

# Voice Based Email System for Blind

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**Abstract** - Identification of a human being to be himself or herself has been historical concern. Nowadays, living beings are identified by their signatures, PIN, passwords. But with the increase in security issues we never know when our password or signatures are stolen. The same way even the blind people suffer from security issues. To overcome these problems we have introduced Iris Recognition technique. The application uses "text to speech" and voice recognizer to facilitate sending, forwarding, reading, and replying to emails using a smart phone. Keeping in view of the blind people we have planned to build an android application that will help blind people to have a friendly conversation with others. In this paper we describe the VMAIL system architecture for android platform that can be used by a blind person to access e-mails easily like the normal people.

**Keywords** - Voice Recognition, Text to Speech, VMAIL.

## I. INTRODUCTION

285 million people are estimated to be visually impaired worldwide: 39 million are blind and 246 million have low vision. Thus, it turned out to be the moral responsibility of the society to help the visually impaired people. With the use of our technical knowledge we will build an application for their benefit.

The existing system of voice based application has a lot of security issues for blind people. So, there emerged a need to build a complete voice based application for such people so that they can chat easily without security and privacy issues. In today's world, Email has turned out to be an important part of formal communication in professional life.

For people who can see, emailing is not a big deal, but for people who are not blessed with ability of vision it poses a key concern because of its intersection with many vocational responsibilities. Thus, VMAIL turns out to be an application through which they can have a conversation through emails easily and securely. For security purpose an additional feature of App Lock is included. App Lock acts as an authentic.

It is the second layer of security which allows only genuine user to go through the application. Instead of using APPLOCK system we have introduced the Voice Recognition, through which the blind person can listen to the Email message by unlocking the email with the help of his/her voice.

**A. Problem statements** - The people with low vision and no vision are severely affected as they cannot go through their mails. The visually impaired people will have to face security issues if the problem is not solved. The problem faced by the blind is that they cannot read their personal

mails. The problem has to be fixed so that the blind do not feel low.

The existing email systems do not provide any means of feedback or Talkback service. So, they cannot be used by the blind. Voice based systems that have been developed till now are only for desktop applications. As the blind do not prefer to have devices like laptops or desktops, the use of such system are very limited. Even the Braille keyboard is a complex keyboard to remember the keys.

**B. Objectives** - This application aims at developing a VMAIL that will help even a naive, visually impaired person to have an easiest way of communication without any previous training. This application can be used by illiterate as the usage of keyboard and mouse is not required.

## II. LITERATURE SURVEY

**A. Background** - With the advancement of technology, lot of information is available for visually impaired people. This includes development of text to Braille systems, screen magnifiers and screen readers. Early attempts were made to adopt voice input and input for surfing for the blind. Use of ShrutiDrishti and web browser for blind is recommended as these are the two web browser framework and are designed for the blind to access the internet including the mails. But these two systems are not portable for smart phones.

For a visually challenged person using a computer for the first time is not that convenient as it is for a normal user even though it is user friendly. Although there are screen readers available still these people face minor difficulties. Screen readers read out whatever content is there on the screen and to perform those actions the person will have to use keyboard shortcuts as mouse location cannot be traced by the screen readers. A user is new to computer can therefore not use this service as they are not aware of the key locations.

**B. Existing System** - There are a total number of 4.1 billion email accounts created until 2014 and an there will be estimated 5.2 billion accounts by end of 2018 this makes emails the most used form of communication. The existing email systems don't provide any means of feedback or Talkback service. So, they cannot be used by visually challenged people. The voice based systems that have been developed till now are desktop applications. As visually challenged people do not prefer to have laptops and desktops, the use of such developed system are very limited.

## III. PROPOSED WORK

Until 2014, there are a total number of 4.1 billion email accounts created. By the end of 2018, email accounts created will be estimated to 5.2 billion, this makes emails the most used form of communication.

The system consists of following components as depicted in Fig 2.2

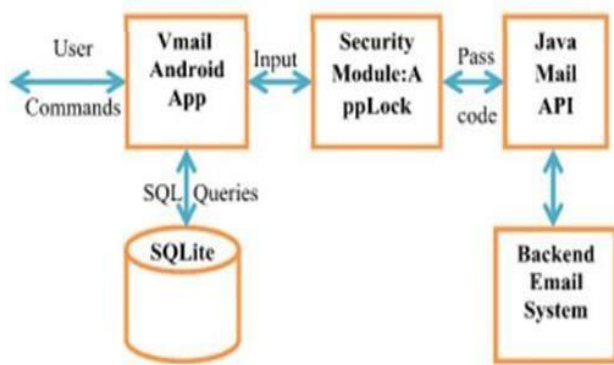


Figure 1: System modules

The above system module consists of:

**A. VMAIL Android App** - This paper consists of a simple way to perform email operation as this is the basic idea of the VMAIL application. The application is totally voice based that allows blind person to send and receive emails.

This application recognizes the user spoken voice and then converts it into text. There is a feature called address book which helps the user to save the email as a contact and use that contact for further mailing.

**B. App Lock App** - The second layer of security is the Lock system, which acts as an authenticator. It allows only genuine user to make use of the application. The blind have to waggle their phone so as to save pass code while logging in for the first time.

**C. SQLite** - SQLite is a software library that is used for the implementation and transactional SQL database engine. Android provides SQLite as the default database. The address book contacts along with the email addresses resides in the SQLite database of the user's phone.

**D. Java Mail API** - The Java Mail API is a platform-independent and protocol-independent framework that is used to build the mail. It is an optional package for reading, composing, and sending emails.

**E. Backend** - Using internet the VMAIL application is connected to the email provider. As always, the emails are sent using SMTP protocol and they are retrieved from the server using IMAP protocol. The interaction of Java Mail API with the Google's SMTP and IMAP server helps in sending and retrieving the emails. HTTPS and SSL protocols are used to provide a secured communication.

#### IV. RESULTS

The Iris Recognition is an automated biometric technique which makes use of mathematical pattern recognition technique. The interaction with the people is greatly simplified with the help of speech-to-text and text-to-speech. Every operation within the VMAIL system takes place with the help of voice commands. The environment is entirely voice based command, driven with proper feedback from the VMAIL system. After facing a number of difficulties and successfully eliminating the errors we have

implemented this paper. At the end of the paper, the results can be summarized as:

- A user friendly android application to use.
- No external help is required for using the application.
- A strong method of authentication is provided when compared to other traditional mechanisms.

#### V. FUTURE WORK

Future enhancements include adding more features to the developed mailing system like attaching audio and rar files. The proposed system includes only features like mail compose, sending a mail and receiving a mail through voice based detection which are basic features. So further features can also be added according to the need of the user in the forthcoming years.

#### VI. CONCLUSION

Our idea of developing an android application that helps the blind people who face the difficulty in reading, composing, forwarding and sending emails is successful. VMAIL helps the blind to access electronic mail. This application also reduces the effort of remembering the keys as in Braille system. The idea of the paper to unlock the app using voice Recognition technique reduces the human effort of typing the password.

#### VII. REFERENCE

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