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## A Survey on Voice Based Mail System for Physically Impaired Peoples

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**ABSTRACT:** Human life is relay on communication. As the easy availability of computer system with the Internet .Most of the communication is carried out with the use of these technologies worldwide. For carrying out the communication with the use of Internet there are many social networks and other technologies present, but among those technologies present, but among those technologies email is globally considered as the standard for communication mostly for business communication, over the traditional letters. These email systems are easy to use for normal people, but the visually impaired people can't use these systems because they are depend on the visual perception. Although there are advancements provided to computer system to help visually impaired people while using these system, they still face difficulty while using them. As about 285 million peoples are visually impaired around the globe<sup>[6]</sup>. It is necessary to make these systems available to them. In order to help visually impaired people who want access to email system in easy way, this paper aims to develop the voice based system. Along with providing the mailing facility easily and efficiently this system will also reduce the considerable load of remembering keyboard shortcuts and typing the characters using braille keyboards available to them. Along with the visually impaired people. This system will also helpful for the people with other impairments.

**KEYWORDS:** visually impaired people, speech to text converter, text to speech converter, speech recognizer, screen reader.

### I. INTRODUCTION

In present time communication has become effortless due to unification of communication technologies, with Internet. As Internet is considered of repository of information and technologies, there are many social and networking sites are available. E-mail is most generic resource.

There are over 4.35 billion email accounts. This figure is predicated to reach 5.59 billion by 2019 which is growth of more than 26%. There are 2.586 billion email users worldwide including both business and consumer users<sup>[5]</sup>. Therefore email is de-facto standard for impressive communication. Though every unable to use Internet. To use these facilities of Internet every person need to have visual capability. Because on visual perception to know what contents are present on screen. Hence these systems are of no use for visually defected people.

To make these systems convenient for these for these people who are visually challenged. There are various technologies provided to them like screen reader, Automatic speech recognizer, speech to text and text to speech, braille keyboard etc. However these technologies are not that much useful for those people as it could not give the proper response like a normal system. To use above systems visually challenged people's faces many problems.

In order to overcome this problem we represent "voice based mail systems for physically impaired peoples". This will act as an aid for visually impaired people to use email facilities in efficient manner even if they are unaware to the system. These system communicate with the user in the form of voice. The system will use speech to text and text to speech alternative for use of keyboard.

The system will prompt step by step to user about system contents present on the screen.



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## II. LITERATURE REVIEW

This section reviews the techniques required for proposed system. For this system we require text-to-speech, speech-to-text, Mel Frequency Cepstral Coefficients (MFCCs).

### 1. Text-to-speech<sup>[2]</sup>:-

The text to speech system is used to translate text into speech which is divided into two parts: front end and back end. The front end has main two task. First which converts text that contains symbols like number into equivalent words. This method is called as text normalization. The front end then assigns phonetic simulation to each word. The process of assigning transcripts to words is called text to phoneme transcriptions. The back end often referred to as the synthesizer then converts the symbolic linguistic representation into sound.

### 2. Speech to text<sup>[1]</sup>:-

The speech to text recognition is known as automatic speech recognition or computer speech recognition which means understanding voice of the computer and performing any required task or the ability to match a voice against a provided or acquired vocabulary. The task is getting a computer to understand spoken language. By “understand” we mean to react appropriately and convert the input speech into another medium e.g. text. Speech recognition is therefore sometimes referred to as speech to text (STT). A speech recognition system consist of microphone, for the person to speak into; speech recognition software; a computer to take and interpret the speech; a good quality soundcard for input and/or output; a proper and good pronunciation.

### 3. Mel Frequency Cepstral Coefficient (MFCCs)<sup>[3]</sup>:-

The first step in any automatic speech recognition system is to extract features i.e. identify the components of the audio signal that are good for identifying the linguistic content and discarding all the other stuff which carries information like background noise, emotion etc. The main point to understand about speech is thus the sounds generated by a human are filtered by the shape of the vocal tract including tongue, teeth etc.

This shape determines what sound comes out. If we can determine the shape accurately, this should give us an accurate representation of the phoneme being produced. The shape of the vocal tract manifests itself in the envelop. This page is going to provide a short tutorial on MFCCs Mel Frequency Cepstral Coefficients (MFCCs) is a feature widely used in automatic speech and speaker recognition.

### 4. Existing system:-

Today's existing email systems are suite of supported applications give users benefit of accessing and managing email via web facilities. This makes email the popular form of communication. These existing systems do not support any means of audio feedback service therefore these system are of no use to the visually impaired people. As they are not able to visualize things which are present on the desktop screen. So they experience difficulties while performing various operations.

For a visually impaired person handling a computer who has never made use of it, becomes inconvenient comparatively normal user even it is user friendly. In order to overcome this trouble there are many screen readers are provided to user. A screen reader is computer program that enables a blind computer user to know what's on the screen through speech. It read outs all contents present on screen but to perform any action person will have to make use of keyboard shortcuts because they enable to trace out the mouse locations. In short user have to know all key locations and have to remember key shortcuts<sup>[4]</sup>.

One of the extent is available screen readers, reads the contents in sequential order. Hence user is able to comprehend if the contents on page is in basic html format. Most existing systems are uses advanced web pages which provides user friendliness to the normal user visually. Besides while reading them by using screen readers it is complicated to understand for visually challenged people.

Hence in order to conquer these obstacles of the existing system we are implementing an email system that will assist blind peoples.

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## III. PROPOSED SYSTEM

The proposed system is fully depend upon innovative idea and is no nowhere like the existing mail systems. To reach the important aspects like accessing and managing the emails are look at while developing the proposed system. Any system is forenamed to be completely obtainable only if this system is used by normal users as well as visually challenged people. The existing systems are do not provide these accessibility to the emails but in such a way that we are establishing the alternative email system which is different from current system. Unlike current system which asserts most of its focus on provide user friendly service to the normal user. Therefore proposed system focuses on easily operated for all types of people including normal people as well as visually impaired people.

Fig 1 shows data flow of proposed system. The whole system is worked on IVR- Interactive Voice Response. While using these system computer will be prompting the user to perform particular operations to benefit respective service. When user want to use respective service he/she needs to command that operation. This system uses the prompting and commanding technologies due to this uses can make the minimum use of keyboard and mouse. Prompting the contents on the screen, it will make the system visualize in audio format to user means prompting avails about the contents on the web page screen to the user. Hence user is always aware about what contents are exist on the screen.

As this is mailing system, security is essential aspect to avoid unauthorized access and securing mails. The practical users of this system are people with visually impairment. So they require more security method than traditional user name and password. We providing them extra security along with username and password. That security parameter is match of user's voice features. As everyone's voice feature are distinct, it will become measure security parameters.

### A. Implementation details:-

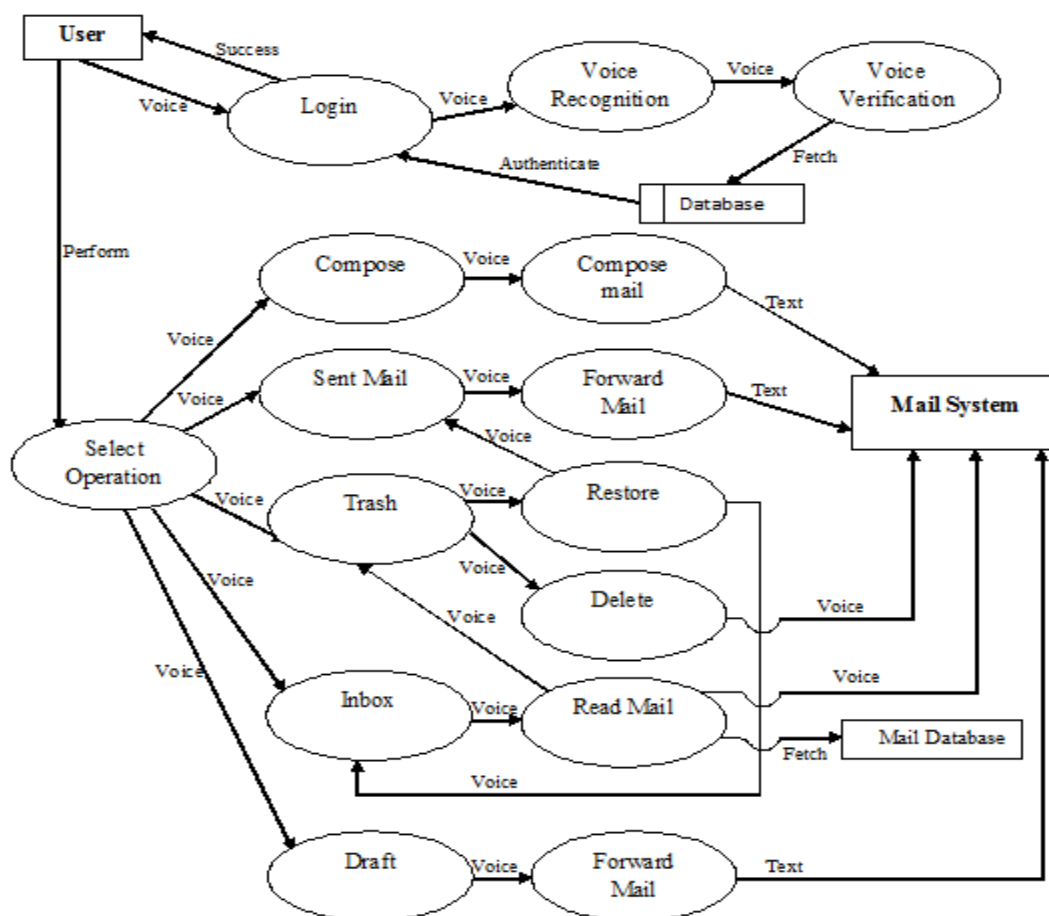


Fig 1. Data flow Diagram for voice based mail system



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## 1. Registration module:-

This is the first module of the system. In this user has to fill up the registration form to create an account. When user fills up the field then system will start to prompt that field to check whether the filled field is correct or not.

## 2. Login module:-

This is the second module of the system. When user made that registration successfully he/she can login to the system. This module asks the user to provide the username & password. This is accepted in speech format & represented on screen in text format. Then while authorization, user's voice frequency is checked in database. On successful authorization user is directed to the respective account.

## 3. Forget password module:-

This module is helping the user, when user forgets respective password. In this module user is first told to user name. According to user name the security question is searched in database. The question is spoken out by the system. Then user should specify the answer that was provided by him/her registration. Finally if both get matched, user is given option to change password.

## 4. Account module:-

### a. Inbox:-

This module collects received mails. These mails are sorted in time manner. System is prompt recently arrived mail first, and then if user wants to open mail then user has to command the system in voice format. If user wants to open mails on particular date, user is given option to change password.

### b. Compose:-

We can write the mails in this model. User adds recipient subject and body to the model. Users can write the mail in voice format and it converts into the text format. If the user wants to send some attachments then user has to speak the location where that particular attachment resides.

### c. Sent mails:-

This module holds the mail after sending the mail. Also user can forward and delete the mails from this module.

### d. Draft:-

Due to any Internet error or any other error if mail not send then this module save these mails, which are then later send or delete.

### e. Trash:-

This module holds the deleted mails from inbox, draft and sent mails. User can also restore the mail from trash and it will restore at particular location. If user delete the mail from trash then it will permanently delete from system.

## IV. CONCLUSION AND FUTURE WORK

In this paper we come up with the system which will help to visually impaired people to access email service in hassle free manner which is most universal form of communication in today's world. This system aids to reduce the obstacles such as remembering and using keyboard shortcuts and mouse clicks that were faced by the visually impaired people while accessing emails. As security is most necessary factor of the every system. Hence we have avail the new security facility which is voice verification along with traditional username password security.

This system will direct the about the required operation and the result of the operation. Taking into account all these implementing techniques this system becomes user friendly interactive and secure. The system developing now is depend only on desktop computer. As use of smart phones is rising as a fashion today there is an opportunity to



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implement this system as an application in smart phones also. There are distinct languages in world. We are implementing this system in English. So that there is a scope to implement the system in different languages.

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