

EMAIL SERVICES FOR VISUALLY CHALLENGED

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ABSTRACT

Communication plays a crucial role in every field in one's life. It is an integration of the communicating technologies with the help of internet. But this facility is not for blind people. Hence, we aimed to develop an Android based email application that can facilitate visually challenged people to use email services for communication. The application will work solely on voice commands spoken by the user which will enable them to communicate with the world. They can send and receive any mails whether it is a text document, picture, audio, video, etc. using this system using the internet. By providing the platform in which they can speak the operation and can able to send and receive the messages. The system will be build using Google Text-to-Speech and Speech-to-Text APIs, which will make it efficient, accurate to a certain limit and user friendly. We describe the Voicemail system architecture that can be used by a Blind person to access eMails easily and efficiently. The contribution made by this research has enabled the Blind people to send and receive voice based e-Mail messages in their native language with the help of a computer.

Keywords: Voice based Email, Visually impaired, Speech-to-text, text-to speech, Speech recognition.

1.INTRODUCTION

The most common mail services that are used in our day to day life cannot be used by visually challenged people. To make these systems convenient 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. The objective of Voice Based Email for Visually Impaired is to help challenge one's access mails easily and efficiently.

This application is based on using speech-to-text and text-to-speech converters, thus enabling everyone to control their mail accounts using their voice only and be able to read, send, and perform all the other useful tasks. The system will prompt the user with voice commands to perform certain action and the user will respond to the same.

2.PROPOSED SYSTEM

In the proposed system, a desktop application is to be developed that can be used by people with various visual imparities, to access emails easily and efficiently. All the existing voice based email systems, provide their own user developed email services and do not incorporate the use of Google's Gmail. So, considering this here, the intention is to develop the application by linking it with the Gmail Client, thereby giving users an additional advantage.

Module Description 1.Speech- to-Text Converter:

Speech-to-text converter recognizes the speech, analyzes the sounds you make by filtering what you say, then digitizes it to a format it can read. The recognized text can be saved in a file. .Net and C#.Net platforms are used here to develop this. Our speech to-text system directly obtains and converts speech to text. Speech recognition systems can be divided into several blocks: feature extraction, acoustic models database which is created based on the training data dictionary, language model and the speech recognition algorithm.

2.1 Text-to-Speech Converter:

Using speech synthesis techniques, it converts text to voice output. It is employed by the blind to concentrate to written material; it's now used extensively to convey financial data, email messages, and other information through the telephone for

everybody. Text-to-speech is also used on devices such as portable GPS units to announce street names when giving directions.

2.2 Voice based Email Application:

The user can send emails, listen to what they have written and also receive emails and listen to them with voice commands. In Email, the application makes use of the SMTP protocol for sending emails and POP3 protocol for receiving emails. SMTP (Simple Mail Transfer Protocol) is the reliable protocol to send emails and it works in a simple way that the SMTP server passes on the email messages quickly.

POP3 (Post Office Protocol) is used to receive emails. The POP3 server stores the email and on request the emails are displayed. The same is implemented in our application, that on the request by the user the emails are downloaded.

3.LITERATURE SURVEY

Another voice sample is asked for performing the voice verification. Then the user is redirected to the inbox page once login is done. After login, users can perform normal operations of a mailing system. System options are: Compose, Inbox, Sent Mail, Trash. The user can switch between these using voice commands.

In project proposed the system that relies on a voice command based system unlike the existing mail system. The complete system is primarily based on speech to text commands. Once using this system the application will be prompting the user to speak specific commands to avail respective services and if the user wants to access the respective services the user needs to speak that command. This application makes use of IMAP (Internet Message Access Protocol). It is an Internet standard protocol used by email clients to retrieve clients to retrieve email messages from a mail server over a TCP/IP connection. The Main activity Screen will be the First screen to be displayed on start of the app. This screen waits for the user to press the button so that the system will start accepting voice commands. And this is a full sized button so they can press anywhere on the screen. Then using Voice commands users can send, read emails.

In project, the system uses mainly three technologies:

Speech to text

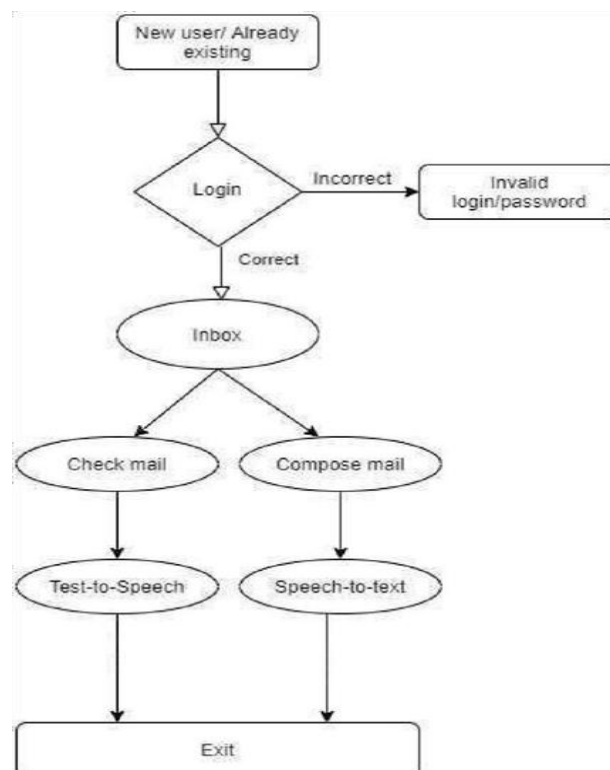
Text to Speech.

Interactive Voice Response.

When the user visits the site for the first time he/she would need to register through voice commands. Also after registration, the user's voice will also be recorded and stored in the database. And the user will get an Id and password.

3.1 FLOWCHART

The user has to register themselves by creating their account. It will prompt for Email id and Password, following which, the authentication will take place. For correct credentials entered the user's registration process will be successfully completed. The user can log into their mail systems, Check Mails and compose them. Here, the Speech-to-text & Text-to-speech modules Come handy. System reads out mails, the sender's name, the subject and the main body. Similarly, users can compose emails with the help of the Speech Recognition module or directly send audio attachments with the recorder provided by the application.



4.IMPLEMENTATION

This is the first module of our application. Anyone who wishes to use the application must either have a Gmail account or he will require creating one. He can then use our application using his Gmail account.

In this module, the user will have to login through his Gmail account. When the user installs and opens up the application for the first time, he will be provided the list of google accounts existing on his device. He will be logged in to the account which he selects.

After logging in, the user will be directed to the dashboard containing options for: Inbox, Compose new mail, Sent mail, User info. The user will speak out "inbox", "sent mails", "compose", "user info" and the respective action will be performed. Compose Mail - This option is used to compose new email. This option will not work same as that of the existing systems. Rather it will take voice input. The user will just have to give the input through his voice. No keyboard shortcuts or typed input will be required. The user will be prompted by the system to tap anywhere on the screen and speak out the recipient's mail address, subject and body of the mail. After entering all the content, the system will read out the content so that the user can check whether it is correct or not. In case of any correction, the user can re- enter the content. After taking all the required inputs, the system will prompt the user to speak "yes" to confirm and send the mail. After receiving the required response, the system will again prompt the user about the successful delivery of the mail.

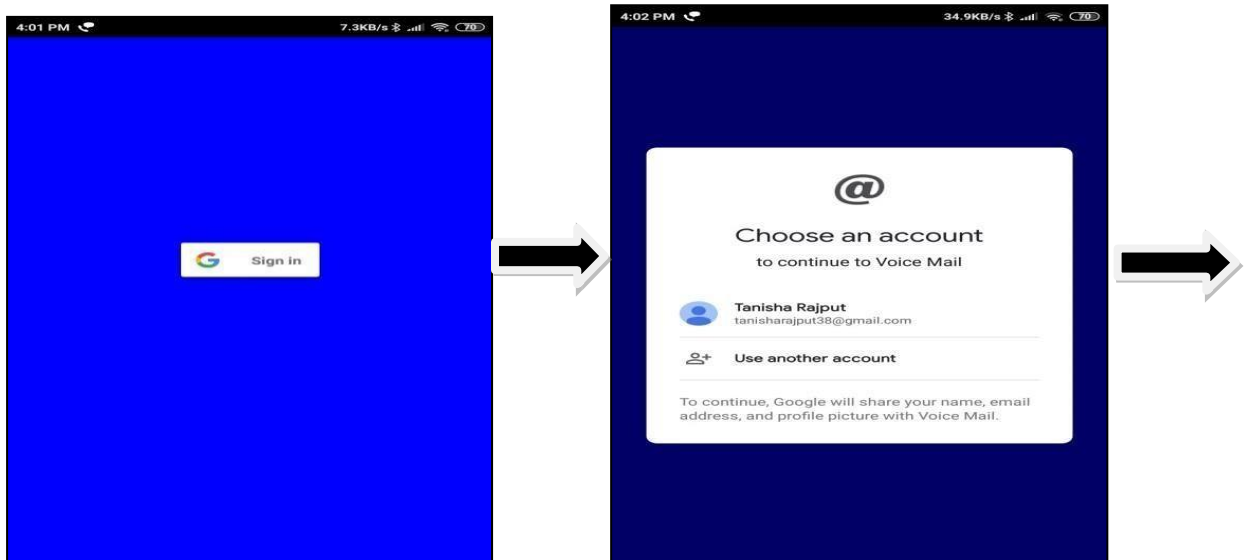
Inbox - When the user speaks "Inbox", this screen will be displayed. The system will prompt the user about all the new mails received and read out the sender's name one by one. The user will then speak out the name of the sender whose mail he wants to be read out first. The system will then read out the sender's name, subject and content of that mail.

Sent mails - This section maintains a record of the emails sent by a particular user. In case the user wants to access the emails that he has sent so far, he will be able to do so by choosing the "Sent Mails" option available on the dashboard.

User info - This option will contain the username and email id of the user.

5.RESULTS

Implemented Application Screenshots: The implementation of project helps us to produce the desired results as follows:



5.CONCLUSION

Our application is user friendly, efficient and an economical system, which allows a visually challenged individual to interact with an Android application easily. It involves the development and implementation of a real-time email interaction system for visually impaired. We have planned to develop a system that could facilitate the visually challenged individuals to access email services in an efficient way. Our application can help in overcoming some of the drawbacks of the existing email systems. In this system, the use of keyboard has been eliminated completely and thus reduces the cognitive load of remembering keyboard shortcuts as well as the position of the keys on a keyboard. The user only requires listening to the voice commands given

by the system and respond accordingly in order to get the desired operations performed. This requires user to speak the operation in the email application and then the system will perform the required operations. The user would be requested to feed info through voice inputs whenever required and system will ensure the authentication of the user details.

FUTURE-SCOPE

This application can be easily used by the users of any age group. The system has implemented Google Speech-to-Text and Text-to-Speech convenient for use by visually impaired people. The people having typing problems can also take advantage of this system. This Android application can be easily and efficiently used by the visually challenged people. The individuals having typing problems can also take advantage of this system. This system will not work if the user is unable to speak out the content. The application will work only for Google accounts. Biometric verification is not yet implemented. Hence, security and privacy can be at stake when the user speaks out his credentials and message content .

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