

VOICE BASED EMAIL FOR VISUALLY CHALLENGED PEOPLE

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Abstract- The internet is now one of the most important tools for everyday life. The internet is widely used by every human being to access knowledge, information, and communication. Blind people, on the other hand, have trouble using any internet-based service or accessing internet-based information. The development of computer-based accessible systems has broadened the range of options available to visually impaired people worldwide. Many voice-based search engines and audio-based virtual environments like screen readers have made it much easier for blind people to access online applications. We talk about the architecture of a voice-based mail system that blind people can use to quickly and easily access email. The blind can now use a computer to send and receive voice-based email messages thanks to this research's contribution. No naive user who is visually impaired can use this technology as effectively as a normal naive user because, unlike normal users, they require some practice in using the available technologies. This is the case despite the fact that numerous new advancements have been implemented to assist them in using computers more effectively. The structural design of a voice-mail system that a blind person could use to quickly retrieve emails is the subject of this study. They are able to communicate easily thanks to this strategy, which results in a large number of stronger workers who are independent. The user will not be able to use the keyboard or keypad; instead, the system will rely solely on speech to text conversion and clicks, swipes, and motions. The goal of the research is to help blind people use a mobile phone to send and receive voice-based mail messages in their native language. In addition to people who are visually impaired, this framework will be beneficial to them.

Key words: speech-to-text, text-to-speech, and chatbot
I. Introduction The internet is essential in today's world of communication.

INTRODUCTION:

The world of today is built on top of the internet. There is no way to finish any work without the internet. The most important aspect of daily life is email, also known as electronic mail. There are approximately 260 million visually impaired people worldwide, according to a poll. This also suggests that these people do not know how to use the internet, email, or other technological advancements [1]. Accessing the Internet and its services can be challenging for people with disabilities. Because of their inability, the majority of them are unable to use the internet's services and are not interested in doing so, and there is no other way for them to do so independently. The answer for this issue is to include a third individual who has no disabilities except for this probably won't be the most effective way for giving protection to the client [3]. The purpose of the proposed system is to eliminate the need for a third party to send emails. Our framework is created utilizing Discourse to-Message and Text to-Discourse which assists the incapacitated with sending and get messages all alone without recalling the console alternate routes as well as the area of keys by simply utilizing voice orders we can get to our email.

Numerous fields have been transformed by the introduction of the Internet, as we can see. The internet has made people's lives so simple that they can easily access any information they want. One of the main areas that the Internet has changed the most is communication. When it comes to sending and receiving important information over the Internet, e-mails are the most reliable method of communication. However, humans must be able to see in order to access the Internet, and this is the standard. However, our society also includes people with disabilities who do not possess the same abilities as you do. Some blind or visually impaired individuals are unable to see things, including the keyboard and computer screen. Over 240 million people worldwide are visually impaired, according to a survey. That is to say, approximately 240 million people do not know how to use the Internet or email. The goal of this system is to create an email system that can be used by visually impaired people without needing any prior training. Because it is entirely based on interactive voice response, the system will be easy to use and efficient. The entire project is based on voice interaction, also known as speech recognition and synthesis. Because using this technology requires visual perception, people who are blind or visually impaired find it extremely challenging to do so. However, not everyone has access to the internet. This is because you would need to know what is written on the screen to access the internet. It is of no use if that is not visible. Because of this, the internet is completely useless for people who are blind or illiterate.

II. RELATED WORK:

In this section, we provide a comprehensive literature review of the current technical challenges. This paper's objective is to develop a search engine that only supports voice-based human-machine interaction [10]. the debut of a ground-breaking Voice-Based Search Engine and Web-page Reader, which enables users to control the web browser through voice commands. Users send text requests to existing search engines, which respond by retrieving relevant documents from the server and displaying them in text format. The creators of paper [11] proposed an email framework that is easy to utilize for outwardly tested individuals. The system design is comprised of the modules TTS (Text-to-Speech), STT (Speech-to-text), and Mail Programming Module (Compose,

Inbox, and Sent Mail). This system uses Artificial Intelligence (AI) via a GoogleCloud Speech-to-text-provided API involving neural network models for speech-to-text. It also uses a variety of Hashing Algorithms (MD5, SHA) to convert passwords or other credentials into hash functions [12], making it more secure than previous systems. One of the most important aspects of modern life is now the internet. The internet is used by every human being to gain access to knowledge and information [13]. However, blind individuals have difficulty using any internet-based service or reading these text materials. The development of computer-based accessible technologies has opened up numerous opportunities for people with visual impairments worldwide. It is a blind-friendly software architecture that integrates features for email and MMS messaging into the operating system [14]. A graphical user interface design can be created using voice commands and a mouse, but the keyboard is required. In addition, RSS feeds are utilized in conjunction with email to deliver a list of headlines and announcements of upcoming services and products. We have also created an application for you. A voice command can be used to access other apps besides email. The development and implementation of a Raspberry Pi-based speech recognition device for visually impaired individuals are the primary focuses of the research project [15].

Because of the rapid rise in the number of blind people, the primary objective of the research is to create a simple, inexpensive, user-friendly, and small device that incorporates a GSM module to enable visually impaired individuals to use multimedia operating system applications like text, music player, and dialing system. A cheap Raspberry Pi board includes all of the aforementioned features. At the time, [16], one of the electronic systems that can be easily used by blind people is suggested. The Viterbi method, voice-to-text, and text-to-speech converters, are all options. It is not determined to be the word that is most acceptable by the computational rule that works with the technology; However, it is spoken as your guess for a particular word as soon as the user says it. On the brand-new website that the user is visiting, they sign up for an account. Some of the shortcomings of the current system will be mitigated by this system. Sorry, but the Viterbi algorithm's ability to reduce errors more effectively will require more space.

An answer for the visually impaired and ignorant to better their association with the email framework is proposed in [17]. This procedure kills the need for screen perusers and Braille consoles while utilizing IVR innovation. Conversions from speech to text and speech to text were used there. Voice instructions can also be used for a wide range of tasks. You can use your identity, email address, and password to register. This refers to the capacity to make use of the PHP function that directs it to send an email. The email library that you can use to send emails is this one. The user's email is retrieved via the IMAP server. The Lash-Morris-Pratt algorithm is used to locate email collection boxes. The system's environment is therefore clean, and a feedback mechanism allows for voice control of each phase. Rather than the prior email framework, the report [18] recommends a framework that depends on a framework with a voice order. The entire system is essentially based on converting numbers into words. When the system is turned on, the user will be prompted to use voice commands to access the appropriate services. If the user wishes to access the appropriate services, it is essential to declare that this command will function. The Internet Message Access Protocol (IMAP) is utilized by this software. This is a common Internet protocol for sending email over TCP/IP from a mail server [19]. The primary form of activity—the screen—will be the first screen displayed starting at the beginning of the year. After the user presses a single button on this screen, the device will begin to hear your voice commands.

III. EXISTING SYSTEM

There are basic email systems that only support voice recognition and text-to-speech if the keyboard shortcuts are remembered. IVR, Speech to Text Converter, Mouse Click Event, and ScreenReader are components of the current voice-based email system. As in the references [1] and [6], there will be a small microphone icon on the user's finger when they click to speak, and their speech will be converted into text that blind people can also see and read.

Disadvantages:

- To send and receive emails, the user must use a mouse that is connected to the computer and perform mouse click events.
- They have chosen Web UI as the system's interface in the current system, which is difficult for people with disabilities to use

IV. PROPOSED SYSTEM

Since utilizing this innovation includes visual insight, it is incredibly hard for outwardly disabled people to use it. This is due to the fact that a blind person would be unable to access the internet because they would need to know what is written on the screen. The Speech-to-Text (STT) module, which collects the user's speech and converts it into text, the Text-to-Speech (TTS) module, which converts the system's response into speech, the Chatbot module, which makes the conversation more understandable and responds more like a human, and the mail communication module, which sends and receives emails, are the four primary technologies that are emphasized in the proposed system.

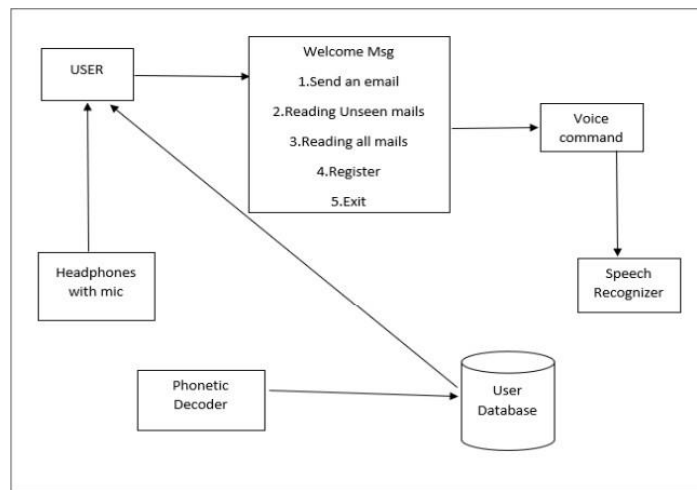


Fig 1 The system architecture of the proposed system

The voice-based email system project is a web application that makes it simple for blind people to use email. In addition to voice-based interaction, the proposed system focuses on providing the fundamental features of email writing, reading, and sending. Working with all of the aforementioned features is made easier by this, as is the ability to send voice-based and text-based email. Blind individuals can easily utilize the Email system with the proposed system. Users are able to easily provide input by speaking the message because the system's input does not require a keyboard or mouse. As a result, the system we are developing differs significantly from the ones that are currently in use. Our system also targets visually impaired individuals, in contrast to other systems that focus only on a specific group of people. The system will be controlled by the user, who will be able to issue commands that the system will heed. In addition, the user will be prompted to carry out particular actions in order to take advantage of the various services.

Advantages:

- To send and receive emails, no mouse click events are required.
- purely on the basis of the user's voice commands.

V.DESIGN

A. User Interface Design

Unlike any other website or application, our application's user interface is merely a standalone desktop application that can be accessed quickly and easily.

B. Design of the Database

Our system has a database for user validation. Name, Mail-id, Password, and Personal keyword are attributes in the table we have created. For the purpose of user validation, these details are saved in a database (PhpMyAdmin). Design of the System Our System is focused on voice. V.

VI.IMPLEMENTATION

A. Registration voice message will be displayed when the user opens the application. The user must select Register. If the blind person's pronunciation isn't very clear, the wrong credentials will be stored in the database, making it impossible to send or read emails in the future. For this reason, we need to register with a trusted second person. To protect their privacy, users are required to create a four-digit, one-of-a-kind keyword. If they want to access their email without having to enter a password each time, they must say that keyword.

B. Send letters

Client needs to say the choice/send an email as an order. The user must enter their personal keyword to log in. The chatbot then asks for the email address, subject, and message of the recipient. After that, the chatbot speaks the message "Mail Sent Successfully."

C. Reading Unseen Emails

The option "Reading All Emails" must be spoken by the user as a command. The user must enter their personal keyword to log in. The chatbot then examines all unseen messages and prompts the user to respond or not. The user must input YES/NO as a command.

D. The option "Reading All Mails" must be spoken by the user as a command.

The user must enter their personal keyword to log in. The chatbot then reads all of the messages and asks the user if they want to move on to the next one. The user must input YES/NO as a command.

VII. CONCLUSION

It is concluded that the system will meet the needs of the end user because it will function effectively. Errors are accurately eliminated after the system is tested. Since this application can be accessed from one or more systems, authentication from multiple systems is tested. It involves creating and putting into action a system for visually impaired people to interact with emails in real time. We planned to create a system that would make it easier for visually impaired people to quickly access email services. Some of the shortcomings of the existing email systems can be overcome with the assistance of our application. The use of a keyboard has been completely eliminated in this system, reducing the cognitive burden of remembering keyboard shortcuts and keys' positions. To carry out the desired actions, the user only needs to listen to the system's voice commands and respond accordingly. In order for the system to carry out the necessary actions, the user must first speak the command in the email application. When necessary, the user would be asked to provide information via voice input, and the system would verify the user's information. Additionally, it aids the illiterate and handicapped.

VIII. FUTURE SCOPE

Emailing isn't a big deal for people who can see, but it's a big deal for people who don't have the gift of vision because it goes along with a lot of work-related responsibilities. Because blind people can understand where they are, this voice-based email system can be very useful. For instance, the sound of "Register Button" will play whenever the cursor moves to any icon on the website that says "Register." Numerous screen readers are available. But mouse clicks had to be remembered. Instead, this project will alleviate the issue because the mouse pointer will indicate the person's position. This system focuses more on making it easy to use for everyone, including regular people, people with visual impairments, and people who are illiterate.

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