A Survey on Speech Recognition Email System for People with Impaired Sight

[1]Vidya Arunkumar Patil, [2]Rajeshwari N J, [3]Shailaja Shastri, [4]Sharanabasappa.C.Gandage
[1,2]UnderGraduate, Department of CSE, PDA college of Engineering, Kalaburagi.
[3]Research Scholar, Visvesvaraya Technological University VTU Belgaum, Karnataka.
[4]Research Scholar, Sri Satya Sai University of Technology and Medical Sciences, Sehore, MP.

ABSTRACT:

Internet is one of the basic luxuries for daily living. Every person is using the facts and information on internet. On the other hand, blind people face difficulty in accessing the text resources. The development in computer based handy systems has opened up numerous opportunities for the visually disabled across. Audio response based virtual environment, the screen readers are helps blind people a lot to use internet applications. This project introduces the Voicemail system structural design that can be used by a blind person to access E-Mails easily. The involvement of research is helping blind individual to send and receive voice based mails messages in their inhabitant language with the help of a computer.

Keywords: ***Voicemail, visually disabled, Audio Response, Interactive voice response.***

I. INTRODUCTION:

We have seen that the introduction of Internet has revolutionized many fields. Internet has made life of people so easy that people today have access to any information they want easily. Communication is one of the main fields highly changed by Internet.

E-mails are the most dependable way of communication over Internet, for sending andreceiving some important information. But there is a certain norm for humans to accessthe Internet and the norm is you must be able to see. But there are also differently abled people in our society who are not gifted with what you have. There are some visually impaired people or blind people who can't see things and thus can't see the computer screen or keyboard. A survey has shown that there are more than 240 million visually impaired people around the globe. That is, around 240 million people are unaware of how to use Internet or E-mail. The only way by which a visually challenged person can send an E-mail is, they have to speak the entire content of the mail to another person(not visually challenged) and then that third person will compose the mail and send on the behalf of the visually challenged person. But this is not a right way to deal with the problem. It is very unlikely that every time a

visually impaired person can find someone for help.

This project proposes a python based application, designed specifically for visually impaired people. This application provide a voice based mailing service where they could read and send mail on their own, without any guidance through their g-mail accounts.

Here, the users have to use certain keywords which will perform certain actions for e.g. Read, Send, Compose Mail etc.

IVR- Interactive voice response:

Interactive voice response (**IVR**) is a technology that allows a computer to interact with humans through the use of voice and DTMF tones input via a keypad. In telecommunications, IVR allows customers to interact with a company's host system via a telephone keypad or by speech recognition, after which services can be inquired about through the IVR dialogue.

The VMAIL system can be used by a blind person to access mails easily and adeptly. Hence dependence of visually challenged on other individual for their activities associated to mail can be condensed. The application will be a python-based application for visually challenged persons using IVR- Interactive voice response, thus sanctioning everyone to control their mail accounts using their voice only and to be able to read, send, and perform all the other useful tasks. The system will ask the user with voice commands to perform certain action and the user will respond to it. The main advantage of this system is that use of keyboard is completely eliminated , the user will have to respond through voice only.

II. LITERATURE SURVEY:

"Voice Based System in Desktop and Mobile Devices for Blind People":

This paper deals with "Voice Based System in Desktop and Mobile Devices for Blind People". Voice mail architecture helps blind people to access e-mail and other multimedia functions of operating system (songs, text).Also in mobile application SMS can be read by system itself. Now a days the advancement made in computer technology opened platforms for visually impaired people across the world. It has been observed that nearly about 60% of total blind population across the world is present in INDIA. In this paper, we describe the voice mail architecture used by blind people to access E-mail and multimedia functions of operating system easily and efficiently. This architecture will also reduce cognitive load taken by blind to remember and type characters using keyboard. There is bulk of information available on technological advances for visually impaired people. This

includes development of text to Braille systems, screen magnifiers and screen readers. Recently, attempts have been made in order to develop tools and technologies to help Blind people to access internet technologies. Among the early attempts, voice input and input for surfing was adopted for the Blind people. In IBM's Home page the web page is an easyto-use interface and converts the text-to-speech having different gender voices for reading texts and links. However, the disadvantage of this is that the developer has to design a complex new interface for the complex graphical web pages to be browsed and for the screen reader to recognize. Simple browsing solution, which divides a web page into two dimensions. This greatly simplifies a web page's structure and makes it easier to browse. Another web browser generated a tree structure from the HTML document through analyzing links. As it attempted to structure the pages that are linked together to enhance navigability, it did not prove very efficient for surfing. After, it did not handle needs regarding navigability and usability of current page itself. 23 Another browser developed for the visually handicapped people was eGuideDog which had an integrated TTS engine. This system applies some advanced text extraction algorithm to represent the page in a userfriendly manner. However, still it did not meet the required standards of commercial use. Considering Indian scenario, ShrutiDrishti and WebBrowser for Blind are the two web browser framework that are used by Blind people to access the internet including the emails. Both the systems are integrated with Indian language ASR and TTS systems. But the available systems are not portable for small devices like mobile phones.

Voice Based Search Engine and Web page Reader:

This paper aims to develop a search engine which supports Man-Machine interaction purely in the form of voice. A novel Voice based Search Engine and Web-page Reader which allows the users to command and control the web browser through their voice, is introduced. The existing Search Engines get request from the user in the form of text and respond by retrieving the relevant documents from the server and displays in the form of text Even though the existing web browsers are capable of playing audios and videos, the user has to request by typing some text in the search text box and then the user can play the interested audio/video with the help of Graphical User Interfaces (GUI). The proposed Voice based Search Engine aspires to serve the users

especially the blind in browsing the Internet. The user can speak with the computer and the computer will respond to the user in the form of voice. The computer will assist the user in reading the documents as well. Voice-enabled interface.

III. SYSTEM ANALYSIS

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.[4] this makes emails the most used form of communication.

The most common mail services that we use in our day to day life cannot be used by visually challenged people. This is because they do not provide any facility so that the person in front can hear out the content of the screen. As they cannot visualize what is already present on screen they cannot make out where to click in order to perform the required operations.[3] 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 many screen readers available then also these people face some 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. This means two things; one that the user cannot make use of mouse pointer as it is completely inconvenient if the pointer location cannot be traced and second that user should be well versed with the keyboard as to where each and every key is located. A user is new to computer can therefore not use this service as they are not aware of the key locations.

Another drawback that sets in is that screen readers read out the content in sequential manner and therefore user can make out the contents of the screen only if they are in basic HTML format. Thus the new advanced web pages which do not follow this paradigm in order to make the website more user-friendly only create extra hassles for these people. All these are some drawbacks of the current system which we will overcome in the system we are developing.

PROPOSED SYSTEM:

The planned system is relies on a very fresh plan and obscurity just like the accessible mail systems. The foremost necessary facet that erstwhile unbroken in brain whereas developing the planned system’s accessibility.

The present systems don’t give this much convenience. So the systems present have a tendency to area unit developing is totally dissent from this system. In contrast to

present system which emphasize more on user easiness of naive users, this system focus more on user easiness of all kind of folks including naive folks visually disabled people as well as uneducated people. The entire structure is based on IVR- interactive voice response. When using this system the computer will prompt the client to perform precise operations to gain relevant services and if the client needs to way in the relevant services then they need to perform that particular operation.

One of the most important recompense of this system is that user will not need to use the keyboard. All operations will be based on voice proceedings.

Proposed System Architecture:

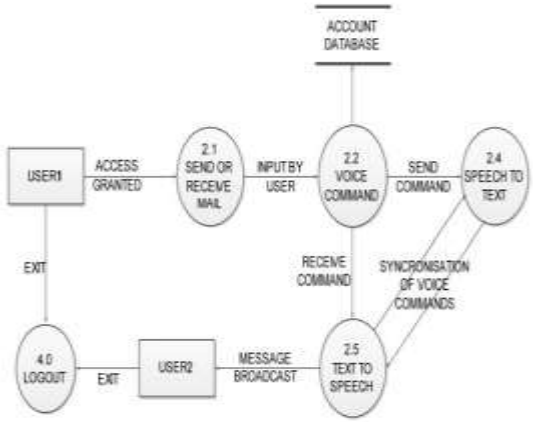

Fig-1: System Architecture

Speech to text Converter:

The process of converting spoken speech or audio into text is called speech to text converter. The process is usually called speech recognition. The Speech recognition is used to characterize the broader operation of deriving content from speech which is known as speech understanding. We often associate the process of identifying a person from their voice, that is voice recognition or speaker recognition so it is wrong to use this term for it. As shown in the above block diagram speech to text converters depends mostly on two models 1.Acoustic model and 2.Language model.

Systems generally use the pronunciation model. It is really imperative to learn that there is nothing like a universal speech recognizer. If you want to get the best quality of transcription, you can specialize the above models for the any given language communication channel. Likewise another pattern recognition technology, speech recognition can also not be without error. Accuracy of speech transcript deeply relies on the voice of the speaker , the characterstic of speech and the environmental conditions. Speech recognition is a tougher method than what folks unremarkably assume, for a personality's being. Humans are born for understanding speech, not to transcribing it, and solely speech that's well developed will be transcribed unequivocally. From the user's purpose of read, a speech to text system will be categorised based in its use.

CONCLUSION:

This project is proposed for the betterment of society. This project aims to help the visually impaired people to be a part of growing digital India by using internet and also aims to make life of such people quite easy. Also, the success of this project will also encourage developers to build something more useful for visually impaired or illiterate people, who also deserves an equal standard in society.

REFERENCES:

1. *Jagtap Nilesh, Pawan Alai, Chavhan Swapnil and Bendre M.R.. "Voice Based System in Desktop and Mobile Devices for Blind People". In International Journal of Emerging Technology and Advanced Engineering (IJETAE), 2014 on Pages 404-407 (Volume 4, issue 2).*
2. *Ummuhanysifa U.,Nizar Banu P K , "Voice Based Search Engine and Web page Reader". In Internationa Journal of Computational Engineering Research (IJCER). Pages 1-5.*
3. *G. Shoba, G. Anusha, V. Jeevitha, R. Shanmathi. "AN Interactive Email for Visually Impaired". In International Journal of Advanced Research in Computer and Communication Engineering (IJARCCE), 2014 on Pages 5089-5092.*
4. *The Radicati website. [Online]. Available:http://www.radicati.com/wp/wpcontent/uploads/2014/01/EmailStatistics-Report-2014-2018-Executive-Summary.pdf.*
5. *https://en.wikipedia.org/wiki/Interactivevoice_response.*
6. *http://122.252.232.85:8080/jspui/bitstream/123456789/16961/1/SP13277SauravMishra141318_Ashwani 20Panwar.*
7. *T.shabana, a.anam, a.rafiya3, k.aisha, "voice based email system for blinds" http://www.ijarcce.com/upload/2015/january/ijarcce5c.pdf*
8. *[2] Code project, "speech recognition" http://www.codeproject.com/articles/5820/speechrecognition*
9. *Ummuhanysifa u., nizar banu p k, "voice based search engine and web page reader". In international journal of computational engineering research (ijcer).*
10. *Http://www.ijceronline.com/papers/special%20issue/a0105.pdf*
11. *Arjun aj, "voice based email for blinds", slide share http://www.slideshare.net/123arjun1/voicebased-email-for-blinds*