

VOICE BASED EMAIL FOR VISUALLY CHALLENGED PEOPLE

Dr. S. Brindha¹, Ms. D. Priya², Mr. S. Mukesh³, Mr. C. Dinesh Kumar⁴, Mr. R. K. Naveen⁵

¹Head of Department, Department of Computer Networking, PSG Polytechnic College, Tamil nadu, India

² Lecturer (Selection Grade), Department of Computer Networking, PSG Polytechnic College, Tamil Nadu, India

^{3,4,5}Student, Department of Computer Networking, PSG Polytechnic College, Tamil Nadu, India

Abstract - The advancement in computer based accessible systems has opened up many avenues for the visually impaired across a wide majority of the globe. Audio feedback based virtual environment like, the screen readers have helped Blind people to access internet applications immensely. However, a large section of visually impaired people in different countries in particular, the Indian sub-continent could not benefit much from such systems. This was primarily due to the difference in the technology required for Indian languages compared to those corresponding to other popular languages of the world. In this paper, 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. We found that our proposed architecture performs much better than that of the existing GUIs.

1. INTRODUCTION

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. Blind people do lead a NORMAL LIFE with their own style of doing things. But they definitely face troubles due to inaccessible infrastructure and social challenges. However, blind people face difficulties in accessing these text materials, also in using any service provided through internet. This has enabled the Blind people to send and receive voice based e-Mail messages in native language with the help of a computer.

1.1 Objective

- To create a professional application for blind-people to work with E-mail.
- Easy access of mail for blind people.
- Outdoor communication is harder task for blind people. So, this help blind people to use emails.
- This application is created because it helps to use the advanced technologies

1.2 VOICE RECOGNITION

The speech recognition engine has a rather complex task to handle, that of taking raw audio input and translating it to recognized text that an application understands. As shown

in the diagram below, the speech recognition engine consists of the following major component:

- Audio input
- Grammar(s)
- Acoustic Model
- Recognized text

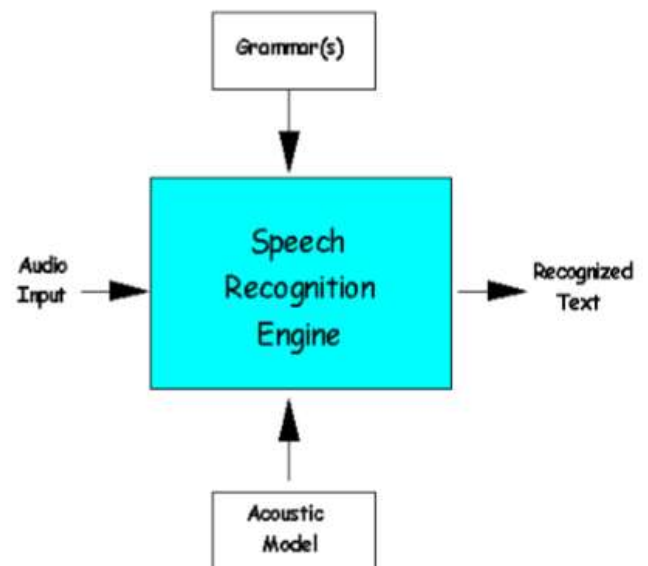


Fig 1. Block diagram of voice recognition

Acoustic Model

An acoustic model is used in automatic speech recognition to represent the **relationship between an audio signal and the phonemes or other linguistic units that make up speech.**

1.3 SPEECH SYNTHESIS

Speech synthesis is the artificial production of human speech. A computer system used for this purpose is called a speech computer or speech synthesizer and can be implemented in software or hardware products. A text-to-speech (TTS) system converts normal language text into speech; other systems render symbolic linguistic representations like phonetic transcriptions into speech

2. RELATED WORKS

There's a fashionable literature on the technological advances in building helpful tools for the visually impaired folks. These includes development of text to Braille systems screen magnifiers and screen readers. However, as mentioned antecedently, these systems square measure extremely language dependent and presently out there just for few languages like English, French, Germany, Swedish, Spanish, and Portuguese. Recently, makes an attempt are created so as to develop tools and technologies to assist Blind folks to access net technologies. Among the first makes an attempt, voice input and input for surfing was adopted for the Blind folks. IBM's Home Page Reader, presents the net page in associate easy-to-use interface, and converts the text-to-speech, having totally different gender voices for reading texts and links. However, the disadvantage of this can be that the developer needs to style complicated a pasha fancy} new interface for the complex graphical web content to be browsed and for the screen reader to acknowledge

3. PROPOSED SYSTEM

The proposed system is fully derived from the innovative idea and is much different from the existing mail systems. The proposed system focus on reliability and user friendly. This system is helpful for visually impaired people. There is big challenge of security related to authentication. So for authentication the voice of user is the main key for verification. 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 of mic on who's 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.

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. System architecture of proposed system when user will visit the site, the user would first have to register in our website through registration form.

ADVANTAGES

- This system makes the disabled people feel like a normal user.
- They can hear the recently received mails.

- The visually impaired people can advance from Desktop application to the web-based application.
- It provides the two types of user interface
- Different languages can used by using the voice recorder option

4. SYSTEM ARCHITECTURE

The architecture of our proposed system consists of two module

A. Interface selection Module

B. Mailing Options

4.1 Interface Selection Module

The Interface selection module provides an option to mention the type of user using the system. There are two options to be chosen, a) Blind user and b) sighted user. The difference between the two types of user modules is that, for Blind users, all operation performed will get an voice based feedback on the other hand, a sighted person will receive textual feedbacks. Moreover, there are options to save a particular users profile so that the user does not have to enter the same details again.

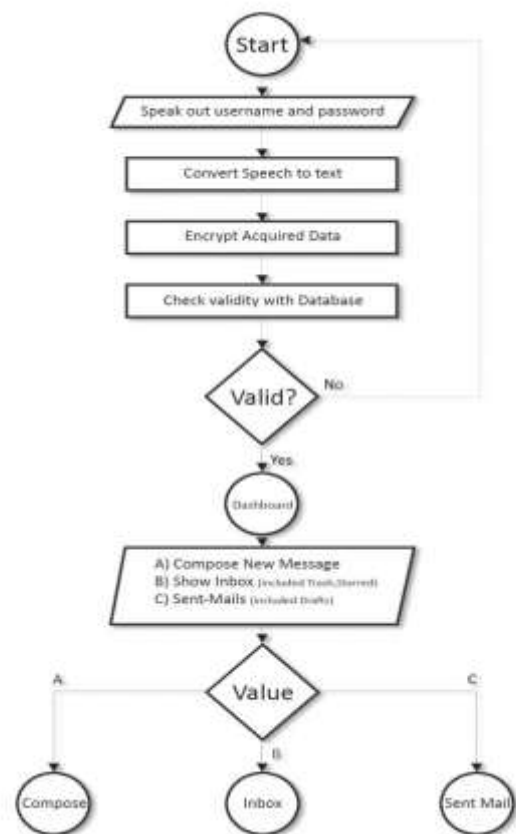


Fig. 2. Block Diagram of the VoiceMail Architecture

4.2 Mailing Options

The mailing option has got the following two modules a) Compose Mail and b) Inbox Check. A user can choose any one option depending upon the task in hand.

Compose Mail: within the compose mail module, the compose window can open up, giving the user the choice either to A text or record a voice message. so as to record a voice message a user will use the beginning record command. so as to prevent the recording, once more the user use the stop recording command. Once the recording is over, the system can raise the user to pick the recipients address. Once the recipient mail id is entered, the system can prompt the user to send the mail or to cancel the operation. By default the user is within the home page if the user desires to maneuver to the compose page the command compose compose. In order to send the mail the command send is employed.

Check Inbox: within the Inbox module, the Blind user will check the incoming voice mails. For convenience, the system can permit the Blind user to listen to the mail. once the utilization chooses associate choice, the system starts to scan out the e-mail ids of the senders primarily based au fait his selection. to maneuver from home page to inbox page the command receive is employed. Once the sure credentials square measure given the command receive is employed to receive the new mail.

4.3 Implementation

The Desktop application was developed using Visual Studio and then the supporting packages like System. Speech. Synthesis and System. Speech. Recognition are used to implement the Voice Recognition and Speech Synthesis concept

5. Result

The results from the desktop Application are represented with pictures of each page of the desktop Application.

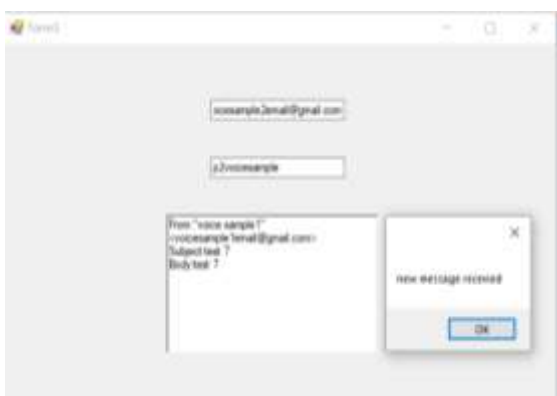


Fig 3. Composing Page of Voice Mail



Fig 4. Receiving page of voiceMail






6. CONCLUSION

The VoiceMail system architecture, presented in this paper, is an attempt to bridge the gap between the Blind populations to access essential electronic communication modes like email. The system allows a Blind person to send voice based e-Mails messages. This will reduce the extensive cognitive load taken by a Blind to remember and type characters using a keyboard or a mobile keypad. Further, as messages are sent via voice, it eliminate the lack of English language proficiency of a Blind person. We have evaluated our proposed architecture by comparing the performance of our proposed GUI with that of the existing Gmail GUI.

7. REFERENCES

- [1] B. Anupam, S. Roy, P. Dutta, and S. Banerjee. A pc based multi-user braille. reading system for the blind libraries. IEEE Transactions on Rehabilitation Engineering, 6(1):60–68, 1998.
- [2] A. Baude, P. Blenkhorn, and G. Evans. The architecture of a windows 9x full screen magnifier using ddi hooking. Assistive Technology–Added Value to the Quality of Life (AAATE 2001), IOS Press, Amsterdam, pages 113–118, 2001.
- [3] A. King, G. Evans, and P. Blenkhorn. Webbie: a web browser for visually impaired people. In Proceedings of the 2nd Cambridge Workshop on Universal Access and Assistive Technology, Springer- Verlag, London, UK, pages 35–44. Citeseer, 2004
- [4] 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.(Volume 3, Issue 1).
- [5]. The WHO website. [Online]. Available: <http://www.who.int/mediacentre/factsheets/fs282/en/>

BIOGRAPHIES

	<p>Dr S. Brindha Head of Department, Department of computer networking, PSG Polytechnic College, Coimbatore, India.</p>
	<p>Ms. D. Priya Lecturer (S G), Department of Computer Networking, PSG Polytechnic College, Coimbatore, India.</p>
	<p>Mr. S. Mukesh Final Year Student Department of Computer Networking, PSG Polytechnic College, Coimbatore, India.</p>
	<p>Mr. C. Dinesh Kumar Final Year Student Department of Computer Networking, PSG Polytechnic College, Coimbatore, India.</p>
	<p>Mr. R. K. Naveen Final Year Student Department of Computer Networking, PSG Polytechnic College, Coimbatore, India.</p>