

Voice Based Email System

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Abstract— As the technology advances the applications available for users can be made more user-friendly. This Voice Based Email System is developed for the people who require comfort and who are physically challenged. With the advent of technology, many technological solutions have been implemented so that people get benefited by utilizing them. Considering it as a key idea we propose to develop an application, Voice Based Email System which will be useful for every person to access the email functionalities in a hassle free manner. We have used 'Text to Speech' and 'Speech to Text' voice converter named 'Speech Recognition Anywhere' to facilitate sending and reading of emails. The speech synthesis can read aloud any written text avoiding eye strain and save time reading on computer. The existing email system, its drawbacks and our proposed methodology to overcome them have been discussed in this paper. Related work that has been done already is referred and taken as a guideline to finish our system.

Keywords- *Speech synthesis, speech recognition, screen readers, Interactive Voice Response, Speech to text converter.*

I. INTRODUCTION

In the last decade internet has introduced itself as the most important media. It is also considered as the major storehouse of information. No work can be done without it. There are million pages of useful information available for users to obtain specific information in different fields. Users are able to access information on a wide variety of subjects from anywhere, anytime. This has made Internet as the fastest and easiest media to access at this period of time. It is one of the most important modes of communication. Email being the most common form of communication especially in the business world. In earlier emailing system, it is a tedious job to type the whole email text which increases the time taken to send the mail. Although there is much advancement done in this field, there is no such facility provided to the naive users to use the mail system efficiently. On the other hand, there is a need to look at new innovative tools to make the Internet a more reliable media for all types of users, particularly, the physically disabled ones. In the past, efforts of building such a mailing system, a few advancements in addition to the conventional mailing system have been tried to put into effect.

A. *Existing System*

E-mails are the most used form of communication in today's era. Visually impaired people are not benefitted since there's no way for them to send an email using the current mailing system. This is because they do not provide any facility such

as hearing out the contents of the mail. 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. Despite of many screen readers available, they have not been convenient. A user who is new to computer can therefore not use this service. A 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 Hyper Text Markup Language (HTML) format. These difficulties in the current mailing system prompt us to develop a new system that encompasses voice-to-text and text-to-voice conversion.

II. RELATED WORK

K.V.N.Sunitha., *et. al.*, [6] designed a system that converted the English text in Telugu that enabled the users to play the message in their native language. Then in the year 2014, K. Jayachandran Krishnasamy., *et. al.*, [3] used Voice4Blind: The Talking Braille Keyboard to Assist the Visual Impaired Users in Text Messaging - This paper describes a system to produce a good talking SMS application using text to speech technology to support an application for visually impaired user along with the capability to integrate with Android OS and Windows platform. Later in the year 2015, Hari Priya S. L., *et. al.*, [2] implemented VMAIL-Voice Enabled Mail Reader: It is a high quality mail reader which aids people with disability. Multiple users can use this system and can be easily installed on any PC. In the same year, T. Shabana *et. al.*, [1] developed a

system in which there was no need to use the keyboard but all the operations were performed on a mouse click.

Halimah B.Z., *et. al.*, [9] developed a system with Cognitive Approach - This paper proposes a system to convert the HTML codes to voice codes and then to Braille and also converts the assignments into text again through the translator Module. It is based on five modules namely: Automatic Speech Recognition (ASR), Text-to- Speech (TTS), Search engine, Print (Text-Braille) and Translator (Text-to-Braille and Braille-to -Text) module. Later in the year 2009, T. Dasgupta., *et. al.*, [8] implemented a system wherein automatic conversion of English text to Braille transliteration was possible. They further extended the system to support transliteration of Dzongkha text to Braille. They also presented an audio QWERTY editor to enable the visually impaired person to write and read Indian languages with the help of a computer.

III. PROPOSED METHODOLOGY

Here we propose the applications with speech synthesis, speech recognition systems and screen readers. Speech synthesis is defined as the artificial production of human speech. A computer called as speech synthesizer is used for the purpose and this can be implemented in software and hardware. Speech recognition is a field of computational linguistic that is used to develop methodologies to enable the recognition and translation of speech into text by computers; also known as ‘automatic speech recognition’ or just ‘speech to text’. Screen readers are used to read out the content displayed on the screen and perform the actions triggered using the mouse click events. IVR systems can respond with pre-recorded or dynamically generated audio to further direct users on how to proceed.

Algorithm for composing an email:

- Step 1: Start
- Step 2: Prompt ,‘click on compose’.
- Step 3: Enter email address of the receiver.
- Step 4: Prompt subject of the email.
- Step 5: Prompt the email body through voice.
- Step 6: Say ‘send’ to send the email.
- Step 7: Stop.

IV. ARCHITECTURE

The following diagram depicts the working of the proposed system:

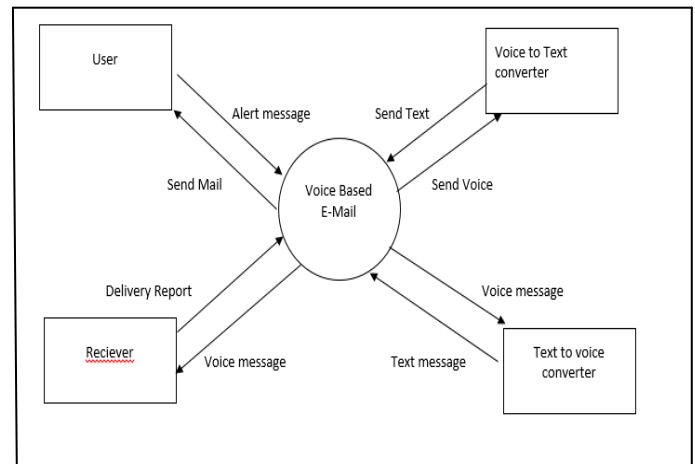


Figure 1. System architecture

Interaction between different components of the system is shown in the above diagram. Each component sends and receives requests to process information, to and from the system. The process of conversion from speech to text and vice versa is abstracted which is why the user and the receiver components of the system has no idea about their working and so they do not need to interact with those components.

V. RESULT

While prompting to the system the subject and email body through speech where the ‘Voice to Text’ converter is used, the translation accuracy is around 80%. When special characters are prompted to the system, it recognizes them to be a special character. Difficult words are also well recognized by the system. Homophones pronounced are easily differentiated. For example the words ‘HEAR’ and ‘HERE’ when tested were spelled correctly according to the meaning of the sentence. Email address in the ‘To’ field of the ‘compose’ functionality is needed to be typed by the user. All other fields such as subject, body, etc are filled using speech. The ‘reset’ button clears the whole text in one go. An option to play the message typed is also provided that enables the users to check if some changes are to be done without reading the whole text.

The screenshot shows a 'Login Form' with the following elements:

- User Name:** A text input field containing the name 'Ashu'.
- Password:** A text input field containing three dots '...', indicating a masked password.
- Buttons:** Two buttons, 'Submit' and 'Reset', located below the password field.
- Footer:** A link that says 'Yet Not Registered!! Register Here'.

Figure 2. Login form

Above figure 2 depicts the login form created where the user has to create a login if he isn't registered already. In case he is already registered, he has to put the user name and password and click on submit. This way, a log is maintained that stores the login credentials of that particular user.

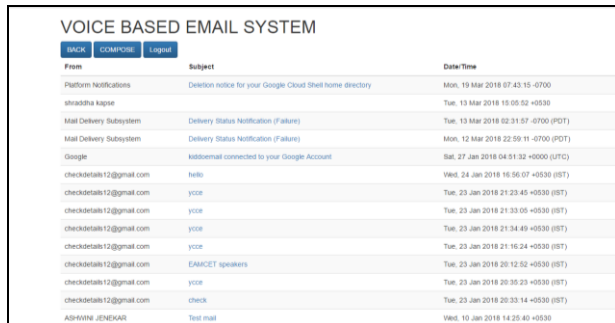


Figure 3. Inbox display

In figure 3, inbox is displayed that contains the received mails. An option to compose and logout is also given here.



Figure 4. Compose field

In figure 4, the compose functionality is displayed. The receiver's address is entered using the keyboard. Subject and email body is prompted through voice. Functionality to play the message is also provided. The email body can be reset by giving the 'reset' command.

VI. FUTURE SCOPE

Future enhancements can be done to the system such as inclusion of different languages, including the functionality of viewing the deleted mails as well as spam mails. Sending attachments through this system can also be made possible.

VII. CONCLUSION

We have developed a system that will help the user to easily access mail services. It will overcome the drawbacks that were earlier faced in the conventional mailing system. Our system will ease the process of sending an email and reading out the contents specified in the mail body. Also, the matter written while composing the mail can be read out aloud. The

interactive voice response facility offers text-to-speech and speech-to-text conversion that aids in the same.

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