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VOICE BASED EMAIL SYSTEM FOR BLIND

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Abstract - The Internet is one of the revolutionary achievements of the last decade of the twentieth century. The increase in internet usage and the unlimited opportunities it offers cause people to fully use internet technology today. With the introduction of the internet into our lives, communication and access to information have become easier. As the business world moves to the digital environment, keeping up with the times becomes more important for everyone. Email is one of the most widely used functions on the Internet . Besides ordinary users, blind people also encounter problems when using the Internet. While technologies such as screen readers and Braille keyboards make it easier to access a range of applications, they still have difficulty accessing much content. The email is important and they must rely on third party help. Therefore, the purpose of this article is to provide voice services to visually impaired people without the need for help or assistance from third parties. Over the past few years, many researchers have worked to create solutions that will allow visually impaired people to use special features of email.This email system can be used by blind people as well as illiterate. The system makes it easier for visually impaired people to send, receive, create and delete emails.

Key Words*: *Text to speech, Speech to text, Face recognition, Machine learning, Artficial Intelligence, Blind people

1.INTRODUCTION

The Internet has become the basis of daily life. Information, knowledge and information on the web is used by everyone. There are approximately 285 million blind people in the world and India accounts for 60% of all blind people. The large number of this figure shows the need for technological development. Strong business and personal relationships are built on effective communication. A computer based voicemail system allows users and customers to communicate without typing. These programs are used to convert the caller's recordings into text and then send it to the intended recipient. Since all legal documents must be sent by post and blind people cannot write, this will help them. The system acts as an application with a playback mechanism that can play or send messages and the user can use it to select, control and play messages. Locking is not available in the Gmail standard. In this project we are creating a recording option that will convert recorded messages to text and send it to a specific email address. Nowadays, many people are so busy that they want to write and send messages instead of writing. People can benefit from this application by saving time and communicating effectively. The system interacts with users in this application by asking to enter a message, displaying input messages , and asking for the recipient's email address before sending the message. When we show it the message will appear. Our offer has many advantages: -

- Simple and economical.
- The system is very fast and accurate.
- Less skills to work.

2. Literature Survey

Sunny Kumar, Yogitha, R. Aishwarya [1], this article is designed to create an email that even new users or people with physical disabilities can use to communicate without prior practice. The email system does not use keywords and works only with the help of mouse movements and voice chan ges. Illiterate people can also send emails based on speech recognition and text-to-speech. The entire system is based on voice interaction and leverages. technology seamlessly. The system is well designed and can send emails quickly. All options

are available to send emails and perform all functions of the email system.

G Maheswari; R. Meenakshi; G Nalini Priya [2], Voice assistants have made great progress in recent y ears and their capabilities are increasing.In this article, we aim to create a smart email based voice assistant. The voice assistant listens to the user's voice input and converts it into text that is emailed to the recipient. First, we need to provide the user's email ID an d Gmail account password for authentication, which can be done using Python in the Py Charm Community IDE. SMTP, which stands for Simple Mail Transfer Protocol, is the most common and popular email protocol. It is used to transfer email from one account to another on the Internet. A protocol is a list of instructions that verify and control the delivery of email and forward messages from the client to the server. MTA (Message Transfer Agent) is a client that must be present in the system to send and receive e-mail.

G.S.V.R.K.Rao,E.Siew[4],While many companies continue to develop tools for building applications, they offer many solutions and products to suit the needs of the business. Voice email system is one of them and is becoming another feature of tech-savvy users. The voice email system became the beginning of the use of voice search engine, applications and services from many fields of transmission such as business and voice chat.

Sherly Noel[3], Nowadays, formal or informal communication is sent via email. The development of technology provides more opportunities for the visually impaired. This app is designed to simplify the email writing process for everyone, not just the visually impaired. Now, instead of typing on the keyboard, the human voice can be used to input. Thus, the additional skills required for writing are no longer required. The application recognizes the user' s voice and compares it to the sample before the voice is recorded to the file and executes the command. Use daily quotes as quotes. It aims to reduce the burden of human memory. The proposed project is designed to develop a strategy for converting speech to text (STT) for writing emails and converting text to speech (TTS) for reading emails. The app uses the Google Web Kit API (Application Programming Interface) for speech recognition. Research on the application proves its effectiveness and better performance when compared to many parameters such as hearing distance, volume, tempo, words per minute (WPM), correct and homophones. Graphical analysis describes the correctness of a word.

PROPOSED SYSTEM:

Our aim is to develop a desktop application that can be used by people with visual imparities. The proposed system makes it easy for blind people to access emails features easily and efficiently. All the existing voice based email systems, has their own faults and drawbacks ,which we have tried to overcome in this system. This system is easy to use for blind people as well as it gives blind people the the freedom to communicate with other officials without the need or assistance of third party. Python and its inbuild libraries are used to design our proposed system.

In our system, the operations performed are:

1. Register (Face Capture),
2. ID login (face authentication)
3. Delete emails
4. Write emails,
5. Read emails, count all emails

We also made other modules and count invisible emails. We offer more features for disabled or visually impaired people and in this project we offer for facial recognition or recognition using the Haar Cascade algorithm. Thanks to this process, they can complete their work easily. They don't need others to do their job. The system allows disabled people to do their jobs independently. The system uses IVR (Interactive Voice Response) to interact with users. When the user interacts with the system, it automatically generates sound for the operation. The entire system mentioned so far is based on the user's accessibility and ease of use of the e-mail system. By using speech-to-text and text-to-speech models, the research has created a paradigm that enables visually impaired people to easily and effectively use email and send information via e-mail. The recommended system will work well without the use of keyboard, mouse and third-party assistance. Facial recognition is used to simplify the security of the design. The proposed system can also be used by general users and illiterate people.

ALGORITHMS /PROCESS:

The algorithm for our project, designed to assist blind users in utilizing Gmail through a voice-based system, comprises several essential modules. Initially, the system prompts the user for login credentials, which are authenticated through a combination of login information and subsequent face recognition. Upon successful login, the system transitions to the primary voice recognition interface. This interface facilitates the

execution of three core functionalities: composing emails, deleting emails, and checking the inbox. In the compose email module, the user is guided through the process of composing an email, including specifying the recipient, subject, body, and optionally attaching files. The inbox checking module informs the user of the count of emails present in the inbox, conveyed through voice prompts. Finally, in the delete email module, the system prompts the user to specify which email they wish to delete, subsequently removing the selected email upon confirmation. Throughout the system, the core functionalities are facilitated using the Harscade algorithm for face recognition, while text-to-speech conversion and speech recognition are handled by the gTTS (Google Text-to-Speech) and PyAudio libraries, respectively. This comprehensive approach ensures a seamless and accessible experience for blind users interacting with Gmail.

1. **Login Process:**

- Algorithm:

1.Prompt the user to input login credentials (username and password).

2.Authenticate the user credentials.

3. If credentials are valid, proceed to face recognition.

4.Utilize the Harscade algorithm for facial recognition.

5.Upon successful face recognition, proceed to the selection of modules.

One of the libraries used is Harscade algorithm for facial recognition.

2. **Voice Recognition Interface:**

- Algorithm:

1.Initialize the voice recognition module.

2.Present the user with options for composing an email, checking the inbox, or deleting emails.

3.Capture user input through voice commands.

Libraries used in voice recognition in this system are PyAudio and gTTS. PyAudio is used for capturing audio input given by user. And Google Text-to-Speech(gTTS) for converting text to speech for prompts and feedback.

3. **Compose Email Module:**

- Algorithm:

1.Prompt the user to specify the recipient, subject, and body of the email.

2.Allow the user to attach files if desired.

3.Confirm user inputs.

4.The composed email is sent to specified recipient.

Here, libraries used to compose email module/option is gTTS for providing prompts and feedback. And PyAudio for capturing additional audio inputs.

4. **Inbox Checking Module:**

- Algorithm:

1.Retrieve the count of emails present in the inbox.

2.Convert the count to speech.

3.Voice out the count to the user.

As this module/option in this system is about mentioning count of emails in speech.This conversion of count of emails to speech is done by using gTTS library.

5. **Delete Email Module:**

- Algorithm:

1.Prompt the user to specify which email to delete.

2.Confirm the deletion request.

3.Delete the specified email.

Here, libraries used to delete email module/option is gTTS for providing prompts and feedback. And PyAudio for capturing additional audio inputs.

SYSTEM ARCHITECTURE:

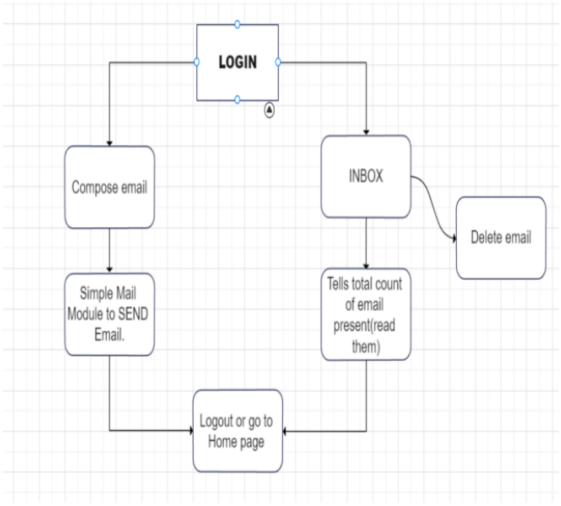
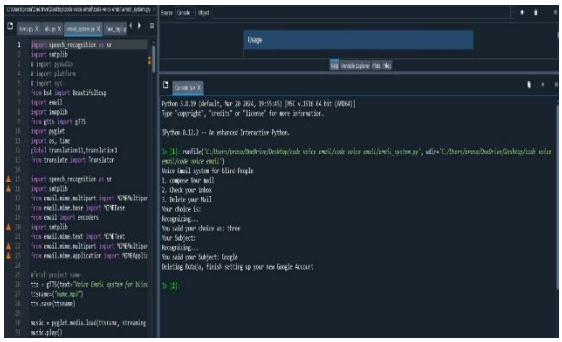


Fig1: System Architecture

RESULT SET:

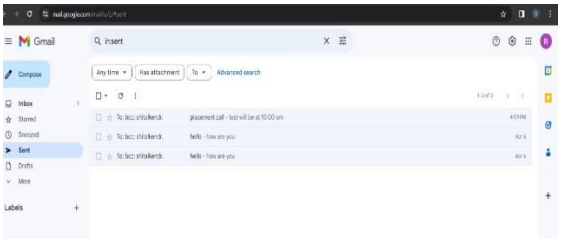
- **User interface**

- **Backend**

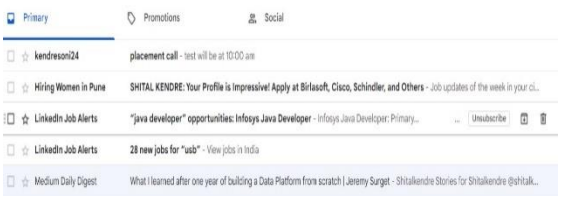


- **Compose module**

In compose module, mail is composed and sent to recipient. The sent mail is the first one ”kedreon24”. Person who sent mail ,inbox looks like:

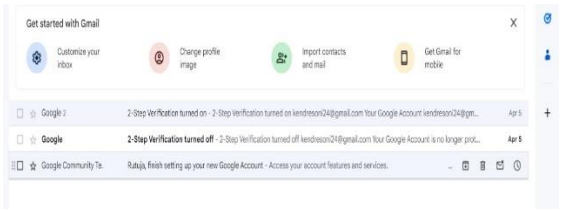


And recipient’s inbox is

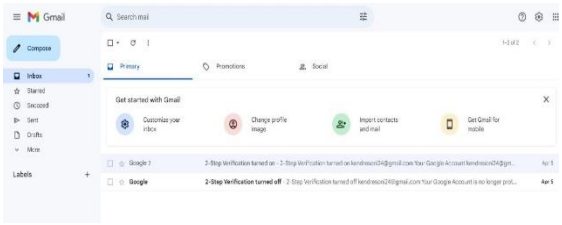


- **Delete Mail**

1.Before delete



2.After Delete



CONCLUSION AND FUTURE SCOPE:

In this study, we have provided service by creating the Dekstop application , a voice-based email system that will aid the visually impaired or blind people by making it easier for them to access, send, and receive emails. The system is purely voice-based. There is no need to write or type the messages in the inbox of the email only through your voice’s communication is possible.The use of a mouse or keyboard is eliminated. This project is the best applicable for physically challenged people but one who is unable to read and write for the communication(illiterate people) can also use this system for their convinence. Face recognition is merely another icing on the cake. Face recognition will provide security to users, preventing data exploitation. The system uses Speech to text and text to Speech Method to help the Blind People handle or access email easily. The only thing to keep in mind is to follow the instructions to do the right actions. The system is quite efficient and accessible to utilize for the communication for the blind people. There is no need to write or type the messages in the inbox of the email only through your voice’s communication is possible. Future improvements to this project may address the shortcomings of the application. Clear voice recognition and the ability to attach images or documents are the two main challenges of the application. So we can add photos or information links to suppliers as a future development.

3. CONCLUSIONS AND FUTURE SCOPE

In this study, we have provided service by creating the Dekstop application , a voice-based email system that will aid the visually impaired or blind people by making it easier for them to access, send, and receive emails. The system is purely voice-based. There is no need to write or type the messages in the inbox of the email only through your voice's communication is possible.The use of a mouse or keyboard is eliminated. This project is the best applicable for physically challenged people but one who is unable to read and write for the communication(illiterate people) can also use this system for their convinence. Face recognition is merely another icing on the cake. Face recognition will provide security to users, preventing data exploitation. The system uses Speech to text and text to Speech Method to help the Blind People handle or access email easily. The only thing to keep in mind is to follow the instructions to do the right actions. The system is quite efficient and accessible to utilize for the communication for the blind people. There is no need to write or type the messages in the inbox of the email only through your voice's communication is possible. Future improvements to this project may address the shortcomings of the application. Clear voice recognition and the ability to attach images or documents are the two main challenges of the application. So we can add photos or information links to suppliers as a future development.

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