SRNK GOVT.DEGREE COLLEGE

BANSWADA 2019-20

NAAC ACCREDIATED WITH 'B' GRADE

DEPARTMENT OF COMPUTER

JIGNASA

STUDENT STUDY PROJECT

ON

"VOICE BASED E-MAIL SYSTEM FOR BLIND PEOPLE"

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ABSTRACT:

Internet has become one of the basic amenities for day-to-day living. Every human being is widely accessing the knowledge and information through internet. However, "visually challenged" 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 for the visually impaired across the globe in a wide way. Audio feedback based virtual environment like, the screen readers have helped "**visually challenged**" people to access internet applications immensely. We describe the Voicemail system architecture that can be used by a "**visually challenged**" person to access e-Mails easily and efficiently. The contribution made by this research has enabled the "visually challenged" people to send and receive voice based e-Mail messages in their native language with the help of a computer.

INTRODUCTION

Internet plays a vital role in today's world of communication. Today the world is running on the basis of internet. No work can be done without use of internet. Electronic mail i.e. email is the most important part in day to day life. But some of the people in today's world don't know how to make use of internet, some are blind or some are illiterate. So it goes very difficult to them when to live in this world of internet. Nowadays there are various technologies available in this world like screen readers, ASR, TTS, STT, etc. but these are not that much efficient for them. Around 39 million people are blind and 246 people have low vision and also 82 of people living with blindness are 50 aged and above. We have to make some internet facilities to them so they can use internet.

Therefore we came up with our project as voice based email system for blinds which will help a lot to visually impaired peoples and also illiterate peoples for sending their mails.

The users of this system don't need to remember any basic information about keyboard shortcuts as well as location of the keys. Simple mouse click operations are needed for functions making system easy to use for user of any age group. Our system provides location of where user is prompting through voice so that user doesn't have to worry about remembering which mouse click operation he/she wants to achieve

EXISTING SYSTEMS

Simple e-mail systems are available in which only voice recognition & text-to-speech systems are accessible. The voice based e-mail system proposed by T.Shabana, A.Anam, A.Rafiya, K.Aisha has made use of IVR, Speech to text converter, Mouse click event and Screen reader. Input is based on speech & mouse clicks to give output.

PROPOSED SYSTEM

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. In this system mainly three types of technologies are used namely: STT (Speech-to-text), : here whatever we speak is converted to text. Their will a small

icon ofmic on whose clicking the user had to speak and his/her speech will be converted to text format, which the naked people would see and read also.

TTS (text-to-speech) this, method is full opposite of STT. In this method, which converts the text format of the emails to synthesized speech?

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. The audio that would be pre-recorded and the system need to have large volumes. System architecture of proposed system is shown in fig.1

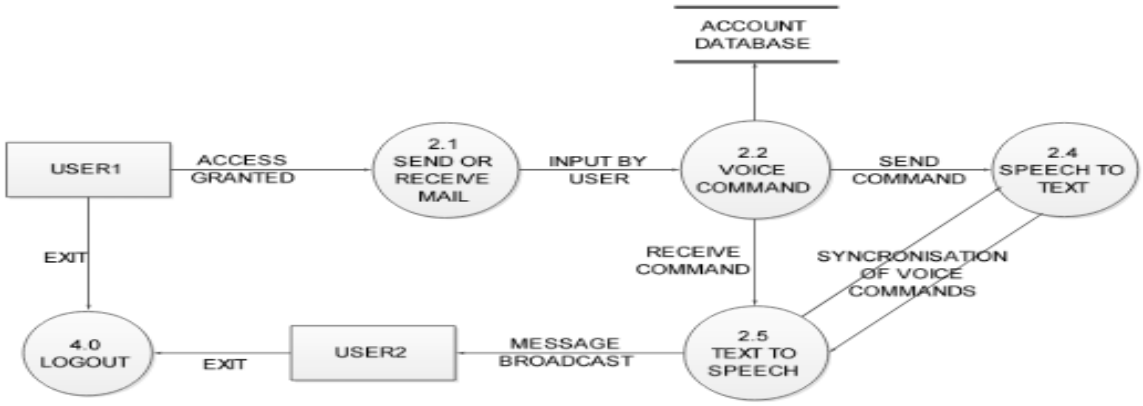

Fig1. *System architecture*

DESIGN

User Interface Design:

The user interface is designed using Adobe Dreamweaver CS3. The complete website focuses more on efficiency in understanding the IVR rather than the look and feel of the system as the system is primarily developed for the blind people to whom the look and feel won't be of that primary importance as the efficiency of understanding the prompting would be.

Database Design

Our system maintains a database for user validation and storing mails of the user. There are a total of five tables. The Inbox, Sent-Mail schemas will store all mails of the respective service that belongs to that particular user.

System Design

Our System is voice oriented. When user is over every legal space in website, it will receive voice messages where user is right now. If normal people don't want this feature they can turn it off. The system work flow is defined in DFD diagrams.

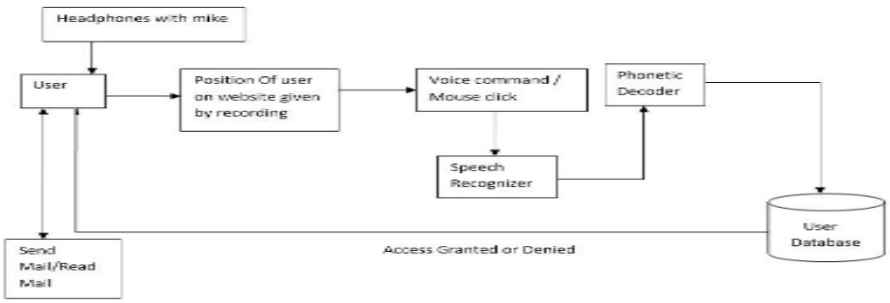

Fig2. *Level 2 DFD*

IMPLEMENTATION

The system developed by us includes following modules as follows:

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.

Fig3. *Registration Page*

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.

Fig4. *Login Page*

BMAIL APP PAGE

The user is directed to this page once login is done successfully. From this page now the user can perform operations that the user wishes to perform. The options available are:

- **Inbox:**
- **Compose:**

User will be guided with the help of IVR in which direction he has to move.

Also there is an icon for logout, which would read as "logout" when mouse goes or rolls over it. So, when the user wants can logout from the system

Fig5. *BMAIL APP 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.

Fig5. *Compose Page*

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.

Fig6. *Inbox Page*

CONTACT US:

There is also a contact us page build up in our project, thus enabling the users to suggest any opinion or they are free to ask any query they faced during the functioning of the product.

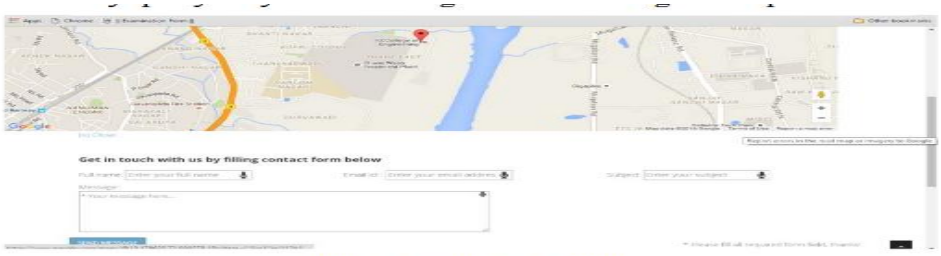

Fig7. *Contact Us Page*

FINDINGS:

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visually impaired and illiterate people. In this system mainly three types of technologies are used namely:

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CONCLUSION:

This e-mail system can be used by any user of any age group with ease of access. 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 "visually challenged" person.
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.

SUGGESTIONS:

1. 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.
2. This voice based email system has great application as it is used by visually challenged 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.
3. 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.

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