Smart Mailing System for Blind People

[1]B.Prasanna Kumar, [2]Mohammad Sadhik, [3]Venkata Gopi Krishna, [4]J.Tirumala Rao, [5]Mehaboob Subhani
[1]Associate Professor, Department of CSE, KKR & KSR Institute of Technology and Sciences
[2,3,4,5] B.Tech Students, Department of CSE, KKR & KSR Institute of Technology and Sciences.

Abstract:- People with visual impairments all around the world now have a variety of new opportunities because to the emergence of computers and cellphones. Talk back and other helpful elements in audio-based workspaces have made it easier for blind persons to utilize the area. These can be challenging to utilize at times, though. Today, email is required to send confidential information. Although there are many ways to communicate, email is the most popular in every industry, including business and education. Technology such as email enables people to communicate with one another and send emails to other people. The main objective is to develop a voice-based email system that will enable people who are blind or visually impaired to send and receive emails using computers. It will make use of the most recent features to create a working environment that enables persons with visual impairments to do their jobs without the assistance of others. According to the World Health Organization (WHO), there are 2.2 billion visually impaired people in the world. Our web application is helpful for both blind and sighted people, as well as people with disabilities and healthy individuals. We also know that one in six people worldwide are disabled, and that vision problems are primarily responsible for these disabilities when people are between the ages of 40 and 50. So every individual who have the visually impaired are become the burden that will cause global productivity loss up to US$411 billion annually to be estimated based on the statistics we are ready to help them to meet their some of the essential factors of technology like smart mailing system it is help them to complete their private message transformation via email all operation done through secured platform email help to transfer files compose email send and receive messages we are using different types of protocols and different types programming languages like pyaudio kit and the protocols like SMTP,IMAP. We are using some of the techniques like text to speech and speech to text and Interactive voice response to develop our system

Keywords:- Text to Speech, Interactive Voice Recognition, Pyaudio, Visually Impaired, Mailing for Blind, Speech to Text.

I. INTRODUCTION

Nowadays the use of the internet becomes common in everyone's life, each individual person ready to use the internet and trying to gain knowledge. Day by day, technology is making human life more comfortable and easier. Even Though technology is providing so many benefits, some people are lagging behind to use those technologies because of their physical inability. In those services mailing is the one of the services. To send something privately and securely, the mailing system is the best way for communication. The blind people need to depend upon other people to use this service, however technology is providing so many features to these types of people such as voice-based screen readers, text through voice and talk back may be inefficient at some times. To solve all these problems, a voice-based mailing system is the best solution. Although there are many ways to communicate, email is the most popular in every industry, including business and education. A person needs to have a clear vision in order to understand what is shown on the screen. The use of the internet by those who are blind is entirely useless if they are unable to see the screen. Many people with visual impairments yearn to use all the services that sighted people do, thus in order to solve all these issues, we are establishing this project to make email service easily accessible to the blind in order for them to use it for free. Although normal people can also utilize this service, the focus of this project's python-based web application is primarily on visually impaired individuals. The user must adhere to the voice instructions provided by the system. The system will accept and take into account the orders given through voice alone, so the blind person does not need to worry about which mouse operations should be made to access a specific service. The user can write mail using this system and read mail they have already received.

II. LITERATURE REVIEW

Voice-based e-mail system for blinds was published in [1], 2016, by Pranjal Ingle, Harshada Kanade, and Arti Lanke in the International Journal of Research Studies in Computer Science and Engineering (IJRSCSE). He used STT (Speech to Text), TTS (Text to Speech), and IVR technologies for message delivery in this system. The benefit of this technology is that the recipient mail and message body are entered using microphones rather than a keyboard. The model's shortcomings include the need for sensitive microphones, which the majority of users do not have, and the fact that some keyboard and mouse operations are necessary. Future scope the system should speak out loud about each button when the user hovers over it. In [2] International Journal of All Research Education and Scientific Methods S. Biruntha, M. Gaja Priya, R. Kiruthika, N. Indupriya, and Mrs. R. Ashwini (IJARESM). Voice-Based Email for the Blind using artificial intelligence to recognise speech. The entire system is built on mouse events; in order to carry out a particular action, the user must carry out some action. STT & TTS and IVR are utilised for system interaction. Techniques including STT, TTS, and IVR are

applied. The author of this system did away with the keyboard altogether, leaving only mouse click events necessary.

International Research Journal of Engineering and Technology (IRJET) V-Mail, [3] Naziya Pathan, Nikita Bhoyar, Ushma Lakra, and Dileshwari Lilhare (Voice Based E-Mail Application). The primary foundation of this paradigm is speech-to-text commands. The application will ask the user to utter certain commands in order to use the appropriate services and if they want to access. This system employs speech-to-text, text-to-speech, interactive voice response (IVR), and prompt-based speech recognition algorithms. The system's advantages include the fact that all commands are prompted rather than being entered using the keyboard. In this system, there are several mouse click events that are present but are difficult for blind individuals to recognize as merits. The customer wants to expand this to additional services like messaging, taking notes, and using voice control to operate other programmers. International Journal of Scientific & Engineering Research, [4] Tharani K K, Shalini R, Jeyanthi I, Dr.Deepalakshmi R. VOICE BASED MAIL ATTACHMENT FOR PEOPLE WHO ARE VISUALLY IMPAIRED. The system's primary goal is to allow users to attach files in mail using speech recognition rather than screen readers, which are solely used to log in. Techniques include speech-to-text, template development, SMTP protocol file attachment, and sleep, listening, and off modes. Instead of utilizing Screen Readers, which are solely used to log into mail, Merties' technology allows users to attach files using speech recognition. This approach has drawbacks because it is only used to deliver files by attaching them to emails. Makes advantage of mouse cursor events.

In [5] Shivani Sunka, Neha Bhawar, Sudhir Bagade, and Aishwarya Belekar. Voice based E-mail for the Visually Impaired, International Journal of Computer Applications (0975 - 8887) Volume 175- No. 16. The use of Google's Gmail is not supported by any of the existing voice-based email systems, which all offer their own user-developed email services. In light of this, it is intended to develop the application by integrating it with the Gmail Client, providing users with even another benefit. This approach makes use of STT, TTS, and IVR. The advantages the use of an automatic speech recognizer assists those with disabilities and reduces the cognitive strain placed on blind persons who must memories and write characters on a keyboard. The Indian subcontinent is not helped by this paradigm because there are so many languages spoken there and speech recognizers are unable to recognize them, according to the author's research. The English language is most frequently used. The user wants to create an Android application for this model, which is the future scope of the project.

In [6] Dr. P. Lakshmi Harika, V. Renita, M. Vasanth, and R. Pradhicsha Journal of Engineering Research & Technology International (IJERT). Voice Mail for Visually Impaired Users. The capabilities it will offer include voice-based instructions, direct user-system interactions, and the ability to compose, read, transmit, and read emails. SMTP protocol, Google Text to Speech, and other techniques were employed. Merits For sending and receiving emails, SMTP

and IMAP are utilised along with Python modules. Merits some keyboard and mouse events are present in this. Some mouse and keyboard events are present in this future scope. In [7] International Journal of Software and Computer Science Engineering, Komal, Archana, and Anshika Rajput Email Services for the Visually Impaired Individual: Voice Mail in Action. This author claims that their goal is to develop Android applications that are only based on "voice" or "speak."

In [8] International Journal of Advance Research and Innovative Ideas in Education, edited by Prof. Bhushan S. Chaudhary, Gunjan Dhande, Shital Salve, Sanika Lohar, and Sonali Sasane. VOCABULARY BASED EMAIL SYSTEM FOR THE BLIND. This system is a pure web application; the author employed voice-based user interaction; a database was used to store the emails that were received; and this system needs mouse click events to identify a certain element on a page. Technologies used include the IVR for speaking out loud, the database for storing and retrieving the received mail, the user interface created using HTML and Javascript, and STT for voice to text. Database is used to store received mail instead of using the keyboard. The advantages of this system include the speak aloud on/off switch, which allows regular individuals as well as blind persons to utilise it. Mouse hovering while speaking out loud is a fault.

[9] Reshma Jagan, Joby George, Amritha Suresh, Binny Paulose, and International Journal of Scientific Science, technology, engineering, and engineering research, voice-based email for the blind. The system prefers that all actions be carried out through mouse clicks rather than keyboard shortcuts. The techniques employed in this model include voice recognition, text-to-speech, IVR, MFCC, dynamic temporal warping, and speech-to-text conversion. Benefits include lessening the cognitive load on the user's memory of keyboard shortcuts as well as the software load associated with employing screen readers and automatic voice recognizers. The drawback is that it only functions on desktop systems.

[10] International Journal of Advanced Research in Computer and Communication Engineering by G.Shoba, G.Anusha, V.Jeevitha, and R.Shanmathi (IJARCCE) A VISUALLY IMPAIRED EMAIL THAT IS INTERACTIVE. In this system, text-to-speech (STT), text-to-speech (TTS), interactive voice response (IVR), and fingerprint authentication are all used. This system employs speech-to-text, text-to-speech, interactive voice response (IVR), and prompt-based speech recognition algorithms. The advantages of this system include the lack of keyboard input since all commands are prompted. The system's drawbacks include the presence of some mouse click events that are challenging for blind persons to recognize. The future use of this is that it can be used for other services like messaging, taking notes, and voice-operated operation of other programmers in addition to email services. International Journal of Advance Research and Innovative Ideas and Innovation in Technology, [11] K. Jayachandran, P. Anbumani Email for Blind People Using Voice. The graphical user interface is the main focus of the suggested system. They are able to access it by utilizing their

own language. Word recognition, text to speech, and speech to text are the technologies used in this system. The benefit of this is that the user can immediately record and submit a message that has to be distributed. The receiver can hear the recording and receive the message the user intended to send. The only drawback is that the user can listen to emails whenever they want by carrying out the click operation specified by the prompt. In the future, speech to text and text to speech with speech reader will be available, making it possible for blind and visually impaired people to use the system.

Badigar, Nikita Dias, Mario Pinto, and Jamima Dias were in Milan [12]. Journal of Science, Technology, and Engineering International (IJSTE). Voice-Based Email for Visually Impaired Users. The graphical user interface is the main focus of the suggested system. STT, Language Understanding Component, Context Interpreter, Dialog Manager, Language Generator, and Text-to-Speech Synthesizer are among the technologies employed in this system. The advantages of this method will help to strengthen authentication by maintaining fingerprints for validity and prompting the user's screen. The drawbacks of this method include the requirement that we tap on the screen in order to view the prompt messages. The potential future is more commands may be used for different activities like search, mark important, delete, archive, go back, report spam, and forward. It uses attachments like photographs, word documents, audio, and video files can be incorporated. Additionally, automated email replies can be implemented. Divesh Jethani and Simmi Saluja's [13] International Journal of Advanced Research and Innovative Ideas and Innovation in Technology, Saurabh Gautam. According to the author of this multilingual voice-based email system, unlike other systems that have more of an emphasis on GUI friendliness for average users, our solution meets the needs of both the average user and a group that is visually impaired. Additionally, since the user uses mouse clicks, they are not concerned with keyboard input. IVR, speech-to-text conversion, text-to-speech, html, css, and java script are the technologies employed in this. The main benefit of this system is that users don't need to worry about learning how to use a keyboard because all actions only require a few mouse clicks, which also benefits those who are illiterate. Because this model involves certain mouse clicks, blind folks may not be aware of where to click. This is the disadvantage of this system, therefore. The model's potential use is the system has the ability to recognize different languages and convert them into the proper text in a variety of languages (including Spanish, Russian, Mandarin, and others) with which the user is familiar. The device is best for both visually impaired and the illiterate people.

2nd International Conference on IoT Based Control Networks and Intelligent, [14] viram jain, karthika ak, rachana n shenoy, rakshitha a, suma v, Muhammed Ahmed. Email for Visually Impaired Users Using Voice. In this system, the author offers keyboard shortcuts for persons with visual impairments, and by offering a few mouse clicks to work on emails, the strain on those who are blind will be lessened. This system uses IVR, text-to-speech, and speech-to-text conversion technologies. The benefit of this technique is that screen readers no longer use keyboard shortcuts. They employ a few mouse clicks in place of keyboard shortcuts, and kids are also used. They employ a few mouse clicks in place of keyboard shortcuts, and kids are also used. Additionally, since they make use of mouse clicks, blind persons are unable to understand where we should click. This is the disadvantage of this system, therefore. The potential future inclusion of attachments like images, documents, audio files, and video files. Algorithms for encryption and decryption can safeguard the username and password entered during login. International Journal of Advanced Research in Science, Communication, and Technology [15] S. Chinnadurai, M. Fazal, M. Santhakumar, and S. Suseendran (IJARSCT). Voice-Based Search Engine for People with Visual Impairments The author created a voice-based search engine similar to Google for this system. Despite not being a postal system project, this one benefits blind people more. The search engine accepts voice input from users. These writers claim that the computer will also help the user read the documents. Making use of search engines. Defining the request's specifics. Asking for specific data, such a stock quote or a sports score. Launching applications and making choices.

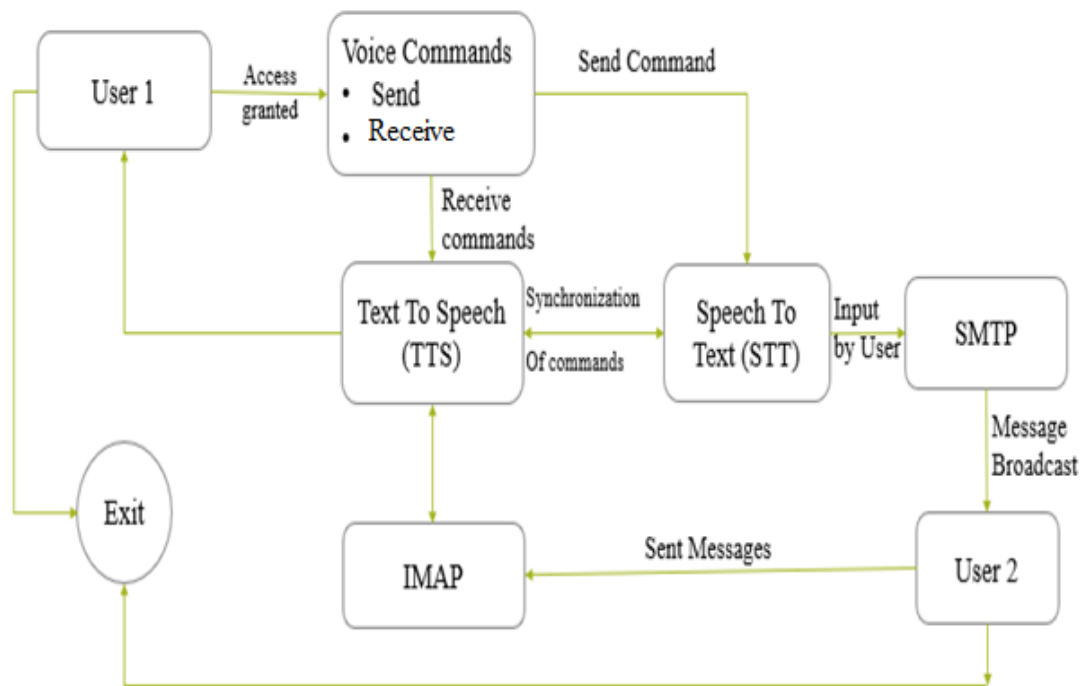## III. PROPOSED SYSTEM ARCHITECTURE

Fig 1: Block Diagram of proposed System

First the user has taken access from the system whether he is an authenticated user or not. After getting access a menu of options will give to the user those are, sending a mail or receiving a mail if sending a mail is chosen the step 1, and if received mail option is chosen the step 2

Step1: Text to speech module will be initiated and recipient mail id, subject, body of the message will be taken from the user through voice when user says stop send the mail will be sent.

Step2: Speech to text module will be initiated and the received mails will read aloud for the user so that the visually impaired person can hear the received mail.

➤ *Algorithm*
- Open the app using Google voice assistant.
- Get access
- Listen the voice instructions it has 2 menu items
- ✓ Compose a mail
- ✓ Read Received mails
- For sending/composing a mail select option using voice
- ✓ Speak recipient mail address
- ✓ Speak subject of the mail
- ✓ Speak body of the message and say stop send
- ✓ Message sent
- If read received mail option is selected then the system will speak the first 10 received mails subject and sender mail id, we have to select the mail which we want to listen to.

IV. CONCLUSION

In this paper, we propose an application that helps visually impaired people to send mail using voice without using keyboard and mouse events. In this application the system takes the required information from the user to send a mail: recipient mail address, subject and body of mail through voice. The user no need to remember the keyboard shortcuts, mouse click events or any Braille. The user only needs to know whom to send and what to send and remaining will be taken care of by the system only. The user has to follow the instructions given by the system. Using our application, the user not only can send mail but also can listen to received mail. The pyaudio kit from python performs speech to text and text to speech conversions. In the background we are using the inbuilt traditional mailing service such as gmail.

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