Messaging App for Visually Challenged People

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Abstract:

These days with advancement in technology blind people or visually challenged people are facing many problems to interact with the computer applications or mobile applications because many of these applications are mainly based on visual contact or prowess. So to dissolve these issues or to overcome these problems we have come up with a solution which uses the voice commands of the users to send or receive messages from other users. Using Artificial Intelligence we are changing text to speech and speech to text and using Kivy we built our application.

Keywords: *Artificial Intelligence, Text-to-Speech, Speech-to-Text, Kivy, Commands, Ip Address, Connection*.

1. Introduction:

Today in the digitized world computer has become an important part of everyone's life. We use computer to listen songs, read something, access information from the internet. But the information access and computer handling has to be done with the mouse, keyboard and by reading all the things Present on the screen and then deciding what to do. These processes has to be done with one's visual process - we need eye sight to handle the computer i.e.., for example, if we want to read news from the internet we have to first open a browser and then open a website to read news and then follow the links to read specific news. The decision making depends upon the eye sight and by reading everything that appears on the screen. So the computer and information age is not for the blind people.

The blind people cannot read the information and cannot view the mouse cursor to give command to the computer [1]. They cannot access their mail and cannot send a mail. Thus the computer becomes an impractical thing for the blind people and information retrieval is a tedious job. We are going to develop an information retrieval toolkit for the blind and then transform the information into a voice so that they can hear the message and access the mail easily. Through voice commands we are going to access the mail without the use of keyboard or mouse.
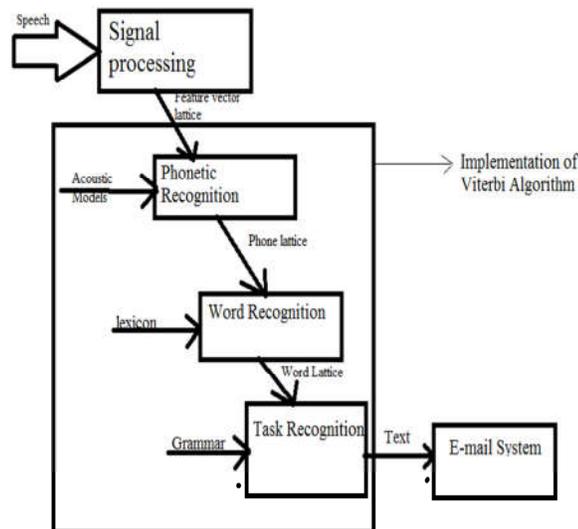
Figure 1: Diagramatic Stepwise Representation of Speech Recognition

2. Literature Review:

The Authors Pankaj Kumar Maurya , Prince Kumar , Mukesh Kumar, Pramod Nath [1] designed a system to the blind people through which blind people can sent and create drafts and deleting or trashing the mails using interactive voice response method and speech to text method.

The Authors Prof. Manasi Choche, Arti lanke, Pranjal Ingle, Harshada kanade[2] proposed a website application to blind people through which they can register and login to the application to use the mailing system and this website uses Interactive voice response method , speech to text and text to speech methods.

The Authors Hari Priya S L, Karthigasree S, Revathi K [3] stated a system for the blind people either as a desktop or mobile application through which blind people can send, compose, read mails using voice based artificial intelligence algorithm called Viterbi algorithm as a .Net application.

The Authors K.V.N. Sunitha, N. Kalyani [4] proposed a VMAIL system that helps visual impairment people to read, compose, and send mails in their native language through some functions that need some simple mouse clicks and menu selection as a HTML and Java Application.

The Authors C. Leena, P. Dhivya, S. Hemalatha , M. Keerthana [5] proposed An Enhanced Speech Based Vmail for Visually Impaired People and for some people who are not familiar of using mailing system through voice commands and some mouse clicks which need some visual process as a PC application.

The Authors Jagtap Nilesh , Pavan Alai , Chavhan Swapnil , Bendre M. R [6] stated an voice based mail system that is very helpful to the Visually Impaired People so that they can access mail and sms services without any cognitive load like visual processing and keyboard typing and mouse events.

3. Proposed System:

The presented system is an application that allows sending and receiving of messages via internet. We use artificial intelligence to benefit the blind to make use of the advanced technology for their growth and improvement. Our system is an application which makes use of artificial intelligence that makes it cost-effective and easy to maintain. Our System makes use of the Speech Recognition for voice detection and conversion.

Since it uses voices, it provides an interactive and easy to use GUI that can be used by a blind user even if they are not computer literate. After opening the application everyone has to give their details to register or login to the application and then they have to give command to receive or send messages and even they have to give command to stop the communication. So as our system mainly uses the voice commands it is easy to interact.

Our System or application is well interactive with the blind or visually challenged people as it does not require any visual process or visual contact because our application mainly and purely runs through voice commands only which make the system interactive to the visually challenged people to send, compose, read and write a mail. It overcomes the disadvantages of the existing system in that it is fully voice based and gives no work to the mouse or keyboard, since it uses voices.
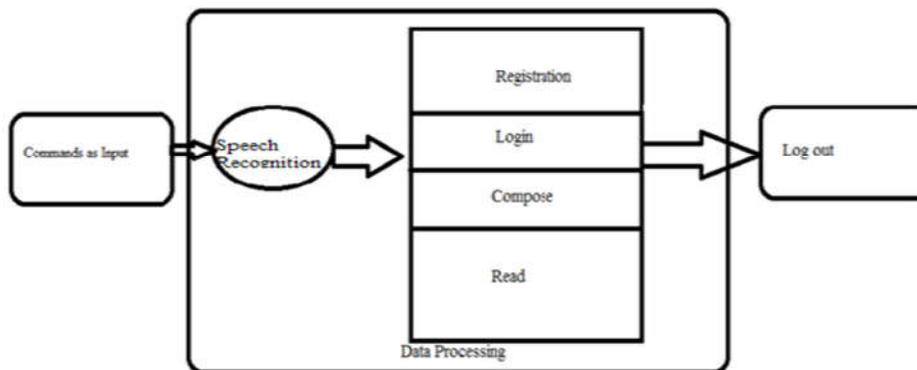

Figure 2: Architecture of Our Application

4. Working of Application:

Step 1:
Clicking the application or opening the application using google voice assistant.

Step 2:
Giving Commands: If Login or sign in is in the command then execution goes to step 4 else if register or sign up execution goes to step 3.

Step 3:
Registration screen will be opened and user has to give the details which will be stored in the database.

Step 4:
Login screen will be displayed and user has to give the required details like username and password, and these details are validated through the stored details that are stored earlier in the registration screen in the database.

Step 5:
After logging, the main screen will be displayed - here user will be asked to give commands like receive, send etc.., on receiving the command the speech recognizer will process the command and executes according to the command.
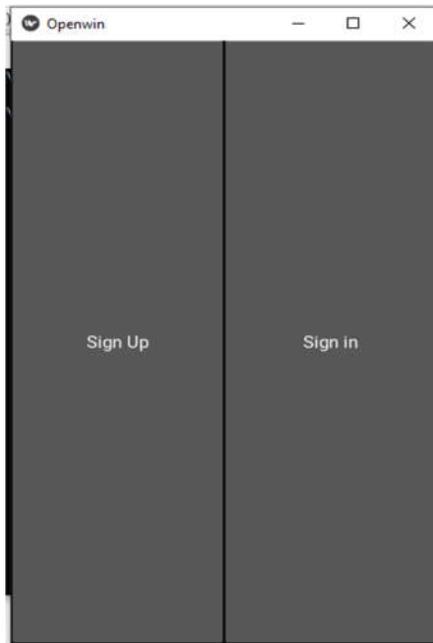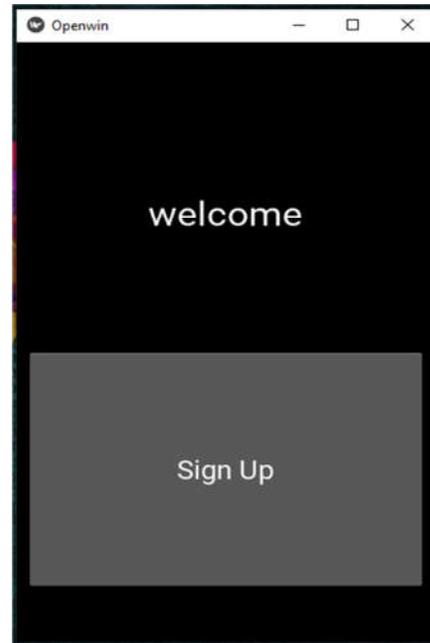

Figure 3: Home Screen
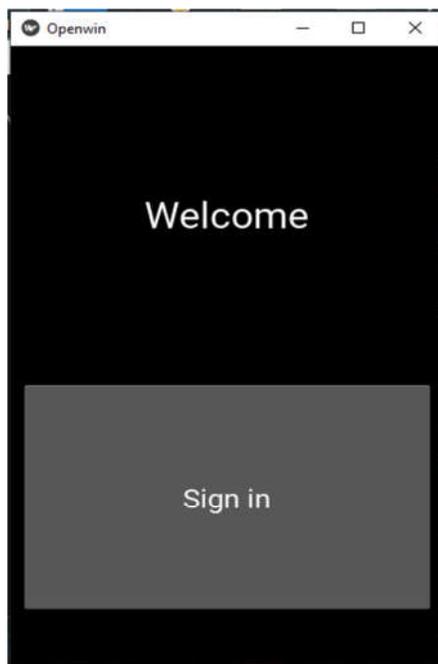

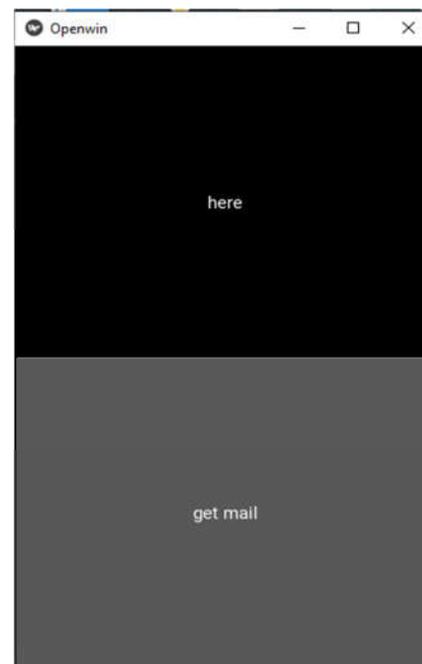Figure 4: Registration Screen

Figure 5: Login Screen

Figure 6: Main Screen

5. Conclusion:

All the stress taken by the visually challenged people has been taken off by a great extent as they have to compute with the visual prowess they had and we reduced that stress by implementing this project that takes voice as input and performs according to the commands given by the user and giving the voice outputs of the received messages. This application has been successfully computed and was also tested successfully by taking "test cases". The application is developed using Python, Kivy and Mysql database.

6. Future Enhancement:

With the system we proposed, we are trying to extend this to the maximum. The scope of the project can further be improved by in many ways. We add the future like adding files to send through voice commands and changing the font sizes and format of the text using the voice commands and so on as we want to decrease the stress felt by the visually challenged people to send or receive messages through their less visual contact.

7. References:

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