

Voice Based Email System for Blinds

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Introduction:

The most common mail services that we use in our day to day life cannot be used by visually challenged people 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.

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 screen readers available still these people face 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. A user is new to computer can therefore not use this service as they are not aware of the key locations.

The 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.

Objectives:

This project aims at developing an email system that will help even a naïve, visually impaired person to use the services for communication without previous training. The system does not require the use of keyboard. Instead it will work only on mouse operations and speech conversion to text. This system can also be used by any normal person, for instance, by someone who is unable to read.

Methodology:

The complete system is based on voice prompt and clicks events. When using this system the computer will be prompting the user to perform specific operations to avail respective services and if the user needs to access the respective services then he/she needs to perform that operation. One of the major advantages of this system is that for the most part, the user won't require the use of keyboard. All operations will be based on mouse click events. Now the question that arises is that how will the blind users find location of the mouse pointer. As particular location cannot be tracked by the blind user, therefore the user has to traverse the mouse throughout the screen from top to bottom and then left to right. This system will be perfectly accessible to all types of users as it is just based on simple mouse clicks and there is no need to remember keyboard shortcuts. Also because of this facility those who cannot read need not worry as they can listen to the prompting done by the system

and perform respective actions. The general design architecture of the system depicts the interaction of the subsystems in the system as shown in figure 1 below.

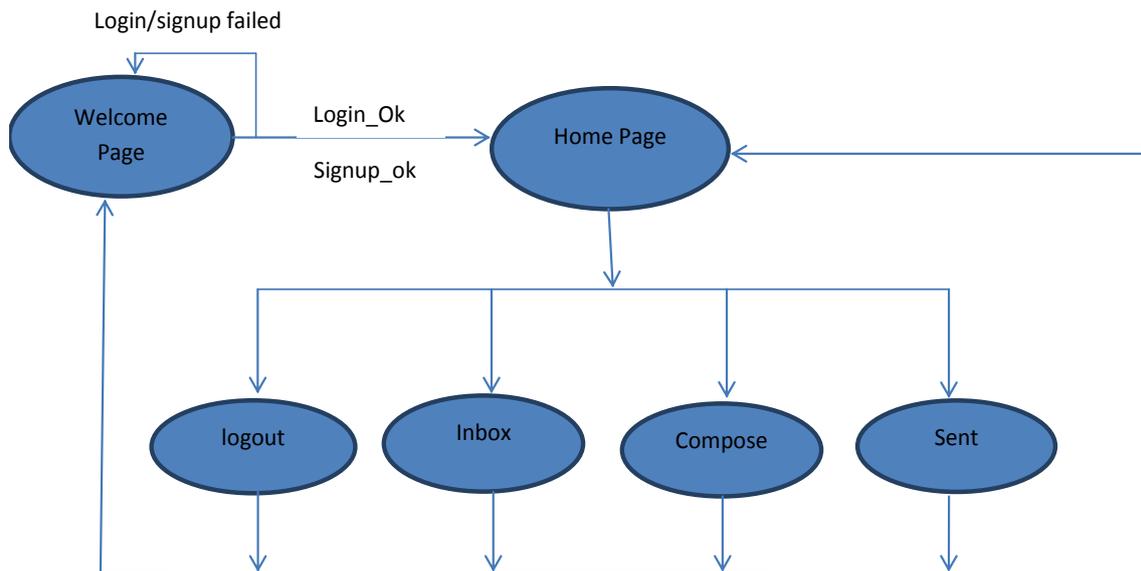


Figure 1: General design architecture

Results and Conclusions:

Once the user logs into his account, he will be directed to Home Page. Home Page consists of buttons for several different mail services like Inbox, Compose, Sent and Logout. If he wants to listen to the mails he has received, he needs to click on “Inbox” button, or if he wants to compose his message and send, he needs to click on “Compose” button, or if he wants to listen to the mail he has recently sent, he needs to click on “Sent” button. If the user wishes to logout of his account, then he can do the same by clicking on “Logout” button. Home page is shown in figure 2 below.



Figure 2. Home Page

The application is designed in such a way that it succeeds in implementing the basic features of mail service, based almost entirely on mouse clicks. Unlike current system, this system focuses more on user friendliness of all types of people including normal people visually impaired people as well as illiterate people.

Scope for future work:

Since this application is just a prototype, there is no integration with the web. We hope to achieve the same in future for real-time purposes.

