

Voice E-mail

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Abstract: The advance technology in computer system has opened up many way of approach for the visually impaired across a globe. A resolute role can be played by communication in promoting human development in today's new world of social change and of many technology are available for communication, email is the mostly used communication media. But the people who are visually impaired cannot use all these technologies, all activities that can be performed on the computer are based on eyesight. Voice transformation means the conversion of one speech signal into another. The new transformed signal will have the same content as the two input speech signals but a different frequency, which is determined by the transformed algorithm. Through this the screen readers have helped visually impaired to access this technology immensely. The system will work on speech to text conversion and text to speech conversion instead will not let users to work on keyboard. The complete system is based on Text-to-speech and Speech-to- text API's. This voice email not just made for blind people, anyone can access it.

Keywords: Voice E-mail , Speech-to-text converter, Word Recognition , Text-to-speech converter.

I. Introduction

In today's world internet is considered as a important warehouse of information. Not a single work can be done without the help of it. It has even become one of the existing methods used in communication. Email is most widely used communication media among all the methods, especially in the business world. There are numbers of e-mail accounts all over the social world increasing from over 4.1 billion accounts in 2012 to over 5.2 billion accounts in 2018 .In today's world everyone are not able to use the internet. This is because in order to use the internet you would need to know what is to be display on the screen. If it is not visible it is of no use. Because of this visually impaired people are not able to use this technology. According to research visually impaired worldwide are around 285 million people, in that 39 million are blind and 246 have low vision. As a technical student it turned out to be the moral responsibility to give something back to society and use our technical knowledge to build an application for their benefit. Therefore, we have come up with this project in which we will be developing a **Voice Email** which will help the visually impaired people, who are not unable to use computer systems to use email facilities. The users of this system need not have any basic information, regarding keyboard shortcuts.

II. Existing System

Previously, a blind person does not send email using the system. The large numbers of email enables their use in nomadic daily contexts. But these emails are not useful for blind and handicapped people they can't send email. Audio based email is only preferable for blind and handicapped peoples. These people can easily respond to the audio instructions. In existing system it is very rare. So there is less chance to available this voice based e-mail to the blind and handicapped people.

III. Proposed System

We describe the voicemail system architecture that can be used by a blind person to access emails easily and efficiently. The main advantage done by this concept is that it has enabled the blind people to send and receive voice-based e-mail messages in their language with the help of a computer or a smart device.

Module Description

Speech_ To_ Text Converter

The systems obtain speech at run time through a microphone and with the help of speech-to-text converter the speech gets converted into text. Speech-to-text converter recognize the speech analyzed the sounds you make by filtering what you say then it digitized it to a format it can read. The recognized text can be saved in a file. .Net and C#.Net platforms are used here to develop this. Our speech to-text system directly obtain and converts speech to text. It can add-on other larger systems, giving users a different choice for data entry.

With the help of speech-to-text converter we can also improve system accessibility by providing data entry options for blind, deaf visually impaired people, or physically handicapped users. Speech recognition system can be divided into several blocks: feature extraction, acoustic models database which is create based on the training data, dictionary, language model and the speech recognition algorithm. Analog speech signal must first be sampled at time and amplitude axes, or digitized. Samples of the speech signal are analyzed in even intervals.

Speech feature extraction involves the formation of equally spaced discrete vectors of speech characteristics. Feature vectors from training database are used to estimate the parameters of acoustic models.

Text_ To_ Speech Converter

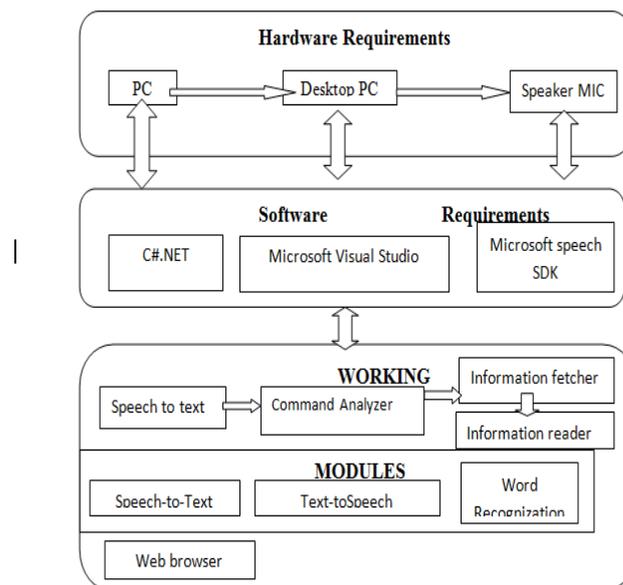
Using speech synthesis techniques it converts text to voice output. It used by the blind to listen to written material, it is now used extensively to convey financial data, e-mail messages, and other information through telephone for everyone.

Text-to-speech is also used on devices such as portable GPS units to announce street names when giving directions. Our Text-to-Speech Converter|| accepts a string of 50 characters of text (alphabets and/or numbers) as input. In this, we have interfaced the keyboard with the controller and defined all the alphabets as well as digits keys on it. The speech processor has an unlimited dictionary and can speak out almost any text provided at the input most of the times. Hence, it has an accuracy of above 90%. It is a microcontroller based hardware coded in Embedded C language.

Word Recognition

Speech to text software allows a user to use their voice to send an e-mail instead of typing on a keyboard. Speech recognition used to dictate text into the computer or to give commands to the computer. Speech recognition software allows for a quick method of writing onto a computer. It is useful for people who are visually impaired, handicapped and blind with disabilities who find it difficult to use the keyboard.

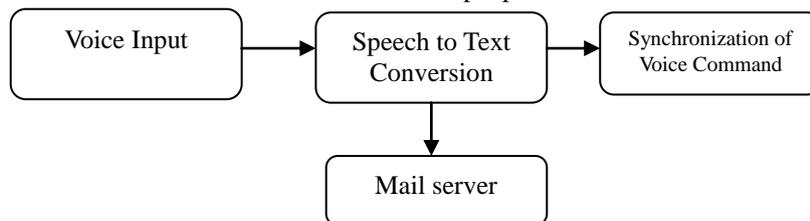
System Architecture:



I. System Design

Work Flow Diagram

Pictorial representation of an interactive email for the blind people



Send/Receive: The user speaks any of the given command.

Send:-

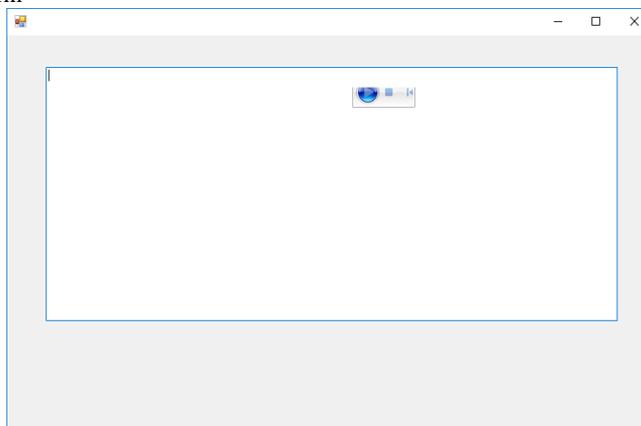
- The user shall speak the message to be conveyed, and other relevant details.
- Here, the user’s voice will act as the manual input.
- This process involves Speech -to-Text Conversion, and a re-reading of message typed.

Synchronization: System synchronizes with the mailing system to send or receive an e-mail. This requires prior permission.

If the user’s work has been completed, the system exits.

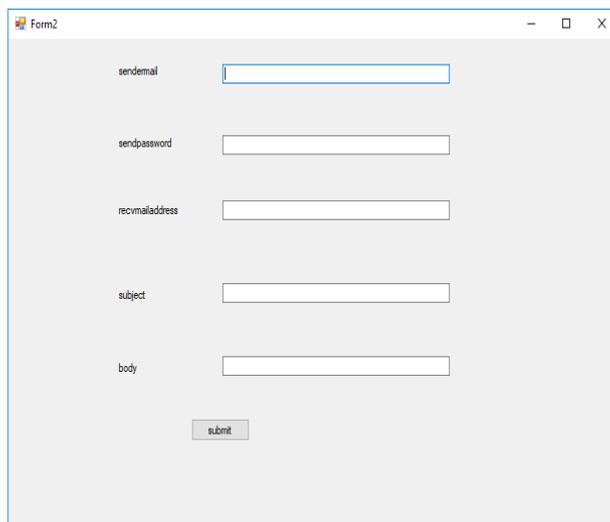
Implementation

Welcome to Application Form



This section describes how the speech gets converted into text with the help of Speech-to-text converter. Speech recognition converter analyzed the sounds you make by filtering what you say, then it digitized it to a format it can ‘read’.

Send Mail Form



In this section, first the sender needs to send the email address along with the senders email id

password. The speech gets recognized and then it will convert it into text. In the next step the sender has to send the receiver's email address along with the subject of the mail. In the last step, with help of submit option the mail would be sent to the receiver.

Conclusion

The **Voice Email** is a System which helps the blind and handicapped people to access mails easily and efficiently. It provides a voice based mailing service where the visually impaired person could read and send mail by their own without the help of others. It requires basic information about keyboard shortcuts used or where the keys are located.

We have eliminated all these concepts and overcome all difficulties faced by blinds. In **Voice Email** there is no requirement to remember location of keys on the keyboard and type characters using traditional Braille keywords available to them. It uses speech recognition application which provides an efficient voice input method for mailing devices for blind. It is also useful for handicapped and illiterate people.

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