

Voice Based Email System Application For Blind and Visually Impaired Peoples

#1 Swapnil Kurhade, #2 Laxman Gore, #3 Ketan Salve, #4 Prof. Jitendra Musale

#1234 Department of Computer Engineering

Anantrao Pawar College Of Engineering and Research Parvati, Pune 09



ABSTRACT

Internet becomes one of the basic amenities for day-to-day living. Every human being is widely accessing the knowledge and information with the help of internet. However, blind or visually impaired people face difficulties in accessing these text materials, also in using any service provided through internet. The advancement in computer based accessible systems has opened up many avenues nowadays for the visually impaired across the globe in a wide way. Audio feedback based virtual environment like, the screen reader have helped Blind people to access internet applications immensely. We describe the Voicemail system architecture that can be used by a Blind person to access e-Mails easily, efficiently and securely too. The contribution made by this research has enabled the Blind people to send and receive voice based e-Mail messages with the help of a computer.

Keywords:- MFCC(Mel Frequency ceptral coefficient),SVM(Support Vector Mnachine), Interactive Voice Response (IVR)

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I. INTRODUCTION

This system application used for blind or visually impaired person. Vmail turns out to be an application through which they can send or receive emails not only easily but securely too. Voice-Mail architecture helps blind people to access e-mail and other multimedia functions

Existing System:

Simple e-mail systems are available in which only voice recognition & text-to-speech systems are accessible. The visually challenged people find it very difficult to utilize this technology because of the fact that using them requires visual perception. However not all people can use the internet. This is because in order to access the internet you would need to know what is written on the screen. If that is not visible it is of no use. This makes internet a completely useless technology for the visually impaired and illiterate people.

II. PROPOSED SYSTEM

In this Proposed system mainly three types of Algorithms are used namely:

1. MFCC:

Mel Frequency Ceptral Coefficient is the algorithm used for the extract the frequencies of the voice input given by the user.

The Mel scale relates perceived frequency, or pitch, of a pure tone to its actual measured frequency. Humans are much better at discerning small changes in pitch at low frequencies than they are at high frequencies. Incorporating this scale makes our features match more closely what humans hear.

The formula for converting from frequency to Mel scale is:

$$M(f) = 1125 \ln(1 + f/700)$$

To go from Mels back to frequency:

$$M^{-1}(m) = 700(\exp(m/1125) - 1)$$

2. SVM(Support Vector Machine):

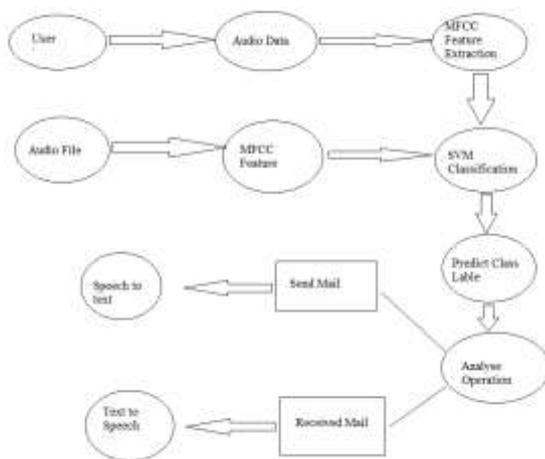
This algorithm for plotting that frequency count and make the classification. earlier we have to train the dataset for each operation so that each operation happens

efficiently. A SVM is a discriminative classifier formally defined by a separating hyperplane. In other words, given labeled training data (supervised learning), the algorithm outputs an optimal hyperplane which categorizes new examples.

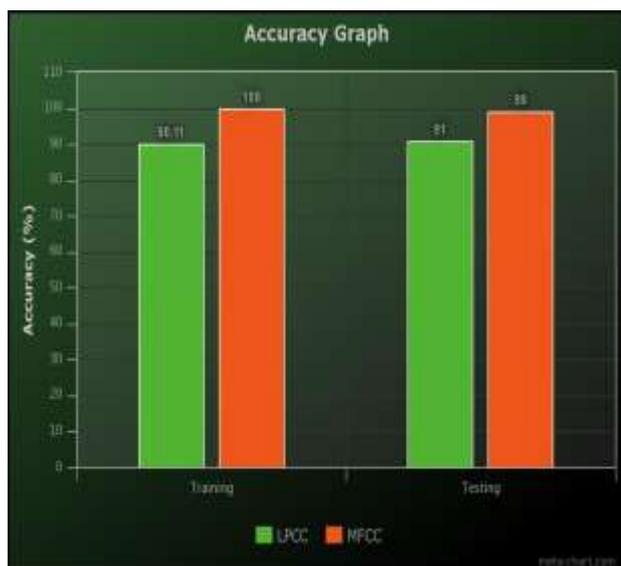
3.IVR (Interactive voice response):

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.Audio that would be pre-recorded and the system need to have large volumes.

III.METHODOLOGY



Accuracy Graph:



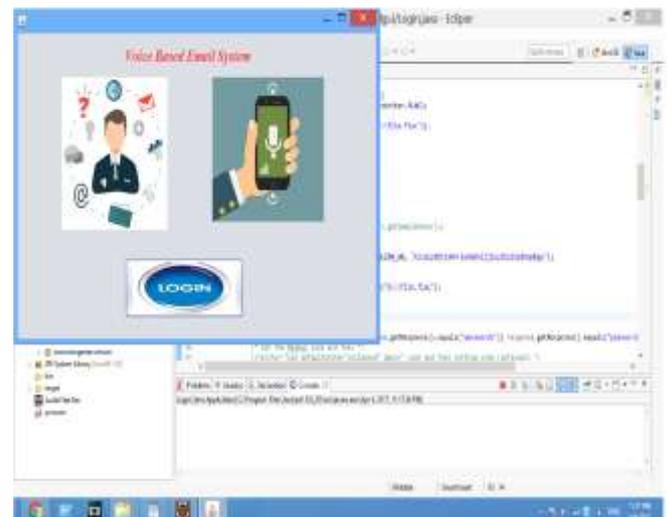
IV.IMPLEMENTATION

Registration:

This is the first module of system. Any of the users who want to use the system should first register himself to obtain his/her own username and password. Registration module will obtain all the details about user by voice commands given by the system that where to fill which information. The user should speak the details as the system requires. If the information is incorrect then the system will be telling about re-enter the information again.

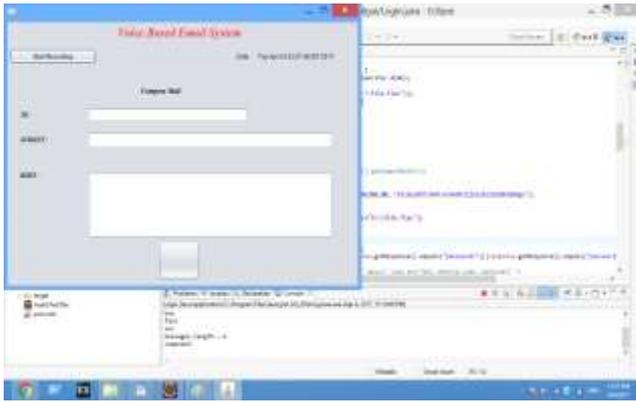
Login:

This is the second module of system. Once the registration is done the user can login to the system. Login module will ask user to provide username and password. Here the process goes in speech to text conversation of user. User is told to validate whether he/she entered details are correct or not. If the details are correct then the user is authorized and will enter to the main page.



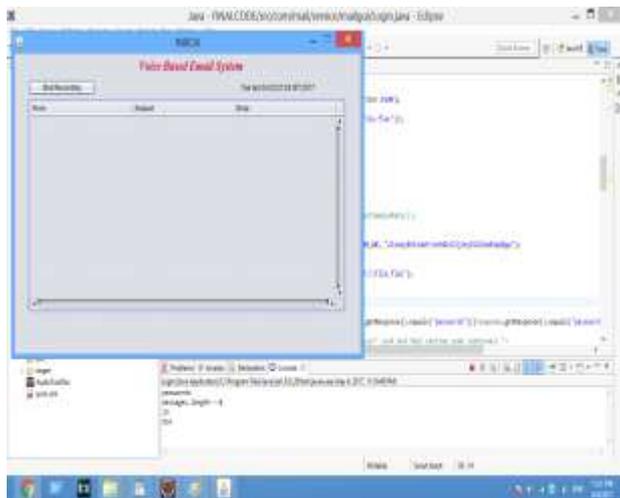
Compose mail:

These are not only the most used mail function but also a very important feature of mailing systems. Without compose, one cannot mail. Since the system is for visually challenged people and keyboard operations are completely avoided composing mail is totally done on voice input and mouse operations. No typed input will be required, as the system totally focuses on simple mouse click operations.. User can record the messages by clicking on the small mic option present in front of every box. Here, the STT technology gets used, that means speech gets converted to text.



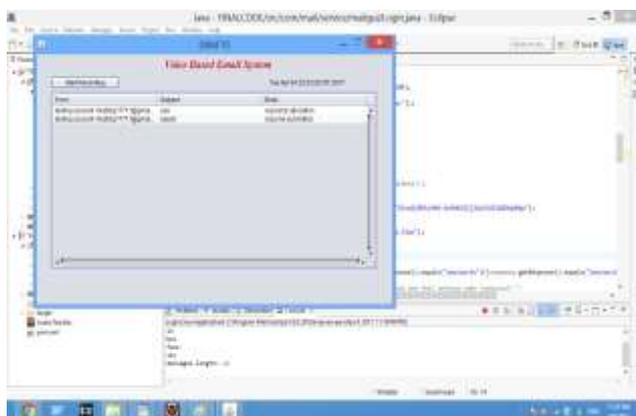
Inbox :

This option helps the user view all the mails that has been received to his/her account. The user can listen to mails Which he/she wants to listen? By clicking on authorize button the user can access to his/her inbox account.



Draft:

This is another module of the system through which user can able see the saved mails.



Scope:

For people who can see, e-mailing is not a big deal, but for people who are not blessed with gift of vision it postures a key concern because of its intersection with many vocational responsibilities. This voice based email system has great application as it is used by blind people as they can understand where they are. E.g. whenever cursor moves to any icon on the website say Register it will sound like "Register Button". There are many screen readers available. But people had to remember mouse clicks. Rather, this project will reduce this problem as mouse pointer would read out where he/she lies. This system focuses more on user friendliness of all types of persons including regular persons, visually compromised people as well as illiterate.

Advantages:

1. It gives appropriate detail to the user
2. It reads whole screen easily
3. Low cost
4. It helps blind people to listen the detail they required

Disadvantage:

1. Internet connection is required
2. Available only for Desktop User

V. CONCLUSION

It has feature of speech to text as well as text to speech with speech reader which makes designed system to be handled by visually impaired person as well as blind person. with the help of the MFCC SVM algorithms we train the dataset so that our module will get open after giving the voice input, major advantage is that we have to use very less keywords for the operations so that it is efficient for blind peoples

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