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Vox-Mail : Voice Based Email Service For Visually Impaired

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ABSTRACT

The internet has become one of the most important aspects of modern life. Every human being uses the internet to gain access to knowledge and information. However, blind people have difficulty accessing these text materials, as well as using any internet-based service. The development of computer-based accessible technologies has provided many opportunities for the visually disabled all over the world. Audio input virtual environments, such as screen readers, have greatly aided Blind people in accessing internet applications. We define the Voicemail system architecture that a blind person can use to quickly and easily access e-mails. This research's contribution has helped blind people to send and receive voice-based e-Mail messages in their native language using a computer.

Keywords — Visually challenged people, IVR, Speech to text converter, Mouse click event, Screen reader.

I. INTRODUCTION

We have seen that many fields have been dramatically revolutionized by the onset of the Internet. The Internet has made people's lives so easy that people today have access to any data they want at home. Communication is one of the main fields that the Internet has revolutionized. And the first thing that comes to mind when we talk about communication over the Internet is e-mail which one of the revolutionary electronic technologies. Over about 4.1 billion or so email accounts has been created in the year 2014 and an estimated more than 5 billion accounts will be created by the end of 2018, making emails the most used and reliable medium of communication.

Visually disabled individuals cannot use the most popular mail systems we use in our everyday lives because they do not have any facilities so that the person in front can hear the contents of the screen. Since they are unable to imagine what is already viewed on the screen, they are unable to find out where to click and perform the appropriate actions. There have been different technologies available in this world today, such as screen readers, etc., but they are not as effective to perform actions. Using a computer for the first time is not as easy for a visually impaired person as it is for a regular user, even though it is user-friendly. While there are screen readers available, these individuals still face minor difficulties.

Screen reader not only reads those contents that are viewed on the screen and even the people will have to make use of all the keyboards shortcut for performing certain action because the screen will not

be able to track back the actual position of the mouse. Therefore a person who is using a computer for the first time will not be able to use the services because as it is not aware of any of the specific keys location present in it. Screen readers read the content sequentially, so that, as a user can only understand all contents present in the screen if they are in the standard HTML format. Thus the modern web page those which do not follow the model in order to make these website a user-friendly and to create more problems for these individuals.

The project aim in the development of an email that helps even the naïve, blind people and also illiterate peoples to be able to send their mails by using all the service for the communication and without any past training. This system uses IVR- Interactive voice response, allowing anyone to use only their voice to manage their mail accounts and be able to send or even read as well. This device will be able to prompt the users in performing certain actions with specific voice commands, and the user will respond to them. The major use of this method is that the usage of the keyboard is totally ignored, only by voice and mouse clicks, the user is required to respond.

II. RELATED WORK

The innovation of functional computer-based technologies has opened up many pathways across a vast majority of the globe for the visually impaired. Screen readers have greatly increased the accessibility of internet software for blind people, such as audio feedback-based virtual environments. In this paper, a design of the Voice Mail system is provided using which the visually impaired will be able to access-mails conveniently and efficiently.[1]

A search engine that solely supports the interaction between Man and Machine in the form of voice. As existing search engines receive the user's request in text format and respond by downloading and displaying the documents from the server here they have proposed a web page reader and voice-based search engine that allows users to use only their voice to control the web browser.[2]

A research work deals with the design and implementation of the Raspberry Pi speech recognition system for critical use by visually impaired individuals. The main objective of the study is to provide a simple, affordable, user- friendly and portable device for visually impaired people to use multimedia operating system applications such as text, music player and dialing system through the GSM module interface. A low-cost Raspberry Pi board is used to execute all of the above. Therefore the aim of creating a portable system was designed using offline speech recognition at a low cost.[3]

A Voice-Mail architecture research paper allows blind individuals to access e-mail and other multimedia features. There is a GUI update to the GUI of an existing mail server on this device. This architecture also offers more functionality than the current GUI, which makes it easier for a blind individual to use the application. This device minimized the load of recording keys and typing characters, in addition to providing the mailing facility easily and effectively. It was achieved for security purposes by introducing voice-to-text, text-to-voice techniques, and using fingerprint scanning techniques to enable blind people to easily access the application.[4]

An Android app that allows blind users to access their email without the assistance of others. The techniques used to implement this application are: Speech to text conversion in android, Text to speech conversion in android, API key to access Gmail and Google map as provide web services to access mails and obtain current location of the user and a Human presence detection system To ensure privacy of sending message, a hardware (PIR sensor, LED and buzzer) to identify the presence of human.[5]

III. EXISTING SYSTEM

The standard mail service is only useful for individuals who can see and type as well. Web-based

emails designed for HTML and CSS are not created while keeping everyone's accessibility in mind. Current mail services do not provide visually impaired people with easy access because they are in written format or some kind of attached data and there is no readable information. Out of the opportunity to hear the mail sent to their mail addresses. While we have screen readers that allow these individuals to access desktop apps, we do not have any technology or device that can help these individuals access web apps. Communication is the primary objective of the use of emails. But the current mail service system fails to provide individuals with user friendliness. This indicates that the use of these types of systems has a number of drawbacks. The standard mail system can't be used by the visually impaired individuals. Owing to the lack of truly voice-based software, the visually impaired individuals are unable to communicate with web-based applications.

IV. PROPOSED SYSTEM

The proposed system is based on a completely different approach and is not like the current mail systems. Accessibility is the most critical factor that has been kept in mind while developing the proposed system. A web system is said to be perfectly usable only if all types of persons, whether normal or disabled, can use it efficiently

This usability is not supported by the existing systems. The system we are designing is therefore entirely distinct from the existing system.

Unlike the current system, which focuses more on the user- friendliness of ordinary users, our system focuses more on the user-friendliness of all categories of people, which includes ordinary people ,people with visual impairments and illiterate individuals. The entire system is based on IVR- interactive voice response. The computer will prompt the user to perform certain operations to access the respective email services. One of the major benefits of this system is that the keyboard need not be used by the user and all operations involve mouse clicks.

Now the question arises as how can the visually impaired person find the location of the mouse pointer. As particular location cannot be tracked by the visually challenged person the system has given the user a free will to click blandly anywhere on the computer screen. The IVR will specify which type of click will perform a certain function .Thus user does not need to worry about the mouse location at all.

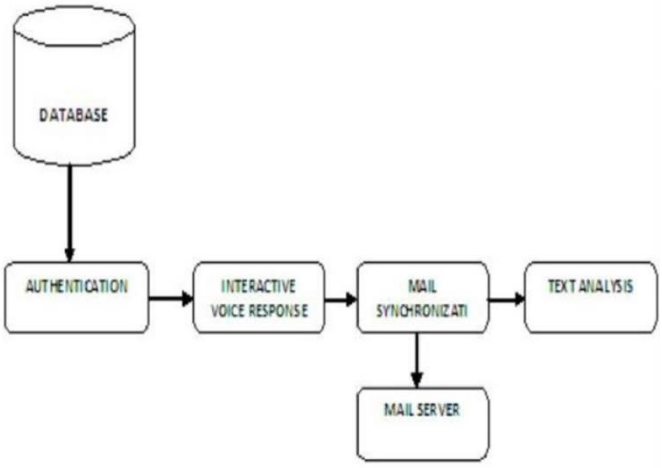

Fig. 1 System Architecture.

V. FUTURE SCOPE

There is wide scope and future work of this system as many enhancements can be done for the system which we are implementing such as including different languages, to know about the mails if they are spam mails or not, functionality of accessing the deleted mails and spam mails. Along with these functionalities, this system can be enhanced in a way such that it can also send attachments from users device which are more beneficial for people who are Visually impaired.

VI. CONCLUSION

The major project Vox-Mail: Voice Based E-mail for the Visually Impaired will help all the visually

impaired and the illiterate people to overcome all the difficulties as well as the drawbacks which they were facing while accessing the reports, documents and important files from emails. This major project will eliminate the usage of keyboard and its shortcuts which was used to traverse through all the events. Along with the elimination of keyboard usage, the usage of screen readers will also be eliminated. Thus, by reducing the load of usage and understanding all the functionalities of the keyboard.

The voiced based email can be used by visually impaired people of any age groups. Thus, this system provides many features like recognizing the user logged in through his/her speech, from speech to texts conversion and the texts to speech conversion along with the ability of speech reader which can be accessed easily without facing any difficulties. Thus, this project provides a bridge between the visually impaired so that they use the technology in a friendly manner and by providing equal opportunities.

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