



# Review on Voice Based Email System for Blind Peoples

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**ABSTRACT:** In today's time communications have become so easy due to the internet and technologies. But, for visually challenged people, it is problematic to utilize this technology because of the fact using them requires visual perception. Although many new advancements have been implemented to help them use the computer efficiently so no novice user who is visually challenged can use this technology as efficiently as any naive user can do that is unlikely. Normal users require some practice for using the available technologies. This paper aims at developing an email system that will help to blind and illiterate people to utilize the services for communication without previous training. The system will not let the user make use of a keyboard instead the work will not only on mouse operation but also speech conversion to text. It can be used by a non-impaired person who has difficulty in reading. The system is based on interactive voice responses which will make it user friendly to use by all the users. Currently, visually challenged people are not able to use pc on their own mainly because keyboards are not user-friendly to them as well as unable to monitor the visual display. With advancement in technologies, these people find themselves technologically more challenged. Voice-Mail architecture helps blind people to access email. In this paper, a survey of voice based email systems has been done and proposed the Voice mail system architecture that can be used by a blind person to access eMails easily, smoothly and efficiently. The contribution made by this research and survey has enabled the blind people to send and receive voice Based e-Mail messages in their own familiar language with the help of a computer.

**KEYWORDS:** Speech to text, Text to Speech, IVR.

## I. INTRODUCTION

In day to day life, the Internet is very useful and plays a vital role in routine. It has even become one of the fact methods used in communication. The most important communication medium is email over the internet which is one of most common in every aspect of the business world. Though the email system connected the world to the closest, but somewhere as per visual disability and literacy it is difficult to use for these people. This makes a completely useless technology for visually impaired and illiterate people. Even the systems that are available currently like the screen reader, Text to Speech and Automatic speech recognizer do not provide full efficiency to the blind people to use the internet. As nearly 285 million people worldwide are estimated to be visually impair it becomes necessary to develop such a system which can be easily accessible to blind people and can be able to use the internet facilities for communication. So this consideration leads to work on projects like a voice - based email system which helps visually impaired people who are willing to use computer systems to use email facilities in a hassle free manner. The user need not worry about basic information regarding keyboard shortcuts or where the keys are located. All functions are simple mouse click operations he/she needs to perform in order to avail a given service as the system itself will be promoting them about the certain click and its operations.

## II. RELATED WORK

There were a total of 2.9 billion accounts by end of 2019 this makes emails the most used form of communication [1]. Visually challenged person faces more difficulty using a computer than a normal user, even though it is user friendly. Although, there are many screen readers available then also the user faces minor problems. Since the actual processing of the data takes place on the remote client the data which has to be transported over the network, which requires a safe and secured by all point of view format of the transfer method.

### Current Email System



1. Current System can compose mails by using some kind of operations such as mouse operations, keyboard operations. With the help of manually handling such devices using this operation mail can be composed and sent to Gmail users.
2. Current Email system can easily be handled by literate and visually enabled persons.

#### **Disadvantage of Current email system**

- The system will not prompt the user with voice commands to perform certain action and the user will respond to the same.
- The main disadvantage of this system is that the use of keyboard and mouse is maximum.
- In the current system, Gmail accounts cannot be accessed via voice command. Now, In the developing digital world some applications can be accessed via voice command.

#### **Challenges of Visually challenged and illiterate person**

1. Visually challenged and illiterate persons are inconvenient to use computer than a normal user. Many screen readers are available but still blind persons are facing some minor difficulties[2]. Screen readers read out whatever content is on the screen but to perform those actions the person will have to make use of keyboard shortcuts because mouse location cannot be traced by the screen readers. This means two things that
  - The user cannot make use of a mouse pointer *i.e.* cursor as it is completely difficult, if the pointer location cannot be traced.
  - User should be well familiar with the keyboard as he/she must know where each and every key is located. A user who is new to computer cannot use this service as they are not aware of the key locations.

#### **Existing system for blind persons**

1. Suresh et.al. Developed the system based on conversion of voice to text format and text to voice format. All functions are operated based on simple mouse click. This system works on Desktop users only [3].
2. Dudhbale et.al has proposed a voice based system for blind people can be accessed through mobile as well as desktop [4]. In this system, Microsoft Speech Software Development Kit is used which helps to build speech engines as well as applications for Microsoft window. This technique has following

#### **Advantages**

1. It works for desktop application through browser.
2. The system developed for blind users to access Email, also used for illiterate people.
3. Ingle et.al introduced the system for blind person with text to speech, speech to text and IVR *i.e.* Interactive voice response techniques. Users can interact with an email through a keyboard with the help of IVR. It gives response to pre-recorded audio voice. Users listened to IVR recording and processed their enquiries[5].

### **III. PROPOSED WORK**

By considering the real problems of blind people, here proposes a system that will help out those peoples who are getting troubles working on email systems. This System will reduce the usage of Keyboard and also the Mouse clicks. As the world is diverting more towards a digitalised world, the proposed system focuses more on user friendliness of all types of people including normal people and visually impaired people as well as illiterate people. The system is based on IVR-interactive voice response, Text to Speech, Speech to text and android application. A new speech interaction model where blind people can perform Email operations by commands, utterances are transcribed as they produce them to enable real-time error identification.

#### **WORKING OF SYSTEM:**

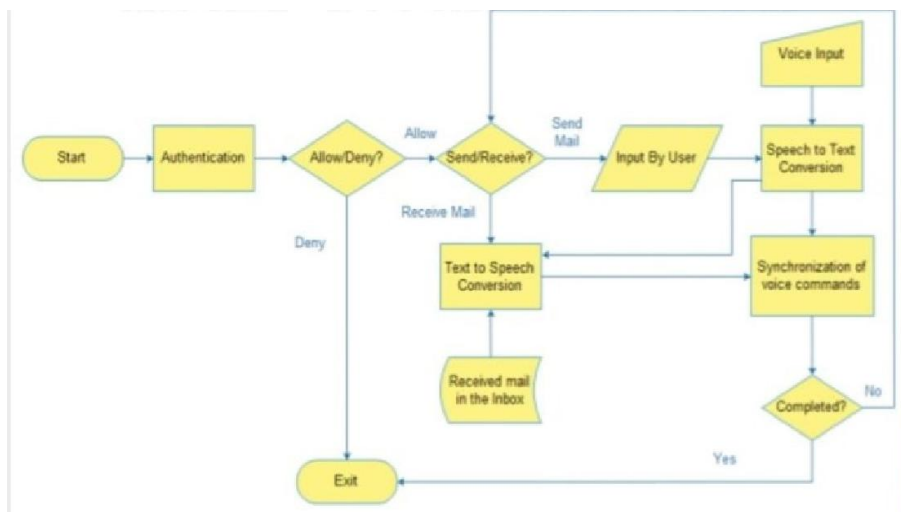
- 1) INPUT { Blind person as client logs in to the system by inserting his/her personal data(mail-id , password).
- 2) VERIFICATION (PROCESS)- It includes Verification after submitting the data. Verification error is signaled by error message.
- 3) SEND MAIL/ RECEIVE MAIL

It includes Text to Speech and Speech to Text Conversion. For sending an email , the user will speak the message through voice command and then it will be converted to text accordingly. For receiving the mail, users will be able to listen to any messages present in the inbox through the Text to Speech conversion tool.

- 4) BROADCAST MESSAGE: It is called by a server, receives a message from one client and broadcasts it to another client which we want.
- 5) USER: The user will be able to LISTEN Broadcast message sent by another.



- 6) LOGOUT(COMPLETION) If the user's work has been completed , the system will exit by the voice command of blind person recognized by speech to text conversion technique.



**FIG.1: WORK FLOW OF PROPOSED SYSTEM**

Functionality will provide by proposed system

- 1) Proposed system will eliminate the use of keyboard shortcuts along with screen readers which will help to reduce the cognitive load of remembering keyboard shortcuts.
- 2) STT and TTS will be used.
- 3) The user only needs to follow the instructions given by the IVR.
- 4) Users will feed information through voice inputs when specified and required.
- 5) Proposed system will focus on Desktop as well as android mobile platform.

#### IV.CONCLUSION

In the digital era, as technology leads to overcome the problem of any human being whether it is normal or disable can be able to access the internet and grow rapidly. In this paper, all current email handling processes by normal people and disable people are discussed. Also took a review of work done by other researchers on blind people for handling the email and proposed a system which will efficiently work on desktop as well as mobile platform.

#### REFFERNCES

- [1]<https://www.radicati.com/wp/wp-content/uploads/2015/02/Email-Statistics-Report-2015-2019-Executive-Summary.pdf>
- [2] Chavhan, S. K., Wankhede, J. S., Tajne, V. Y., &Patil, A. B. (2018). Voice Based E-mail System for Blinds. International Journal of Electronics, Communication and Soft Computing Science & Engineering (IJECSCE), 194-199.
- [3] Suresh, A., Paulose, B., Jagan, R., & George, J. (2016). Voice Based Email for Blind.
- [4] Dudhbale, P., Wankhade, J. S., Ghyar, C. J., &Narawade, P. S. (2018). Voice Based System in Desktop and Mobile Devices for Blind People.
- [5] Ingle, P., Kanade, H., &Lanke, A. (2016). Voice based e-mail System for Blinds. International Journal of Research Studies in Computer Science and Engineering (IJRSCSE), 25-30.