

# Voice Based Email With Face Authentication

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**ABSTRACT**— In many industries, the introduction of the Internet has sparked a profound transformation. Being a worldwide computer network, the internet has made people's lives simpler since they can now more easily access whatever information they choose. One of the key areas that the internet has transformed is communication. Due to the internet's integration of communication technology, communication has become incredibly simple. Email is often regarded as the most secure method of communicating or receiving sensitive information over the Internet. Using these devices might be challenging for those who have visual impairments since they need visual perception. A visually impaired individual cannot utilize the present email program without the assistance of others who would send emails on their end. However, this does not ensure that person's security and privacy. This inspired the creation of a voice-based email that simply needs little training. It uses speech recognition and mouse click. Face recognition is employed to increase authentication, security, and user privacy. Voice-mail allows the user to send, receive, and delete emails with ease. Each user activity receives an interactive vocal response. Both visually handicapped people and regular people might utilize it.

**Keywords**—Blind, Face Recognition, Mail for Blind

## I. INTRODUCTION

We will be creating a voice-based email system to help the visually impaired people who are not familiar with computers for email services and

which is more effective and safer. Any user, regardless of age, may readily access this email system. It offers the option of text to speech and speech reader with text to speech, making it easier for someone who is blind to use the system.

Visually impaired individuals are unable to utilise the majority of mail services that we use on a daily basis. There are a number of technologies available to these visually impaired users to make these systems more user-friendly for them, including screen readers, automated voice recognition software, speech to text and text to speech conversion, braille keyboards, etc. These technologies could not provide the right reaction like a typical system, therefore they were not particularly helpful to those folks. The primary goal of this system is to increase the accessibility and efficiency of email for users.

By the assistance of this program, everyone will be able to manage their mail accounts by their voice and also perform all mail related operations. The System functions by using the voice to text and text to voice converters. The user will respond to voice instructions from the system that leads them to take particular actions.

It would be a web-based aid for those with vision impairment or blindness that would use an IVR that enables voice-only account management for everyone's mail accounts as well as read, send, and carry out any other necessary operations. The system gives the user vocal instructions to perform certain operations, and the user complies with instructions precisely as a result. The elimination of the keyboard is this system's principal benefit.

User interaction will be limited to speech and mouse clicks. Additionally, the system will alert the user as to which mouse click action will supply them with which operations, so they need not worry about which click to make in order to access a particular service.

## II. LITRATURE SURVEY

In the paper [1], a search engine that only allows voice-based human-machine interaction is being developed. Users may now direct and curb the web browser with their speech with a distinctive speech based search query and site page scanner. The current search engines receive text requests from users, reply by getting pertinent materials from servers, and present the results as text. Even though the current web browsers can play audio and video files, the user must first request it by entering some words in the search text field. Then, using Graphical User Interface (GUI), the user may play the music or video they are interested in.

The method suggested in the paper [2] is based on a system with a voice command. After usage, the systems implementation will ask the user to voice instructions to obtain the necessary services. It is required to confirm that the voice0 command will function before the user may access the necessary services. This application utilizes IMAP (Internet Message Access Protocol). Only a few mouse clicks are required to operate the system. Although this method is superior to the one that was previously in place, it lacks verification because anybody may simply overhear a voice-pronounced password. Additionally, this system can only send voice records; it cannot send text emails.

Three key technologies are utilized by the system in paper [3]: a number to text converter, text to speech, and IVR. At the time a user first logs in to the system, they are presented with the inbox, compose, send, and trash choices. The ability to delete mail is an extra feature of this system. The user has the option to voice-send his or her mail. Although the suggested system is superior and offers more features, it still suffers from the same authentication problems and can only deliver recorded messages.

The method suggested in the paper [4] is based on e-system which is simple for the blind to use. The Viterbi method, tts conversion, and stt conversion are all options. Even though the algorithmic rule, which makes use of technology, doesn't think it's the most appropriate term, but when the user uses it, it's expressed for a specific circumstance as the word you uttered. At the website where they are visiting for the first time, the user registers. Some of the drawbacks of the existing method will be lessened by this system.

Unfortunately, but this plan will result in a decrease in the Viterbi algorithm's efficiency and an increase in the amount of space needed.

In the paper [5], Screen readers are computer platforms that allow people to read text and other items that are present on the screen while speech synthesiser is being used. It serves as an interface between the user and the operating system, applications, and user of a computer. It requires the user to enter the commands that the speech synthesiser is supposed to say. The user can read a position on the map, find the cursor, concentrate on the text, and conduct many other tasks.

For the blind and illiterate, a speech-based email system is available which was proposed in paper [6]. A voice output will greet you when the System starts up and welcomes you to the program. The user will then have a choice between generating a new email and monitoring their inbox verbally. They have voice-command technology that translates voice to text & text to voice. Screen Readers, the Braille Keyboard, PHP mailer, and the Knuth-Morris-Pratt Algorithm all utilize IVR technology. We are unable to use other email providers like Yahoo because it uses Gmail as its host server.

The Technology used in paper [7] relies on visual perception, it is very challenging for people who are blind or visually challenged to operate. This is so that a blind person cannot access the internet since they would need to be able to read what is displayed on the screen. This proposed system focuses primarily on four distinct technology kinds. Speech-to-Text (STT) captures user speech and transforms it into the text; Text-to-Speech (TTS) translates user responses to speech; Chatbot enhances discussion by providing responses that are more like human and, finally, for the purpose of sending and receiving mails module named mail communication is used.

In the paper [8], the key component of the project's development is speech recognition. It is the capacity of the computer program or device to recognize various words or expressions and translate them into machine-readable form. This method or technology allowed blind or illiterate people to communicate by speaking their messages into a system that would subsequently convey them to the intended recipient. The operating system that is capable of human speech recognition and answer with built-in voices are known as AI-based voice assistants. Utilizing Google Text to Speech, the voice assistant will record audio from the microphone, transforms it to text, and send it..

Creating a voice-first email system that makes it simple for those who are blind to access email is suggested in the paper [9]. In addition to

increasing the effectiveness and accessibility of postal services, the technique will lessen the psychological the typical Braille keyboards that are available to individuals with visual impairments and need a lot of effort for them to remember and arrange the characters. This technology's graphical user interface has been contrasted with the UI of the conventional mail system. This approach could be helpful for people who are illiterate as well as those who are visually impaired. The most crucial thing to keep in mind when developing this strategy is that the users will possess a specific level of competence.

To address the limitations of traditional ASR and screen reading systems, a voice-based email system was designed in paper [10]. The device is equipped with cutting-edge technologies that make it simple for blind users to use. It starts with the Login module, which validates the login information. The client logs in and proceeds to the home section, where they are given the following choices: Send, Create, Junk, and Inbox. Stt and tts as well as IVR technologies are utilised in PC program creation. An Android handset with a three-axis gyroscope, GPS system, and internet connection is required to run this system.

Many difficulties that were challenging for blind are now solved by the offered method, including

email sending and receiving. In order to allow disabled persons to develop alongside society, the approach suggested in this paper [11] will be advantageous to all parties involved. By enabling them to converse online and significantly improving their quality of life, this project enables persons with low vision to participate in the developing digital India. The system makes use of a text-to-speech synthesiser, a text analysis module, and a screen magnification module to help those with visual impairments understand the information.

In paper [12] the primary objective is to create a straightforward, low-cost device that incorporates a GSM module to allow people with visual impairments to use audio visual application software like textual, music, and call systems. This is because the number of blind people is rapidly rising. An affordable Raspberry Pi board comes with all of the aforementioned capabilities. One of the three technologies that is now offered is simple for blind people to use. Along with text-to-speech and voice-to-text converters, you may also apply the Viterbi algorithm. Although it may not be the most appropriate word according to the technology's computational algorithm. On the website they are just visiting, the user makes an account. This method will lessen some of the shortcomings of the current one.

Figure: Table Analysis

SI No	Title	Existing System	Methodology/ Algorithm	Drawback
1	Voice based search engine and web page reader	A search engine which supports Man - Machine interaction purely in the form of voice	Loquendo ETTS (Emotional Text-To-Speech), AI Voice Recognition	There is no Text to Speech(TTS) implementation.
2	Voice Based System in Desktop and mobile Devices for visually impaired people	Access email and other multimedia functions of operating system	Raspberry pi, GSM module.	People face difficulties in accessing these text materials, also using any service provided through internet.
3	Voice based mail system for Blinds	To convert number to text, text-to Speech ,Interactive Voice Response	User Interface(UI), voice Recognition.	There is no Speech to text and no security.
4	An Interactive mail for visually Impaired	To convert voice to text ,text to speech	Viterbi Algorithm	Required more space.
5	Voice Based Email System for visually impaired	Voice recognition ,text to speech ,speech to text.	IVR, Screen Reader ,Voice Recognition.	Here they have chosen Web UI as the interface for system which is not easy for the impaired people to use.
6	Speech Based E-mail System for blind and illiterate people	They have used speech to text and text to speech conversions and other voice-command operation.	IVR technology used for Screen Readers and Braille Keyboard , PHP mailer, Knuth-Morris-Pratt Algorithm	It uses Gmail as host server so we cannot use other email services like yahoo.
7	Voice based E-mail for blind	Text to speech, speech to text conversion.	Interactive voice Response, user verification, Speech Recognition, Mouse click events.	No security, if the users voice get changed due to any issue then the account will be frozen.
8	Voice based E-Mail for visually impaired	It covers Text-To- Speech and Speech -To- Text.	SMTP for sending mails, POP3 for receiving mails.	Has no User Authentication

9	Voice based E-Mail System Using Artificial Intelligence	Speech to text is done by using AI	Mail programming Module. Hashing Algorithm.	Has no User Authentication
10	Construction of a Voice Driven Life Assistant System for Visually Impaired people	Users voice gets recorded and stored in the database. Adobe Dream Weaver CS3 Is used in UI designing.	PHP Mailer and PHP-IMAP .Pattern matching Algorithm, Knuth-Morris-Pratt Algorithm.	Mouse clicks are used for some task which may get difficult
11	Email Access by Visually impaired .	Uses web accessibility ,text to speech synthesizer	Text analysis and screen magnification	Here no user Authentication is there so there will be an security issue.
12	Architecture of A Web Browser for Visually Handicapped people	Voice based search engine and web page reader	TTS module ,SST module ,Mail Programing Module ,AI ,hashing Algorithm .	No User Authentication

### III. PROPOSED SYSTEM

We'd create a web-based mail system with face authentication to make it easier for visually impaired and blind persons to complete email operations and to ensure correct authentication. Only a few mouse clicks are preferred instead of several keyboard strokes. We employ the widely known OpenCv, Haar Cascade method for face recognition. The machine is trained using data from the Kaggle open source dataset. Compose, Send mail, Trash, and more modules and other choices are available.

### IV. FINAL ANALYSIS

People who are visually impaired will have easy access to the email system by using voice-based email system. The most crucial aspect considered when designing this system is privacy. This technique can be used by those who are blind completely or partially. The ability to utilise email services without the assistance of a third party will enable visually impaired persons become independent with the use of our system. The system uses a simple voice input and mouse click-based technology that makes accessing email services easier. As blind people acquire the skills required to manage mail services independently, they will be able to contribute to the increasing digital world. The method will assist them in overcoming of several kinds of difficulties that blind individuals previously faced while accessing emails. In order to lessen the cognitive strain of knowing keyboard shortcuts, the idea of using screen readers in conjunction with keyboard shortcuts has been abandoned. Any user, regardless of age group, can easily access and use this email system. The system

can convert from voice to text and vice versa with a speech recognizer, making it suitable to be used by both blind and visually impaired persons. The success of this initiative will also inspire designers to create tools that are more beneficial for those who are blind or illiterate, who also deserve to be treated equally in society.

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