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A Voice Based Email System for the Visually Impaired People

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ABSTRACT: Internet has become one of the basic amenities for day-to-day living. Every human being is widely accessing the knowledge and information through internet. However, blind people face difficulties in accessing these text materials, also in using any service provided through internet. The advancement in computer based accessible systems has opened up many avenues for the visually impaired across the globe in a wide way. 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.

KEYWORDS: Speech to text,Voice based, Email System, Visually Impaired

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 is very difficult for 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.

II. PROBLEM STATEMENT

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.As a result, we construct a voice-based E-mail system for the visually impaired individuals, which also benefits the illiterate.

III. MOTIVATION

A voice-based E-mail system design that allows a blind person to simply and efficiently access E-mails. With the use of a computer or a mobile device, this research has enabled Blind persons to send and receive voice-based Mail messages in their original language.

IV. **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-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 user can easily service their own enquiries by listening to the IVR dialogue. IVR systems generally respond with pre-recordedAudio voice to further assist users on how to proceed. The audio that would be pre-recorded and the system need to have large volumes. System architecture of proposed system is shown in fig.1
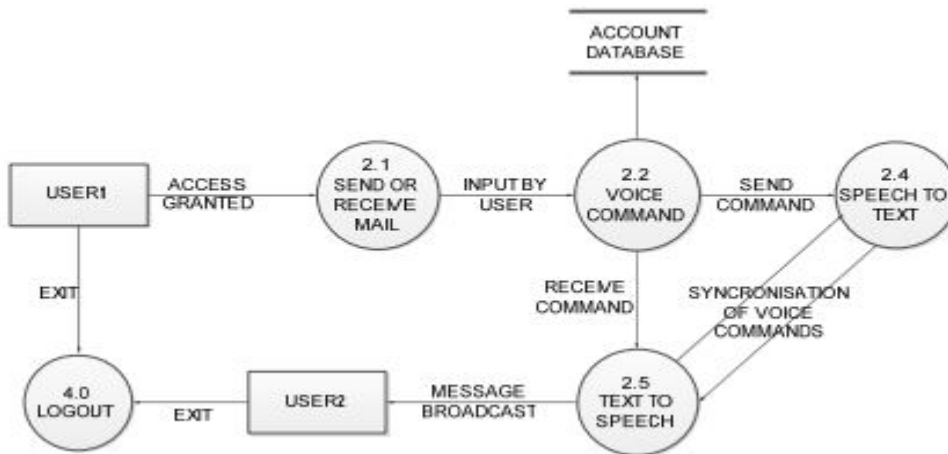

Fig.1. System Architecture

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 registration 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 example. 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.

V. ALGORITHM

ASR: Automatic Speech Recognition:

Automatic Speech Recognition or ASR, as it's known in short, is the technology that allows human beings to use their voices to speak with a computer interface in a way that, in its most sophisticated variations, resembles normal human conversation.The most advanced version of currently developed ASR technologies revolves around what is called Natural Language Processing, or NLP in short. We're already seeing some remarkable results in the form of intelligent smartphone interfaces like the Siri program on the iPhone and other systems used in business and advanced technology contexts.
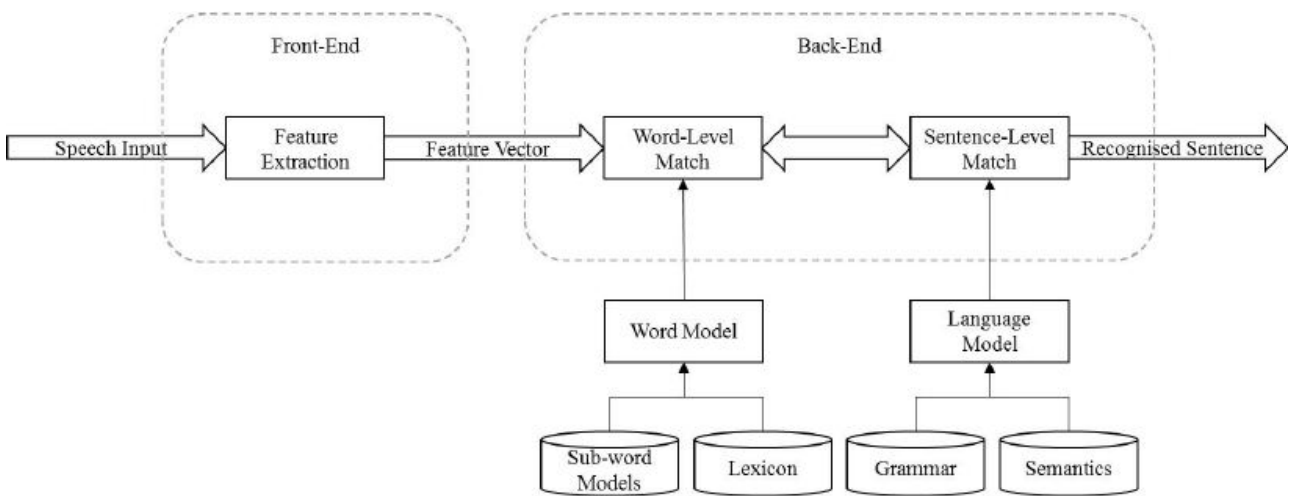

Fig.2.Block Diagram of ASR

VI. DESIGN

DATABASE DESIGN:

Our system maintains a database for user validation and storing mails of the user. There are a total of five tables. The Inbox, Sent-Mail schemas will store all mails of the respective service that belongs to that particular user.

SYSTEM DESIGN:

Our System is voice oriented. When user is over every legal space in website, it will receive voice messages where user is right now. If normal people don't want this feature, they can turn it off. The system work flow is defined in DFD diagrams.
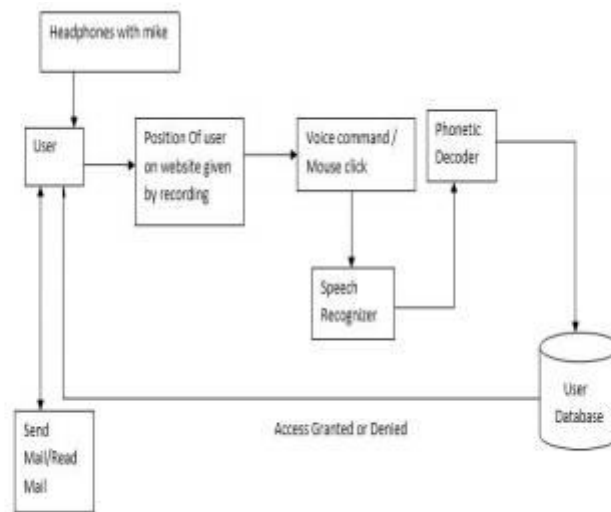
Fig.3. System Workflow

VII. ADVANTAGES

1. The disabilities of visually impaired people are thrashed.
2. This system makes the disabled people feel like a normal user.
3. 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.
4. The visually impaired people can advance from Desktop application to the web-basedapplication.
5. They can use the system on their smartphones or even a smart watch

VIII. DISADVANTAGES

1. There can be a noisy background when in a crowded place, which can cause difficulty for speech-to-text conversion.

IX. 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.

X. 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 inpaired person as well as blind person.

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