nearby hospital and police authorities.

Thus, this system will send an instant alert to the nearby rescue team & hospital facility to notify them of the accident occurred for them to take immediate action.

OBJECTIVES

i. This Application aids in having a better coordination and keeps all the concerned bodies and authorities informed and alerts them quickly which also saves time in rescuing an accident patient.
ii. When a person meets an accident, he is usually not in a condition to interact with an application on his phone and ask for help.
iii. In such situation Accident is detected automatically in user app based on sound reading and sensor reading, user app continuously senses for such accidents App then quickly assigns and sends notification to the nearby Ambulance, nearby hospital and also the police informing in case of an accident detected.
iv. Ambulance then keep updating of the status of patient whether dropped to the hospital. Hospital can also update status if admitted to the hospital from their app.
v. This helps in keeping the assigned hospital prepared and informed.
vi. Also, the User details are shared with hospital and police which helps hospital to see the medical records of the patient and police gets to see required details of the user in an accident.

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RESEARCH METHODOLOGY

Accident Detection: In case 1, if the speed of vehicle dropped down rapidly and a change of tilt angle with road surface increases much, then it detects as an accident. Actually, it means when the threshold values of speed and change of tilt angle of vehicle exceed, then our application considers the situation as an accident. And, this time two flag bits change and flag number tum into '023'. In case 2, when the threshold values of speed and pressure of vehicle exceed, it considers the situation as an accident.

Alarm and Emergency Alert Message: When any one of our proposed accident detection method happen, then an alarm arises. User can press 'Cancel' button and no emergency alert message will send. This kind of situation is considered as a false alarm. Otherwise, an emergency alert message will send to user's emergency contact number, nearest police station and hospital.

STATEMENT OF PROBLEM

The cause of this research is to design and put in force such an automatic device that uses cell phone to detect car injuries and document it to the closest to be had responders to help counter those rising troubles and reduce casualties as lots as viable. The detection gadget might assist reduce fatalities because of vehicle injuries via lowering the response time of emergency offerings. The system may even offer different emergency services like fireplace Brigade, Police department and clinical emergency services. In this work we're making use of android telephone to hit upon accidents and report it to the nearest to be had emergency responders with the precise region of victims in emergency. On an emergency responder aspect, the device will tell responders approximately the incidents that occur near to them and offer them with real time tracking of emergency sufferers on a Google map , this can assist emergency responders maintain song of sufferer’s area and rescue them as soon as possible.

RESULTS:

User Experience (UX): Over 75% of survey participants confirmed “user experience” as the deciding factor in mobile apps and prototype designing to be a crucial entity. In order to get an excellent user experience, a customer should feel comfortable in gadget interaction and feel smart enough to accomplish any task with intuitive use, without any tutorial or additional help. For highly productive user experience and good mobile app designing, it was recommended to consider characteristics such as Quick Start-up time, responsiveness, and focused application purpose when designing, building, and testing the mobile apps.

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User Interface (UI): The mobile apps should be designed to match the look-and-feel of the targeted mobile environment. In addition, the participants believed that functions such as “Back” and “Exit” option should be mandatory and must be included in the mobile apps. Further, there should be closely guided usage paths that suggest the next step to the user, rather than offer multiple paths.

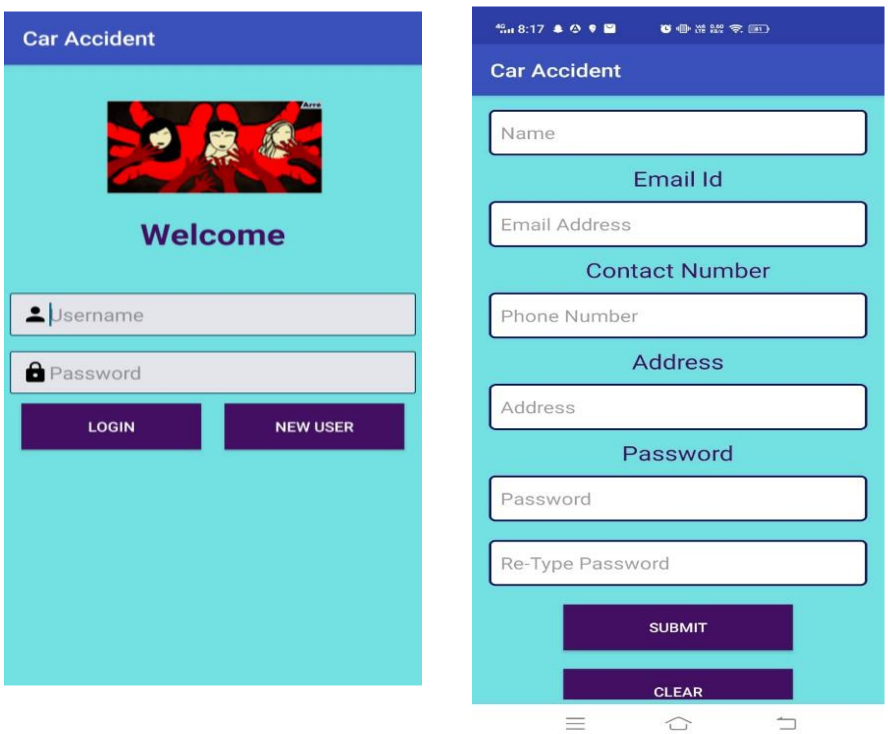

Fig.1. log in screen

Fig. 1 shows log in screen of Car Accident Application, users can use email and password that they used to register, to log in to the system. After users logs in to the system, they will be able to use all system features.

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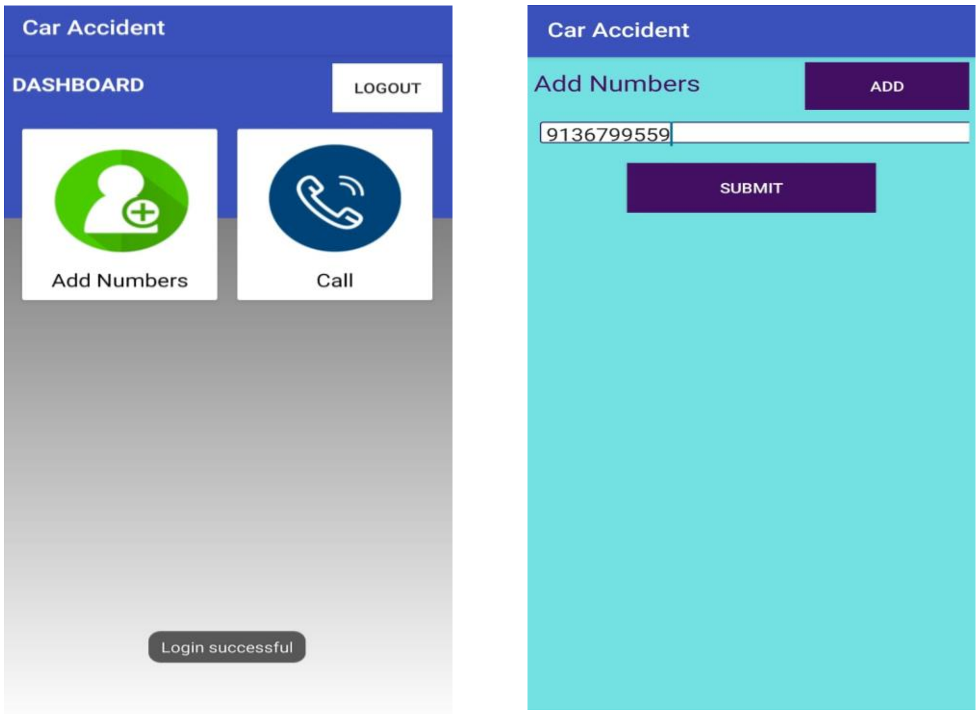

Fig.2. add new user screen

Fig. 2 shows add new user screen of Car Accident Application, users provides email, Password and other details (name, phone and contacts) in order to register. After registration all information will be save

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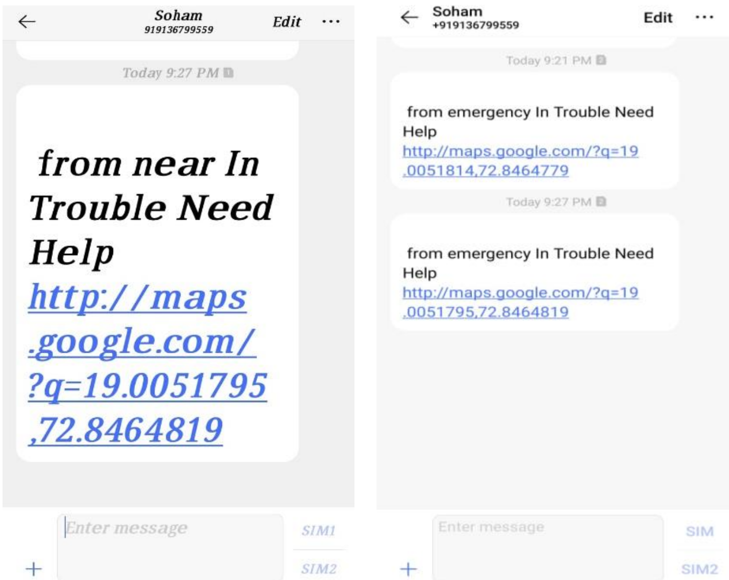
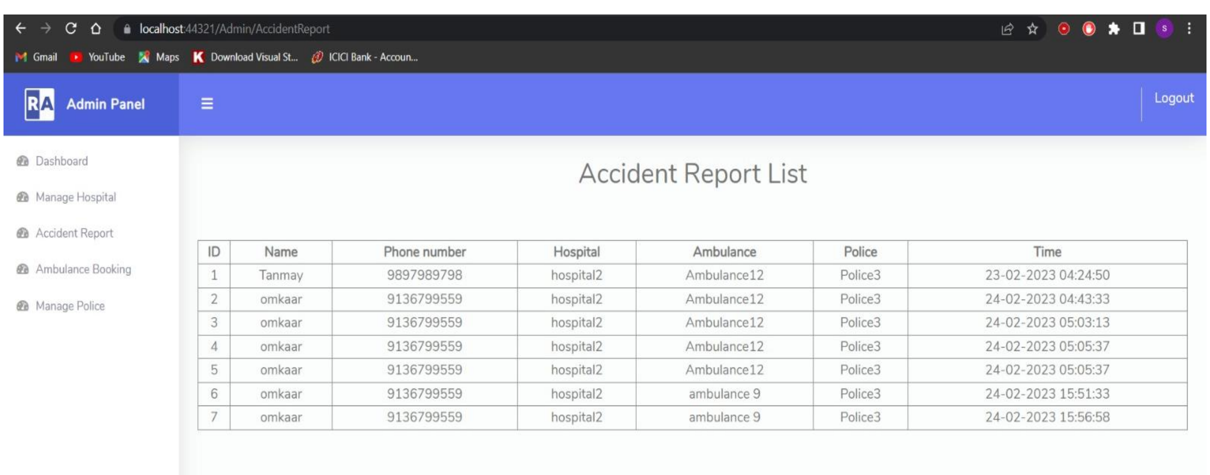
Fig.3. navigation drawer

Fig. 3 shows navigation drawer of Car Accident Application, users can view history of previous emergencies, update their information, add emergency contacts numbers, change password and sign out.



In Fig. 4 and 5, Car Accident Application , will show real time location of emergency victim on a Google map to the emergency responder and it will also send as a notification message.



ID	Name	Phone number	Hospital	Ambulance	Police	Time
1	Tanmay	9897989798	hospital2	Ambulance12	Police3	23-02-2023 04:24:50
2	omkaar	9136799559	hospital2	Ambulance12	Police3	24-02-2023 04:43:33
3	omkaar	9136799559	hospital2	Ambulance12	Police3	24-02-2023 05:03:13
4	omkaar	9136799559	hospital2	Ambulance12	Police3	24-02-2023 05:05:37
5	omkaar	9136799559	hospital2	Ambulance12	Police3	24-02-2023 05:05:37
6	omkaar	9136799559	hospital2	ambulance 9	Police3	24-02-2023 15:51:33
7	omkaar	9136799559	hospital2	ambulance 9	Police3	24-02-2023 15:56:58

Fig.6. Accident Report List

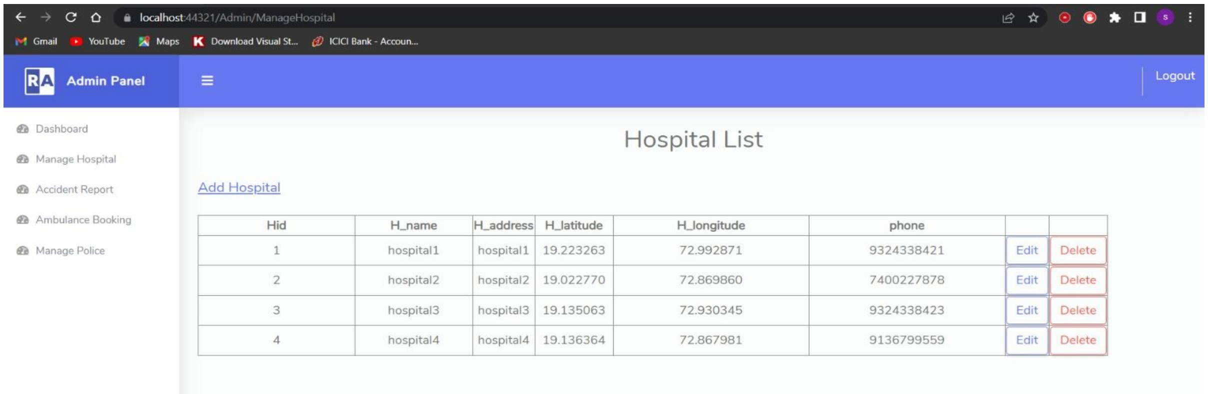


Fig.7. Hospital List

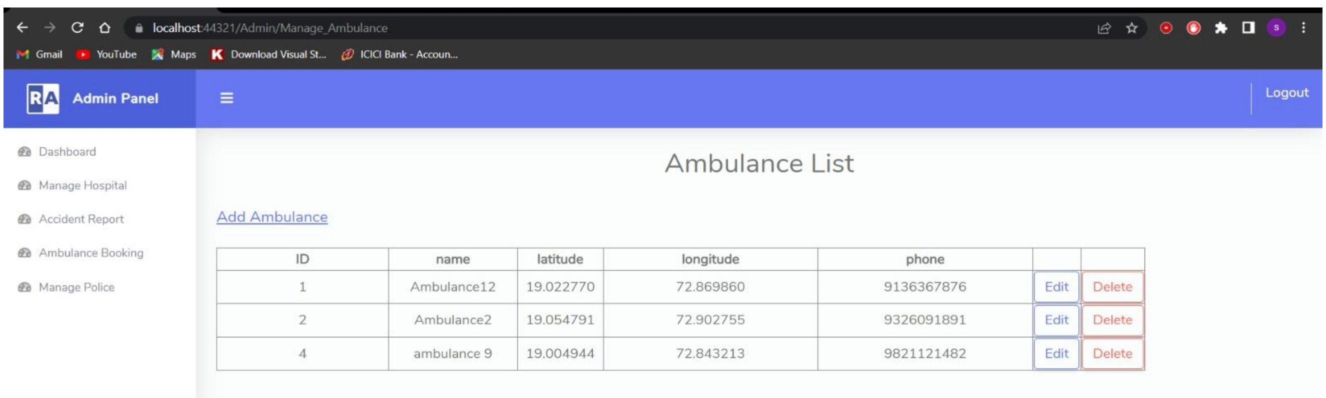


Fig.8. Ambulance List

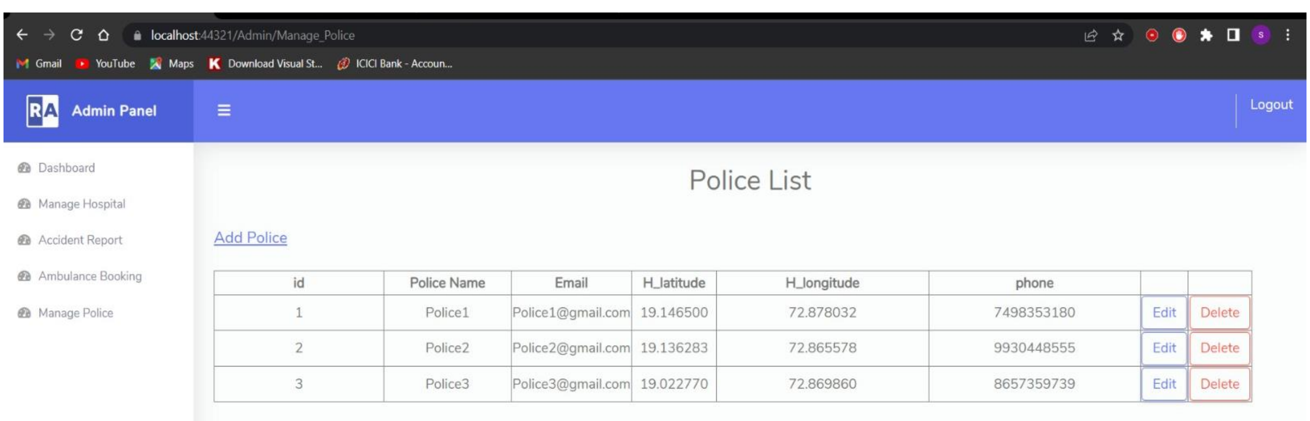


Fig.9. Police List

Fig. 6 , 7 , 8 , 9 shows the Admin Panel of Car Application Application , where we can can view history of accident report list, hospital list, ambulance list and police list. Where we see information is updated everytime when new user entry is made into application.

DISCUSSION:

- It has been realized that the smartphone based car accident detection system is not an easy task to handle. It is really surrounded with many obstacles that prevent the researchers from achieving 100% accurate detection system.
- The main purpose of the system is to find the nearest emergency points from theaccident location this was achieved by using some feature that the GPS receiver and google maps are providing.
- Traffic notification is provided by the system to the nearest app users to get the information
- about the accident place with the help of that they can choose different route to avoid the traffic.
- The probability of false positives in a smartphone-based accident detection and rescue system is inevitable.
- We have added some features to reduce these issues. Here are some features we added to reduce false positives.
- Acceleration filter: The system will ignore g-force values lower than 4g.
- Count down timer alert: On detection of an accident the system will present an alert dialog with 15 sec counts down, which the user will be able to cancel in case accident didn't occur.
- For future work, more research is needed in order to make the accident detection part more reliable and accurate which will help in reducing false positives. Adding additional sensors in combination with accelerometer for accident detection like gyroscope, microphone, camera (to automatically take pictures of the accident) and a voice recognition module to detect noises during a vehicle crash like noise when air bags are deployed, will drastically increase the reliability and accuracy of the system.
- Usually, people will hesitate to do so, as there will be problems if they are involved in the accident case as a witness. So, we can have an Anonymous message that will be sent from the pedestrians to police. Currently, the database is used to store the data of the application users and accident information. But cloud, which has benefits like flexibility, data security, better collaboration, better backup, facilitates innovation, can be used for easy access, and all-time data. Thereby this approach would give more efficient application.

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CONCLUSIONS

The paper presents the accident detection system. This system basically consists of a web part and an android part. The web part is mainly implemented by using JSP (Java Server Pages).

Android applications are constructed using Java as it is simple, object-oriented, secure, platform independent, robust, portable, dynamic, interpreted, multi-threaded etcetera.

The web part is used by the admin. Only the admin has authorized access to the web page. The android application is used by the citizens, ambulance drivers, and policemen. Here the police and the Ambulance driver can also register and can make use of the application as a common citizen. This makes one understand the wide range usability of the accident detection application.

Day by day, research work is increasing in this field and various techniques are implemented to get a more accurate result to avoid accidents as much as possible.

This application makes the people to be aware of the accident location while driving by giving Voice alerts. It’s done by using the cost-effective hardware and easily accessible, usable software.

It provides a realistic solution for the problem of saving lives that’s there in risk because of accidents. The proposed system is working effectively for detection of accidents by providing Voice alerts for the driver. Hence, we assure that this project is a way to help the public to be safe and to rescue lives.

REFERENCES

1. Joaquim Ferreira, Arnaldo Oliveira, Joo Almeida, and Cristvo Cruz, \Fail Silent Road Side Unit for Vehicular Communications.", https://hal.archivesouvertes.fr/hal-00848056 Submitted on 25 Jul 2013
2. Amit Meena, Srikrishna Iyer, Monika Nimje,Saket JogJekar, Sachin Jagtap,Mujeeb Rahman “Automatic Accident Detection and Reporting Framework for Two Wheelers” 2014.
3. Chris Thompson, Jules White, Brian Dougherty, Adam Albright, and Douglas C. Schmidt, \Using Smartphones to Detect Car Accidents and Provide Situational Awareness to Emergency Responders", Institute for Software Integrated Systems
4. Adnan Bin Faiz, Ahmed Imteaj, " Smart Vehicle Accident Detection and Alarming System Using a Smartphone " 2015.
5. Software Engineering (Ninth Edition) by Ian Somerville.
6. Software Project Management (Sixth Edition) by Bob Hughes, Mike Cotterell, Rajib Mall
7. Lucidchart.com for UML diagram.

ISBN NO: 978-93-5810-851-4

8. Head First Android Development: A Brain-Friendly Guide by Dawn Griffiths, David Griffiths.
9. Android Studio IDE Quick Reference: A Pocket Guide to Android Studio Development Ted Hagos
10. Modern Systems Analysis and Design; Jeffrey A. Hoffer, Joey F. George, Joseph,S. Valacich; Pearson Education; Third Edition; 2002.
11. ISO/IEC 12207: Software Life Cycle Process (http://www.software.org/quagmire/descriptions/iso-iec12207.asp).
12. Jorge Zaldivar, Carlos T. Calafate,Juan Carlos Cano, Pietro Manzoni, \Providing Accident
13. Detection in Vehicular Networks Through OBD-II Devices andAndroid-based Smartphones.",Local ComputerNetworks (LCN), 2011 IEEE 36th Conferenc

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RECOGNITION OF MEDICINE USING CONVOLUTIONAL NEURAL NETWORK

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ABSTRACT:

Text in Natural Pictures gives essential information about the scene, conveying information about what is portrayed in the photographs. Many applications exist, including picture searching and indexing, navigation, visual comprehension, car number plate recognition, and human-computer interface. It takes a lot of effort and money to manually assign text to scene photos. Hence, automating text extraction is a difficult operation given that the text may be in a variety of styles, fonts, lighting conditions, low quality, surface deformation, complicated backgrounds, etc. Several approaches have been suggested to address this issue. The work done to automatically detect and recognize text in scene photographs with complicated backgrounds is described in this publication.

INTRODUCTION:

Text messaging is a simple and ubiquitous method of communication. Road signs, store names, posters, product labels, and other items may all have language that we can read. The major issue is that different product labels have a variety of designs and colors. Today, individuals take pictures using cameras. The image of the product that contains text must be identified, and that is what is vital. The process of transforming scanned documents into editable and computer-readable ASCII characters is known as optical character recognition (OCR). The technique of classifying optical patterns seen in a digital image that correlate to alphanumeric or other characters is known as optical character recognition (OCR).

Despite the title's association with optical character recognition, digital image processing

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is also required. So, it is crucial to have baseline knowledge for both character recognition and picture processing.

In our lives, the concept of acknowledgment is crucial. It is a fundamental characteristic of allpeople that, when they view an item, they first acquire all relevant information about it and contrast its characteristics with what is already known about the thing and how it behaves. We can identify a good match when we discover one.

When we view an item, it includes features—a collection of traits about the thing—that serve to characterize it. Whenever these sets are merged, an item will take on a defined shape and size known as the Pattern of the thing. When many objects have the same pattern, these patterns are classified as belonging to the pattern class. Hence, pattern recognition is the process through which the characteristics of objects are allocated to a pattern class.

One of the following two activities might be used to recognize or classify a pattern:

1) Supervised classification (like discriminant analysis), where the input pattern is recognizedas a member of a predetermined class, and

2) Unsupervised classification (like clustering); when the pattern is allocated to a previously unidentified class [2].

3) Applications for fingerprint identification, voice recognition, face recognition, character recognition, and signature recognition may all be created using pattern recognition. Moreover, it may be used to other branches of science including astronomy, engineering, statistics, medicine, machine learning, and neural networks.

The design of a pattern recognition system entails three fundamental aspects:

1) Data gathering and preparation
2) Data Visualization and
3) Making decisions

WORKING OF THE BASIC CNN MODEL:

With the use of the command Sequential, layers are layered in order. Here, each layer is successively added one after the other. Each of the algorithms we've used has Similar core logic; the only variable is the number of layers we've added. As a result, each model is uniquein terms of output precision and outcomes. Essentially, we've used three models

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here:

1. CNN (Convolution
Neural Network)

2. VGG-16.

3. Inception.

REVIEW OF LITERATURE:

An overview of character recognition techniques used in the twenty-first century is provided in this article. The scanning equipment used in character recognition will be discussed first, followed by some highlights of notable research studies that have had a significant influence on character recognition.

From a methodological standpoint, Authors [1] will present the many procedures used in OCR.

(Fig. 2.1)

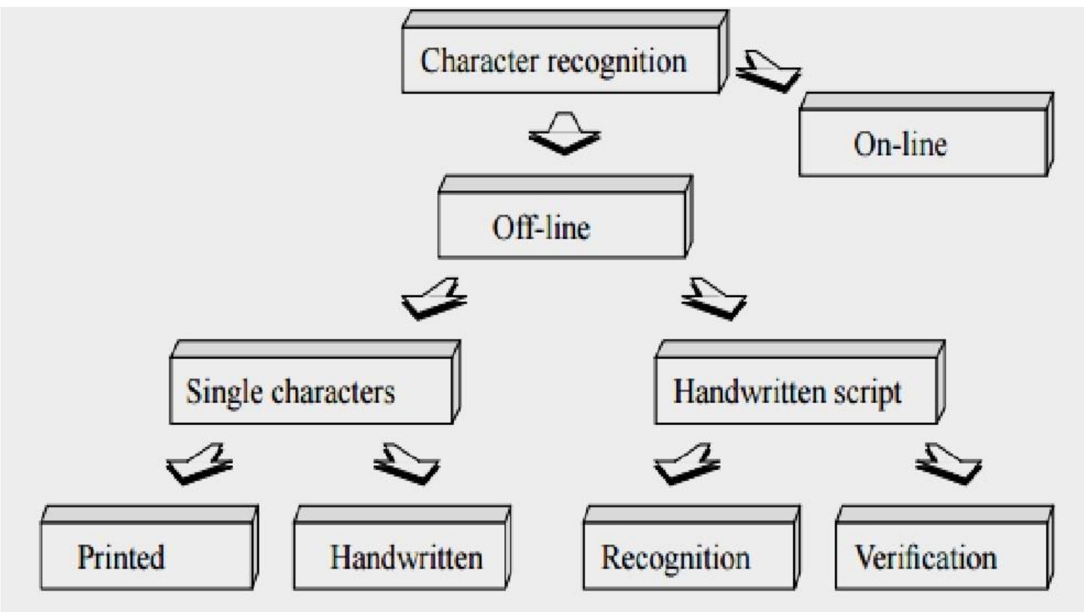

Figure 1. The different areas of character

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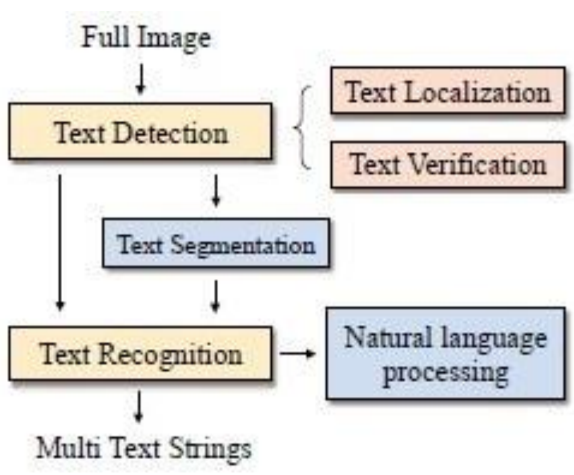
The current state of the art in OCR has evolved from the use of simple schemes for the recognition of stylized printed numbers to the application of increasingly complicated and sophisticated approaches to recognize a wide range of symbols produced by man, that is, handwritten character recognition. Handwritten character identification is not as straightforward as it appears, because even the finest trained optical readers, i.e. human eyes, "make" about 40 errors when reading without context. Mistakes in reading hand-prints are brought on by the limitless variety in forms resulting from the writer's writing habit, style, education, area of origin, social environment, mood, health, and other situations, as well as other elements like the writing instrument, writing surface, scanning methods, and lastly, of course, the machine's character recognition algorithms. The proposed work in [2] paper aims to

1) Describe the underlying issues and current state-of-the-art surrounding scene text recognition;
2) present fresh perspectives and ideas;
3) offer a thorough analysis of resources that are freely accessible; and
4) identify future research prospects.

(Fig. 2.2)



Text detection, text localization, text verification, text segmentation, and text recognition are all examples of end-to-end systems that specify numerous basic issues at different

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points in the above Fig. An end-to-end system disregards some steps.

Several brand-new difficult data sets stimulate fresh study that advances the discipline.

A newly suggested algorithm's ability to advance the state of the art, however, must beevaluated against a variety of different data sets, priors, assessment processes, and testingsettings. Hence, a comprehensive and unbiased comparison is required for further research. about scene text recognition, this article explains the core issues and cutting-edge solutions,offers fresh perspectives and suggestions, and conducts an extensive analysis of publiclyaccessible resources.

This research [3] suggested ST-Med-Box, an intelligent medication identification system based on deep learning algorithms. The suggested system can help chronically ill patients consume their many prescriptions properly & avoid taking the incorrect ones, which could result in drug interactions. It can also include additional medication-related features, such as reminders to take drugs on time, prescribed medications, and chronic patient data management. The suggested system consists of a deep-learning training server, a smartphone app operating on an Android platform, an intelligent medication identification device, and a cloud-based administration platform. Presently, the proposed technique can identify eight distinct medications. The suggested approach can successfully eliminate the issue of drug interactions brought on by taking the wrong medications, hence lowering the cost of medical treatment and providing patients with chronic diseases with a secure pharmaceutical environment.

Many illnesses affect chronic patients, including 480 million senior individuals worldwide today. Physiological processes deteriorate as a result of the numerous medications required for the treatment of pathological conditions. Cognitive function is impaired, which might leadpatients to take the incorrect medication. As a result, the elderly now represent a group at increased risk for hazardous medication reactions. In this study, we successfully created ST- Med-Box, an intelligent medicine identification system utilizing deep learning, to address the issue that taking prescription medications. This system is capable of identifying medicines and providing findings of identification in an organized and useful manner. To address the issue of human error, the suggested system may automatically send alerts with the names of medications and the timing of when to take them. To provide patients with more comprehensive integrated information services, the suggested system also contains a cloud- based database. So, chronic patients do not have to be concerned about forgetting to take theirmedication while following the suggested technique.

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They need only download the proposed Android-based mobile device app and scan the QR codes on their medicine packages to store the corresponding medication information. Following that, users will be able to access associated services such as prescription remindersand records.

To assist blind and partially sighted people in navigating new indoor situations, the author of this [4] study described indoor signs and door-detecting systems. Our interior signage and door recognizer is based on deep learning algorithms. In this study, the author proposes a novel indoor signage and door identification system based on deep learning algorithms. The author employed transfer learning to construct perhaps the recommended classification model, and we identified it by utilizing the 2 strongly regarded state-of-the-art neural network models. In-house signage and door recognition have shown to be highly effective and reliable in tests. The author's findings were incredibly positive, with a recognition percentage of 99.8%.

STEPS FOR DEVELOPMENTS OF MODEL AND ALGORITHMS:

1. To start, we gathered a tonne of data about medications. This is made feasible by applications that convert videos to frames, allowing us to extract and separate images andsave them together with a number in a specific data-set folder. These pictures are helpful for training models. Around 250 or more photos total have been utilized for each drug.
2. We must run models for a certain amount of epochs for training purposes and assess the accuracy levels. If the output accuracy value is sufficient, we will store the weights with the.h5 extension. This file contains number weights settings that allow for the most shown results obtained possible. Each model's training period is determined by the number of epochs and the quantity of the data set.
3. These weight values are now applied each time our main program is launched. There is no need to execute the program with the training phase each time. Hence, our next objective is to see the image produced using offline images. Thus, it turns out to be in good functioning order.
4. We now try utilizing it with live pictures. We take into account various boundary criteria for that reason, such as only taking into account five drugs in the data set. Now, when themain program launches, a picture will be taken using the camera. Then, when clicked, a picture of the pills would be taken. And an algorithm is used to process it. Moreover, the output will be shown on a local host web page. The

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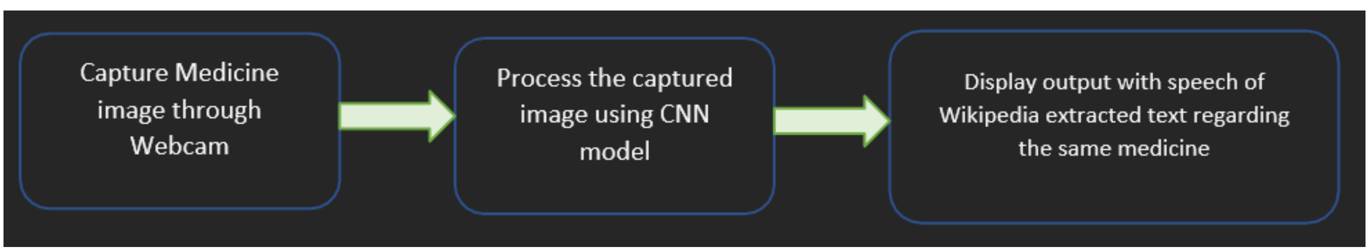
main program is implemented using a variety of libraries.

5. List packages used in the project are: - Numpy, Streamlit, Pillow, Keras, Tensorflow, Cv2, Beepy, Playsound, Open cv-contrib-python, Opencv-python, Wikipedia.

PROPOSED METODOLOGY:

1) Convolution Neural Network (CNN) is the most powerful tool for image processingpurpose.
2) A web application that may be activated by merely clicking on a website anywhere ishelpful for those who are blind.
3) Web support's voice instructions.
4) Audio advice support if any of the medicine is held in front of the camera fromWikipedia.
5) One-click, user-friendly Interface.

BLOCK DIAGRAM OF SYSTEM:



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(Fig. 6.1)

(Fig 6.2)

FUTURE SCOPE:

- In the future we can apply this in hospitals, where people can easily recognize the medicine names and their uses.
- In the future it's possible to use this in Raspberry pi + power bank with camera module +earphones (listen to the audio output) so that this will be treated as a hand-held portable device which could be possible to carry anywhere, anytime accessible device to have the recognition of the medicines and other nearby things those are trained in a module.

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CONCLUSION:

Here, a Python-based system that may be used by people with visual impairments is created. This implementation has allowed us to get the conclusion that CNN is a very potent method that is typically helpful for picture categorization. With the use of several Python modules,the goals of developing a web tool for people with visual impairments have been accomplished. The categorization of medications is being negatively impacted by lightning circumstances, although under normal lighting, CNN may be used without any problems. Moreover, RNN may be used with CNN to increase recognition accuracy for characters in image.

REFERENCES:

[1] Mantas**, "An overview of character recognition methodologies**", National Centre of Medical Documentation, Pattern Recognition, Vol. 19. No. 6, pp. 425 430, 1986.

[2] XIAOXUE CHEN et. al, "Text Recognition in the Wild: A Survey" , J. ACM, Vol. 1, No. 1, Article . Publication date: December 2020.

[3] Wan-Jung Chang et. al., "A Deep Learning-based Intelligent Medicine Recognition System for Chronic Patients", IEEE ACCESS: Access-2019-08126.

[4] Mouna Afif et. al., Recognizing signs and doors for Indoor Wayfinding for Blind and Visually Impaired Persons, 5th International Conference on Advanced Technologies For Signal and Image Processing, ATSIP' 2020 September 02-05, 2020, Sfax, Tunisia

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GROWING INNOVATION: EXPLORING THE IMPACT OF TECHNOLOGY ON AGRICULTURE AND FOOD SECURITY

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ABSTRACT:

Technology has played an important role in the agricultural sector over the past fifty years, with best management practices in the agriculture sector and policies that have been changed for the improvement of agriculture. This has led to growth in global pesticide use, biological pest control, cultural practices inorganic fertilizer, consumption of pesticides, and animals which can reduce the incidence of pests and diseases, feedstuffs and tractors and other machinery. Inorganic remote sensing can provide information to farmers for fertilizers, and precision agriculture is done by matching composts and nitrogen fixing crops. Digital and analytical tools contribute to the continuous improvement of agriculture and this trend will continue, which will lead to higher yields and help increase the incomes of farming communities. In some countries, renewable and resource-saving technologies and practices can create environments that are largely immune to modern, economic benefits for farmers, communities, and technology. India's agriculture is heavily dependent on the monsoon season, and its growing population is putting an enormous strain on its agricultural ecosystem. Declining yield per acre, declining agricultural acreage and climate change are challenges. Risk reduction and sustainable development in agriculture are the only way to achieve and maintain food security, and introducing technology into agriculture can help farmers achieve the goal of doubling incomes and ending hunger.

Keywords: *agriculture, technology, blockchain, food security, sensors, automation, farmers*

1. INTRODUCTION:

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The new or modern technology in the agricultural sector During the past fifty years, development in sustainability. For instance, best management practices in the agriculture sector and policies that have been changed for the improvement of agriculture are widely applied successfully at emphasizing external inputs to increase nowadays. New disease resistant hybrids reduced food production. This has led to growth in global pesticide use, biological pest control, cultural practices inorganic fertilizer, consumption of pesticides, and animals which can reduce the incidence of pests and diseases, feedstuffs and tractors and other machinery. These Insect-specific chemicals and biological insect controls external inputs have substituted for natural resources are now being utilized, instead of broad-spectrum and processes, rendering them less powerful. Pesticides, which reduce the number of sprays, have replaced biological, cultural, and mechanical methods needed and therefore its capitals. IS, Crop models and for controlling pests, weeds and diseases. Inorganic remote sensing can provide information to farmers for fertilizers have substituted for livestock manures, realizing precision agriculture, which is done by matching composts and nitrogen fixing crops. The basic challenge inputs based on actual yields of different portions of sustainable agriculture is to make better usage of these fields. These tools play an important role and can also use internal resources. These resources can be used in agriculture to manage land for agriculture and to minimize the use of external resources through the restoration of wildlife. Use internal resources more efficiently. There is now evidence of increased food production. In some countries in Asia, Africa, and Latin America, evidence is emerging that renewable and resource-saving technologies and practices can create environments that are largely immune to modern, economic benefits for farmers, communities, and technology. There are three common elements in which nations. These have been successful. They are using resource conservation. It is reasonable to assume that population growth will continue and the demands on agroecosystems will increase. Therefore, technology has and will continue to play an important role in agriculture and sustainable development of the future. Technology plays an important role in agriculture and farming practices. And with the advent of digital technology, that scale has expanded. Agricultural innovations lead to evolutions in agricultural practices, reducing losses and increasing efficiency. This has a positive impact on farmers. The use of digital and analytical tools contributes to the continuous improvement of agriculture and this trend will continue, which will lead to higher yields and help increase the incomes of farming communities.

India's agriculture is still heavily dependent on the monsoon season, despite tremendous advances in food production. So even one bad monsoon can have devastating consequences. India's growing population is putting an enormous strain on its agricultural ecosystem. Declining yield per acre, declining agricultural acreage and climate change are challenges India faces in trying to feed its ever-growing population. Risk reduction and sustainable development in agriculture is the only way to achieve and maintain food security. Introducing technology into agriculture can transform agriculture and development as farmers achieve the goal of doubling incomes by proportionally increasing

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production with minimal resources, and ultimately achieve the Millennium Development Goal of ending hunger.

2. OBJECTIVES OF STUDY:

The objective of this research paper is to focus on usage and implementation of technology in agriculture. The objective of using technology in agriculture is to Reduces chemical application in crop production. Efficient use of water resources. Disseminates modern farm practices to improve the quality, quantity, and reduced cost of production. Farming more farms in less time with technology with more outcomes. From easy access to abundant information to bettering the learning processes, the imperative objective of technology is to develop better and efficient methods for carrying out different activities. Technology in agriculture affects many areas of agriculture, such as fertilizers, pesticides, seed technology, etc. Biotechnology and genetic engineering have resulted in pest resistance and increased crop yields. Mechanization has led to efficient tilling, harvesting, and a reduction in manual labour. Food security is defined by FAO as access by all people at all times to the food needed for a healthy and active life. Achieving food security means ensuring that sufficient food is available, that supplies are relatively stable and that those in need of food can obtain it. Although over the years governments, with support from FAO and other development agencies, have addressed food security and its related elements in many ways, today some 800 million people in developing countries - about 20 percent of their total population - are chronically undernourished. With a growing world population - the present figure of 5.7 billion is expected to rise to 8.3 billion by the year 2025 - this situation will worsen unless very determined and well-targeted actions are taken to improve food security. Chronic undernutrition and food insecurity are principally the results of: low productivity in agriculture, frequently caused in part by policy, institutional and technological constraints, high seasonal and year-to-year variability in food supplies, often owing to unreliable rainfall and insufficient water for crop and livestock production, lack of off-farm employment opportunities, contributing to low and uncertain incomes in urban and rural areas. The causes and consequences of food insecurity and poverty are inextricably linked. One way to break this vicious circle is to increase agricultural productivity, particularly where gains can be achieved by small farmers, who are often among the poorest. As the world's population and standards of living rise, the need for food will grow and the availability of underutilized arable land will continue to decrease. It is therefore important to intensify production, using sustainable methods, on land that has agricultural potential and is currently in use, rather than to encroach on land that is only marginally suitable for cultivation.

3. REVIEW OF LITERATURE

- ✓ **Persuasive Technology Method**

Information systems on Agriculture can be a boon to any country, but for the farmers of India, particularly Tamil Nādu, this can be the one which saves farmer's lives. But the farmers are to be given a big push towards using technology for their needs since the trust factor on technology among farmers is very low. This paper discusses about a persuasive technology method (PTM) developed to change the mindset of the farmers towards technology supported farming. The ICT system developed has a website component and a mobile app component. The mobile app is linked to the website with details of marketing and farming accessory like dairy, organic products, and farm machineries. Based on the requirement, the farmer can learn about the crops, marketing his products and by products or getting support for the field operations. Designing the persuasive technology method was done by choosing the different persuasive methods like promotion gifts, awareness get together and targeting the younger generation of the farming families. Effectiveness of the method chosen was tested in real time and metrics were analysed to bring out the best possible PTM. [1]

- ✓ **Smart Farming**

The imperative of any area to involve technology in anything creates loopholes. In terms of implementing Smart Farming Precision Agriculture, several problems arise, especially in rural areas, one of which is the availability of information technology infrastructure. The solution to these problems requires input for policymakers in the success or failure of implementing Smart Farming Precision Agriculture which is based on information technology capabilities. The aim of this research is to understand the relationship between Information Technology capability and Information Systems Project Success models in terms of applying Smart Farming Precision Agriculture and to integrate Information Technology capability and Information Systems Project Success models in the context of implementing Smart Farming Precision Agriculture. The proposed model is developed by adopting Chen's Information Technology capability model and McLean and DeLone's Information Systems Project Success model. The research result is a new model with 21 influential research hypotheses and aims to assess the success of the application of Smart Farming Precision Agriculture as a decision-making material in a project.[2]

- ✓ **Blockchain in Agriculture**

In recent years, information technologies have attained remarkable advantages in promoting the development of sustainability in agriculture. However, challenges still exist in technology implementation, which mainly involves biased points of view, initially higher costs, uncertainty, lack of transparency, and trust. To tackle these challenges, recent research attempts to introduce blockchain technology, combined with ICT, to promote sustainable e-agriculture. Blockchain technology, due to its distributed network system, is believed to enable a more transparent supply chain and rebuild trust between members. Therefore, blockchain-enabled e-agriculture is widely considered as the next step towards sustainable agriculture. Realistically, implementing blockchain technology still offers some key issues, and a new perspective about sustainable data management systems is needed. In this paper, data

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demands from all related parties who care about sustainability achievements in the agricultural sector are taken into consideration. The paper proposes an overall system approach to insert blockchain technology into the current agri-food supply chain. It provides interesting insights about how to achieve sustainability, by creating a new value mechanism among blockchain network members. [3]

✓ Remote Sensing and Monitoring in Agriculture

Multi-temporal and large-scale remote sensing images are very useful for crop monitoring, the HJ Satellites become one of the most important data sources in crop monitoring as the broad-spectral and high-temporal relatively. The paper focused on the agricultural remote sensing monitoring which based on the HJ satellite images, a method of quick processing was carried out. Firstly, image radiation correction, atmospheric correction and more than 10 vegetation indexes are calculated by ENVI/IDL. Secondly, the ArcSDE combined with Oracle Database realizes fast storage of images. Finally, thematic image of agriculture remote sensing monitoring is quickly published in ArcGIS Server. This work provides a complete solution towards fast remote sensing image pre-processing, storage, and publishing for agriculture monitoring. [4]

✓ Food Security Management Technology Based on HAACP and Petri Net

Today food safety has become an important problem in world, involving public health and livelihood. We must ensure proper safety for human health. We make use of HACCP and Petri net combined and look for the actual cause of food hazard. HACCP is management system in which food safety is addressed through the analysis and control of chemical, biological and physical hazards from raw material to finished product. Petri net is also known as place/transition net, it is one of the several mathematical modelling languages for description of distributed systems.[5]

✓ A Model for Secure Food through smart technologies – IOT

Food is a necessity in human life, without it we cannot survive. Even during the time of pandemic, we had to take extra precautions to ensure food security for the food that we consume. During the pandemic people even realised how important is food security and started taking steps towards it. Using Internet of Things (IOT) food quality and security can be achieved by using different sensors used for tracing and tracking things. [6]

✓ Machine Learning for Global Food Security

Food insecurity has become global issue in today’s time. To overcome this, many of the national and international communities have taken serious steps and have adopted various strategies to make sure food is being produced securely, food is being supplied in proper manner and is being stored in proper conditions. Making this possible globally is an intricate task. It also depends on various factors such as, growth in population, limited supply of fresh water, increase in soil erosion, lack of cultivable land, rapid changes in climate, improper practices in agriculture.[7] Machine Learning make use of remote sensing information. For example, we use the data to predict accurate farming yields and can make use

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of adjusted agricultural planning, which can help in saving majority of land and produce more crops according to need.

The outputs of Machine learning are much needed and can add more information which can be used in increasing nutritional value, food security, freshwater management to save proper use of water. Irrigated areas can be identified easily, land susceptibilities and farm area mapping, we can even check soil fertility and soil salinization analysis, resource management and resource planning.[8]

✓ Effective ICTs in agricultural value chains to improve food security.

We have seen current globalization has affected many sectors including agriculture sector. It has shown many opportunities and threats to people who were not prepared to face the challenge. It made a major impact on poor and illiterate people, majorly the rural people and small farmers who have a very small land holding, and do not have access to information or any other way which could have helped them. Information and Communication Technology plays a vital role to make it possible for farmers, new farming techniques.

Technology is showing a positive impact on agricultural sector and food production. Agricultural production will be varying from different region to region and we end up establishing new cropping system and improve effectiveness of supply chains to ensure food security. The impact of these technologies will depend on various conditions, external conditions can be related to various factors such as environment, cultural and political status, affecting the procedure of supply chain, internal conditions can relate to requirements to take inputs and outputs.[9]

✓ Decision Support System for tracking and tracing in food security

Agricultural outputs come in variety of range such as fruits, vegetables, medicinal plants, crops etc. Main problem involves in transporting and storing the food as some of them are easily perishable and very sensitive to climate. This level is decided by the shelf life of a specific food item and is decreased while it is being transported. Techniques we can use in food security are tracking and tracing. The tracking system provides increases transparency of food production, increase customer satisfaction, resolve sophisticated marketing needs. Maps of important regions can easily be processed to make food supply traceable. It also becomes easier for us to trace food easier. We can easily make use of GPS, GIS, digital cartography, remote sensing and automatic data retrieval systems using all the information we get from processed geo-referenced images. With the help of tracking and tracing technology we expect to solve major problem of food security.[10]

✓ Analyse the Influencing Factors of Food Security by Bidirectional Analytic Hierarchy Process

To make sure to maintain food security and hygiene, it is necessary to analyse the influencing factors of food security which is based on food classification and then make a conclusion in quantitative analysis. There is need to analyse the degree of several factors of food security to several kinds of food.

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AHP (Analytic Hierarchy Process) provides a method to calculate weight of factors based on weighing every two factors, which also is the method to transform qualitative analysis to quantitative analysis. [11]

4. RESEARCH METHODOLOGY

This article discussed the importance of technology on agriculture and food security. This helped us understand more about the current startups based on agriculture. We made use of several research papers and websites to gather information. We examined the website and read about their product description to make a detailed analysis of their impact on current agricultural activities and how they impact food security as well.

5. CONCLUSION

World population is slated to grow to about 9 billion by 2050. The challenge is to find ways and means to produce enough to feed it. The challenge of reducing acreage under agriculture and food wastage in production and distribution are having a major impact on the world. The increasing role of technology in addressing these issues is the only way forward to a food-secure future. Technology can help save foreign exchange for countries, increase productivity, and lead to an improvement in the overall standard of farmer communities. India has a long way to go in adoption of modern farming practices through technology. The pace is slow and path-breaking efforts need to be made to educate farmers about the benefits to be had with technology. Transcending the barriers of archaic farming practices and medieval mindsets is the challenge that needs to be overcome for a better tomorrow. Technology in agriculture has the potential to truly lead India to be “Atmanirbhar Bharat” in all respects and be less dependent on extraneous factors.

By 2050, the estimated global population will be around 9 billion. Discovering ways and means to produce enough food to feed it is difficult. The issue of lowering farming land use and food loss during production and distribution are having a significant effect on the global economy. The only way to go forward towards a future with safe food supplies is by utilizing technology more and more. Technology can help nations conserve foreign currency, boost output, and raise the general standard of living of farming populations. India still has a long way to go before adopting technologically advanced modern farming practices. The pace is modest, and innovative initiatives are required to inform farmers about the advantages of technology.

6. FUTURE SCOPE

Food security, poverty, and the overall viability of the agricultural and alimentary systems are all impacted by a number of global developments. In partnership with Oliver Wyman, the World Government Summit unveiled a paper titled Agriculture 4.0 - The Future Of Agricultural Technologies for the 2018 edition of the summit meeting. population growth, resource scarcity, climate change, and food waste. According to the analysis, even though demand is always rising, we will need to produce 70% more food by 2050. A third less than it was a few decades ago, agriculture now provides only 3% of the world's Economy. Almost 800 million people experience hunger in the world. Moreover, in a "business as usual “scenario, even the worst-case scenario, 650 million people, or 8% of the global population, will still be malnourished by 2030. The truth is that there hasn't been much innovation in the sector recently—at least nothing to suggest that food shortages and famine won't be a problem in the ensuing decades. To solve these issues will require a concerted effort by governments, investors, and breakthrough agricultural technologies. The uniform application of water, fertilizer, and pesticides over entire fields will no longer be crucial to agriculture 4.0. Farmers will instead employ the very minimal quantities necessary and concentrate on a small area. According to the paper, technological advancements such as sensors, machines, and information technology will require farms and agricultural operations to be operated substantially differently. Satellite photos, Navigation systems, humidity and temperature sensors, and automation will all be used in agriculture in the future. Farms will be able to be more prolific, efficient, safe, and environmentally friendly thanks to these material removal equipment, robotic systems, and precision agriculture techniques. Governments have a significant role to play in resolving the food shortage problem. They must assume a wider and more important role than only the usual regulatory and facilitation role. By disrupting the usual legacy model and adopting such a programme, governments can enhance food safety while reducing import dependence, become a net exporter of new solutions and intellectual property in addition to products and strengthen efficiency and encourage the transformation towards an innovation- and knowledge-based economy.

7. REFERENCES

[1] 2017 IEEE Region 10 Humanitarian Technology Conference(R10-HTC), 21-23 December 2017, Electronic ISSN: 2572-7621, INSPEC Accession Number: 17579754, DOI: 10.1109/R10-HTC.2017.8288930

[2] 2020 8th International Conference on Cyber and IT Service Management (CITSM), 23-24 October 2020, Date Added to IEEE Xplore: 04 December 2020, ISBN Information: INSPEC Accession Number: 20241453, DOI: 10.1109/CITSM50537.2020.9268807

[3] 2020 IEEE Technology & Engineering Management Conference (TEMSCON), 03-06 June 2020, 15 July 2020, ISBN Information: INSPEC Accession Number: 19772816, DOI: 10.1109/TEMSCON47658.2020.9140121

[4] 2016 World Automation Congress (WAC), 31 July 2016 - 04 August 2016, ISBN Information: INSPEC Accession Number: 16357769, DOI: 10.1109/WAC.2016.7583037

[5] B. Hu, "Food Security Management Technology Based on HACCP and Petri Net," 2010 Third International Conference on Knowledge Discovery and Data Mining, Phuket, Thailand, 2010, pp. 296-298, doi: 10.1109/WKDD.2010.63.

[6] R. Anand and K. Saxena, "A Model for Secure Food through smart technologies - IOT," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 189-192, doi: 10.1109/MECON53876.2022.9752336.

[7] N. Jahan, T. Akilan, and A. R. Phalke, "Machine Learning for Global Food Security: A Concise Overview," 2022 IEEE International Humanitarian Technology Conference (IHTC), Ottawa, ON, Canada, 2022, pp. 63-68, doi: 10.1109/IHTC56573.2022.9998400.

[8] Martinho, V.J.P.D.; Cunha, C.A.d.S.; Pato, M.L.; Costa, P.J.L.; Sánchez-Carreira, M.C.; Georgantzís, N.; Rodrigues, R.N.; Coronado, F. Machine Learning and Food Security: Insights for Agricultural Spatial Planning in the Context of Agriculture 4.0. *Appl. Sci.* 2022, *12*, 11828.

[9] L. J. Armstrong, D. A. Diepeveen and N. Gandhi, "Effective ICTs in agricultural value chains to improve food security: An international perspective," 2011 World Congress on Information and Communication Technologies, Mumbai, India, 2011, pp. 1217-1222, doi: 10.1109/WICT.2011.6141422.

[10] R. Yusianto, Marimin, Suprihatin and H. Hardjomidjojo, "Intelligent Spatial Logistics DSS for tracking and tracing in horticultural food security," 2019 International Seminar on Application for Technology of Information and Communication (iSemantic), Semarang, Indonesia, 2019, pp. 1-5, doi: 10.1109/ISEMANTIC.2019.8884292.

[11] J. Liu, "Analyze the Influencing Factors of Food Security by Bidirectional Analytic Hierarchy Process," 2010 International Conference on Computing, Control and Industrial Engineering, Wuhan, China, 2010, pp. 32-33, doi: 10.1109/CCIE.2010.126.

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DNA DATA STORAGE: THE FUTURE OF INFORMATION TECHNOLOGY

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ABSTRACT:

One common frustration that many computers' users encounter is receiving an error message that says "Low Disk Space!" when attempting to download an application, software, video game, or other files that they have been eagerly anticipating. This issue can be particularly annoying, especially if the user has been waiting for a long time to obtain the desired content. What if I told you there is a possibility to load a considerable amount of data in a tiny droplet-size space? DNA has the potential to store vast amounts of data compactly and durably. This paper provides an overview of the current state of DNA data storage, including the advantages and challenges associated with this technology. We also discuss the potential applications of DNA data storage in the future and the research conducted to overcome the current challenges.

Keywords: *Data, Data Storage, DNA, challenges, Data*

INTRODUCTION:

The amount of digital data generated globally is growing exponentially, and traditional storage solutions are reaching their limits. A report by IDC projects that by 2025, global data generation will reach 175 zettabytes. DNA data storage is a promising alternative that involves encoding and decoding binary data into synthetic DNA. In 2019, scientists encoded all 16 GB of text from Wikipedia's English-language version into synthetic DNA. The potential of DNA data storage was also demonstrated in the Davos Bitcoin Challenge, where a cryptographic puzzle could be encoded into DNA, and participants would sequence the DNA to access the decryption key and claim the prize.

The Davos Bitcoin Challenge aims to explore the potential of blockchain and cryptocurrency for social impact. In the context of DNA data storage, this could involve using blockchain to securely store and manage genomic data, using cryptocurrency to incentivize data sharing and participation in research,

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and developing blockchain-based storage solutions for greater security and accessibility. These emerging technologies have the potential to revolutionize how we store, share, and analyse genomic data, with significant implications for healthcare and scientific discovery.

WHY DO YOU NEED DATA SPACE?

Data space, or storage capacity, is crucial for efficient digital data storage, backup, business operations, data analysis, and storing digital media. With the exponential growth of data being generated globally, traditional storage solutions are reaching their limits, making alternative solutions like DNA digital data storage more appealing. This involves encoding and decoding binary data to and from synthesized strands of DNA, which can provide more durable and higher-capacity storage solutions. As data generation continues to grow, having sufficient data space remains essential.

Big Data: Big data refers to large and complex data sets that traditional data processing methods cannot handle. With the exponential growth of digital data being generated globally, big data analysis is crucial for informed decision-making. DNA data storage, which encodes binary data to synthesized strands of DNA, offers more durable and higher-capacity storage solutions for big data. Advances in DNA synthesis and sequencing technologies have made it easier and more affordable to store and retrieve data using DNA. However, challenges such as high costs and time for DNA synthesis and sequencing need to be addressed. DNA data storage has the potential to provide efficient and secure data storage and retrieval as the amount of data generated globally continues to increase.

EVOLUTION OF DATA STORAGE DEC

Data storage devices have evolved significantly over time, from early storage solutions such as punch cards and magnetic tapes to modern solid-state drives and cloud storage solutions. Here is a brief overview of the evolution of data storage devices:

1. Punch cards: In the early days of computing, punch cards were used to store and retrieve data. These were physical cards with holes punched in them to represent data.
2. Magnetic tapes: Magnetic tapes were used as a primary storage medium in the early days of computing. They used magnetic fields to store and retrieve data.
3. Floppy disks: Floppy disks were introduced in the 1970s and became a popular storage medium for personal computers. They were small and portable but had limited storage capacity.
4. Hard disk drives: Hard disk drives (HDDs) were introduced in the 1950s and became the primary storage medium for computers. They use rotating disks to store data magnetically.
5. Solid-state drives: Solid-state drives (SSDs) are a newer type of storage device that uses flash memory to store data. They have no moving parts and are faster and more dependable than HDDs.

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6. Cloud storage: Cloud storage has become increasingly popular in recent years. It allows users to store and access data over the internet, rather than on physical storage devices.

Overall, the evolution of data storage devices has been driven by the need for larger storage capacity, faster access times, and more reliable storage solutions.

3.1 What is Cloud Storage and why not use it?

Cloud storage is a data storage model that offers scalability, accessibility, cost-effectiveness, data redundancy and disaster recovery, and advanced security features. It is a convenient and secure solution for data storage, increasingly adopted by businesses and individuals. However, careful evaluation of cloud storage providers and their security measures is important.

Cloud storage may pose security risks, require internet connectivity, incur subscription costs, limit control over data, and have slow data transfer speeds. It is important to weigh these potential drawbacks when considering cloud storage as a data storage solution.

3.2 What makes DNA so great

DNA (deoxyribonucleic acid) is a remarkable molecule that plays a crucial role in the evolution and diversity of life on Earth. There are several reasons why DNA is considered great:

- Information storage: DNA can store vast amounts of genetic information in its structure, which determines an organism's physical and behavioural traits and is passed down from one generation to the next.
- Replication: DNA can replicate itself, which is essential for transmitting genetic information from parent to offspring and for maintaining and repairing cells in an organism's body.
- Variation: DNA can undergo mutations and recombination, creating a genetic variation that drives the evolution and adaptation of species to change environments.
- Universality: DNA is found in all living organisms, from bacteria to humans, and follows the same basic rules of genetic coding and information transfer.
- Stability: DNA is a stable molecule that can repair damage and maintain its structure over time, allowing for accurate transmission of genetic information from one generation to the next.

4.HOW IS DNA USED FOR DATA STORAGE

DNA has been explored as a potential data storage medium due to its incredible storage capacity and long-term stability. To use DNA for data storage, digital information is first converted into sequences of the four nucleotide bases that make up DNA (A, C, G, T), which are then synthesized and stored as physical strands of DNA. Retrieving the stored data requires sequencing the DNA and converting the base sequences back into digital information.

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Although DNA data storage is still in the experimental stage, it has the potential to revolutionize data storage technology by offering an ultra-compact, long-lasting, and energy-efficient alternative to traditional data storage methods.

HOW IS DNA USED FOR DATA STORAGE

Encoding the Data: To store digital information in DNA, the four nucleotide bases that makeup DNA—adenine (A), cytosine (C), guanine (G), and thymine—must first be coded with the information (T). Usually, an algorithm is used for this encoding, mapping the digital data to a certain order of nucleotide bases.

Steps for encoding data in DNA: -

1. Encoding:
   i. Encoding Arbitrary Data

      In the first step, choosing the DNA sequence that will be utilised to represent the digital data is important. The coding technique shown in *Table 1* maps the digital information into sequences of nucleotides, which can be used to accomplish this.

      00=A, 01=C, 10=G and 11=T

Previous	**1**	**2**	**3**
T	A	C	G
G	T	A	C
C	G	T	A
A	C	G	T

Table 1: Coding scheme for encoding data

Tables must be numbered using Arabic numerals. Table captions must be centred. Captions with table numbers must be placed after their associated tables, as shown in *Table 1*.

if the previous nucleotide in the sequence is T (thymine), and the trit is 2, the next nucleotide will be G (guanine)

For example, suppose you have the following binary data:

'011001000110100101101100'

To convert this into nucleotides, you first group it into sets of 3 bits each like this:

011 001 000 110 100 101 101 100

Then, convert each set to a nucleotide using the coding scheme above:

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011=C, 001=A, 000=A, 110=T, 100=G, 101=C, 101=C, 100=G

The final sequence of nucleotides would be 'CAATGCCG'

ii. Encoding text

a. Text to Binary Conversion: Before text information can be represented as nucleotides, it must be converted into binary code (0s and 1s) (A, C, G, and T).
b. Fragmentation: The binary code is then split into manageable chunks of a specific size. An oligonucleotide is a single segment.
c. Error correction coding: To ensure that the encoded data is accurate, it is done on the oligonucleotides. To accomplish this, extra bits are added to the code, enabling the decoding process to identify and fix errors. The oligonucleotides are then chemically produced using a DNA synthesizer.

Although text data encoding in DNA is a possible approach for data storage, there are still many problems to be overcome, such as the cost and efficiency of the encoding and decoding procedures.

2. Synthesizing the DNA: Once the data is encoded, the next step is to synthesize the DNA sequence. This can be done using a process called DNA synthesis, in which chemical building blocks (nucleotides) are added one by one to a growing DNA chain to create a specific sequence.
3. Storing the DNA: The synthesized DNA can be stored in a tube or other container, which can then be frozen or lyophilized (dried) to increase its stability and longevity.
4. Retrieving the Data: To retrieve the data, the DNA sequence must be decoded back into its original digital form. This can be done using a process called DNA sequencing, which reads the nucleotide sequence and converts it back into digital data.

ADVANTAGES

DNA data storage has several advantages over traditional data storage solutions. Firstly, DNA is an incredibly compact storage medium. The information contained in DNA is stored in the sequence of its four nucleotide bases, which can be represented by the letters A, C, G, and T. Each nucleotide can store 2 bits of data, which means that a single strand of DNA can store up to 215 petabytes (1 petabyte = 1 million gigabytes) of data. Secondly, DNA has an incredibly long lifespan. Scientists have been able to extract DNA from fossils that are millions of years old. This means that DNA data storage can last for centuries, if not millennia. Thirdly, DNA data storage is also incredibly energy-efficient. DNA can be synthesized and stored at room temperature, which means that it does not require any additional cooling or energy-intensive processes.

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CHALLENGES

Despite the many advantages of DNA data storage, several challenges need to be overcome. Firstly, the cost of DNA synthesis and sequencing is still prohibitively expensive. This means that DNA data storage is not yet cost-effective for storing substantial amounts of data. Secondly, the process of writing and reading data to and from DNA is still slow and error-prone. Thirdly, the infrastructure required for DNA data storage, such as specialized sequencing equipment, is not yet widely available.

APPLICATIONS

DNA data storage has the potential to be used in a variety of applications. For example, it could be used for long-term archival storage of large amounts of data, such as digital records, historical documents, and cultural artefacts. It could also be used for storing sensitive information that needs to be kept secure for a long time, such as medical records or financial data. Additionally, DNA data storage could be used for data backup and disaster recovery, as well as for space exploration.

CONCLUSION

DNA data storage has the potential to revolutionize the way we store and access information. Although there are still several challenges that need to be overcome, the advantages of DNA data storage make it an attractive alternative to traditional data storage solutions. As the technology continues to improve and become more cost-effective, we will likely see more widespread adoption of DNA data storage in the coming years.

REFERENCES

- https://medium.com/techtalkers/dna-the-future-of-data-storage-de564ea10dac
- https://www.scientificamerican.com/article/dna-the-ultimate-data-storage-solution/
- https://en.wikipedia.org/wiki/DNA_digital_data_storage
- https://www.science.org/doi/10.1126/science.aaj2038
- https://youtu.be/PvI_nzBU6MA
- https://youtu.be/wxStlzunxCw
- DNA storage: research landscape and future prospects- Yiming Dong. Fajia Sun, Zhi Ping, Qi Ouyang, and Long Qian

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EXPLORING THE CAPABILITIES AND LIMITATIONS OF DALL-E 2: A GENERATIVE MODEL FOR IMAGES FROM TEXT

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ABSTRACT:

This research paper focuses on DALL-E 2, an AI model developed by OpenAI that generates original images from textual descriptions. The paper discusses the architecture of DALL-E 2, which is based on a transformer neural network, and the various auxiliary components that contribute to its effectiveness. The paper then explores the potential applications of DALL-E 2 in fields such as web design, gaming, advertising, education, and art and design. The paper also acknowledges the limitations of DALL-E 2, including biases, inconsistent image quality, difficulties in generating images from complex descriptions, and limited control over the output. Finally, the paper touches upon security concerns, including the potential for misuse, privacy violations, and intellectual property infringements.

Keywords: *: Image Generation, Neural Networks, Diffusion, AI, Creative Technology.*

1. INTRODUCTION

Artificial intelligence has come a long way since its inception and is now being used to create images that are not only lifelike but also conceptually imaginative. This new paradigm in AI is known as generative models, which can create new data based on a set of learned parameters. One of the most recent and remarkable examples of generative models is DALL·E 2, developed by OpenAI. The model

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has the capability to generate original images from textual descriptions, which was previously an open research problem in computer vision. With its ability to generate images from a diverse set of descriptions, it opens new possibilities in fields such as web design, gaming, and advertising. Through a comprehensive analysis of DALL-E 2, we aim to provide a deeper understanding of this remarkable technology and its potential to shape the future.

2. LITERATURE REVIEW

DALL-E 2 is an advanced image generation tool developed by OpenAI that uses a transformer-based model to generate high-quality images from textual descriptions.

Several studies have explored the capabilities and limitations of DALL-E 2, highlighting its potential applications in various domains. For instance, in a recent study by Zhou et al. (2021), the authors evaluated the performance of DALL-E 2 in generating images of complex 3D objects and scenes, demonstrating that the tool can generate realistic and detailed images that capture the spatial relationships between different objects.

Other studies have focused on the technical aspects of DALL-E 2, exploring the design choices and trade-offs involved in developing an image generation tool based on transformer models. Despite its impressive capabilities, DALL-E 2 also has some limitations and challenges that need to be addressed. For example, the tool may struggle with generating images that require specific fine-grained details or context-dependent interpretations. Additionally, the computational and data requirements of DALL-E 2 may limit its scalability and accessibility in certain applications.

3. RESEARCH METHODOLOGY

As one of the first beta testers, we were granted access to DALL-E 2 to test its capabilities and provide feedback to the developers. We received an initial allocation of 50 credits, which allowed us to generate a limited number of images, and then 15 credits every month thereafter. During the beta testing program, we had access to a range of features and settings that allowed us to customize the output images.

Precautions taken to avoid bias: To ensure the objectivity and reliability of the results, the researcher took several precautions to avoid bias. For example, the researcher randomly selected prompts to generate images, avoided using prompts that might introduce personal biases, and carefully monitored the output images for any signs of bias or distortion.

4.ARCHITECTURE

A layman and abstract explanation of how image generation works:

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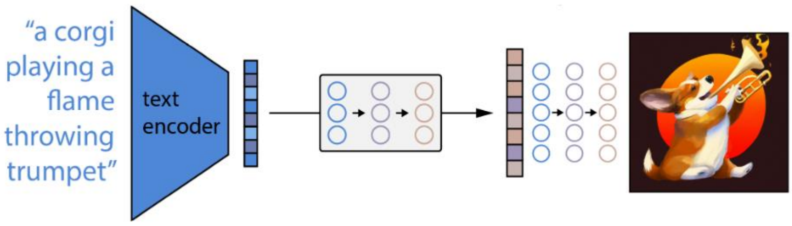
Text Encoding: A text encoder takes the input text prompt and maps it to a dense, continuous representation space. The encoder is typically a neural network trained on a large corpus of text to extract the most salient features of the input text.

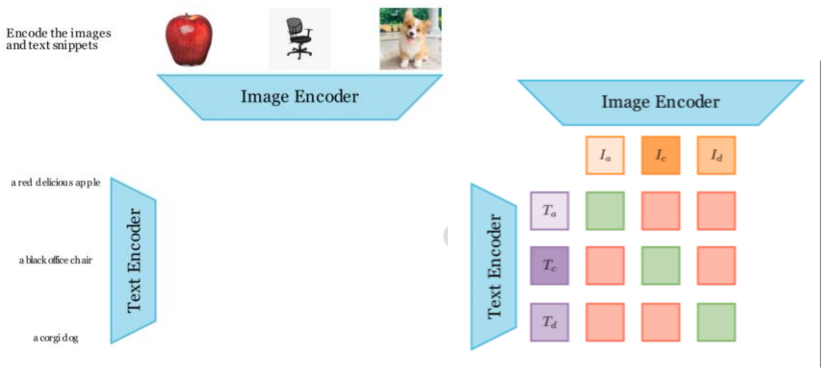
Prior Model: A prior model is a conditional generative model that takes the text encoding as input and produces a corresponding image encoding. The prior model learns to map the text encoding to a distribution over image encodings that captures the semantic information of the text.

Image Decoding: An image decoder takes the image encoding produced by the prior model and generates an image that is a visual manifestation of the semantic information in the input text prompt. The image decoder is typically a generative model that produces an image by sampling from a distribution over images that best match the image encoding.



A detailed working of DALL-E:

To learn the relationship between textual semantics and their visual representations, DALL-E 2 uses a pre-trained model called CLIP (Contrastive Language-Image Pre-training). CLIP is a neural network that has been trained on a large dataset of image and text pairs to learn a joint representation of text and images. The model learns to associate text descriptions with corresponding images by contrasting positive and negative examples of text and image pairs.



What is CLIP? How does it work?

CLIP is a model that uses a contrastive objective to learn joint representations of text and images, allowing it to understand the degree of association between an image and any given caption. The model

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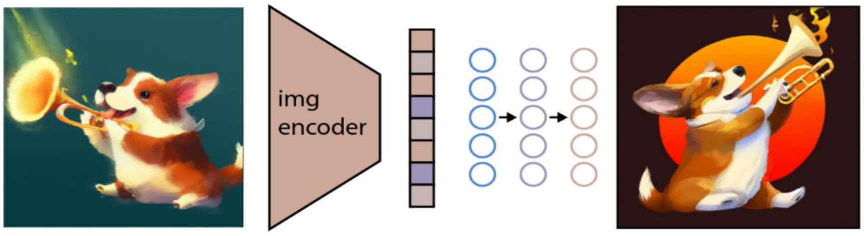
consists of a text encoder based on a Transformer architecture and an image encoder based on a Vision Transformer. During training, the model maps all images and their associated captions into a shared representation space, calculating the cosine similarity between each (image, text) pair. The training objective is to maximize the cosine similarity between N correct encoded image/caption pairs while minimizing the cosine similarity between N^2 - N incorrect pairs. This contrastive objective allows CLIP to learn to better associate images and their corresponding text descriptions. One advantage of CLIP is that it can be parallelized easily, making the training process more efficient and faster.

The use of GLIDE Model: OpenAI uses a modified version of the GLIDE model, which was developed in-house, to generate images in DALL-E 2. The goal of the GLIDE model is to invert the image encoding process and decode the image embeddings generated by CLIP. Unlike an autoencoder, the aim is not to create an exact reconstruction of the original image from its embedding, but to create an image that retains the most important features of the original image, based on its embedding. To perform this image generation, the GLIDE model uses a Diffusion Model, which allows for stochastic generation of images. The use of this model enables DALL-E 2 to create images with diverse characteristics based on the same text input.



5.FEATURES

Image generation: DALL-E's main feature is generating images from textual prompts. It can understand a wide range of prompts, from simple descriptions like "an armchair in the shape of an avocado" to more complex ones like "a two-story pink and green house with a white fence and a red door." It can even generate surreal images like "a giraffe wearing a bowtie and sitting on a couch.". Prompt: “a giraffe wearing a bowtie and sitting on a couch.”

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Outpainting: DALL-E can also perform "outpainting," which means generating new pixels outside the boundaries of an existing image. For example, if you give DALL-E an image of a bird perched on a branch, it can generate a larger image that shows more of the branch or even the entire tree. This feature has potential applications in the film industry for expanding the boundaries of a shot or in the gaming industry to create more detailed game worlds.

(Left : Input , Right : Output)

Inpainting: DALL-E can make realistic edits to existing images. For example, you could give it a picture of a cat sitting on a windowsill and ask it to remove the cat and replace it with a vase of flowers. DALL-E can generate a new image that looks like the original but with the requested changes. This feature could be useful for graphic designers or marketers who need to make changes to images quickly and efficiently. Prompt: “Add a floatie shaped like a flamingo.” (Left : Input , Right : Output)

Variations: DALL-E can also create variations of an image based on a textual prompt. For example, you could give it an image of a chair and ask it to generate ten new images of chairs with different designs, colors, or materials. This feature could be useful for furniture designers or architects who need to explore different design options quickly and easily.

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6. POTENTIAL APPLICATIONS

Web Design: DALL-E's ability to generate images based on textual prompts could be useful in web design. Web designers often need to create custom graphics and images for websites, and DALL-E could automate this process to some extent. For example, a web designer could give DALL-E a prompt like "a hero image with a cityscape in the background and a person using a laptop in the foreground" and receive a custom image that fits their needs.

Gaming: DALL-E's outpainting feature could be useful in the gaming industry. Game developers often need to create large and detailed game worlds, and DALL-E could help them do so more efficiently. For example, if a game developer has an image of a forest, they could use DALL-E to generate more trees, foliage, and other elements to make the forest more detailed and immersive.

Advertising: DALL-E's ability to make realistic edits to existing images could be useful in advertising. Advertisers often need to make changes to images quickly and efficiently, and DALL-E could automate this process. For example, an advertiser could give DALL-E a picture of a product and ask it to generate ten different variations with different colours or textures.

7.LIMITATIONS

Despite its impressive capabilities, DALL-E 2 also has some limitations that must be considered. Some of the limitations include:

Spelling and grammar: DALL-E 2 can sometimes generate images with words that do not make sense, as well as words with incorrect spelling or grammar. The generated images may still be visually impressive, but the quality of the text can detract from the overall effect of the image. Prompt: “Make a meme on reset ckt”

Distorted human faces and limb: In some cases, the generated images may contain inaccuracies or distortions that make them look less realistic or lifelike. For example, the faces may have distorted features or incorrect proportions, leading to a result that does not resemble a real human. Similarly, when generating

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images of hands and fingers, the model may not always get the number of fingers or the positioning of the fingers correctly. This can result in images that appear unrealistic or distorted.

Bias: Like many AI models, DALL-E 2 has been trained on a large dataset, which may have inherent biases that the model has learned from. These biases can be reflected in the generated images and could lead to negative consequences, such as perpetuating stereotypes or discrimination. For example, if the dataset used to train DALL-E 2 includes more images of men than women, the model may generate more images of men than women, leading to gender bias in the generated images.

Quality: DALL-E 2 is a remarkable advancement in the field of AI, but it is not yet at the level where it can consistently generate images that are indistinguishable from photographs. While the images it produces can be of high quality, they may contain artifacts or inconsistencies that detract from their overall quality. These imperfections can be caused by the limitations of the model, such as the capacity to generate textures, small details, or realistic lighting effects.

8.SECURITY CONCERNS

Some of these concerns include:

Misuse: The misuse of DALL-E 2-generated images has been a growing concern, especially with the increasing realism of the images generated by the model. For example, fake images generated by the model could be used to spread false information or propaganda, creating a significant impact on public opinion. Additionally, the model can be used to generate images for identity theft or other types of fraud, causing harm to individuals or businesses. As the model continues to improve, it becomes increasingly important to develop safeguards and ethical guidelines to prevent its misuse.

Privacy: DALL-E 2 requires access to large amounts of data to generate high-quality images. This data may include personal information, such as photographs and descriptions of individuals. The use of this data without proper consent or protection can result in privacy violations. As the model becomes more advanced, it may become possible to generate images of real people, which could be used for identity theft, harassment, or other malicious activities. To prevent privacy violations, it is essential to develop ethical guidelines and regulations to govern the use of DALL-E 2.

Intellectual Property: The images generated by DALL-E 2 may infringe on existing intellectual property rights, such as patents or copyrights. For example, the model may generate images that resemble existing products or brands, leading to disputes over ownership and rights. As the model becomes more widely used, it is essential to develop regulations and guidelines to govern the use of these images and protect the rights of individuals and organizations.

9.CONCLUSION

DALL-E 2 represents a major advancement in the field of artificial intelligence and has the potential to revolutionize the way images are generated and used. This model can generate high-quality images from textual descriptions, making it a powerful tool for creative professionals in a variety of fields. The transformer architecture of the model, which consists of an encoder and a decoder, allows for a high degree of control over the generated images. The development of DALL-E 2 highlights the potential for AI technology to shape the future of image generation and usage, and it will be exciting to see how this technology is adopted and applied in the years to come.

10.REFERENCES:

[9] Borji, A. (2022). Generated faces in the wild: Quantitative comparison of stable diffusion, midjourney and dall-e 2. arXiv preprint arXiv:2210.00586.

[10] Ramesh, A., Dhariwal, P., Nichol, A., Chu, C., & Chen, M. (2022). Hierarchical text-conditional image generation with clip latents. arXiv preprint arXiv:2204.06125.

[11] Lee, S. DALLE-2.

[12] DALL·E 2. (n.d.). Openai.com. Retrieved February 28, 2023, from https://openai.com/product/dall-e-2

[13] How DALL-E 2 Actually Works. (2022, April 19). News, Tutorials, AI Research. https://www.assemblyai.com/blog/how-dall-e-2-actually-works/

[14] Imagen: Text-to-Image Diffusion Models. (n.d.). Imagen.research.google. https://imagen.research.google/

[15] Balaji, Y., Nah, S., Huang, X., Vahdat, A., Song, J., Kreis, K., ... & Liu, M. Y. (2022). ediffi: Text-to-image diffusion models with an ensemble of expert denoisers. arXiv preprint arXiv:2211.01324.

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