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VOICE BASED EMAIL FOR VISUALLY IMPAIRED

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ABSTRACT

This paper introduces a voice based email system that can be utilized by visually impaired people to access E-mail smoothly. The objective of this work is to help the visually impaired people to send and receive voice based mails with the assistance of computers. This paper focuses on the advances on finding a new method that supports the visually impaired to get email by voice which is represented as text. This paper presents a voice to text and text to voice technique to access the email by visually impaired. This helps the visually impaired people to send the mail through voice without using any typing device. It uses Python libraries and IVR technique.Audio feedback based virtual environment like, the screen readers have helped Blind people to access internet applications immensely. We describe the Voicemail system architecture that can be used by a Blind person to access e-Mails 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: Text To Speech, Speech To Text, Interactive Voice Response, Simple .Mail Transfer Protocol, Internet Message Access Protocol.

I. INTRODUCTION

Internet plays a vital role in today's world of communication. Today the world is running on the basis of internet. No work can be done without use of internet. Electronic mail i.e. email is the most important part in day to day life. But some of the people in today's world don't know how to make use of internet, some are blind or some are illiterate. So it goes very difficult to them when to live in this world of internet. Nowadays there are various technologies available in this world like screen readers, ASR, TTS, STT, etc. but these are not that much efficient for them. Around 39 million people are blind and 246 people have low vision and also 82 of people living with blindness are 50 aged and above. We have to make some internet facilities to them so they can use internet. Therefore we came up with our project as voice based email system for blinds which will help a lot to visually impaired peoples and also illiterate peoples for sending their mails. The users of this system don't need to remember any basic information about keyboard shortcuts as well as location of the keys. Simple mouse click operations are needed for functions making system easy to use for user of any age group. Our system provides location of where user is prompting through voice so that user doesn't have to worry about remembering which mouse click operation he/she wants to achieve. Electronic Mail or simply Email is defined as a way of exchanging information among people using electronic devices such as computer, mobile phone, tablet etc. Despite of the fact that it is the most reliable and the most efficient way to communicate over the internet, not everyone is capable to use it. There are some visually challenged people among us, who are not able to see and thus cannot have access to the computer screen or keyboard. In our proposed work visually impaired people can use mailing system for communicating with other easily. Mails can composed by providing voice as input. The key option kept into consideration while developing the proposed system is accessibility. Such a application used efficiently by anyone whether he/she is able or disable. Unlike existing systems which focuses more on GUI friendliness of normal user, our system covers expectations of both normal as well as visually impaired group. The proposed system helps the blind people in all positive aspects with advent invent in technologies. This is the primary idea for developing android application that helps them to send and read emails similar to normal people. The application uses text to speech and voice recognizer to send, read, forward and reply to .emails using an android application in smartphones.

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II. RELATED WORK

There are a large number of email users. The email systems that we typically use cannot be used by visually challenged people. This is due to the reason that these services do not provide any facility so that the user can hear out the content of the screen There are many screen readers available in some of the existing systems. Despite of this, these systems are not very efficient and beneficial. This is because screen readers read out the content present on the screen and guide the user to performcertain actions to achieve respective outputs. To perform these actions, the user needs to use keyboard shortcuts and ultimately for that, the user needs to know the position of different keys on the keyboard. Also, as mouse pointer location cannot be traced by the screen readers as well as the user, these systems are not .sufficient

III. OBJECTIVES

The main idea ofthis project is to recognize text character and convert it into speech

Existing systems for text recognition are typically limited either by explicitly relying on specific shapes or color masks or by requiring user assistants or may be of high cost. The

following are the objectives ofthe projects

- To provide facilities of communication for visually impaired persons
- To provide voice based mailing service where they could read and send mail on their .own
- To provide low cost system that will be able to automatically locate and read the text .allowed to visually impaired persons
- To design and analyze the pre-processing modules for text recognition
- To design and analyze the segmentation process for extracting and resizing letters

IV. METHODOLOGY

The following are the two methods in the proposed work:

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. 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, e- mail 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.

V. EXISTING SYSTEMS

Simple e-mail systems are available in which only voice recognition & text-to-speech systems are accessible. The voice based e-mail system proposed by T.Shabana, A.Anam, A.Rafiya, K.Aisha has made use of IVR, Speech to text converter, Mouse click event and Screen reader. Input is based on speech & mouse clicks to give output.

VI. PROPOSED SYSTEM

The visually challenged people find it very difficult to utilize this technology because of the fact that using them requires visual perception. However not all people can use the internet. This is because in order to access the internet you would need to know what is written on the screen. If that is not visible it is of no use. This makes internet a completely useless technology for the visually impaired and illiterate people.

In this system mainly three types of technologies are used namely: STT (Speech-to-text), : here whatever we speak is converted to text. Their will a small icon ofmic on whose clicking the user had to speak and his/her speech will be converted to text format, which the naked people would see and read also. TTS (text-

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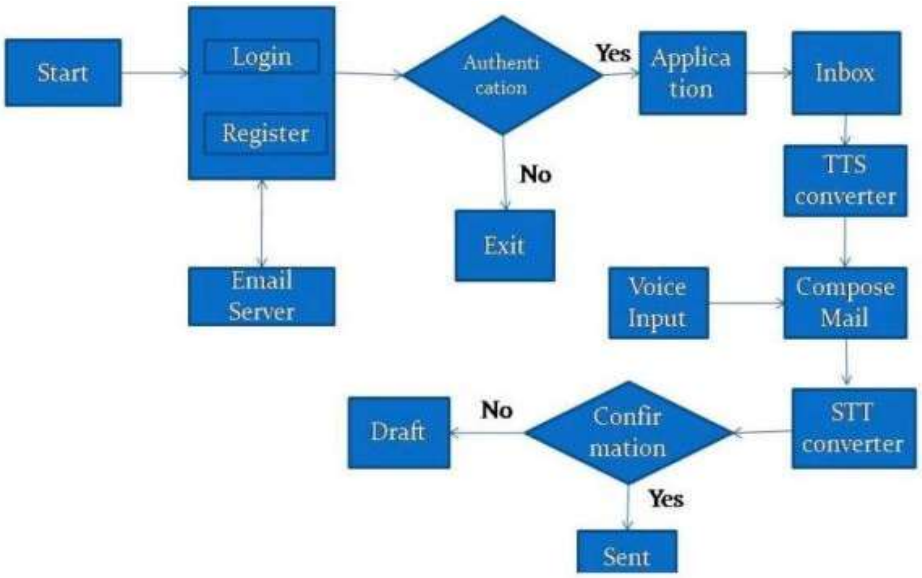
to-speech) this, method is full opposite of STT. In this method, which converts the text format of the emails to synthesized speech?

IVR (Interactive voice response): IVR is an advanced technology describes the interaction between the user and the system in the way of responding by using keyboard for the respective voice message. IVR allows user to interact with an email host system via a system keyboard, after that users can easily service their own enquiries by listening to the IVR dialogue. IVR systems generally respond with pre-recorded Audio voice to further assist users on how to proceed.The audio that would be pre-recorded and the system need to have large volumes.



The system is currently developed by us. When user will visit our site he would first have to register in our website through registration form. User will be very well guided with the help of voice commands, while registrating all the necessary fields to be filled will be read by site, by clicking on that box he would have to fill in them. For eg. If cursor moves over register icon it would sound“register button” , after clicking on register button it would sound like “you are on registration page”. While filling up the necessary fields, speech would be recorded in database. Very frequently used words will be present i.e., when user would speak it would get typed automatically. Also the voice would be recorded in the database. Because after registration, user has to go to login page and type user id & password which would get recognized through database enabling the correct user to get access to his/her account. After successful login the user would read the received mails present in inbox and also can send the mails.

When user open the application there will be options login and registration. If user already .1 .have an account, they can directly login to application, else do register

After login to the application there is authentcation process for verification. If it is .2 .successful goto next step else exit from the page

Directly the Inbox will be open and it will speek out how many new mails are arrived,text .3 .will converted to voice by using TTS Text to Speech)converter

If user wants to compose the mail he/she need to provide voice as input, and this voice .4 .converted to text by STT(Speech to Text) converter

The application ask the user wheather he need to send the mail or not,if user say Yes, mail .5 .will sent otherwise it will be saved in draft box

VII. DESIGN

User Interface Design - Android provides a variety of pre-built UI components such as structured layout objects and UI controls. This allows the developers to easily build the graphical user interface for their applications. In addition to this, Android also provides other UI modules for special interfaces such as dialogs, notifications, and menus. The user interface of our application is designed using Android XML.

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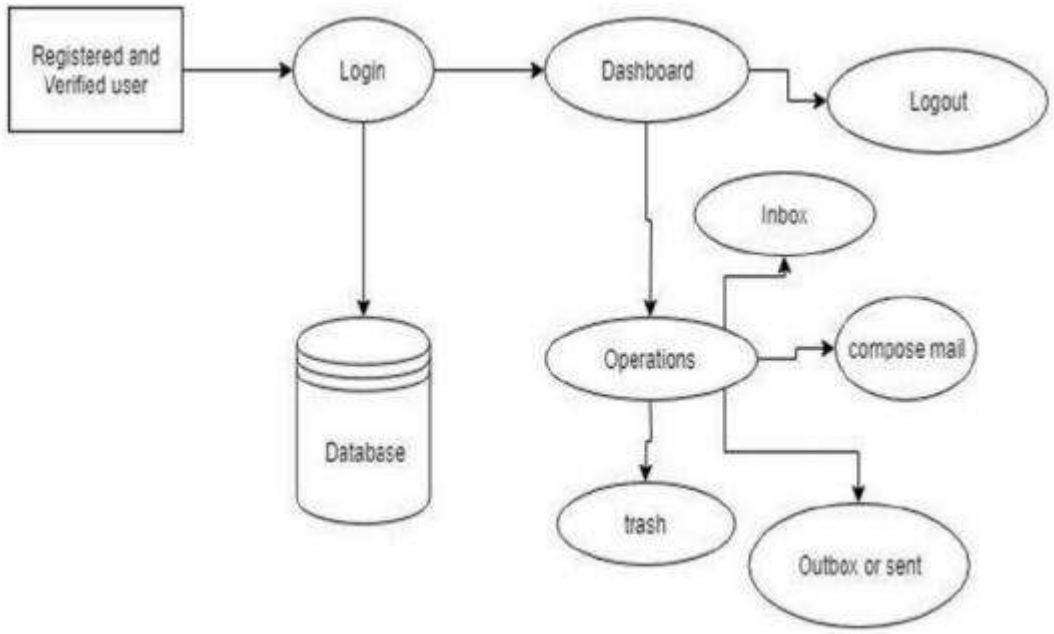
Database Design - Our application uses the database of Google for storing user details and emails. The user needs to use the application using his Gmail account.

System Design - The Data Flow diagram given below depicts the detailed flow of events in the system. All the operations are performed by voice commands and voice inputs only



VIII. IMPLEMENTATION

Registration - 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.

Login - 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.

Dashboard - After logging in, the user will be directed to the dashboard containing options for: Inbox, Compose new mailSent 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 hewants to be read out first. The system will then read out the sender's name, subject and content ofthat 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 ofthe user.

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IX. RESULTS

1. Blind can easily access the E-Mail.
2. Minimizing and simplifying the process of text to voice conversion for visually impaired persons.
3. Increase the correctness and semantic description of data.
4. The visually impaired persons can access the data at anytime and anywhere.
5. User can easily access an application with help of user guide.

X. FUTURE SCOPE

For people who can see, e-mailing is not a big deal, but for people who are not blessed with gift of vision it postures a key concern because of its intersection with many vocational responsibilities. This voice based email system has great application as it is used by blind people as they can understand where they are. E.g. whenever cursor moves to any icon on the website say Register it will sound like "Register Button". There are many screen readers available. But people had to remember mouse clicks. Rather, this project will reduce this problem as mouse pointer would read out where he/she lies. This system focuses more on user friendliness of all types of persons including regular persons, visually compromised people as well as illiterate.

XI. ADVANTAGES

- The disabilities of visually impaired people are Thrashed.
- This system makes the disabled people feel like a normal user.
- They can hear the recently received mails to the
- Inbox, as well as the IVR technology proves very effective for them in the terms of guidance.
- The visually impaired people can advance from Desktop application to the web based application.

XII. CONCLUSION

This e-mail system can be used by any user of any age group with ease of access. It has feature of speech to text as well as text to speech with speech reader which makes designed

system to be handled by visually impaired person as well as blind person.

XIII. REFERENCE

[1] N Ratna Teja, P Manogna, V Ashok, T Sai Chaitanya, Y K Visvanadham, "Voice based email system for visually impaired", International Research Journal of Modernization in Engineering Technology and Science, June 2020, E-ISSN:1936-7317.

[2] Anujaa Chowdhary, Priyanka Kakde, Shruti Dhoke, Sonali Ingle, Rupal Rushiya, Dinesh Gawande, "Voice based email system for visually impaired", International Journal of Computer Science and Mobile computing, Vol. 3, Issue. 2, Feb 2020, ISSN 2320 088.

[3] Maria Weslane Sousa Almeida, Joao Paulo Souza Medeiros and Ptatricia Rufino Oliveira, "Voice based email system for visually impaired", 2020 14th International Conference on Machine Learning and Applications, DOI: 10.1109/ICMLA.2015.184.