INNOVATIVE ALEX AS A HOSPITAL RECEPTIONIST

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ABSTRACT

Hospital receptionists are the first point of contact between a hospital or healthcare facility and its patients. These receptionists play an important role in healthcare facilities, performing customer service and administrative duties such as booking appointments, answering patient questions, answering telephone and calls to confirm patient appointments. A questionnaire was designed for potential patients designing Alexa. Capture inputs to verify the feasibility, relevance, and technical acceptance of use cases. Chatbot designs are slowly shifting from voice-to-voice communication, like Alexa tested on the Dot Echo, a smart speaker powered by Amazon Voice Services (AVS). By designing chatbots in addition to custom Alexa skills, developers can use multiple Amazon Web Services. The design uses AWS to host the voice server and Azure to host the backend built in C#. After that, we connect the Echo device to the system we created. The concept of connected smart devices makes chatbot solutions accessible anytime and anywhere.

Keywords: *chatbot; Hospital Receptionist; Alexa; Amazon Web Services; Azure*

Introduction

A medical receptionist has a busy day. Between making new appointments, welcoming patients and filling out patient forms, accepting and delivering groceries, they have to adapt to ordering medical equipment, daily contact with nurses and doctors, the list is long. Most of the time, receptionists are annoyed by the workload. This article describes the design of an innovative chatbot based on a hospital receptionist to help patients with their appointment follow-up queries. Chatbots are actually used in many applications [4].

The evolution of science and technology has led to a gradual change in the way information is obtained. Artificial intelligence and the latest IT solutions make them more efficient, simple and interactive for the user.

The interaction between human users and computers is an important part of the information exchange process. Chatbot simplifies this interaction and makes it user-friendly. Intelligent man-machine dialogue is a distinctive feature of chatbots.

Chatbots are programmed to be able to communicate with users via textual interactions [1]. Chatbots can be used effectively as assistants to perform functions traditionally performed by humans, or as boundary tools to control connected device systems. Text-based or message-based chatbot designs have gradually shifted to designs based on voice communication. Microphones and smart speakers that enable voice interaction have played an important role in the development of chatbots. The Internet of Things, a concept of connected smart devices, has changed the way chatbots interact..Hospital Receptionists face many challenges in the performance of their duties, such as dealing with patients and visitors, answering phone calls and answering all questions, scheduling appointments and get to appointments on time. Urgency of time is the biggest problem in rush tasks. Chatbots that work like Alexa solve these problems and help patients keep track of their appointments. Chatbots or conversational agents fall into the category of modern mobile health services. They use natural language and speech-based interactions when communicating with patients, via a "speech-to-speech communication model" [2].

Background&Relatedwork

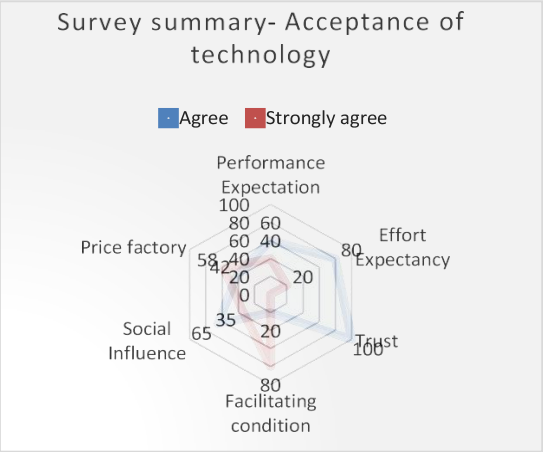
[1] This model can help people deal with their anxieties and fears as design chatbots slowly transition from text to voice interactions. Designing chatbots in addition to custom Alexa skills allows developers to use a range of Amazon web services such as AWS Lambda, Simple Email Service (SES), Simple Notification Service (SNS), and DynamoDB.AWS. DynamoDB is a NoSQL database service that offers greater scalability and faster performance. Alexa can be implemented on a local network via an Android application for better usability [3].

Developers don't have to worry about managing hardware provisioning, replication, software patches, installation and configuration, or cluster scaling, because all of these is managed by DynamoDB [5].
It also protects sensitive data with encryption at rest, reducing the burden on developers. It allows creating and maintaining any amount of data. Additionally, DynamoDB processes incoming requests at any traffic level.
AWS SNS is a cloud-based notification service that can be used to generate message notifications from serverless and distributed applications. It is a durable and secure platform that offers higher throughput and availability.
A real and reliable data source is needed to extract the back-end data for the chatbot design.

Designandmethodology

A.Survey Of Technology Acceptance By Users

It is important to study technology acceptance for real use cases and analyze user acceptance of the technology or content. The researchers used the model as part of the M-Health app. It focuses on
areas such as effort expectations, performance expectations, amenities, social impact, price value and trust.
used these capabilities to design a questionnaire for receptionists to study the feasibility and acceptance of voice-based chatbots to help receptionists in their daily work.
A set of questions is constructed to check users' primary familiarity with smartphones or chatbots and predict how often they will use them.Multiple questions were asked to record user feedback when accepting Alexa as a Hospital Receptionist and as an Alternate Hospital Receptionist.



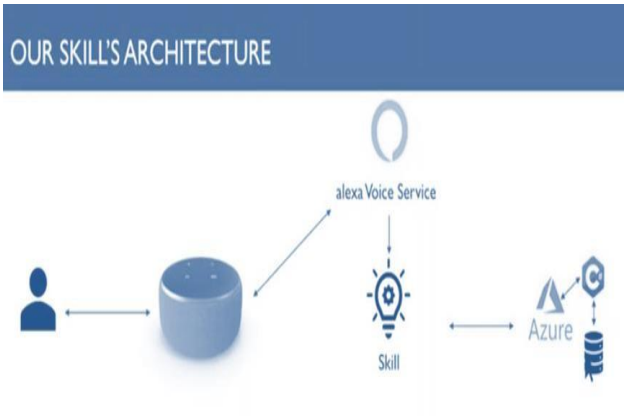
disagree, neutral, agree, strongly agree). Figure 1 shows a statistical summary of the survey, highlighting the positive trends of Alexa users as receptionists. The explanatory factors of the survey analysis lead to a more accurate analysis of technology acceptance. User responses help build the chatbot's design capabilities, making it a relevant and engaging tool for users. The analysis of the survey [2] explained from the UTAUT2 factors leads to a more accurate analysis of the acceptance of the technology.
User feedback helps build chatbot design capabilities, making it relevant and engaging for users.

B.Designandblockdiagram

Alexa is a popular virtual voice assistant application developed by Amazon. Alexa-enabled devices such as Amazon Echo Plus, Echo Studio or Echo dot. Alexa provides real-time data retrieval, voice interaction, weather forecast, broadcast, smart audio and video streaming, to-do list management, home automation control and other functions. Third-party users can also configure these features by designing and installing custom "skills" on their Alexa-enabled smart speakers. The skill, like a mobile application, allows users to perform certain defined tasks involving functionality such as service assistance or voice interaction.
Alexa has become a popular tool for realizing the concept of intelligent and interactive chatbots.Designing chatbots in addition to custom Alexa skills allows developers to use a range of Amazon Web Services. It also handles cloud computing resource management, capacity provisioning and

autoscaling, server and operating system maintenance, registry, and code monitoring. Developers simply provide the skill code in one of the supported languages, while the rest is handled by Azure's suite of cloud services, including compute, analytics, storage, and networking. A voice communication between a user and an Alexa-enabled Echo dot device could be observed.

The Alexa Skills Kit (ASK) handles user requests captured as audio cues. It converts audio input to equivalent text to detect the "intent"



or context of the request. Corresponding to the detected intent, call the associated API created in .net. A request-response interaction between the skill and the VRA occurs. The backend created for the request made takes the appropriate action, such as retrieving data or generating a response.

C.Methodsforcreatingsystem

ThefollowingstepsfollowforcreatingfullyfunctioningAlex.
START
Building
our
skills,Creat
eBackendi
nC#,
HostingtheservicesonAzure,
Make the backend talk to the Alexa skill,BuildtheDataModel,
Adding
More
Intents
,Testing.

Implementation&Verification

An AWS developer account and an AWS Management Console account are required to configure the Alexa skill using Amazon Web Services [6]. The ASK Developer Console allows programmers to configure and publish custom Alexa skills. On the other hand, the AWS Management Console parameter.Programmers work with multiple AWS services, monitor cloud services, manage users and roles, manage costs, and configure custom dynamic skills using the ASK Custom Interaction Model [7]. The logic for implementing the voice interface interaction is defined when configuring the Alexa skill. The following sections are defined:Invocation: A specific keyword or phrase spoken by the user to initiate an interaction with the Alexa skill. Intents: An intent is a structural model of a specific feature that defines the steps of a voice interaction, a list of sample user requests, and corresponding actions. Intents can have optional parameters, such as locations. Slots are like variables that can take values specified by some common properties, such as slot, date or duration of a training activity. It is also possible to configure a custom slot type if the expected slot is not in Amazon's built-in slot list [8]. Example utterances: An example utterance is a list of possible phrases a user can say to invoke a specific intent or in response to a defined question. ASK searches for the best match with an input request from a list of example utterances to identify the intent.Dialog model: A dialog model is a structure in which dialog steps are defined for an interaction between Alexa and a user to capture the required data required to invoke a specific intent. The importance of decision making has been reported by many researchers in different fields. Some of them are the E-LEACH protocol, using IoT smart device controllers [9, 10]. Lambda functions are configured on top of custom built-in templates available in the AWS Serverless Application Repository to support ASK and NodeJS for Lambda [11].

Testingandvalidationmethodologies:

Initially, Echo dot devices were tested with wake-up words and frequently asked questions after setup. The Uiting profiler can be used

during the build phase to test defined statements before actually deploying the skill. Test the utterance to verify that Alexa can recognize or invoke the desired intent. Since user input is also required, actions that define dialog slots and delegates can also be tested through the utterance configuration file. However, the functionality of the following actions cannot be verified because the Lambda function is not active when the statement is tested. Once the skill is deployed, the "Alexa Simulator" can be used to test the functionality without using any Alexa-enabled smart speakers. Alexa Simulator supports text messaging and voice interaction, and maintains conversations like a real device. The AWS Management Console can be referenced to verify the functionality of subsequent actions triggered by Lambda billing and execution permissions.

Conclusion

In conclusion, the use of Innovative Alex as a hospital receptionist presents a promising solution to many of the challenges faced by modern healthcare facilities. Through its advanced AI technology, Innovative Alex can efficiently manage patient intake, answer frequently asked questions, and provide real-time updates on wait times and appointments. This can lead to improved patient satisfaction, reduced wait times, and streamlined operations for the hospital staff. Additionally, the use of Innovative Alex can free up hospital staff to focus on more complex tasks such as patient care and treatment. However, it is important to note that while Innovative Alex can greatly enhance hospital operations, it should not be seen as a replacement for human interaction and care. The success of Innovative Alex as a hospital receptionist ultimately depends on striking the right balance between AI technology and human interaction, ensuring that patients receive the care and attention they need while still benefitting from the efficiency and convenience offered by Innovative Alex.

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REVIEW PAPER ON CONTENT RECOMMENDER SYSTEM BASED ON USERS REVIEWS

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ABSTRACT

The usage of recommender systems is widespread across many areas and has been demonstrated to be extremely important in several fields. The ma- jority of conventional recommender systems rely on a user's numerical rating of a consumed item to reflect that user's opinion; however, these ratings are not al-ways available. As a result, to make up for the absence of these evaluations, a new source of information represented by user-generated reviews is added to the recommendation process. This saves the user time from searching the internet for movies among the thousands that are already available. The items that might be suggested to the user are described by content-based recommendation systems. It makes predictions about what contents a user will enjoy based on a data set and takes into account the qualities of the content they have already liked. The senti-ment analysis field can be used to gather rich and extensive information from reviews about the entire item or a specific aspect. This publication provides a thorough introduction to assist researchers who wish to work with sentiment anal- ysis and recommender systems. It provides background information on recom- mender systems, including their phases, techniques, and performance measures. After that, it talks about the idea of sentiment analysis and highlights its key com-ponents, such as level, approaches, and aspect-based sentiment analysis.

Keywords: *Recommendation system, Collaborative filtering (CF), Content based Filtering (CB), Hybrid recommendation, Data mining, Recommender System (RS).*

1 Introduction

The amount of information on the Web has increased dramatically recently and is still growing, giving users and customers access to a variety of resources concerning ser- vices including goods, lodging, and dining options. Despite such data's benefits, the vast flow of information causes challenges for users to deal with and choose from a vast number of available options. This results in a problem of information overload and makes decision-making more difficult. In order to help the user or client in this situation make the best choice, it is crucial to filter the information down to a manageable amount based on their current preferences. Recommender systems (RSs), intended to address the issue of information overload by making individualized service (i.e., item) sugges-tions to particular clients in accordance with their preferences, are commonly used to carry out this filtering process. Since the field of RS first emerged more than a few decades ago, it has played a significant role in academics, business, and industry [3]. A sin criterion rating for a recommendation is insufficient to give an accurate recommen-dation because the overall ratings cannot express fine-grained analysis behind the users' behaviors. This made the RS a broad research topic that encouraged more research works to find practical solutions for improving the RS's performance. As mentioned earlier, there is a lot of data at our disposal, and since we typically are not interested in everything that is available to us, we must filter the data before consuming it. We need some filtering techniques in order to filter the data. In order to recommend products that are likely to be of interest to users, recommender systems attempt to forecast their preferences. They are some of the most effective machine learning methods that inter- net merchants use to increase sales. Users are frequently surprised with items they would not have searched for by recommendations, which also speed up searches and make it easier for them to obtain content they are interested in. They are frequently utilized in many different fields, including shopping, music, movies, traveling, eating, and connecting with people.

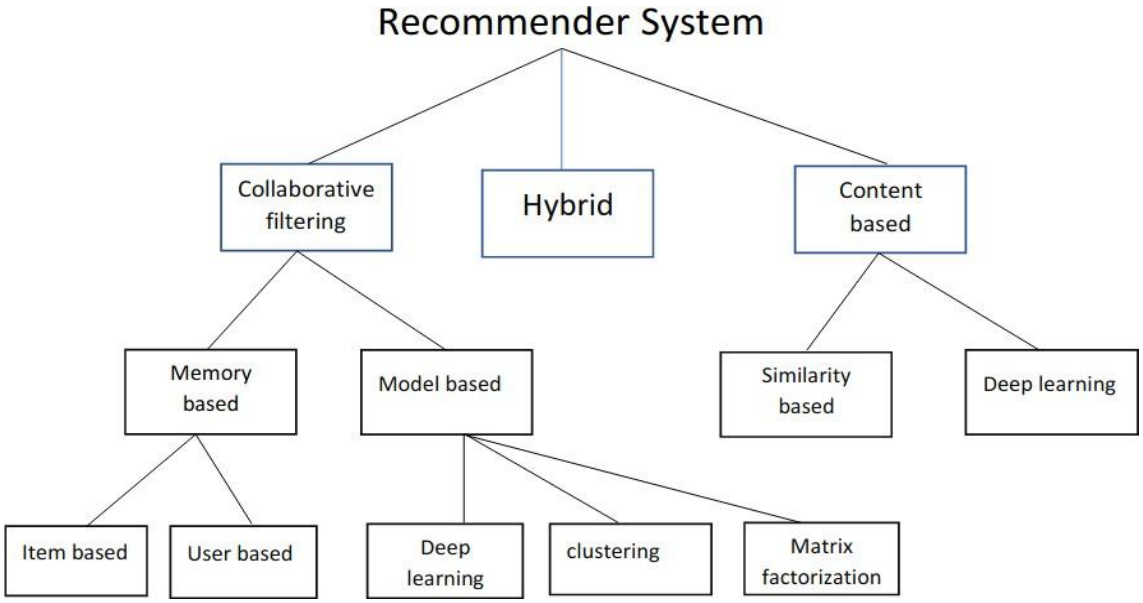

Fig. 1. Recommendation System

Today, everyone bought a product electronically through the use of e-commerce, which connects buyers and sellers (is it also referred to as B2C). Think about the purchase of a product from an online store. After setting up an account on the website, a user can make online purchases and rate things based on his likes and interests [2]. We can develop a profile of the user using this data along with the item's representation, and then propose products that are relevant to his interests. A recommendation system un- derlies the technology that makes this feature possible. There are three main recom- mendation approaches which are content-based, collaborative-based, and hybrid [6]. The content-based (CB) strategy finds the best recommendations for a user based on his most recent actions, such as what he recently liked, purchased, or watched. The recommendation for a user is generated using the collaborative filtering approach (CF) based on the similarities among users who have previously expressed similar prefer- ences or interests to him [5]. The last approach is the hybrid which integrates two or more recommendation components or algorithms implementations into a single recom- mendation system. However, these classical RS approaches rely on a single-criterion rating (overall rating) as a primary source for the recommendation process [10].

2 Literature Review

Table 1. Literature review

Sr. No.	Title of the Paper	Key Points	Conclusion	Refer-ence
1	Movie Recommen- dation System Us- ing Content- based Filtering.	Movie Recom- mendations, Con- tent-based Filter- ing, Text to vec- tor, Vector Simi- larity, Hybrid ap- proach	To obtain a final re-sult that has the ben- efits of each algo- rithm individually, it is always preferable to manipulate the re- sults of various al- gorithms.	[1]

2	A Review Paper on Product Recom- mendation System Using Online Re- views.	Recommender System, DataMining, MachineLearning, Data-base.	By taking into ac-count informationabout the customerswho have purchased the product and towhom it was sold,recommendations for purchases aremadebased on online reviews.	[3]
3	Data Mining and Recommender Sys- tem: A Review	Data mining (DM), Knowledge discovery from data (KDD), In- formation Re- trieval (IR), Web mining, Recom- mender System	The three ap- proaches of recom- mendation system.	[5]
4	Content Based Movie Recommen- dation System	Content based recommendation, PyCharm, Python, Machine learning, Web application	When making rec- ommendations, the content- based rec- ommendation method totally ig- nores other user pro- files. Input from the user will be used to generate personalized suggestions.	[4]
5	Techniques of Rec- ommender System	Recommendation system, Collabo- rative filtering, Content based fil- tering, Hybrid recommendation	The various recom- mendation system approaches, along with their benefits and drawbacks.	[6]
6	A recommender system based on collaborative filter- ing using ontology and dimensionality reduction tech- niques	Recommender systems, Ontology, Clustering, Dimensionality reduction, Scala- bility, Sparsity	In comparison to non- incremental SVD, the use of in- cremental SVD may aid the recom- mender system in producing recom- mendations with good scalability.	[8]
7	Movie recommen- dation system: Hy- brid information System	Clustering, Filter- ing, System Col- laborative Rec- ommender	Allows users to re- ceive personalized recommendations, and suggest to each user based on their past behavior and ratings.	[10]

3 Proposed Work

The proposed strategy combines Memory-based and Model-based algorithms with the Content Recommendation System. Analyses of the parameters and their results are car-ried out. This method looks up rating predictions using user history that is kept in a database. The time needed to find the rating predictions is lowered if additional algo- rithms are applied after utilizing the domain recommendation. As a result, users will receive predictions rapidly. These predictions take into account both the user's past be- havior and similar users' viewpoints. The image and text information are used to match with the information of contents stored in databases to provide content recommenda- tions that are taken directly from a product. There is a lot of information in the content.

Here, a content recommendation system is implemented primarily using image and description data.

User-Oriented Reviews

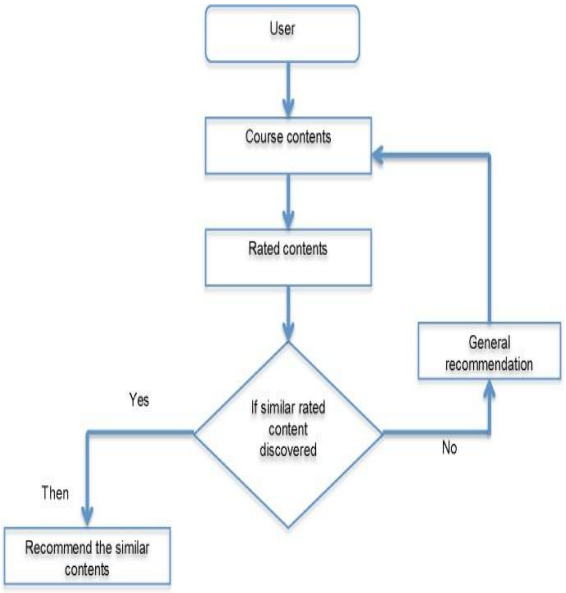

Fig.2: Recommendation of contents

In the suggested approach, we suggest materials based on user reviews of such prod- ucts or items. Users are selected in a way that ensures they have viewed the material. Long-Being in the sense that they would only view a certain piece of content repeatedly if they were truly interested in it. They are fully aware of the contents' qualities. If people were interested in the merchandise, they would be aware of the contents' up- grading features. User will provide their opinions, which have been interpreted as re- views, based on their experience with the contents. They may also give the item a rating. Fig 2 show how are content is recommendation to the particular According to their beliefs, individuals who were looking for items (referred to as customers) can be ad- vised on the products they should use. These customers can examine all reviews and choose whether or not to use the product. User may be able to learn more about products from people who have used them frequently by using this type of recommendation.

Recommendation Process

The recommender system compiles user reviews and provides them to other users looking for recommendations. The Recommender System uses the following procedure to receive reviews and make recommendation.

1. User opinions are initially gathered. If a user visits RS frequently (let's say more than a certain number of times; this is depending on specific recommender systems), RS will choose their reviews.
2. These users visit RS and look over the contents. They were provided a Comment section box to provide feedback after viewing the material. The purpose of this com- ment area is to learn how interesting the information is to other people.
3. From the comment section reviews can be viewed and it will helpful for the users.

4.Along with comments, the user's name is also gathered. Their personal profile is not stored.

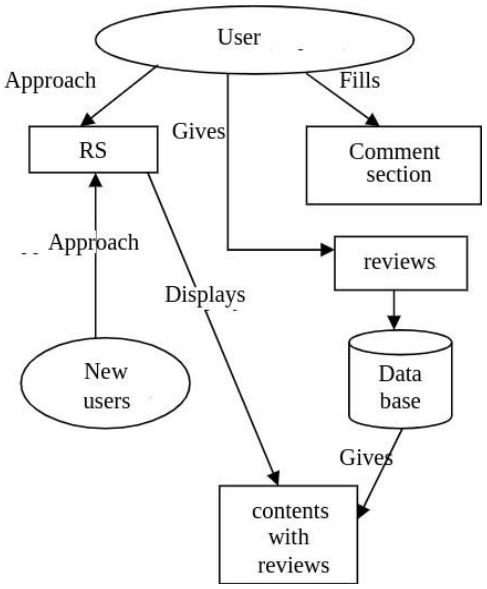

Fig.3: Users oriented reviews recommendation

5.When new users approach RS and search for contents, they were given the list ofreviews about the contents.

4 Conclusion

Due to the overabundance of data today, information retrieval has become exceed- ingly challenging, making it difficult for users to acquire the information that most closely matches their tastes. The suggestion mechanism is used in this situation. For many users, it is useful to retrieve personalized information. The popularity of moviesas a form of entertainment has increased, but so has the anxiety over what to watch. Other user profiles are not taken into account when creating recommendations using the content-based recommendation approach. The user will benefit from customized suggestions for their input thanks to this. The proposed method offers an effective means of locating the relevant rating predictions. In other words, it gives individuals with similar interest's better recommendations. This method determines the ratings of the users' searched items. The history of the products is examined to see which ones are effective and popular. The product reviews are helpful during the analysis stage. Uti- lizing fewer recommendations maximizes how quickly ratings can be calculated while considering all recommendations. The analysis stage is made simple by it. Additionally, finding trustworthy suggestions goes more quickly.

5 Acknowledgement

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VOICE BASED EMAIL ASSISTANT FOR VISUALLYIMPAIRED PEOPLE

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ABSTRACT

One of the most used forms of communication between people is e-mail. Lots of secrets and urgency information is exchanged via e-mail today. There are near about 253 million visually impaired people is available worldwide, that faced so many problems such as a communication problem. As, the technology has been developing day by day, visually impaired people face difficulty in their routine life. So the researcher proposed an AI-powered voice-based messaging system that would create a messaging system that is very accessible to people with reduced mobility and also help society. Accessibility is the most critical feature taken into account when developing the system. Our proposed system is accessible only if the person with the ability or the person with a disability can use it easily. This paper gives the flow of voice based email assistant for the visually impaired people.

KEYWORDS: *Artificial Intelligence, Natural Language Processing, email using voice, email for blind people, email*

1. INTRODUCTION

Technology is developing speedily day by day has made everyone's lifestyle so easy that most of the time any job is possibly done in less time with accuracy and efficiency . Communication is one field that has become a degree with the advancement of technology and the availability of the internet. Technology has made communication easy.

This distance has become an insignificant parameter in communication. When we think about communication via the Internet, the first thing that comes to mind is communication via e-mail. Email is one of the most trusted things important means of exchanging information and also email is used all over the world, but to access the internet, a person must be able to see. Millions of people are blind or visually impaired and cannot see the screen; or keyboard so they can't access the Internet. This way, they are far away from email media and the internet world. These blind people cannot use the existing messaging system, they cannot send, receive email and cannot read information shared via email; therefore, current systems are not easily access there. To access the Internet, the person must be able to read what is written on the screen like that, which renders the internet useless technology for the visually impaired.

Only one means by which the visually impaired can send emails. Must tell all the contents of themessage to the third party a person so that a third person can compose a message and send it on behalf of the visually impaired. But this approach does not lead us to the solution to the problem. Whenever finding a third person is not possible for people with reduced mobility and sometimes content may staff, to maintain the integrity of specifications. So to help these people and develop society The authors came up with this idea to help with visualization of people with reduced mobility by providing the ability to send and receive email launches voice commands without using the keyboard and intuitive .Artificial intelligence for speech recognition: Artificial intelligence (AI) is a technology used to create systems and machines that simulate human intelligence. Some artificial intelligence applications consist of different expert systems, natural language processing (NLP), and artificial vision and voice recognition. Understanding and analyzing people languages like English by extracting metadata from keywords, feelings, relationships and concepts are natural language processing

2. LITERATURE SURVEY

The number of email accounts climbed from 4.1 billion in 2014 to over 5.2 billion in 2018, making email one of the most popular ways of communication, according to a report on email data from 2014 to 2018 by technology market

research organization PALO ALTO, CA, USA . There are 253 million visually impaired persons worldwide, according to studies by the vision reduction specialist group (LEG), who are unable to use email or the internet because of their visual impairments. Because current email systems lack voice commands or audio features, they are inaccessible to people who are blind or visually impaired. Traditional search engines also rely on text-based queries, which are inaccessible to those with visual impairments. Web browsers can play audio and video files, but doing so requires the user to start the search with text-based inputs, and the search results are presented in text-based format . Because existing email systems lack this feature, it is challenging for those who are visually impaired to access the system. As a result, a totally new system is required to deal with this problem.

Lots of research has been conducted in the literature. Research has been done by Pranjal Ingle et al.(2016) [1], used the three different types of technologies for the voice based technology to convert the message from voice to text. They also uses the IVR(interactive voice response)which explains the connection between user and technology.

In another research, Dr.S.Brintha et al.[4], proposed technology with text-to-speech to read and record symbolic linguistic representations like phonetic transcriptions. The technology covers a two main points such as interface selection and mailing option, in the first element it takes the user which is blind and the second element includes simple mail options to perform tasks.

In another research, Jain. V. et al., (2021)[2], explains the use of voice based email system for visually challenged people so that they can use the email, with the use of this technology the visually challenged people can access the email system.

In 2020, Vedant Chidgopkar et al. in [5] explain a system where there is no need to use the keyboard and everything can be done with the help of mouse. Also, this system can be helpful for illiterate peoples who not able to read.

According to a survey conducted on ground at an academy for the blind, visually impaired people prefer a technology that is assistive with screen readers(e.g.MS Narrator, JAWS, NVDA, Fusion) which are more popular. Screen readers are those programs that convert text on a computer screen to voice, but it also comes with the few disadvantages such as noisy interference.

3. PROPOSED SYSTEM

In the proposed system, system that will make email communication accessible to visually impaired individuals and improve the company's performance. This system is designed with accessibility in mind, ensuring that everyone, regardless of their abilities, can use it with ease. The registration process is voice-assisted, and users can log in with their username and password, which will be converted from speech to text for authentication. The system offers different services such as composing, viewing inbox, and sending emails later. The text-to- speech (TTS) method is also included, which converts the text of an email into speech for users to listen to.

4. DESIGN

User interface design: The user interface design is shown in figure 1. It is very simple in order to make the application light and more understandable. It uses HTML for making the structure of application and CSS for the designing of the application.

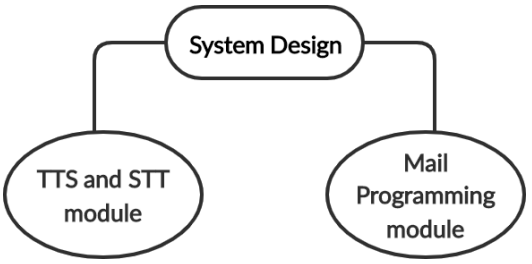


Figure 1. *System design*

Database Design: A database is very important in every system because it is responsible for storing user data and credentials. i.e. a database mainly for user authentication and storage user emails. Database design is shown in figure 2 as well as work flow is shown in figure , which include many create a table to store emails.

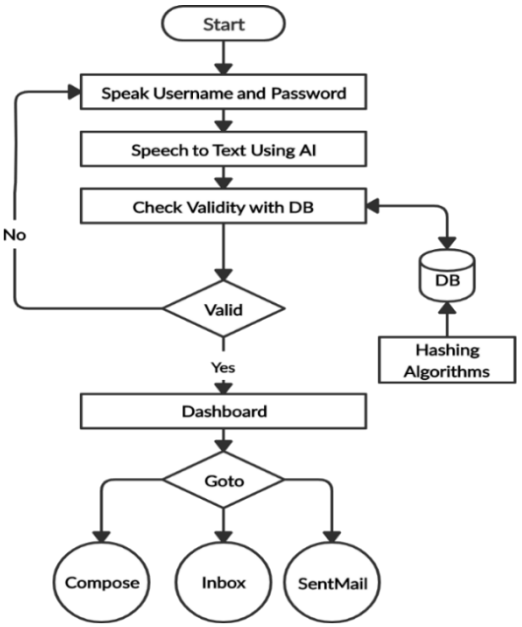
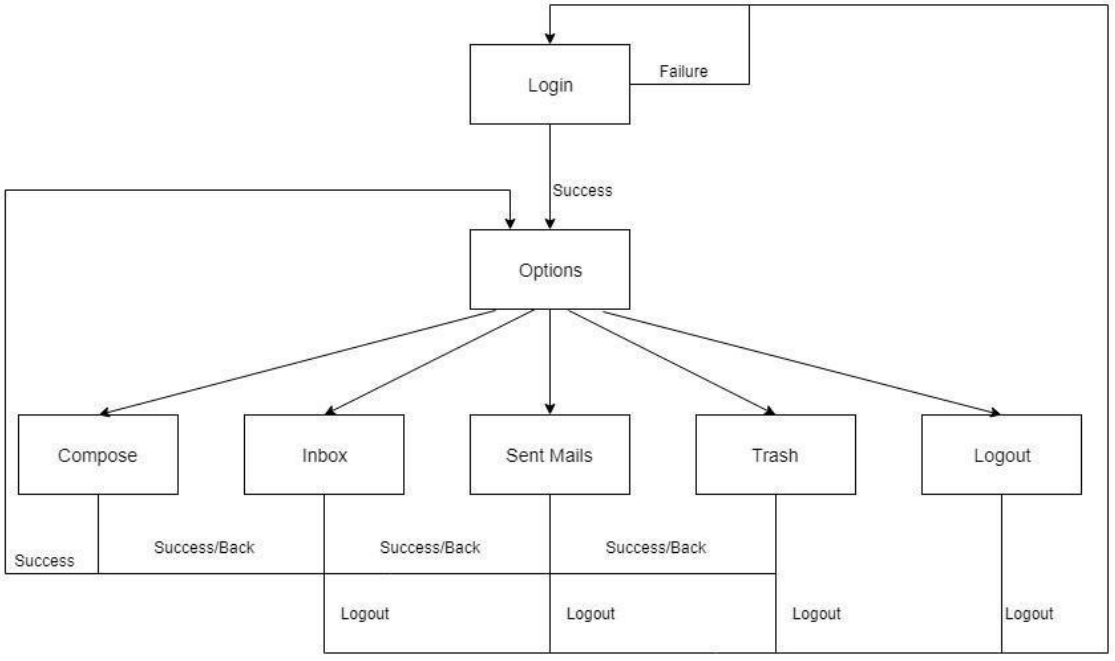


Figure 2. *Level 2 DFD*



5. Figure 3. Work Flow

6. IMPLEMENTATION

Anyone who wants to use the system must first register in order to obtain a username and password. The registration page will take all of the user's information with voice commands supplied by the system as to where to fill in what information. The user must give accurate information to access the system. The menu page is shown figure 4.

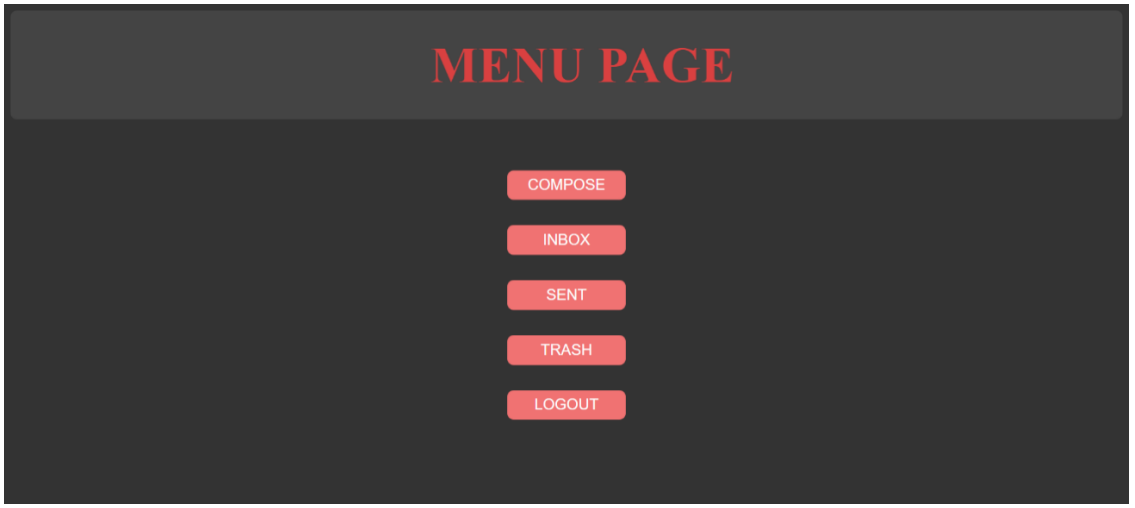


Figure 4. Menu page

Login

The user can log in to the system once registration is complete. Username and password must be entered into the login module. Here, the user's discussion moves from speech to text. User is instructed to verify if the information they supplied is accurate or not. The user will be approvedand be able to access the main page if the information is accurate. The login page is shown in figure 5.

Figure 5. Login Page

Compose Mail

Mailing is impossible without compose. Writing emails is entirely done via voice input and mouse actions because the system is designed for visually impaired users and keyboard activities are not supported. Compose mail page is shown in figure 6.

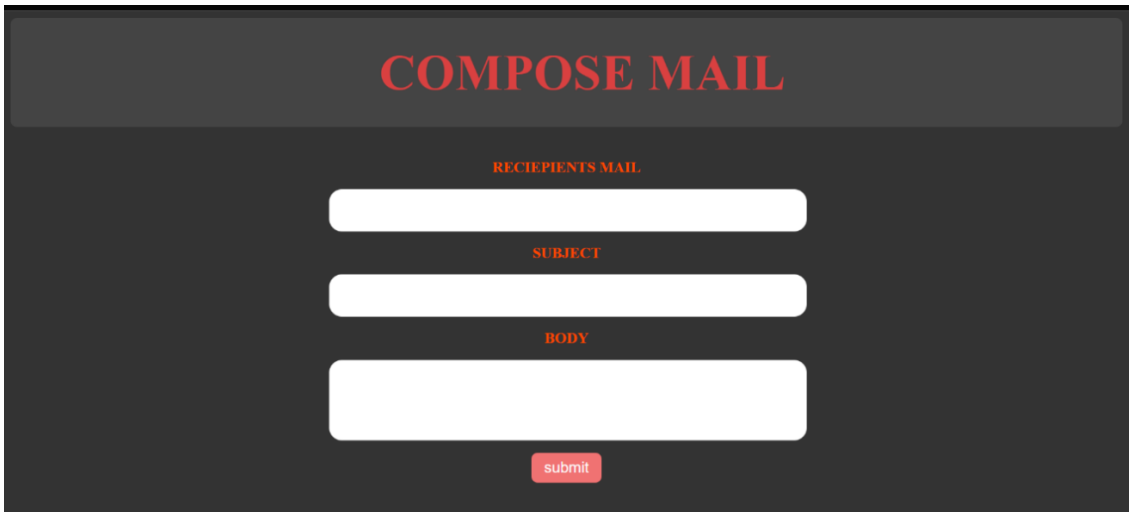


Figure 6. Compose Page

Inbox

This option enabled the user to access the email in its system via voice commands. In this option user can access email via voice commands. The user can listen received messages. The inbox page is shown in figure 7.

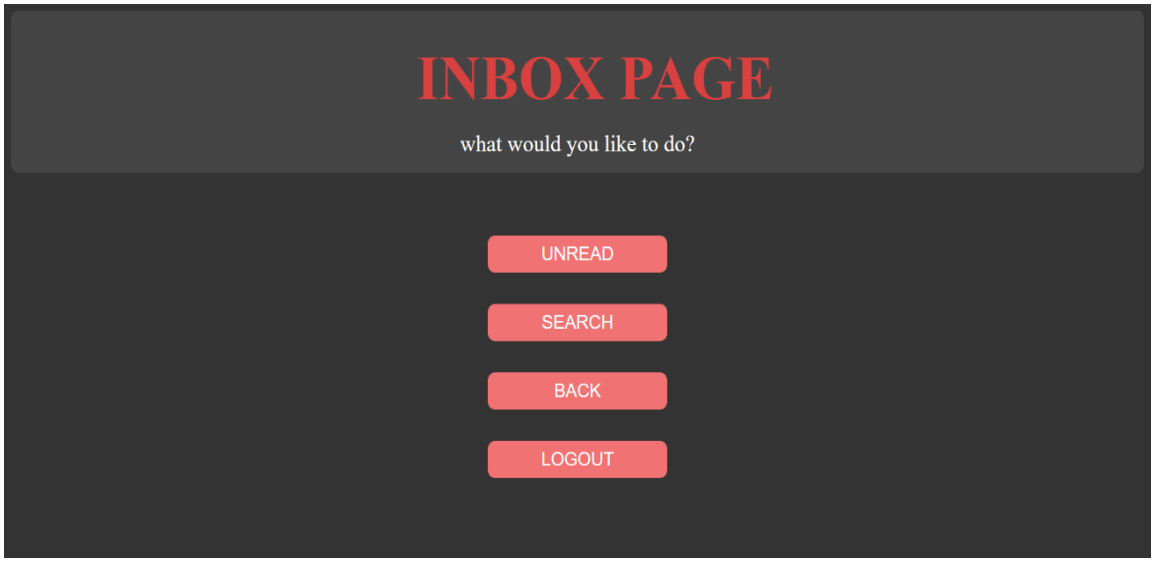


Figure 7. Inbox page

Trash

When you delete a message, it stays in your trash for 30 days. After that time, it will be permanently deleted. If you want to remove a message from your inbox but don't want to delete it, you can archive the message. The trash folder is shown in figure 8.

Figure 8. Trash page

Sent mail

In this page "SEARCH","BACK" AND "LOGOUT" options are provided and one can navigate through them .This is also a confirmation page that the mail has been sent successfully. The sent mail page is shown in figure 9.

Figure 9. Sent mail page

7. FUTURE SCOPE

There is a wide future scope of this system Many improvements can be made to the system , such as including different languages , including access function email and spam have been deleted . Furthermore, this system can be improved so that it can also send attachments more beneficial for the visually impaired. This system can be made available to all residents in the area people who are not fully educated and include different backgrounds and languages will make this system easily accessible. In addition, sign language systems can also be integrated with systems to make the system more scalable and robust.

8. CONCLUSION

This document is the recommended voice-based email system for the visually impaired developed as a web application to help blind people access email easily and effectively. It provides a voice-based services where blind people can hear and send letters alone without the help of others. This uses voice recognition to provide efficient voice input for message equipment for the blind. In the future, we will try to make the system keyboard free and entirely voice-based. Therefore, it is easy for the visually impaired to access services. The developed system is working now only on the desktop. While the use of mobile phones seems to be a current trend, can integrate this setting as an application in mobile phones also. In addition, security measures for implemented during the login phase can be modified to form a more secure system.

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NasEd: Putting the Edge In Education

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***Abstract*—Electronic Learning is termed as a Network that enabled the transfer of Skills & Knowledge, and the Delivery of Education is made to a large number of recipients at the same or different times. The masses of us are normally friendly with conventional teaching and learning where the teacher is teaching 30 to 40 students at a time and no one knows whether students are getting or not what is explained. So this kind of Study is averted more adequate than online Study. "nasEd" is the platform using which a user can grasp all the knowledge related to academics, and programming through the free online courses as well as different features at their own pace and can experience proper supervision of Learning.**

Keywords— E-Learning, nasEd, Supervision

INTRODUCTION

Improvements in technology and Electronic Learning methods have played a vital role in changing the atmosphere of the learning paradigms. NasEd comes here which is an electronic learning platform that is used by any type of user whether belongs to the fields of academics, programming, etc. can be benefited from it. This Platform is created to overcome the difficulties faced by a student in their Studies. Here, the learners have to register themselves online and can avail of any type of courses for free related to academics, Programming, and many more. NasEd has integrated all the different features which are useful for the Learner like reference Materials, Dictionary Facility, a Live Interaction facility with the instructor for doubts clearing, and many more. It provides proper supervision facilities for learners as well as Instructors. The learner can Experience a great experience while using this Platform.

LITERATURE SURVEY

In 2022 Pei-Pei Wang, and Yan-Li-Zhao proposed the work on research of online teaching management systems based on artificial intelligence. In 2020 Prof. Masooda Modak, Omkar Warade, G.Saiprasad, and Shweta Shekhar proposed Machine Learning based Learning Disability Detection using LMS. In 2017 Sabina-Daniela AXINTE, Gabriel PETRICA, and Ionut-Daniel BARBU proposed E-Learning Platform Development Model. In 2015 Zheng Ninghan, Tian Shuzhen, and Chen Yongqiang proposed Online Learning Management System.

INSIGHT NASED

A. Electronic Learning

A learning system based on formalized acting but with the help of electronic resources is known as E-learning. While teaching can be based inside or outside of the study hall, the utilization of laptops and the Internet forms a vital component of E-learning. E-learning can also be entitled as a web-enabled transfer of expertise, and the carriage of education is made to a large number of beneficiaries at the same or different measure. Preliminary, it was repudiated hearty as it was assumed that this system misses the human element enforced in learning. Although, with the swift growth in technology and the evolution of learning systems, it is now cuddled by the masses. The introduction of computers was the basis of this revolution and with time, as we get hooked to smartphones, tablets, etc, these devices now have an important place in the classrooms for learning. Notebooks are gradually getting replaced by electronic instructional materials like optical discs or pen drives. Expertise can also be shared via the Internet, which is reachable 24/7, every time, at any moment. E-learning has been demonstrated to be the best means in the communal sector, mainly when coaching programs are conducted by MNCs for executives over the world and employees can acquire important skills while seated in a board room, or by having conferences, which are conducted for employees of the same or the different corporations under one umbrella. The academies which use E-learning automation are more advanced than those which still have traditional access to learning. E-learning enables relatively faster delivery cycles eLearning enables lessons and programs to roll out within a few days or weeks. This increased effectiveness also helps students learn more quickly. Beldhuis also discovered a number of electronic learning benefits from a corporate standpoint. These benefits include cost reductions, as electronic learning lowers travel and meal expenses associated with employee training. modularity, since employees can study only course sections that are relevant to their needs [7]. flexibility and accessibility, as e-learning allows learners to choose the time and place to study courses, making training outside of work hours possible.

B. Programming Language

We have opted for the python programming language which works perfectly in collaboration in the Django framework. Python is one of the top-notch programming languages due to its ease of learning, design, and, flexibility, making it one of the most amazing programming languages. Python is dearest among many developers for its powerful prominence on legibility and efficiency, especially when collating with other languages like Java, PHP, or C++. Python's reliance on whitespace and common expressions trim out a lot of programming fat. It allows doing more with fewer lines of code next to Java or C++. Python also serves as a stepping-stone for new developers allowing them to learn new skills [11]. Python's object-oriented principles are compatible with other languages like Perl, JavaScript, Ruby, and C#.

C. Methodology

(1) Methodological Approach -Firstly we have selected a topic that is based on the electronic learning Platform of our interest. After studying lots of research papers we have chosen a research paper as our base paper. (2) Methods of Data Collection - The information we have collected related to our electronic Learning Platform is from Various books of academics, programming, some other research papers, and references. (3) Analyze and Interpret - We found that analyzing the information is very much necessary. Whatever information we have collected, we studied that and try to make a unique way to represent the information related to the academics and Programming and think to make the project in such a way that everyone can easily understand. (4) After Analyzing Lots of Research Papers we realize that there is no research paper available that provides facility like Supervising the Learner, Instructor, Online Doubt Clearing System, Dictionary as well as other features in a Single Platform. Here, NasEd has to fulfill this issue.

D. Existing Systems

(1) Research of Online teaching management system based on artificial Intelligence -This Paper describes a system that adopts a cross-platform and low-cost B/S architecture, the background code utilizes the Python language, the front-end web structure employs the Django framework, and the entire construction process follows the Html5+CSS+JS standard. In addition, the system uses the PyCharm compiler and MySQL database during programming [1]. Finally, the system passes the black-box test during the design process, demonstrating that the functions of each module can be used normally and the practicability of the system can also be guaranteed. (2) Learning disability Detection using LMS - This paper highlights an E-learning system created using Moodle which is an open-source Learning Management System that enables a better learning environment between the tutors and students. This system notices two learner descriptions i.e. students with a Learning Disability and without a Learning Disability using dedicated courses designed on the basis of various aspects of a learning disability student. This effort also numerous stages of our accession for informal testing utilized to catch the learning parameters for Dyslexic students. The preliminary stage i.e. data collection has two paths where the first path pertains to a smaller age group of 8-10 years with finite parameters although the second path pertains to the age group 11-13 years i.e. grades 6-8 with added parameters. Natural Language Processing has been used to perform Speech-to-Text conversion on the audio responses of the users. The analysis of these responses has been performed in python language. To detect whether the user has a learning disability (Dyslexia in this case) or not, Machine Learning is used. Two Machine Learning algorithms namely Logistic Regression and Support Vector Machine are used to perform binary classification with a learning disability (1) and non-learning disability (0) as the two classes of the dataset. The results are shown for both approaches and comparative analysis shows that the dataset generated in the final approach for capturing parameters involving natural language processing is better and more robust [2]. LR algorithm for Machine Learning shows better results as compared to Support Vector Machine for performing detection based on the generated dataset. (3) Online Learning Management System - In this paper, the author proposed an online teaching management system, also called Tsinghua University Online Judger, which is public and universities oriented, to address the above issue [13]. Besides some basic management functions, the system mainly focuses on programming assignment grading and program assessment customization for various programming courses, which makes the system be suitable for diversities between different modules and can provide personalized programming grading services [8]. In this article, the author made his design according to the potential users of the system and proposed a design of the system's structure based on the frame using Linux+Apache+MySQL+PHP(LAMP). Especially, the author adopted C and PHP to program the online judge module. Finally, there is a simple website demo has been implemented based on OJ module, in order to demonstrate the usage of the proposed system and online judge module. (4) Electronic Learning Platform Development Model -This paper examines and clarifies a variety of techniques for understanding or modeling how these software systems are developed. Subsequently, the practice through which a suitable candidate for an e-learning platform is selected will be outlined and the product plan detailed [5].

E. Proposed Work

(1) We have Proposed an electronic Learning Platform that provides facilities like Supervising the Learner as well as the instructor, etc. (2) We have Integrated all the different features which are useful for the learner to study like course selection, reference materials, Dictionary facility for finding word meaning, To-do List making, and Live Interaction facility for Doubt clearing from the instructor. (3) Separate Dashboard will be there for the learner, Instructor, and Admin. (4) Simple User Interface and User Friendly.

F. Data Flow

The User needs to Browse for the Platform First on to the internet and also requires a good internet connection. After coming to the platform the User can see the home page. Then as shown in Figure.1 the user needs to register themselves by providing information like Username, Password, Password Confirmation, and on which course they are interested to create their account in the Platform. Now, the User becomes the Learner. The Learner can avail of all the facilities related to study and get the personal Dashboard facility too where the learner can see the course-related information and features. Also many other study-related features too. Now coming to the instructor part, the instructor is one who teaches the Learner through tutorials and handles the tutorials, Assignments, Notes, etc. Now coming to the admin part. Here the Admin is the first User of any system responsible for creating and managing the System. They perform a wide range of tasks like creating, editing, delete courses in the platform and all other activities in it including handling both Instructor and Learner. Then, there is a Logout Button. Using this the learner can come out from the current session and then revert back to Home Page.

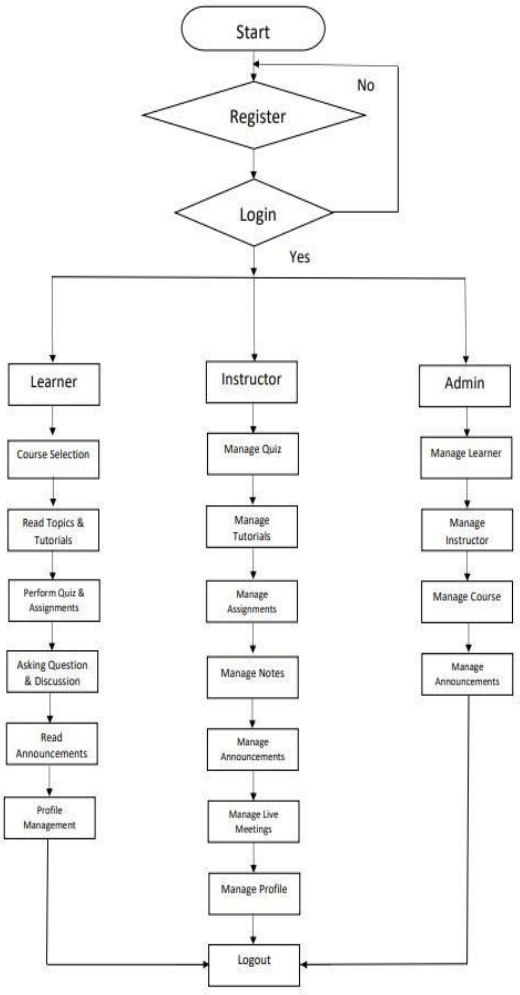

Fig. 1 Flow Chart

G. Components of nasEd

(1) User Registration – After Coming to the Platform, the User can see the Home Page as shown in Fig. 2. Then, the User needs to register themselves by providing their details like Username, Password, and password confirmation and select the course in which they are interested.

Fig. 2 Home Page

(2) User Login – In this Login Component, the user needs to provide their details like Username, Password. After this, the Learner can avail of all the facilities that are present in the nasEd.

(3) Personal Dashboard – In this electronic Learning Platform, the learner, Instructor, and Admin will get their own Personal dashboard.

(4) Learner – In this Component, Once the Learner registers themselves in the platform, they will be getting their personal dashboard where they can see all the details related to the course that they have selected. As shown in Fig. 3, the Learner can update the course, read topics and Tutorials, Performs quiz and assignment, ask question and discussion, read the announcement, and can also manage their profile. Apart from all these things, the Learner will get too many extra features like a Live Interaction facility through online meetings with the instructor to clear their Doubts.

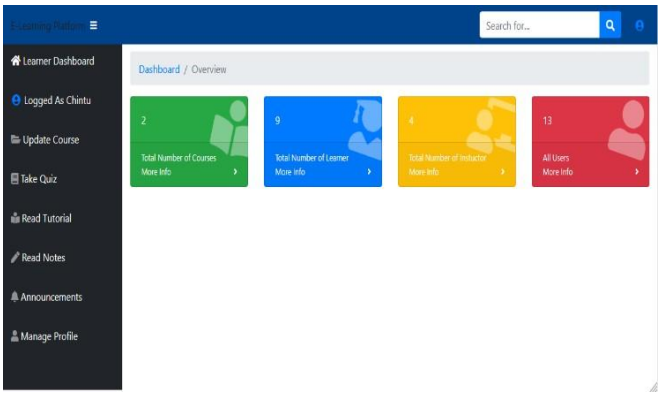

Fig. 3 Learner's Dashboard

(5) Instructor – In this Instructor Component, an instructor is a Person who teaches the Learner through tutorials. In this Platform, as shown in Fig. 4, the instructor is also responsible for handling announcements, quizzes, live meetings for the Learner's Doubts, etc. They can also manage or update their profile.

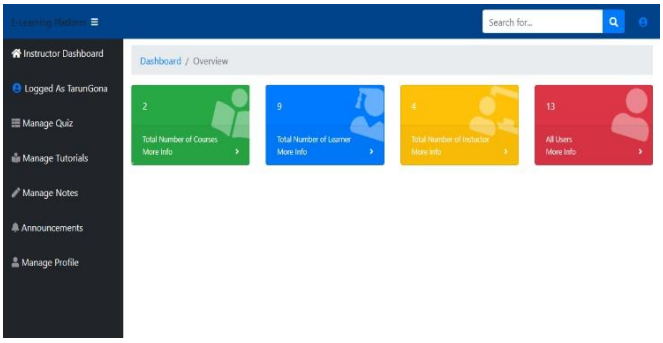

Fig. 4 Instructor's Dashboard

(6) Admin – In this Admin Component, the Admin is the first User of any E-Learning System and is responsible for creating and Managing the Whole System. As shown in Fig. 5, they perform a wide range of tasks. Some of them are:

- Create, edit, and delete courses in the System and the activities in it.
- Create, delete the user with all their details, and profile and also manages the instructor.
- Checks activities in the course and also manages the announcements.

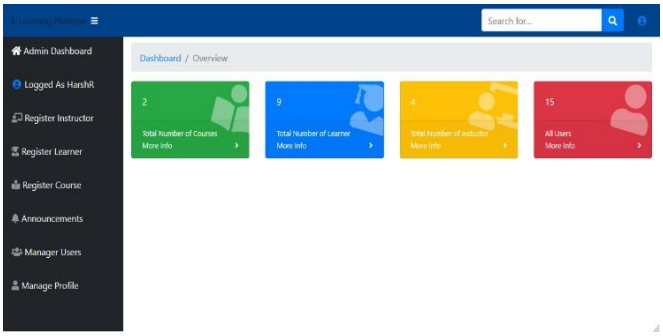

Fig. 5 Admin's Dashboard

(7) Database – Here, In the Database component, we have used the SQlite3 database for our platform as it is a Django-based platform to store the data. Django provides an inbuilt database powered by SQLite. SQLite is a relational database management system accommodated in a C programming library. In disparity with many other database management systems, SQLite is not a client-server database engine. Rather, it is embedded into the end program.

(8) Logout – By Using this Logout Component, the Learner can come out from the Current Session, and then the Learner will be reverted back to the Home Page.

H. Conclusion and Future Work

NasEd provides proper management facilities for learners as well as Instructors. All Different features that are important in view of the study aspect for the learner are integrated into this platform. The learner will get a personal dashboard in which they can see their course-related features and also get live interaction using which the learner can clear their doubts from the instructor. No need to worry about switching between different platforms for the reference materials, Dictionary facility for finding word meaning. To a Subsequent extent, we can develop nasEd as an android application. Increasing the features and facilities is more interesting followed by the concept of e-learning.

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DEVELOPMENT OF IOT BASED AUTOMATIC COLLEGE BELL

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ABSTRACT

In todays time most of the schools and colleges uses treditional methods for ringing bell in their campus.In this paper, we propose an IoT-based automatic college bell system that utilizes NodeMCU as the main controller and a set of sensors to detect the timeand signal the bells to ring. The proposed system eliminates the need for manual bell ringing, which can be prone to error and delays. The system is designed to be highly reliable and efficient, and it uses the power of the Internet of Things (IoT) to automate theringing of bells in educational institutions.The system uses an RTC module to keep track of the current time and a set of sensors to detect when it is time for the bells to ring. The NodeMCU controller then sends signals to the relay module, which triggers the bells toring. The system is highly customizable, allowing users to program the bell ringing times and frequencies according to their specific needs.

Keywords **:** IoT, NodeMCU, RTC, IDE, Relay, Bell.

1. INTRODUCTION

Automatic college bell system provides an efficient and effictive way to regulate activities throughout college campus.An automatic college bell system eliminatess the need for manual bells or othr disruptive noise,as the bell can be triggered at a specific time.In recent years , the NodeMCU platform has provided an affordable and easy to useplatform for creating an automated college bell system.NodeMCU is an open source,low cost platform with a wide range of capabilities and features,making it an ideal platform forcreating an automated college bell system.This paper provides an overview of the advantaes and challanges of using NodeMCU for creating an automatic college bell system,and outlines the key consierations for selecting a suitablebell system.

The NodeMCU platform can easily be integrated with WiFi, allowing for a wireless connection to the bell system. This allows for a more seamless experience, eliminating the need for manual bells or other disruptive noises. Additionally, WiFi allows multiple devices to access the same bell system, which can be helpful when coordinating activities between different college departments. With WiFi integration, the NodeMCU platform can also provide real-time notifications and updates regarding the status of the bell system. Furthermore, NodeMCU's intuitive user interface and its scalability makes it ideal for creating custom automated college bell systems for a variety of different needs.The system consist of NodeMCU,Relay and electric bell this system is based on internet so the device is connected to internet and it will continuously send signal to the data base and check for signal until the it get the high signal until the set time it will get low as an input at fixed time interval.The database has the predefined interval when that interval come and the interval at system matches the interval at database it provides high input to the electric bell.

In schools and colleges we requires a person to ring bell but it is not consistent because humans canmake mistakes but if we use this system it will gives us accurate outputs without any human interference so the chances of errors are less than one percent and this system also consist of a dot matrix display which can allows use to troubleshoot the erros of our system and can also be used as a notification system for schools and colleges and this display can also be used saperately form the this bell system and we can use this to display any information regarding any event.User only has to login through its admin id to our website and can write any information he has to display on this display.This two can be used saperately form each other and can perfom their task individually. This system is also connected with google calender so it can directly fetch the information regarding any festivals and other things.The NodeMCU platform is an open source project that provides a wide range of capabilities. It is capable of controlling multiple bells, as well as other various devices. Furthermore, it offers multiple programming languages, including LUA, C++, and JavaScript, allowing users to customize their projects

accessed safely. Finally, the NodeMCU platform also includes support for several external devices, such as LED lights, motion sensors, and audio systems. This allows users to easily integrate their projects into their existing systems.

2. Litrature Review

There are several people done their research regarding developing automatic electric bell using current technology.Here some literature review of their findings.

In their work Nalini, Naveen Raj, Sharwanjana ,Satish Kumar and Vijay Developed "Automated Bell Ringing System using wireless technology".Here authors describe the design and implementation of the system, which consists of a microcontroller, a wireless module, and a relay. The microcontroller receives the ringing time from the server and this signal is captured by the relay to control the electric bell.In conclusion, the authors have successfully designed and implemented a system using wireless technology foruse in educational institutions. But this system has several limitations Like it can't be operated form anywhere andwe can't add different modes.

In their work Khedekar Kavita dilip, Ms. Rinku Chavan Developed "Arduino Controller Automatic College Bell System" Here authors describe the design and implementation of the system, which consists of an Arduino microcontroller, a relay, and a power supply. The microcontroller receives the ringing time from the server and this signal is captured by the relay to control the electric bell.In conclusion, authors have successfully designed and implemented an automatic college bell system using an Arduino microcontroller. The system provides a convenient and efficient solution to the limitations of traditional bell ringing systemsbut in this project user has to be in specific position to use this system.If one has to operate this system theyhas to be in specified room from where this system can be operated.

In their work Sameer Deshpande, Anamika Majumdar Developed "Smart Bell Notification System Using IoT". Here authors proposed a solution that uses IoT technology to overcome these limitations. The systemconsists of a microcontroller, a relay, and a wireless module that communicates with a server. The server is responsible for sending the ringing time to the microcontroller, and this signal is captured by the relay to control the electric bell.In conclusion, the authors have designed and implemented a smart bell notification system using IoT technology. But it doesn't allow user to customize the system.

In their work Prof. S.B. Sahu, Arati F. Paswan, Kavita K. Tandi,Priyanka V. Chunchawar Developed "IoT & AI Based Smart Doorbell System".Here authors proposed a solution that uses IoT and AI technology to overcome these limitations. The system consists of a microcontroller, a relay, a wireless module, and a camera. The camera captures images and sends them to the server, which uses AI algorithms to identify theperson at the door and determine whether or not to ring the doorbell.In conclusion, the authors have designed and implemented a smart doorbell system that utilizes IoT and AI technology. The system provides a convenient and efficient solution to the limitations of traditional doorbell systems.We have found some important things for our project by going through this paper

In their work Syed Naveed Uddin, Mohd Omer Nawaz Developed "Automatic Electric Bell with User controlled time schedule". Here authors describe the design and implementation of the system, including theuse of a user-friendly interface for remote management of the ringing schedule. They also discuss the potential benefits of the system, including increased efficiency, convenience, and reduced maintenance costs.In conclusion, the authors have designed and implemented an automatic Electric bell with User controlled time schedule. This overcomes the limitations of other projects but still it posses few drawbacks like range to use this system we have to be in campus.

In their work Abyash Gautam, Deepak Rasaily and Sejal Dahal Developed "Microcontroller Controlled Automated College Bell" Here authors describe the design and implementation of the system, including the use of a user-friendly interface for remote management of the ringing schedule. They also discuss the potential benefits of the system, including increased efficiency, convenience, and reduced maintenance costs.In conclusion, the authors have designed and implemented a microcontroller controlled automatic

gone the system is useless.

In their work Sheenu Choudhary, Shrikant and Priyanka Sharma Developed "Automatic college bell system". The authors describe the design and implementation of the system, including the use of a user- friendly interface for remote management of the ringing schedule. They also discuss the potential benefits of the system, including increased efficiency, convenience, and reduced maintenance costs.In conclusion, the authors have designed and implemented an automatic college bell system. This system overcame the lacking of other projects but in this system if the system if implemented then it can not be modified.

In their work Rajesh Kannan Megalingam , Venkat Krishnan Balasubramanian Developed "Power Aware Automatic Microcontroller Based Smart, College Electric Bell System with Time Display" **.** The authors proposed a solution that uses microcontroller technology and is designed to be power efficient. The system consists of a microcontroller, a relay, and a time display that communicates with a server.In conclusion, the authors have designed and implemented a This efficient System to show time using a matrix display. This system added the matrix display to display the time but it's the only thing that added display can show so its only increasing the cost of the overall system.

After going through all of these papers we have found that every one of them has some lacking points where we can improve so after reading all this paper we will try to eliminate there drawbacks in ourproject.

3. Proposed Work

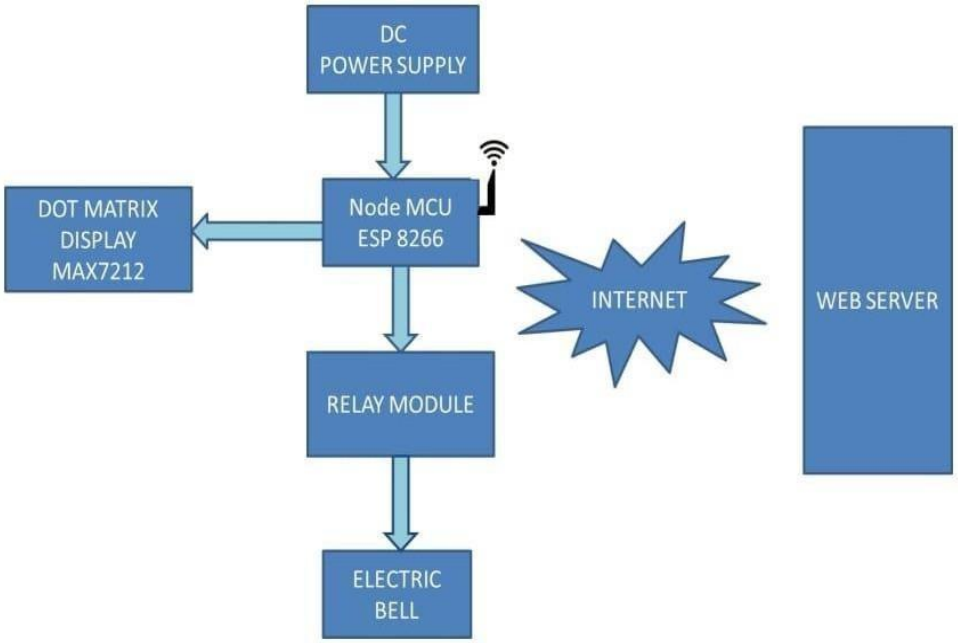

Fig:- Block Diagram of System.

1. NodeMCU: The NodeMCU is the microcontroller that runs the bell system. It is responsible for fetching the current time from the NTP server, triggering the buzzer, and updating the matrix display.
2. Matrix Display: The matrix display shows the current time and other relevant information. It can be controlled by the NodeMCU using the MAX7219 driver chip.
3. Buzzer: The buzzer produces a sound when triggered by the NodeMCU. The NodeMCU sends a signal to the buzzer at the desired times to play the bell sound.
4. Network Time Protocol (NTP) Server: The NTP server provides the current time to the NodeMCU, which is used to trigger the bell at the correct times.
5. Server: The server is a computer that runs the website used to control the bell system. The server stores the bell timings and communicates with the NodeMCU to update the timings as needed.
6. Website: The website is used to control the bell system. Administrators can log in to the website and set the bell timings, which are then stored on the server.The NodeMCU retrieves the bell timings from the server and uses them to trigger the bell.

Here is a summary of how the components work together:

1. The NodeMCU connects to the internet and fetches the current time from the NTP server.The NodeMCUchecks the current time against the bell timings stored on the server.
2. If the current time matches a bell timing, the NodeMCU triggers the buzzer to play the bell sound andupdates the matrix display with the current time.
3. Administrators can log in to the website and update the bell timings, which are stored on the server.
4. The NodeMCU retrieves the updated timings and uses them to trigger the bell.The server communicates with the NodeMCU and website to ensure that the bell timings are up to date and that the system is functioning properly.

This is the basic working of the automatic college bell system with a matrix display, server, and website forcontrolling the system. The exact implementation may vary based on the specific requirements and the code used to control the components

4. CONCLUSION

An IoT-based automatic college bell system has the potential to simplify the process of scheduling and ringing bells in colleges. The system can be programmed to ring bells at predetermined times throughout the day, eliminating the need for manual intervention. The use of sensors allows the system to be aware of the current time and other environmental factors, such as temperature and humidity, ensuring that the bell rings at the appropriate time. The Wi-Fi module allows the system to be remotely controlled and monitored, providing administrators with real-time updates on the status of the system. Overall, an IoT-based automaticcollege bell system is an effective way to streamline bell ringing operations in colleges, freeing up valuable time for administrators to focus on other tasks.

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SWIFT

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ABSTRACT

The proposed project is a Web-Based Application that provides users a user-friendly interfacefor better experience. It overcomes the problem of using different applications for different features. As social media is a very important factor in analyzing modern society as a whole, their values, norms, and behaviors, as being a part of our everyday life. The web application has been developed to allow a user to follow specific accounts they know and categorize the posts on those accounts based on the user needs. The benefit of this project is that any user can communicate and spread smiles while being connected to each other, and it enables anyone to have better insight about society as a whole, their values, norms, what they find interesting, and many other things. This tool is also useful for different companies to track the user feedback on social networks for their products and be vast in their respective fields.

Keywords: Web-based, user-friendly interface, social media

I. INTRODUCTION

Social media, such as blogs, podcasts, social networks, wikis, or mobile applications and games are redefining communications channels, and also communication theories and practices. Content on the web must refer a lot of platforms and should be measured according to each of them. Social media measurements are difficult process that must catch conversations, behaviors impacts, modes of communication, and relationships between people.

Objective

The project can be implemented to create a social media platform with all interesting features. It can be utilized bypeople to connect with friends and family online.

Existing System

The existing platform all has good features and functionality, but not all the best features on the same platform. Thisproject is aimed towards bringing all the best features together on a single platform.

II. LITERATURE SURVEY

Design and Implementation of a Social Media Based Web Application for Prospective University Students (2014)

The internet has been a platform for individuals, groups of people and companies to interact with one another through the social media. The social media has truly aided interaction and even other business services through social networks, forums, blogs, etc. Forums are now been used as tools/platforms to create discussions, connect to people (mostly of similar interests) and as sources of relevant information. This work intends to make use of forums as tools in helping prospective university students to make the right decisions about their choice of career, choice of environment, etc.

Based on an in-depth review of some relevant literatures, some key requirements have been considered in the development of a suitable web application. This online forum will be developed for students to cater for some of their needs and solve some of the issues they face with their choice of career, their course of study, the accessibility of relevant information about any institution, etc.

Advances in Social Media Research: Past, Present and Future (2018)

Social media comprises communication websites that facilitate relationship forming between users from diverse backgrounds, resulting in a rich social structure. User generated content encourages inquiry and decision-making. Given the relevance of social media to various stakeholders, it has received significant attention from researchers of various fields, including information systems. There exists no comprehensive review that integrates and synthesizes the findings of literature on social media. This study discusses the findings

of 132 papers (in selected IS journals) on social media and social networking published between 1997 and 2017. Most papers reviewed here examine the behavioral side of social media, investigate the aspect of reviews and recommendations, and study its integration for organizational purposes.

Design and Implementation of a Social Networking Platform for Cloud Deployment Specialists (2015)

A new discipline at the intersection of the development and operation of software systems known as DevOps has seen significant growth recently. Among the wide range of tasks of DevOps professionals, we focus on that of selecting appropriate cloud deployments for distributed applications. Despite the advent of automated software deployment and management frameworks, reasoning about good deployments still requires interaction with experts, often through discussions on online technical forums and social networks.

In recent years there have been several efforts to provide DevOps professionals with the tools that they need to address challenges in developing, deploying, and managing large-scale applications. To bridge across different development and deployment environments, especially in the cloud computing space, configuration management systems such as Chef and Puppet have emerged as solutions to codifying and executing management procedures (installation, deployment, etc.) around software components

2.4. Social Media Platforms for Social Good (2012)

The disruptive potential of social media in generating participation and networking has been readily exploited by marketers and politicians. The power of these digital networks can be used by individuals and groups for good causes, to have a positive impact on the society at large. Social media platforms are starting to be used by citizens for promoting social causes, creating community engagement to answer societal needs. Yet, precisely because social media platforms have a viral effect, they pose completely new challenges: (1) emerging from a crowded environment, (2) monitoring/managing the truthfulness of information and (3) taking into account cultural differences and preferences. Two exemplary cases of social campaigns based on social media platforms are provided - Kony 2012 and Soita Mummolle - to illustrate typical challenges and potential solutions. Future research directions are proposed.

III. METHODOLOGY

Front End Development (UI)

The top tier of the MERN stack is mainly handled by React.js. It is one of the most prominent used open source front- end JavaScript libraries used for building Web applications. It is famous for creating dynamic client-side applications. React will help you construct complex interfaces by using single components. It also connects those complex interfaces to data available on the backend server. React is used to create mobile applications (React Native) and web applications. React allows the reusability of code and can easily support it, which has many benefits and is much time saver. It permits users to create large web applications that can easily change the data of the page even without reloading the page.

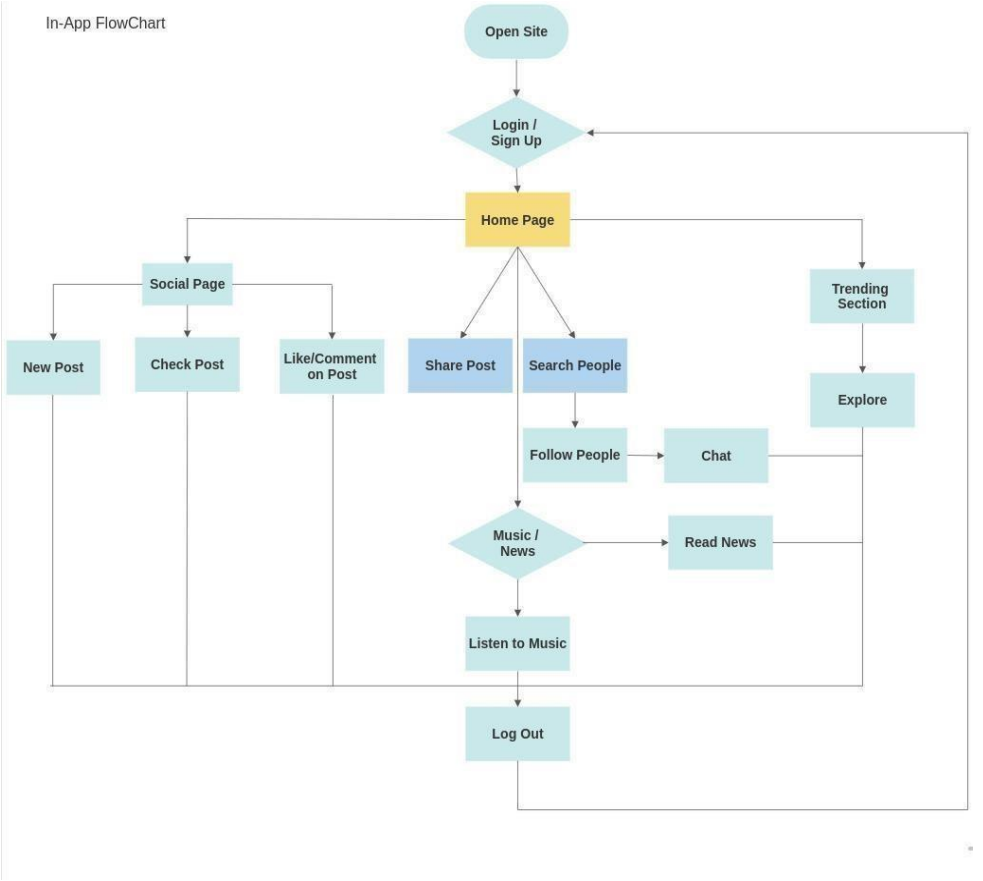
Server

It is just next level from the top layer and is mainly handled by two components of the MERN stack, i.e., Express.js and Node.js. These two's components handle it simultaneously because Express.js maintained the Server-side framework, running inside the Node.js server. Express.js is one of the widely used backend development JavaScript Frameworks. It allows developers to spin up robust APIs (Application Programming Interface) and web servers much easier and simpler. It also adds helpful functionalities to Node.js HTTP (Hypertext Transfer Protocol) objects. Whereas on the other hand, Node.js plays a very important role in itself. It is an open-source server environment, and it is a cross-platform runtime environment for executing JavaScript code outside a browser. Node.js continuously uses JavaScript; thus, it's ultimately helpful for a computer user to quickly create any net service or any net or mobile application

Backend

It is one of the most important levels of the MERN Stack and is mainly handled by MongoDB; the main role of a database is to store all the data related to your application, for example - content, statistics, information, user profiles, comments and so on. It mainly stores all the data for safety purposes. It maintains a proper record, which usually returns the data to the user whenever required. It mainly stores the data in the database. It generates two or more replica files of the data so that whenever the system fails, it can retrieve the exact information or data that the user wanted earlier. It implies that MongoDB is not based on the table-like relational database structure. On the other hand, it provides an altogether different mechanism for the retrieval and storage of data. Mongo DB is the most popular NoSQL (NoSQL or Non-Structured Query Language) database, an opensource document-oriented database. The term 'NoSQL' typically means a non-relational database that does not require a fixed schema or proper relational tables to store the necessary data in it. for LaTeX and Microsoft Word. The LaTeX templates depend on the official IEEEtran.cls and IEEEtran.bst files, whereas the Microsoft Word templates are self-contained.

IV. FLOWCHART



V. REQUIREMENTS

Mongo DB

MongoDB is an open source No SQL database management program. NoSQL is used as an alternative to traditional relational databases. NoSQL databases are quite useful for working with large sets of distributed data. MongoDB is a tool that can manage document-oriented information, store or retrieve information. MongoDB supports various forms of data. It is one of the many non relational database technologies that arose in the mid-2000s under the NoSQL banner-

- normally, for use in big data applications and other processing jobs involving data that doesn't fit well in a rigid

relational model. Instead of using tables and rows as in relational databases, the MongoDB

architecture is made up of collections and documents. Organizations can use Mongo DB for its ad-hoc queries, indexing, load balancing, aggregation, server-side JavaScript execution and other features

Mern Stack

Mern Stack refers to a collection of JavaScript technologies used to develop web applications. Therefore, from the client to the server and from server to database, everything is based on JavaScript. MERN is a full-stack development toolkit used to develop a fast and robust web applications.

MERN is a user-friendly stack which is the ideal solution for building dynamic websites and applications. This free and open-source stack offers a quick and organized method for creating rapid prototypes for web-based applications' MERN stands for MongoDB, Express, React, Node, after the four key technologies that make up the stack.

- MongoDB — document database
- Express — Node.js web framework
- React — a client-side JavaScript framework
- NodeJs— the premier JavaScript web server

Javascript

JavaScript is a dynamic programming language that's used for web development, in web applications, for game development, and lots more. It allows you to implement dynamic features on web pages that cannot be done with only HTML and CSS. Many browsers use JavaScript as a scripting language for doing dynamic things on the web.

VI. CONCLUSION

In this paper, we have developed a new web-based application for better user interaction. In this system, we implemented MERN Stack for better development and Features for the users. Based on the obtained results from our prepared work, we conclude that the proposed can be more user friendly and reduce the number of tasks to shift.

VII. FUTURE SCOPE

As we all know that the world is advancing day by day new technologies come and go, many new methods are been introduced almost daily, therefore the demand of the new systems has been increased in every organization. Old systems have been replaced by new systems, so we used the latest skill that is MERN Stack. The new system can be:

- Mobile compatible.
- New Features.

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A FULLY LINKED CONDITIONAL RANDOM FIELD MODEL FOR DISCRIMINATIVE TRAINING TO SEGMENT BLOOD VESSELS IN FUNDUS IMAGES

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ABSTRACT

Early computer-aided diagnosis of certain ophthalmological and cardiovascular disorders relies heavily on automated retinal blood vessel segmentation. Pixel classification, a common foundation for traditional supervised vessel segmentation techniques, divides images into two categories: vessel and non-vessel pixels. In this study, we provide a new method for retinal vascular segmentation based on vessel block segmentation and cross-modality dictionary learning for vessel extraction. To begin, we use multi-scale filtering to enhance vessel structural data. An inherent connection between the augmented vessels and the labelled ground truth vessels is then created by learning cross-modality description and segmentation dictionaries for the purpose of vessel segmentation. The use of efficient pre- and post-processing is also used to raise efficiency. The results of experiments conducted on three reference data sets demonstrate that the proposed method may provide respectable segmentation outcomes.

Keywords: *Vessel Segmentation, Pixel, Vessel block*

I Introduction

One of the eye's main components, the retina, responds to light. It's vital for the diagnosis and treatment of many diseases, including diabetes, hypertension, cardiovascular disease, and cancer, since the brain is the only human tissue that can be utilised to view blood arteries non-invasively. Segmenting retinal blood vessels is challenging due to factors such as the variety of lighting conditions, the detection of low contrast small vessels, and the trade-off between accuracy and computational efficiency. Retina images may be captured using a fundus camera. Images of this kind often have issues with noise, contrast, and lighting, and there may be variations in brightness both inside and between individual frames. Retinal scans are often used to detect both vascular and non-vascular illness in patients. Retinal images reveal changes in retinal structure. diabetes, occlusion, glaucoma, hypertension, and cardiovascular disease are all conditions that may affect the anatomy of blood vessels. Health issues and cerebrovascular accidents These illnesses often progress over time. Blood vessel patterns, reflectivity, and tortuosity If abandoned If these health issues aren't addressed, it might result in permanent vision loss. Loss of sight, if not complete deterioration Confrontation with them from a young age. Adapting to new circumstances is required to implement preventive measures and Hence, it may be possible to prevent irreversible eyesight loss. Fundus photographs of diabetic retinopathy reveal tissue deterioration in the eye. The term "red lesion" more accurately describes this condition. Retinal edoema, micro aneurysms in blood vessels, and bleeds may result from these red lesions. Fluffy regions and cell aggregation in the retina may result from spectacular lesions. The major objective is to identify micro aneurysms as distinct from ballooning abnormalities. Micro aneurysms are useful for detecting the onset of diabetic retinopathy, while haemorrhages are more useful for gauging the extent of the disease. The vascular tree, optic disc, and fovea, among other retinal anatomical structures, may be studied non-invasively by doctors using [2]. In screening programmes, where vast numbers of pictures are obtained from patient populations and meticulous examination by doctors is not practicable in a reasonable amount of time [3, 4], the development of automated methods for the early diagnosis of retinal illnesses is advantageous. To further aid in the diagnosis, screening, treatment, and evaluation of these diseases, it is common practise to look at the morphological properties of retinal blood vessels [3]. When comparing lesions of similar severity, automated diagnosis relies on previously found vessels [4]. Yet, accurate segmentation is a need for any kind of automated assessment of the retinal

vasculature. Despite the fact that it is very laborious and time-consuming, this task is currently done manually by trained specialists. Variability in vessel breadth, brightness, and shape, together with inadequate contrast between vessels and background, and uneven background illumination, all contribute to a considerable decrease in coincidence between segmentations done by various human observers [5]. As a result of these discoveries, automated methods for segmenting blood vessels without human intervention are being created [3]. Automated retinal vascular segmentation is still a hot issue in research [2] because of the potential importance of more accurate discoveries. Current methods may be broken down into two classes: supervised and unsupervised. Unsupervised methods don't need any prior knowledge to construct a model or classifier; they only need a set of training samples, which are generally made up of pixel characteristics and their known annotations. Changes in the vascular anatomy of the retina result in blindness in many people with disorders such diabetes, cardiovascular disease, hypertension, and stroke.

It takes a lot of time and effort for qualified specialists to manually do the segmentation procedure.

Diabetic retinopathy is a medical condition that may negatively affect one's eyesight or possibly lead to complete blindness in extreme circumstances. It is preventable if caught and treated early, and it can prevent blindness. The patient suffering from diabetic retinopathy will get better care as a result of this procedure. The study's primary goal is to develop a telemedicine system to help in the treatment of diabetic retinopathy using computational methods. Microaneurysm detection is the primary focus of the currently used approaches. Morphological operations allow for the detection of such phenomena. A group of persons with diabetic retinopathy may be tested to determine which among them has the most severe case, allowing for the process to be automated. Because of this, medical professionals can examine patients more quickly. An already damaged portion of the eye tissue is seen in the fundus photographs of those with diabetic retinopathy. Red lesion is a better name for this condition.

Retinal edoema, microaneurysms of blood vessels, and haemorrhage may all result from these red lesions. Retinal cell increase in bulk and fluffy patches are possible side effects of brilliant lesions. The primary goal is to identify micro aneurysms and distinguish them from other forms of strained tissue. Haemorrhages are much more beneficial and useful to define the severity of the illness than microaneurysms, which are early indications of diabetic retinopathy. Extraction of blood vessels from the fundus picture requires the use of image processing. Accurate identification of optical defects in an automated retinal image processing system is essential for

colour retinal images is a challenging process. Several important characteristics for the diagnosis or assessment of ocular or systemic illnesses may be gleaned from a study of the retinal blood vessels.

Hypertension, diabetes, and cardiovascular disease are only a few examples of vascular and nonvascular pathologies that have been linked to alterations in the morphology of retinal blood vessels. The optic disc may be seen as a bright spot, either round or elliptical in form, with its outline broken up by the egressing blood vessels in the colour fundus picture of the eye shown in Figure 1. The optic disc is the point at which the retinal blood vessels and nerves emerge. This is why it's sometimes referred to as "the blind spot." The detection of these is necessary for the separation of other normal and diseased retinal characteristics. Distances, and in particular the macula's position, are determined in these pictures based on the optic disc's placement.

II Background

Sreejini and Govindan[5] The parameters of the multiscale matching filter were optimised using a PSO-based parameter determination method. When it comes to segmenting blood vessels, multiscale matched filters give better outcomes than their single-scale counterparts. Differential evolution computation is used to search for the best values of various thresholds, which were first identified by Sil Kar and Maity[6] utilising the concept of maximum

matched filter response and fuzzy conditional entropy.

Singh and Srivastava[7] Applied Principal Component Analysis (PCA) and Contrast Limited Adaptive Histogram Equalization (CLAHE) to the preprocessing phase. Optimal thresholding based on entropy and length filtering are employed in the processing that follows. For retinal vascular segmentation, Panda et al.[8] calculated a Binary Hausdorff symmetry and Edge Distance Seeded Region Growth method. Thin blood vessels, however, provide the least amount of contrast between the artery and the backdrop. As the area growth technique relies on edges, it may fail to detect even the tiniest blood veins if they are not there. By increasing the sensitivity of segmentation, the algorithm developed by Zhang et al.[9] might potentially identify more non-vessel features from the background as vessels. Accuracy and precision will suffer as a result.

Roychowdhury et al.[10] have developed a set of eight characteristics for distinguishing vessel pixels from background ones. Fine vessel pixels are located using a GMM classifier and two Gaussians. The training data requirements of this approach are reduced..

Christodoulidis et al.[11] To get beyond the limitations of line recognition when dealing with the tiniest vessels, we propose a solution based on a multi-scale tensor voting framework (MTVF) paired with multi-scale line detection. The recommended technique does improve performance, however it still has several issues that require fixing. The outcome is a translation from the ground-truth versions of the tiny vessels into segmented form. As an added downside, the reconstructed vessels' diameters may not always match those of the corresponding blood vessels in the manually segmented picture. Moreover, there is an exaggeration of small vessel terminal places. In addition, the MTVF reattaches the false-positive (FP) structures that resemble vessels to the main vasculature, although it might miss actual veins that lie beyond junctions. Without taking into account contextual factors like neighbourhood salience gleaned from TVF, we utilise the bigger vessel's diameter instead. As a result, false positives (FPs) are produced, and true positives (TPs) are reduced by the same amount.

Aslani and Sarnel[12] hybrid feature vector has been utilised to combine local information that is both helpful and relevant. There are 13 different Gabor features in use here. Obviously, if it's lowered, the precision will suffer a bit. A collection of 39 discriminative feature vectors of the fundus picture was created by Zhu et al.[13]. The classifier's output is a two-class vascular segmentation of the retina. Just the hidden output weights are learned by the model, therefore training time is minimal. While examining the retina of a patient to identify retinal illness, it is then observed that the retinal blood vessels exhibit poor contrast when compared to the backdrop. Retinal illness is therefore difficult to diagnose. Hence, an appropriate image segmentation approach must be used for accurate identification of retinal blood vessels. In order to improve the segmented image, that is the primary focus..

III Signs Of Diabetic Retinopathy

Retinal diseases such as diabetic retinopathy (DR). A retinal image analysis system may be created to facilitate their task. When it comes to diabetes-related eye problems, Diabetic Retinopathy (DR) is by far the most prevalent. Diabetic retinopathy is the leading cause of blindness and visual impairment in people with diabetes across the world. Patients with diabetes need to be checked for diabetic eye illness so that it may be diagnosed and treated promptly, lowering the patient's risk of permanent vision loss. It takes a lot of time and money to have doctors go at a lot of photographs. Dry eye may lead to a number of retinal abnormalities such as micro aneurysms, haemorrhages, hard exudates, and cotton-wool patches.Serum lipoproteins are the yellowish colour of hard exudates, which are intraretinal deposits. When faulty blood vessels leak lipids or fat, this creates exudates.

If the exudates spread to the macular region, vision loss might result. To further understand how Morphology techniques may be used to identify exudates in retinal pictures, this article compares normal retinal images with those with exudates.

Segmenting the blood vessels in the retina manually is a laborious and time-consuming

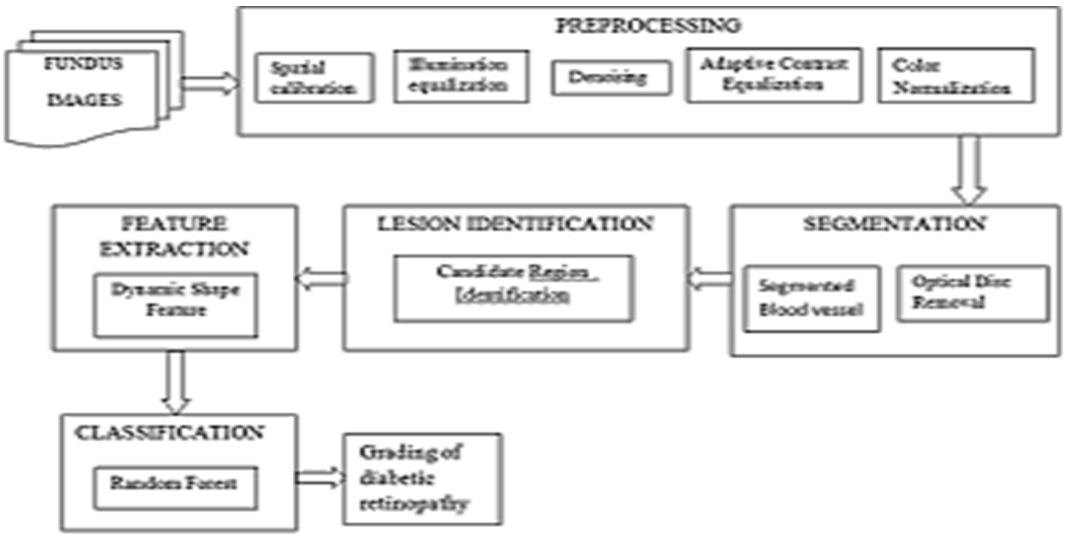
process, and it might be difficult to get a good segmentation if the vascular network is too complicated. Thus, automated segmentation is helpful since it reduces the time and effort needed, and in the best case scenario, an automated algorithm may produce as good as or better segmentation results than an expert through manual labelling.

Algorithms that do not significantly rely on specifying numerous parameters are preferable for practical applications because they allow for the easy use of this technology by those who are not specialists in the field. Retinal pictures include a broad variety of components, including the retinal image borders, the optic disc, and retinal lesions induced by illness, all of which provide difficulties for automated blood vessel segmentation. There remains room for development despite the availability of several approaches to retinal segmentation.

IV Methodology

An important obstacle for an automated retinal image processing system is accurate detection of the optic disc in colour retinal images. Segmentation of additional normal and diseased retinal properties relies on the detection of the same. The optic disc serves as a length reference in these images, and is used most prominently in locating the macula. The optic disc is seen as a bright spot with an irregular circular or oval outline caused by the outflowing blood vessels. Retinal blood vessels and optic nerves may be seen growing out of the optic disc. This is why it is sometimes referred to as "the blind spot." Ophthalmologists use visual examination and analysis of retinal images to diagnose conditions like diabetic retinopathy (DR). In order to facilitate quicker and more accurate diagnoses, a system for analysing retinal images may be developed. The most common diabetic eye complication is diabetic retinopathy (DR). Patients with diabetes should have regular eye exams since early detection and treatment of diabetic eye diseases may significantly reduce the risk of vision loss. Maybe a method for analysing retinal images might be developed to aid doctors in their work. The proposed method uses an innovative filter to get rid of the tiny blood vessels. Segmenting retinal anatomical structures is the first step in any automated retina analysis system. Because of their size and the high contrast between them and the background, large boats are easy to recognise in the shots, but small vessels are much more challenging to locate. In the proposed method, a new filter is used to screen out the delicate blood vessels.

V. Block Diagram



VI Interpretation

1. Vessel Segmentation: The segmentation task can be posed as an energy minimization problem in a conditional random field (CRF). In the original definition of CRFs, the respective images are mapped to graphical representation, where each pixel represents a node, and every node is connected with an edge to their neighbors according to a certain connectivity rule.
2. Lesion Detection: Among the candidates, several regions correspond to no lesions, such as vessel segments and remaining noise in the retinal background. To discriminate between these false positives and true lesions, an original set of features, the DSFs

The expected outcome of the project is:

• Detection both MAs and HEs in eye

• Analysis of diameter and tortuosity of the vessels, classification of veins and arteries, calculation of the arteriovenous ratio.

• Automated or semi-automated segmentation methods would have improvements in efficiency and accuracy.

• Fast, readily available, highest spatial resolution.

V Conclusion

By fusing the mechanisms of flux and multiresolution fuzzy (MRF) image reconstruction, we have provided a new method for separating blood vessels from the optic disc in retinal pictures.

The technique of graph cutting takes reimbursement into account. Preprocessing steps include binary opening, distance transform, adaptive histogram equalisation, and contrast enhancement. The effectiveness of vessel disjuncture was compared to 10 different approaches, including human hand labelling. We have tested how well our strategy works for the optic disc disjuncture.

To conduct the disjuncture, our proposed approach makes use of previously acquired information about blood vessels; therefore, it does not need training before being applied to retinal pictures from various sources and under varying lighting circumstances.

In addition, "the overlap tissue disjuncture" is addressed by the proposed approaches, which is a major problem in medical picture processing. The MRF image renovation method removes vessels in the optic disc region before sub splitting the optic disc because the blood vessels converse into the optic disc area and misguide the graph cut algorithm down a short route, breaking the optic disc border, to get excellent disjuncture outcomes. The reimbursement component, on the other hand, takes into account vessels that rely on regional intensity features to complete the optic disc disjuncture. It follows that our approach may be used in different contexts of medical image analysis to fix "the overlapping tissue disjuncture." Our possible research will focus on the separation of exudates, a kind of retinal lesion, utilising the retina's subdivided components (blood vessels and optic disk). Because of this, these frameworks may be used to design a Bg starter kit. The retinal pictures may then be analysed using this template to identify abnormal spots (lesions).

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A REVIEW ON ANALYTICAL BACKEND DASHBOARD ON IRCTC DATA FOR ROUTE PLANNING

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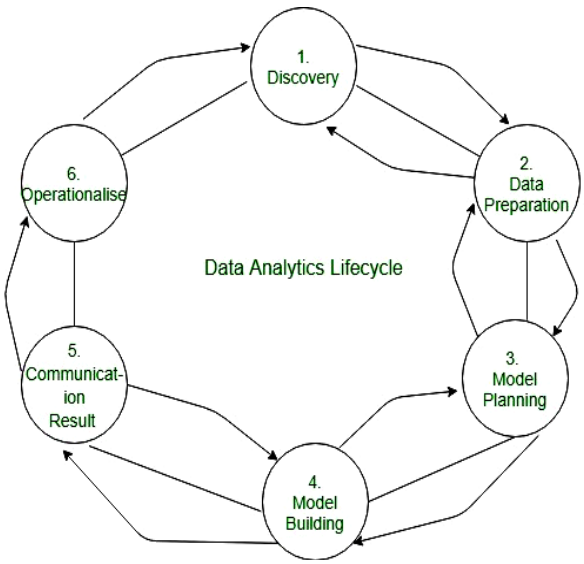
ABSTRACT

Indian Railways (IR), often regarded as the country's lifeline, connects every part of the second-most populated nation. The largest logistics carrier's logistical and financial performance has been at a low point for a few years. The progressive decline in IR's health not only grabs people's attention, but it also makes them curious about the underlying causes of this fragility. The worrying performance of IR during the past few years has attracted a tonne of literature attention, but there has been no satisfactory identification of the illnesses. In light of this, a study of the declining performance to identify the underlying causes is necessary. For the aim of analysis, the study uses a variety of metrics, including OR, IR performance, etc. IR is horribly plagued by subpar OR, IR performance, and is on the edge of going bankrupt. Subventions like subsidies should no longer be used, and outdated pricing strategies should be abandoned in favor of a pricing plan based on how much traffic can be supported in order to prevent a collapse and paralysis. The goal of the analysis-based Python project IRCTC Live Dashboard is to create a dashboard that will provide information about the trains. This dashboard will assist in determining the availability of trains and their specifics from the source station to the destination station. This project is dynamic, takes in many different inputs, and produces results. It is a data analysis-based project where the dashboard is created and analyzed using various Python modules. This project has a huge amount of room for growth in a variety of data science areas, including data analysis.

Keywords: *Indian railways; performance of Indian railways; performance of IR; operating ratio (OR); Data Preprocessing, Data cleaning, Data Optimization, Visualization.*

I. Introduction

The interactive dashboard, visualization, and analysis of IRCTC (Indian Railway Catering and Tourism Corporation Limited) data are all described in this paper. The programme is actually unique in that it enables data blending and in-the-moment cooperation. The dashboard enables the display of numerous visuals in a single glance. Additionally, it is used to display only the most crucial information, which is always changing. The IRCTC encourages determining the availability of trains from the source station to the destination station and their specifics through data visualization and analysis.Data analysis involves looking over, cleaning up, modifying, and modeling data.The goal is to find relevant information, enhance decision-making, and inform conclusions. We forecast useful information or insights, such as graphs, from its data using a variety of datasets. Daily new 3 data are generated in the Real World from several sources, including log files and large volumes of IRCTC data. Data analysis's job is to combine the many data structures into a single format. Data is subjected to a variety of processes, including data collection, processing, cleaning, analysis, modeling, communication analysis, etc.



The train timetable is the basis of a train operation organization which can also effectively present a comprehensive plan of transportation production activities. It is generally acknowledged that the effectiveness

of the train timetable can have a direct impact on the operational safety, passenger satisfaction, and financial advantages of the urban rail transit (URT) system. It is crucial to assess the effectiveness of the train timetable since it can offer a wealth of helpful and insightful data for enhancing the level of service.

II. Literature Review

S. No.	Title of the Paper	Key Points	Conclusion	Reference
1	Data analytics approach for train timetable performance measures using automatic train supervision data.	Data analytic framework, data preparation, data analysis.	Evaluation of the execution of the schedule is essential for raising the standard of the railway service. This study uses ATS data to propose a methodical data analytics methodology for TTPM.	[1]
2	An analysis of performance of Indian railways.	Performance of Indian railway, financial measures of IR, safety measures of IR, operating ratio, capital output ratio.	One of the important contributions of this study is the thorough examination of the effectiveness of IR from its two primary financial and logistical perspectives.	[2]
3	Data analyzing in Indian railway: A survey to analyze applications of data mining.	RAC (Reservation against cancellation), KNN (KNearest Neighbor), ARP – Advanced reservation period, clustering, TTE.	The review of other works using data analysis methodologies to identify TTE findings for ticket allocation, identify train delay causes, and forecast delay times was conducted in this study.	[3]
4	A study on passenger satisfaction towards inline booking in IRCTC application.	Passenger satisfaction, service quality, technology changes, flexibility.	Despite being created for a unique situation, the model may be applied to other services of a similar nature and help raise overall satisfaction while also enhancing quality of life for the public.	[4]

III. Proposed Work Data Preprocessing

Preprocessing is a data mining technique used to format the raw data into a manner that is both practical and effective.

Data Cleaning -

This problem occurs when there are gaps in the data. The data may be missing a lot of important information. Data cleansing is completed to handle this portion.

oIgnore the tuples. oFill in the missing values.

Data Optimization

Data management and optimization relate to the process of gathering business data and effectively using it to increase the efficiency and speed of information extraction, analysis, and utilization.

An optimization problem entails methodically selecting input values from an authorized set and determining the value of the function in order to maximize or minimize an objective function. It aids in the best problem-solving process.

Visualization

To grasp the insight of a particular data collection, data visualization techniques generate a graphical or pictorial representation of the data.The goal of this visualization technique is to locate data sets' Patterns, Trends, Correlations, and Outliers. Here, the visualization is done using Seaborn and Matplotlib.

Data analytics' significance is actually altering the globe. Data analytics have altered how individuals behave in a variety of contexts, including sports, business, and everyday life. Given that India has the largest railway network in the world and that managing it manually would be difficult, this technology was necessary. We will be able to increase its effectiveness by computerizing it and incorporating data analysis. The user will be able to choose journeys in real-time using this

cutting-edge dashboard technique. Additionally, utilizing data analytics in train data will increase service effectiveness and forecast asset maintenance.

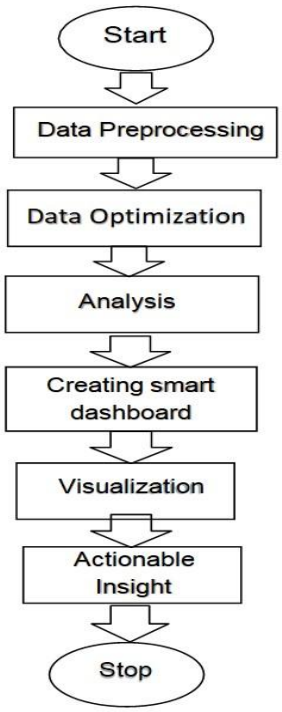


Fig.2: Proposed work flow diagram.

Our project is on the backend, thus we will either design our own frontend to make it accessible to people, or we will give our backend code to any organization so they can make a frontend and make it available to users in the form of a website or application. According to customer requests, we'll aim to add more programmes to our dashboard in the future.

IV. Conclusion

The "IRCTC live dashboard" project was completed successfully in a clear-cut and orderly fashion. This dashboard makes it simple for users to choose the ideal train based on their preferred time and distance. Additionally, graphical depictions are crucial for quickly comparing trains and choosing the one we want. Our dashboard is now fairly clever and user-friendly for every passenger thanks to this added feature.

V. Acknowledgement

We are grateful to Dr. M. G. Panjwani for his unwavering support, advice, and belief in us throughout the project. We also like to thank him for taking the time to keep an eye on the project's development. We are quite grateful to our sir for providing us the chance to work on this project, which has helped us learn and offered useful information about our project. I want to express my sincere gratitude to every member of my group because without their cooperation and support, we would not have been able to finish this project. With their advice and assistance, we were able to effectively accomplish this project.

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FOOD WASTE UTILIZER

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ABSTRACT

Unprecedented increases in food waste recently are having a detrimental effect on the factors that fuel economic growth. As a result, the industries involved in agricultural processing are heavily impacted. We are focusing on food waste at events like weddings and company parties in our project because recycling food is a challenging task. By using this online tool, food waste may be efficiently managed. Every day, the population wastes a lot of food. So, in order to address the problem of food waste, we must use the internet. In general, we are automating the process of food waste.

Keywords: *food waste, hunger rate, sustainable development goals, social entrepreneurship.*

I. Introduction

The Food Wastage Management System, also known as Food Waste Utilizer, is a web-based programme used to manage food waste. Using this online application, food vendors and customers can communicate. Food donors can fill out this application with their addresses and details about how much food they are donating. The donor can create an account, log in anytime food is wasted, and send an administrative request. The admin gathers food donations from contributors through their local agent, who then gives it to the needy or nearby orphans. The administrator will alert the donor after accepting the meal from the agent. The food redistribution programme is a social innovation that effectively combats hunger and food waste. As each author has the donors' personal information is kept hidden, according to a different account.

Only three modules—donor, user, and admin—are used in this project, which uses PHP and a MySQL database.

Food waste is one of the most challenging issues that the global population is now facing. Between a third and a half of the food produced is thought to be lost before it reaches a human mouth. This demonstrates how ineffective the current food systems are. One of the Sustainable Development Goals (SDGs) 12 ("Ensure sustainable consumption and production patterns") set by the United Nations in 2015 is to reduce global per capita food waste at retail and consumer levels by half by 2030. Additionally, it seeks to reduce food losses across the board in the food supply networks. It is consequently projected that there would be an increase in the number of initiatives, campaigns, and legislative efforts to achieve the aforementioned aims.

II. Literature Review

According to reports, food waste is a major issue everywhere in the world. More than 58 percent of the food that people create each day for eating is wasted, according to a survey. However, more than 60% of individuals in third-world countries die from malnutrition because they lack access to wholesome food. As a result, the countries with superior technology are putting increasing emphasis on this issue. Less food will be wasted as a result, and it can be donated to those in need. According to [6], in the modern era, when artificial intelligence has grown, people are more dependent on cellphones. Numerous programmes that allow people to donate their extra food to those in need have been developed in an effort to reduce the massive quantity of food waste.

A. Food waste application of Singapore

When Tan Jun Yuan, a Singaporean food vendor, learned how much food is wasted each year, she felt terrible. He observed numerous vendors selling leftover food in a single day. He served the clients 10 to 15 bowls of pork ribs every day in addition to other specialties. Additionally, he observed that more than 35%

of the daily meals he made were leftover. He created the 11Th Hour application as a result.
This programme offers the leftover and undesirable food at half the original price just before the restaurants close. Following its creation, this application was downloaded about 20,000 times.

B. Food waste reduction application from Netherlands (No Food Wasted)

To reduce food waste, a Dutchman by the name of August de Vocht developed this programme. This app collaborates with the shop to inform users of the foods that are about to expire. [8] asserts that it allows customers to donate their soon-to-expire grocery products so that people in need of food can buy and use them at a reduced price. It helps to cut down on unnecessary food waste. More than 20,000 people have benefited from this scheme, which has also reduced the amount of food wasted in the Netherlands..

C. An application to control food waste by UK and Ireland (Food Cloud)

This application has gained recognition as one of the most beneficial food waste apps in the United Kingdom and Ireland.
By using this application, retailers can notify charitable organisations of their excess food, reducing the chance of food waste. This programme acts as a middleman by arranging pick-up for the organisations and providing the food varieties. Additionally, it collects and preserves the food so that nonprofits can do the same according to their requirements. This plan to provide leftover food to the homeless is apparently a collaboration of more than 1200 corporate centres and 3000 humanitarian NGOs.

D. African application to reduce food waste (cheetah)

Academics from the University of Twente developed this programme to reduce food waste in Africa. In Africa, it is typical to find that different fruits and vegetables lose their ability to be consumed due to bad road conditions and inadequate refrigeration. The purpose of this software is to gather those foodstuffs before they spoil and distribute them to the starving and undernourished people of Africa. The Dutch Ministry of Foreign Affairs provided support to the researchers in creating this application. Most of the farmers who transport food use this application, and it also helped them to lessen the likelihood of food bribery in Africa. This application will likely be made public during the upcoming year.

E. Application for Reducing Food Waste in India (No Food Waste)

Restaurants, food carts, and events can utilise the Indian app No Food Waste to alert patrons about their surplus leftovers so that those in need can take them and eat them. This application collects these foods and distributes them to homeless people, slum residents, nursing homes, and orphanages. According to [11], users can also notify them by displaying hunger points, and they would distribute the items to that area. They can only eat food that has been cooked two hours earlier, and that is the sole restriction.
These applications have changed how artificial intelligence is employed by feeding the needy. It is regarded as one of the best software development apps.
However, wasting food is still a bad habit. People should be more cautious while preparing or buying meals because many people lack access to food globally, according to Although using this programme has greatly decreased food waste, additional attention and caution are still needed to ensure that food waste is completely eradicated in the future.

III. Methodology

The Waterfall Model was the first Process Model to be introduced. It is often referred to as a "linear-sequential life cycle model". It is really simple to use and understand. In a waterfall model, there is no overlap between stages; each one must be finished before the next one can begin. The waterfall model served as the original SDLC approach for software development. The waterfall paradigm, which represents the software development process through a linear sequential flow, is used. This indicates that for a phase of development to begin, the phase before it must have concluded. In this waterfall paradigm, the phases do not overlap.
The first widely used SDLC model in software engineering to guarantee project success was the waterfall approach.

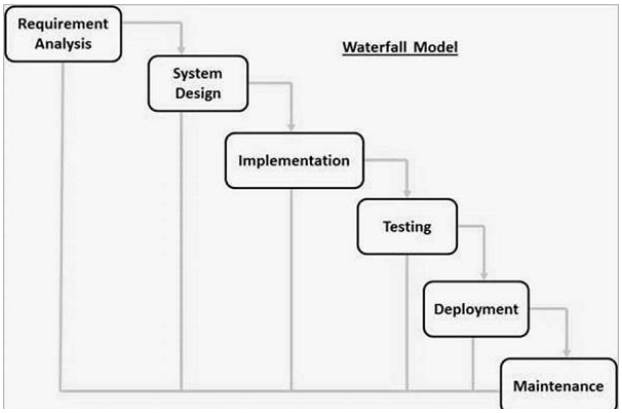

Fig : Waterfall Model

The sequential phases in Waterfall model are −

The Waterfall model's successive phases are:

A. Conditions collecting and analysing
At this stage, a requirement specification document is created that lists all conceivable system requirements.

B. System Design
In this phase, the system design is established after looking over the first phase's necessary specifications. This system design helps in figuring out the hardware and system requirements as well as the overall system architecture.

C. Implementation,
The system is originally constructed as discrete programmes, or units, which are then merged using inputs from the system design process. The process of creating and assessing each unit's functioning is known as unit testing.

D. Examining
The complete system is then merged after each unit produced during the implementation phase has been tested. After integration, the entire system is checked for flaws and defects.

E. System Deployment
After functional and non-functional testing, the product is either released to the market or put into use in the environment of the client.

F. Keeping Up
A client environment is prone to a variety of issues. Patches are released to fix specific issues. Furthermore, updated versions of the product are released. Maintenance is carried out to effect these modifications in the consumer's environment.

IV. Proposed Work

With the help of the proposed approach, we can reduce food waste. The food redistribution initiative is a hugely effective social innovation that addresses food waste and hunger. Through their local agent, the admin collects food donations from donors and distributes them to the underprivileged or orphans closest to them. We can lessen the issue of food wastage by having the admin notify the donor after receiving the food from the agent.
There are three modules in this project: Admin, Donor, and User.

A. Admin
1. Dashboard\: In this part, the administrator can see the totals for each state, city, food donors, food listed, food requests overall, new food requests, food requests that were rejected, and food requests that had been fulfilled.
2. State: The administrator can modify the state here (Add/Update/Del).
3. City: The administrator can control the city here (Add/Update/Del).
4. Reg Food Donor: The administrator can view registered food donors in this section.
5. Listed Food: The admin can view the listed food in this part by food giver.
6. meal Request: In this part, the administrator can see the user-submitted meal requests.
7. Enquiry: The administrator can monitor and manage the inquiry in this section.
8. Pages: The administrator can control the about us and contact us pages in this section.
9. Use this section's admin search function to look up food requests by request number.
10. Reports: The administrator can view donated food and registered food donors in this section for a specific time period.
Admin can also update his profile, change the password and recover the password

B. Donor
1. Dashboard: Donors can examine the entire amount of food that has been listed and taken away in this section.
2. mention Your Food Details: Donors may mention the specifics of their donated food here.
3. Request: Donors can view requests sent by users in this section.
4. Search: Donors can use this part to look up food requests by request numbers.

Also available to donors are profile updates, password changes, and password recovery.

C. Visited User

1. Home: Users can check the details by visiting the website.
2. About Us: Users can view website information.
3. Contact Us: Users can read the website administrator's contact information and get in touch with them.
4. Food Available List: Users can browse the donated food that is available and submit a meal request.
5. Request Food: Users can also ask for food that is on hand.

V. Conclusion And Futur Work

Our research focused on the problem of food waste, which has several detrimental societal and economic implications.

However, food waste can be avoided or at least minimised with the aid of governmental restrictions and contemporary technologies. Utilising mobile application technology can assist in controlling food waste. The programme makes an effort to encourage better food administration. Our proposed solution should enable the UAE community to share food and reduce food waste through the usage of mobile technologies. This study is a first step in creating a more effective strategy to reduce regular food waste. To further enhance this software, the following features could be introduced in the future.

- Expanding our app to include a variety of donors, including families, individuals, and organisations like restaurants.
- Including a GPS location feature in our apps. The location of the shared food should be specified by the user who is giving. Date and time of each meal posted by users are added
- Making the software cross-platform (supporting many platforms)

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AWOMAN-SAFETYAPPUSINGANDROID

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Abstract

The Women Safety App is a mobile application that aims to enhance the safety of women worldwide. Its primary function is to enable users to promptly contact emergency services and alert their trusted contacts, family, and law enforcement in case of any emergency. The app utilizes GPS technology to track the user's location and immediately notify emergency services and registered contacts in case of distress. Moreover, the app employs advanced algorithms to detect potentially dangerous situations, such as being followed by suspicious individuals. In the event of a threat, the app will send an emergency alert to law enforcement and the user's contacts network. Overall, the Women Safety App is a powerful tool that can help improve the safety and protection of women globally. It provides real-time alerts, easy access to critical resources, and enables users to promptly notify their safety networks in case of danger.

Keywords:Android studio, GPS tracker, SOS, Siren alert, Hidden Camera, Application relevant

1. Introduction

The Women Safety App is a comprehensive application designed to increase the safety of women. It allows users to add the phone numbers of their trusted contacts, who will receive an emergency message with the user's live location when the power button is tapped three times. Even if the phone is locked, the app will make a phone call to the first registered contact. Moreover, if the user wants to alert the people around her, she can tap the power button three more times to trigger a siren alarm.

Women safety apps have the potential to revolutionize the way women interact with their environment. These apps enable users to customize safety features to suit their specific needs, such as emergency contacts, alerts, and location tracking. Additionally, these apps provide resources and guidance to help identify potential threats, report hazards, and seek assistance. Women can connectwith other womenfrom around the world who face similar risks and collaborate on solutions to better protect themselves. Women safety apps offer a way for women to stay safe, feel empowered, and in control of their own safety.

There are many women safety apps available in both the Apple App Store and Google Play Store, making it easy for users to find the app that best fits their needs. These apps offer a wide range of features that can help women feel more secure in any situation. From instant messaging and live tracking to location sharing and audio notifications, these apps are a great way for women to stay safe, feel empowered, and in control of their own safety. With the help of these apps, women can remain safe and secure while living their daily lives.Women safety apps are designed to offer features such as a panic button, which when pressed, triggers an emergency call or text to designated contacts such as family, friends, and the police. Additionally, these apps provide users with further help by sharing information on nearby safe places and support groups. Some apps even allow women to track their location and share it with trusted contacts for added safety. Women safety apps are essential tools for creating a safer environment for women and are a must-have for anyone looking for added security and safety.

The primary objective of safety apps is to provide women with the resources and knowledge to stay safe and reduce the risk of becoming a victim of violence or harassment. These apps provide access to emergency contacts who can provide assistance, support, and resources in the event of an emergency or an uncomfortable situation. These apps also provide critical information such as crisis contacts, safety guidelines, and educational resources, empowering women to better understand safety issues and ensure their safety in all scenarios. By using these apps, women can be more confident and secure while going about their daily lives.

2. Related work

Ensuring women's safety has become increasingly important with the use of

technology and social media. Technology can help women stay safe while they are out and about through applications and websites that track their location and alert friends and family if they don't check in. Facial recognition technology is also being used to identify potential threats to women. Technology is also being used to combat violence against women through apps that allow women to document incidents of violence and share them with authorities.

Additionally, technology is aiding survivors of violence through online platforms that provide support and access to services and apps that enable survivors to document incidents of violence to build cases against perpetrators. However, addressing women's safety requires a holistic approach that takes into account social, economic, legal, and cultural factors. Improving legal and social systems is crucial to protecting women's rights and providing justice and services for those who experience gender-based violence.

Educating the public on respecting women and speaking out against gender-based violence is essential for establishing an environment of mutual respect and safety. This could be achieved through campaigns in schools, universities, and the workplace. There must also be greater investment in research and development to create innovative solutions for women's safety, such as mobile applications that serve as panic buttons and provide real-time access to emergency services, or tools that use artificial intelligence to detect and report acts of gender-based violence.

By taking a multifaceted approach that involves all stakeholders, including governments, corporations, and individuals, we can create safer environments for all women and ensure their right to live in dignity. The field of women's safety is of great importance, and it is essential that we work towards making sure women are safe in all areas of society through practical safety measures, education, and awareness of women's rights worldwide.

3. Methodology

- The app starts with a launcher icon and a splash screen that displays lottie animations. Once the splash screen is finished, the user is prompted to grant certain permissions before they can access the home screen.
- The home screen features seven CardView buttons that lead to different functionalities: Emergency SOS, Hidden Camera Detector, Women's News, Siren Alarm, App Tour, About Us, and Share and Save Lives.
- If the user selects Emergency SOS, the app saves the phone numbers of their relatives using shared preferences in key-value pairs.
- When the user taps the "try it" button, the app initiates a phone call using an implicit intent and sends an SMS message with the user's live location, which is obtained through the f used location provider client API.
- To enable this functionality even when the phone is locked, the app registers a background service.
- Inside the background service, a broadcast receiver is registered to receive messages from the OS about the screen's on/off state and count the power button tap count. A timer is also started when the power button is tapped for the first time, and if the button is tapped three times, the "try it" functionality is executed.
- If the button is tapped six times within 30 seconds, a siren alarm is started to deter any potential culprits. Tapping the power button three times again will stop the alarm.
- If the user selects Hidden Camera Detector, the app uses the magnetometer sensor to detect electromagnetic radiation emitted by electronic cameras.
- If the resultant radiation strength in all three directions is greater than a certain range, the phone will start beeping.
- If the user selects Women's News, the app displays news articles fetched from a news API using the Retrofit library.
- If the user selects Siren Alarm, the app starts a siren alarm that loops using the media player API.
- If the user selects About Us, they can read about the app's creators and contact them using implicit intents.
- If the user selects App Tour, they can take a tour of the app.

If the user selects Share App, they can share the app and help save lives.

3.1 Features

Here are some ways this app works:

- You can save important phone numbers of your relatives in the local storage of the app.
- With just three taps of the power button, you can send a message to your trusted contacts with your live location and make a phone call to them.
- If you sense any danger, you can quickly start a siren alarm by tapping the power button three times again, which can help deter the culprit.
- To stop the siren alarm, just tap the power button three times again.
- The app also has a feature to detect hidden spy cameras by scanning the suspected areas. You can also get tips on manually detecting spy cameras.
- You can read news related to women's empowerment and struggles to stay informed and empowered.
- If you need to contact the app developers, you can use the "Contact Us" feature.
- Finally, if you find the app useful, you can share it with others through the "Share App" feature.

4. Literature review

The safety of women in public spaces is a matter of great concern in many parts of the world. As a result, there has been a growing trend towards the development of mobile applications designed to provide women with security in various situations. These apps offer a range of features and tools to help women stay safe in public places and seek assistance in emergency situations.

Mobile safety apps for women typically offer a variety of safety tools, including real-time safety alerts and notifications, GPS tracking, emergency call buttons, and safe chat functions. Some apps also provide users with additional tools such as a reporting system for incidents and crimes, and access to relevant helplines and emergency services.

These apps are not only beneficial for women but also for family and friends who want to keep their loved ones safe. Users can add contacts to their watchlist, enabling family and friends to stay informed about their loved one's safety status.

In conclusion, mobile safety apps for women are becoming increasingly popular and vital for the safety of women in public spaces. They provide women with a range of features and tools to help them remain safe in various situations, as well as additional features for family and friends to monitor their loved ones' safety.

In addition to being useful for women, mobile safety apps for women can also be used by family and friends who are looking to keep their loved ones safe. These apps often allow users to add contacts to their list of people to watch over, enabling family and friends to be informed of their loved one's safety status.

Overall, mobile safety apps for women are becoming increasingly popular and important for the safety of women in public places. These apps offer a range of features and tools to help women remain safe in various situations, as well as providing extra features for family and friends to monitor the safety of their loved ones.

5. Acknowledgement

We would like to express our appreciation to the developers, designers, and all those involved in creating the women's safety app. The app offers an efficient way for women to seek help during emergencies, and is a crucial part of ensuring their safety.

We commend the incorporation of features such as GPS tracking, emergency contacts, emergency call buttons, and panic buttons that greatly enhance the app's usefulness. We are grateful for the hard work that went into making this app a reality.

The app's focus on personal safety measures and crime prevention advice adds to its value. It can provide an extra layer of security and assurance to users.

We extend our heartfelt thanks for the dedication and effort that has gone into developing this app for women's safety. We trust that it will continue to serve as a valuable tool for safeguarding women, both now and in the future.

6. Conclusion

Mobile applications for women's safety offer a variety of tools and features that enable women to stay safe and protect themselves from potential harm. By allowing users to track their location, call for emergency assistance, and

quickly inform their loved ones of their situation, these apps empower women and provide a greater sense of security in their daily lives. In addition, women's safety apps offer valuable information about the safety of different areas of a city, enabling users to make informed decisions about their daily routines. Overall, these apps are an important advancement in the effort to improve women's safety and well-being.Women safety apps also offer valuable insights into the safety of different parts of a city, allowing users to make informed decisions about their daily routines. These apps are an important step towardsthe reducing the risk of harm to women and providing them with peace of mind.

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