



INFORMATION SHARING DOORWAY SIGHTLESS

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Abstract

Outdoor communication has become a harder task for visually impaired people in this complex urban world. Advances in technology are causing them to fall behind, sometimes even putting their lives at risk. Today, 314 million people in the world are visually impaired, in which 45 million are blind. Proposed system can be used by blinds to access their mails easily and efficiently. Thus, reliance of visually impaired people on others for their mailing activities is reduced. Here, user will have to give only voice commands to the system and it will act accordingly. Some keywords will be predefined such as read, compose, send etc. The mail composed by user via voice commands will be converted to text and then sent to normal person on the other side.

Keywords - Voice Based Email for Blinds ; Mailing System for Visually Impaired ; Communication Media for Blinds.

Problem Description

The key opinion kept into consideration while developing the proposed system was accessibility. Such applications will be used efficiently by anyone whether he is able or disable. Unlike existing systems which focuses more on Graphical User Interface (GUI) friendliness of normal user, our system covers expectations of both normal as well as visually impaired group.

Introduction

The most common mail services that are available today are of no use to visually impaired people. In today's world of internet technology communication is becoming more faster. Electronic mail is one of the most commonly referred to as e-mail since 1993 is a method of exchanging digital messages from source to destination. Modern email operates over the Internet or other computer networks. Some previous email systems required that the author and the recipient both should be online at the same time, with instant messaging. Now-a-days email systems are based on a store-and-forward model. Email servers accept, forward, store and deliver messages. Both sender and receiver are not required to be online at the same time, they need to be connect only to a mail server. The term electronic mail was used for electronic document transmission. Information sharing with voice based email system is system in which information is convert in speech format. In 1980 the term Voicemail was strike by Televoice for introduction of the first nationwide Voicemail service. Voicemail systems were developed in the late 70s by Voice Message Exchange (VMX). The report said that the number of voicemail messages declined 8 percent compared to 2011. The available systems are not very much useful for small scale application for E-mail. The systems require use of keyboard which is very difficult for blind people to recognize and remember characters of keyboard. Also, a second person (trainer) is required to access mails all time. We are developing an e-mail system for blinds and handicapped people for efficient and independent use. The blind people cannot read the information and cannot view the mouse cursor to give command to the computer, thus our system



makes this task easier to access mails only by providing voice commands to it. It manages voice and e-mail messages from your PC via messaging and also accesses all critical communication from a single screen.

Survey Report

Some minority of information is available on technological advances for blind people. This includes development of text to Braille systems, screen magnifiers and screen readers. Recently, attempts have been made in order to develop tools and technologies to help visually impaired people to access internet technologies. Among the early attempts, voice input for surfing was adopted for the Blind people. A sight-blessed person can interact with the computer with the help of different input/output devices, while a visually impaired person is somehow forced to use specially designed devices or programs to interact with computers. The visually impaired person uses different types of equipments and programs that enable him/her to enter data into computers or control them. In the year 2010 a system was proposed by Rudan Bettelheim, David Steele in which the speech recognition application continually samples the audio input adjusting for varying background noise conditions. Kuldeep Kumar, R.K. Aggarwal used Hidden Markov Model Toolkit (HTK) in the year 2011. The main aim of our application is to help visually impaired people to enjoy the benefits of email and should be self-sufficient in sending and receiving them independently. In this paper, the speech recognition system for Hindi language is developed. This system recognizes the isolated words using acoustic word model. In the year 2012 Nelson Morgan projected some of the methods developed over the last decade that incorporate multiple layers of computation to either provide large gains for noisy speech on small-vocabulary tasks or modest but significant gains for high-SNR speech on large-vocabulary tasks. FPGA Spartan3 Kit was developed by Dhananjay Laghate in the year 2013 which resembled the Braille system for Text or Speech Conversion. Komal Chauhan & Kamal Kant have proposed a system wherein the user will be able to type text on computer by providing a voice input through his mobile phone. They used customized grammar rule based on Locale for voice transmission. However, a voice based Email System is implemented by few researches and needs rigorous work to be done. Thus we proposed system that uses Hidden Markov model for better efficiency

- *Navigation: Here, the user will have to use certain keywords which will perform certain actions. The keywords like: Compose, Received Mails, Sent Mails, Go Back.*
- *Speech to text (STT): here whatever we speak is converted to text. There will be a small icon of a microphone on whose clicking the user had to speak and the speech will be converted to text format, which the blind people would see and read.*
- *Text to speech: Here the method is full opposite of STT. This method, converts the text format of the emails to synthesized speech.*

SYSTEM ARCHITECTURE

The system is designed for a visually impaired person that the person provides voice input to the system. This input is then recorded and converted into text format. The text message is sent to the receiver where it gets changed into speech format. And vice versa is done for text to speech. Blind user will only have to give voice commands to access their mail

- On opening the Application the user can log in.
- On the login page , the user is asked for username and password.
- After logging in, a splash screen will appear and the user will be authenticated with his fingerprint every time.
- On successful authentication, the menu page will open and the user is prompted for input commands which are Compose ,Received mails and Send mails. User has to say one of the commands and based on the voice commands, he will directed accordingly.
- On Compose, the user will be directed to Compose Page and on tap on the screen will be prompted to tell the recipient's ID,subject and message of the email. The mail gets sent successfully to the recipient's ID .
- On Received, the user will be directed to received mails Page and On the tap on the screen, the user will be prompted which mail to read the first, second or third mail



User Interface

The system is implemented in Java. The Javamail API is used which consists of `com.sun.mail.smtp` package which acts as a SMTP protocol and driver to access SMTP server”.

User's Input

This is the inbox module in which arrived mails are displayed .System starts to read email id of the arrived mails in the inbox then system ask to user whether the user want to listen voice message or not. And if user say yes then that mail will be read by the system. There are various voice commands used as keywords like read list, pause, resume and read mail to effectively interact with the system.

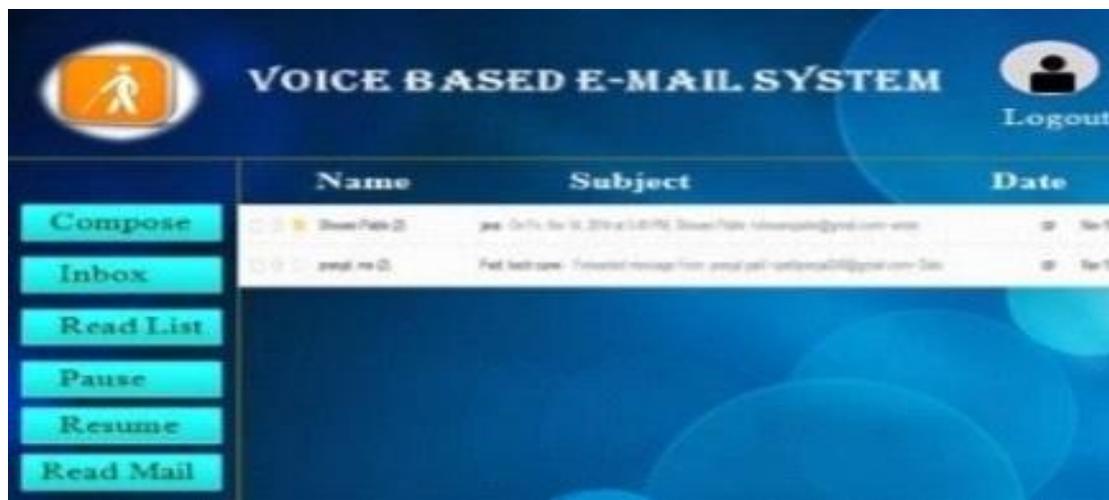


fig: Information Passing by Blind Person.

Compose Page

If user will speak compose keyword then compose window will open in that user can give receivers email id, subject of the mail and content of the mail. Then he has to say send keyword and the mail will be sent. However, while providing voice input to the system, there may be pronunciation problem.

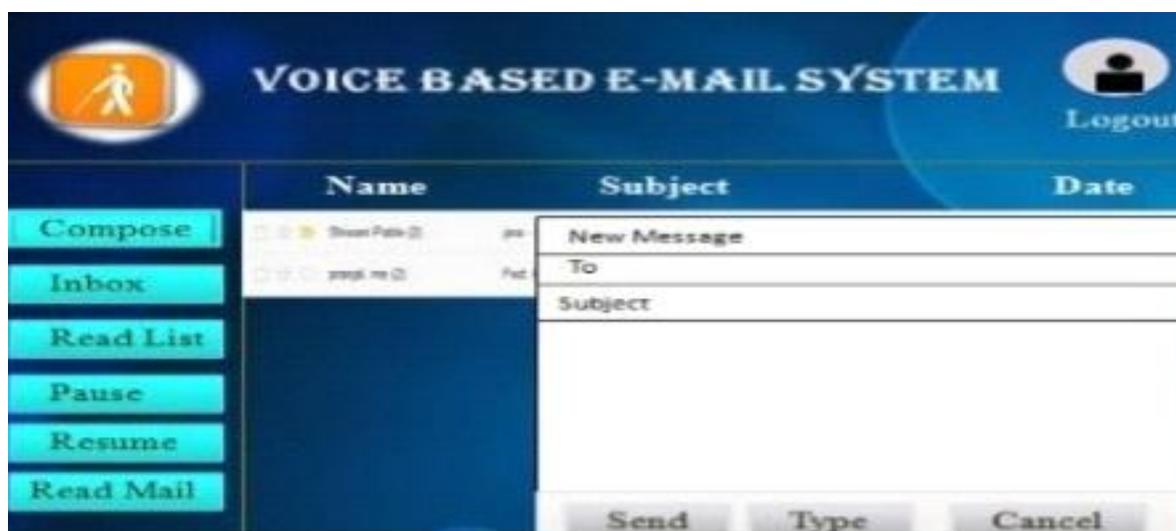


fig:Compose Page

Conclusion

This project proposes an android application, designed specifically for visually challenged people. This application provides a voice based mailing service where they could read and send mail on their own, without any guidance. Web based application is the magic of today's world, but making it handy over with the same use remotely, has brought revolution in the mailing System. This paper explains to extensively cover the concept of web based communication system. The proposed system is really very useful for blinds and handicapped people to easily access mails and thus reduce reliance of those people on the normal people. Real time composition of textual mail through audio input is done.



Keywords are used to trigger mail related operations. Voice mailing made it possible for people to instantly pass detail information from one party to another without directly speaking to them.

Future Scope

For the further development of the application , the attachments like images, word documents, audio and video files can be incorporated. Encryption and decryption algorithm can used to protect the username and password that is passed during login. More commands can be used to for different operations like search, mark important, delete, archive, go back, report spam, forward. Automated replying to received mails can be also integrated. The application can be adapted to different languages such that a variety of users can use the application.

REFERENCES:

Book:

1. International Journal of Computer Applications (0975 – 8887) Volume 75– No.2, August 2013 “Concurrent Voice Transmission with Customized Grammar Rules based on Locale” .
2. Mc Graw Hill Forouzan Networking Series Title by Behrouz A. Forouzan (Data Communication and Networking 5E).
3. C XAVIER Faculty of computer science (WEB TECHNOLOGY AND DESIGN).

□ **Wikipedia:**

4. en.wikipedia.org/wiki/Email
5. en.wikipedia.org/wiki/voicemail

□ **Research Paper:**

6. Rudan Bettelheim, David Steele, “Speech and Command Recognition”, Free Scale White Paper 2010.ssss
7. Kuldeep Kumar, R.K. Aggarwal, “Hindi Speech Recognition System using HTK”, International Journal of computing and Business Research, 2011.