VOICE BASED EMAILING SYSTEM FOR VISUALLY IMPAIRED PEOPLE IN DJANGO

Akshat Jain*1, Apoorv Garg*2, Moulik Kaushik*3,

Tarushi Aggarwal*4, Dr. Sunil Kumar*5

*1,2,3,4,5Department Of Computer Science And Engineering, Meerut Institute Of

Engineering And Technology, Meerut, U.P, India.

ABSTRACT

The demand of the technology becomes very efficient. Also, the need of the communication is rapidly increasing as we are doing our work virtually so there is huge demand of communication resources. Using the email we can communicate internationally also. We can either communicate to the person directly or we can also forward group messages. The people who have proper vision can easily communicate by message typing and by emailing. But the people who are color blind or the people who are visually impaired find it difficult to communicate. There are many resources available for the people who suffered with any type of eye disorder. There is a huge amount of people who suffered with the visually impaired disease. The interface of this project is designed so attractively and with the vibrant colors s that color blind does not face any difficulty. Mail system is very important in day today life. The main objective for writing this paper is that we will build a voice based emailing website that will help the people who are suffering with any kind of disorder and it will the visually impaired people to use the technology that is used by ordinary people they can create the mail, they can send the mail, they can check the received mail, they can check the spam folder, they can easily login just by using their voice. Emailing is also a private process of communication as it includes the authenticity. They will give the command just by using their voice and follow the instructions for performing their desired function. In this there is no use of typing anything and even no use of any pointing device. This project uses google speech converter. As emailing system is very important so this project fulfil the need of the day and help the people a lot.

Keywords: Voice Based Email, Voice Assistance, Emailing System, Visually Impaired, Poor Visual, Django.

I.   INTRODUCTION

Vision-impaired people cannot use the normal mail methods that the whole world can use. To make this program perfect for vision-impaired people, various technologies provided to them such as display reader, automatic speech viewer, text to text, text to speech etc. This technology is of little use to those people as they have failed to provide it the correct answer as usual. The main purpose or objective of creating a voice-based email for vision-impaired people is to help access emails easily and effectively with just a click of a mouse. This app is based on the use of STS converters & TTS converters which helps in controlling the email accounts by using only voice & users will be able to read, send the mail & many others useful things to anyone. This system will notify the user through voice to perform a specific task & users will give reply according to their needs.

1.1 Terminologies:

So here the use is STT (speech-to-text) & TTS (text-to-speech technology).

The Speech-to-text transforms spoken homily into text which is helpful to compose emails easily.

The TTS technology gives voice output of the email which the users received through any sender, this module will read the subject & body through voice.

There are rumours that only visual person can access the internet & computer. It is not that the technologies used in internet are pointless for vision-impaired people. But it is wrong in some sense. There is one technology which helps vision-impaired people to send the mail as vision-impaired person will send the contents of email addresses to a third party & after that, the third party will send the received message to the person which vision-impaired person wants. Through this, we can solve that problem for blind people. The third party may be stored for a vision-impaired people & in some cases, the contents may be personalized in order to maintain the ethics of outcome. So, for the help of community development & people, this website came with the solution to

help someone with a vision problem which gives them the ability to send the mail to another person which just a mouse click. Only requirement is that they just need to talk about what they want to do & it doesn't need anything tangible.

This website helps vision-impaired people using speech to text voice response which enables to use the mail using only through voice. Through voice, everyone can send mail, read the mail, counting the unread mail & many other useful things. They have to only click the mouse & rest can be running through voice. This website will completely help the vision-impaired people in a free manner & simple manner. The use of mouse only makes it easy for vision-impaired people & they can easily use the system. They do not need to learn or remember basic knowledge about the location of alphabets & keys in computer.

II.   LITERATURE REVIEW

In paper [1], the voice based emailing system is put forward which is going to help the physically impaired people for accessing the email. The previous system that is already existed is not user friendly for the people who are blind. This system is put forward with the technique of the Google Speech Recognition, also it used the technique to convert the text into speech and speech into text. It also includes the mouse pointing technique where user can click anywhere on the screen and start operating the system. This first part is going to collect the whole information of the user through speech recognition that is going to give access to user login.

There are many type of screen readers available but there are lot issues that are present in them. Screen reader basically used for reading out all the content that is present on the internet and also if we have to perform some task then we have to take help from the keyboard and the mouse. So ,there is a problem occur because user can not see the keyboard and the mouse. They have to first get the knowledge of the keyboard get properly trained. A user who does not have prior knowledge of computer cannot use it for the work. But in our system there is no need to get the prior knowledge and even if the user can click anywhere and can use the proposed system.

In paper [3], system uses voice command, also used the system that is already exist as emailing system. In this complete system the numbers are converted into the text, the system is also implemented in the way that user can speak up the commands to perform various tasks. If the user need to use the service, it should necessary that the user command will work. It uses the protocol for sending the email from taking it from the server and uses the TCP/IP protocol. On the screen, the user can tap anywhere on the single screen and the system is going to start receiving all the commands. It can be a full sized button that can be tap at any point on the screen.

In paper [4], the structure is using basically three main technologies:

It convert the number to text.

* Speech to text
* Also the voice response.

In this if you visit the site for the first time then you have to register yourself using the voice based commands. And when you register yourself your voice is recorded and it is saved in the database. It is basically focus on the user centric approach and make it more efficient and more effective.

In the paper [5], this email system is put forward that is accessible for the person who is suffering from any eye disease or who are visually impaired or blind. This aggrement is working with the the Google Speech and convertor. It also used the Viterbi algorithm. This technology is basically proposed as it will get the guessed word for a word that is spoken by the people. This algorithm probably decrease the error and also it got reduce the number of spaces.

In the paper [6], a person who is blind and even illiterate can use it easily and they also worked for the interaction and its efficiency. In this proposed the system that is free from the use of the IVR technique , which uses the screen recorder technique. They also eliminates the use of the hardware device such as keyboard. The system is designed in a way that they use text converter and recognition and the voice commands. If you have to register in it you have to first verify your identity and then you can register yourself and then you can verify your email and for the authentication you have to provide the password. . Therefore the introduced system work cleanly and it works on the voice technique and commands. There is a drawback that it only works or host the gmail services so we can not access any other emailing service like the Yahoo, Hotmail etc.

[6] They give the various voting techniques and they are basically work on the computers and the mobile phones. This is the important thing found in the system.

1. Google mail aggrement messages , that is buyers mail.

2. RSS

3. Listen for music.

4. You can also read the books

In paper [7], This software system is basically designed for the person who is suffering from any type of eye disease or who are partially or complete blind. You can easily use the emailing system and the MMS function into your system using the operating system. The GUI of this system can be easily achieved for the people who are partially blind or the person who are completely blind can access it using the voice commands.. They also used the RSS feeds that works along the mail that simply distributes the list of all the headlines, also announce the new product. In this we can use other applications that will work together with the voice based commands.

In the paper [8], the author introduce a new term that is Tetra-Entry, a people who is not blind and the person who wants to access the email service. So, to overcome this they introduce the new theme of email activities for the blind people.

III.   METHODOLOGY

3.1 Module Description

Text-to-Speech Converter: Text to speech is a technique that is used to convert the text available to convert into speech to be spoken by computer/device. The system functionally generates an audio mp3 file and save it to the device locally and that file is played. After completion of the speech function, it is then removed immediately from the device. In this module, GTTS is used which is google text to speech module which automatically produces an audio file while accepting the text input along with language and speed parameter. This module will be used to read out emails in inbox for the user.

Speech-to-text Converter: Speech to Text is a technique that is used to convert the speech of the user into text and perform operations using that text. Speech recognition is used to recognize the audio/speech and covert it. The recognized text can be saved into a file or can be passed to show it on screen. In this module, duration is passed as a parameter to make the machine listen to the user audio upto a specific time like for 10 seconds or 15 seconds. Recognizer and its functions are used to make it possible. Converted text is used to login as well as to compose emails.

IMAP: It stands for Internet Message Access Protocol and it describes how to access messages in an email mailbox. It is an Internet standard protocol used by the user to collect email messages from a server over a TCP/IP connection. The received messages are in the gmail itself, IMAP helps the user to connect to gmail. When you use IMAP to read an email, you are not downloading the email actually on your device but you are reading it from the gmail server.

SMTP: Simple Mail Transfer Protocol. This module is imported for use through keyword "smtplib". It is helpful in connection to gmail. This protocol is needed to compose the emails and act as a connection to gmail helping in performing other functions also.

Speech Recognition: This functionality is about recognizing the speech and helps in conversion into text. It is used in speech to text module to perform its action.

3.2 PROPOSED SYSTEM

This system is proposed is introduce the email system for the visually challenged and impaired peoples with poor eyesight and helping the community to overcome the problem of accessing the original gmail system.

System will prompt the user to login his gmail account through entering his gmail id and password through voice only. The speech is then recognized by the system and then converted to text that further is used to pass on imap protocol to gain access to user account. If the given user id and password will be incorrect then user is prompted with login failed. Post success login of the account, page will be redirected to the menu section. Menu will include the options provided to the user to do with gmail account like composing an email, fetching an email from inbox, view the emails in sent, view the emails in the trash, and finally logout.

The program is fully voice activated and allows visually challenged peoples to send and receive emails efficiently using conversion of user's spoken voice into text and fetched text into voice.
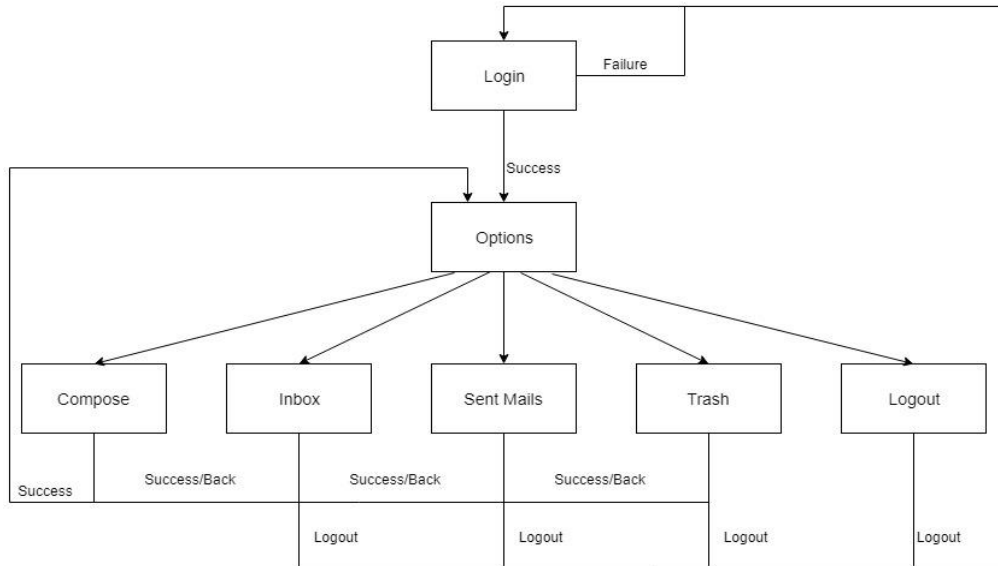

Figure 1: Proposed System Architecture
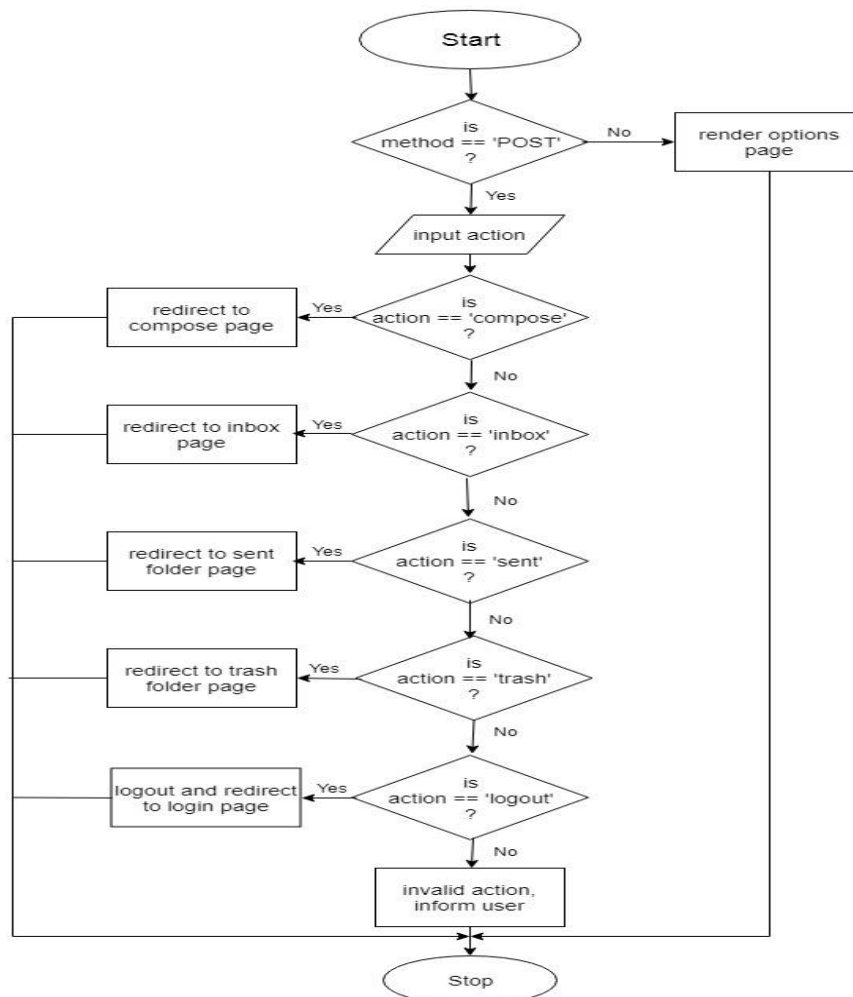
3.3 IMPLEMENTATION DETALS

Figure 2: Flow Chart Of Menu

Figure 2 explains the flow of the menu module:

- The user has to login their gmail account through entering username and password.
- Post successful login, page will be redirected to Menu page containing all the available options to choose.
- Device will ask for choice as a input through voice and speech recognition will came into act.
- The input will be recognized as an action to redirect to desired page.
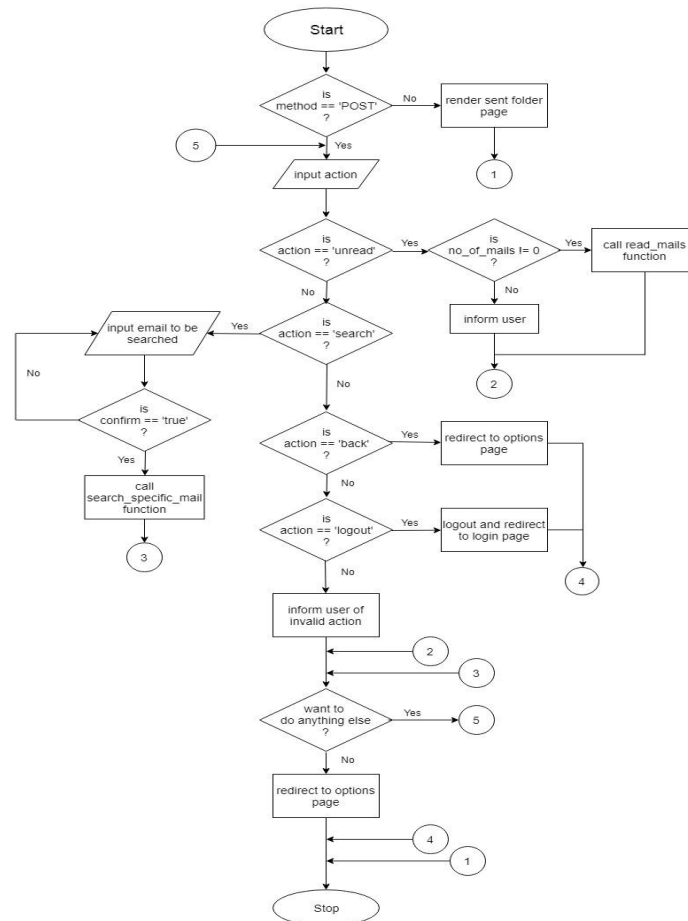- Menu page will consist of Compose, Inbox, Sent, Trash and Logout.

Figure 3: Flow Chart Of Inbox Module

Figure 3 explains the flow of the INBOX module:

- The user will be redirected to the inbox page after choosing the inbox option from the menu page.
- Inbox page contains the choices like Unread, Search, Back, Logout.
- User has to provide desired input through voice from four of the keywords.
- The unread option will check whether there is any unread mail, if found then will read it for the user.
- Search option will allow the user to search mails from a specific gmail id through giving input the desired gmail id.
- Back option will redirect the page back to the menu.
- Logout option will redirect the page to the Login screen and in case to perform other action user will have to login again.
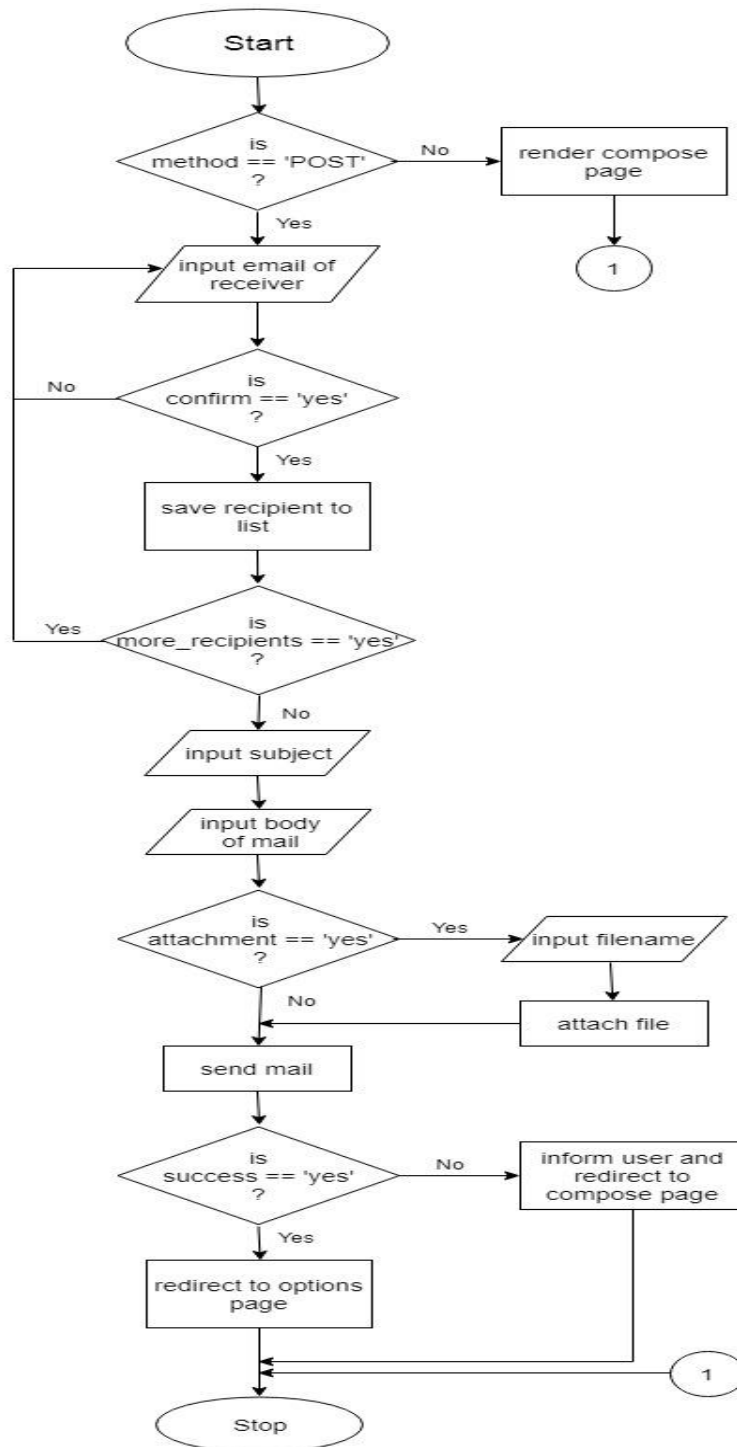
Figure 4: Flow Chart of Compose Module

Figure 4 explains the flow of the Compose module:

- User can compose emails and can send it to the desired gmail address.
- Compose page will render when compose option is selected form menu page.
- Compose mail consist of four fields including Reciepient's email address, Subject field, Body field and optional attachment field.
- All the required field will be given input by user's voice.
- An optional attachment requirement will be asked to user whether wants to attach or not.
- Attachment will be fetched from the device as a pre saved file and user has to input the file name to attach.
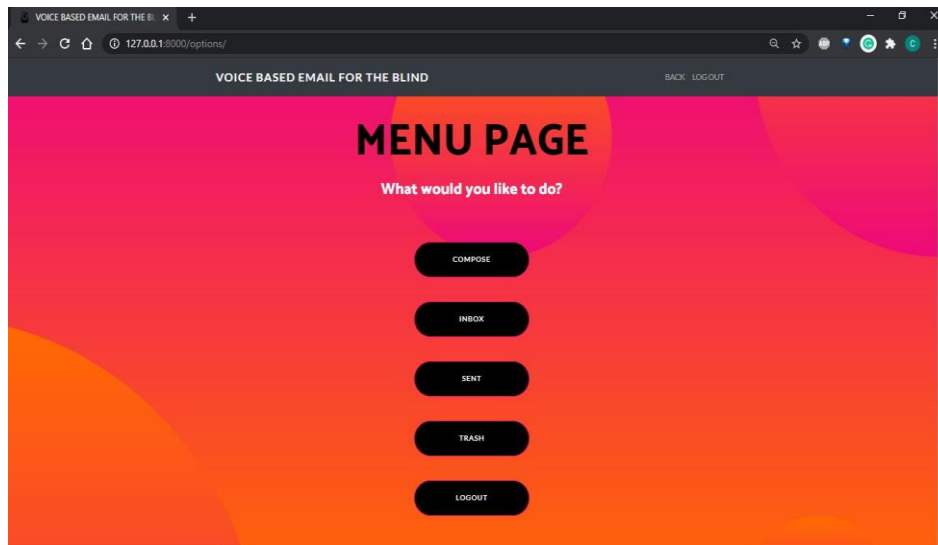
IV.　　RESULT DISCUSSION

Figure 5: Menu Page

This section presents the details of implementation based on the proposed system.

This will be the output for the MENU page provided to the user. User has to click anywhere on the screen to trigger the execution of speech. This feature is provided in case user need a break and does not want to continue use of system for a short period. After a click, execution will be triggered and following steps will be taken to accept an input from the user from options inbox, Compose, Trash, sent mails and logout.
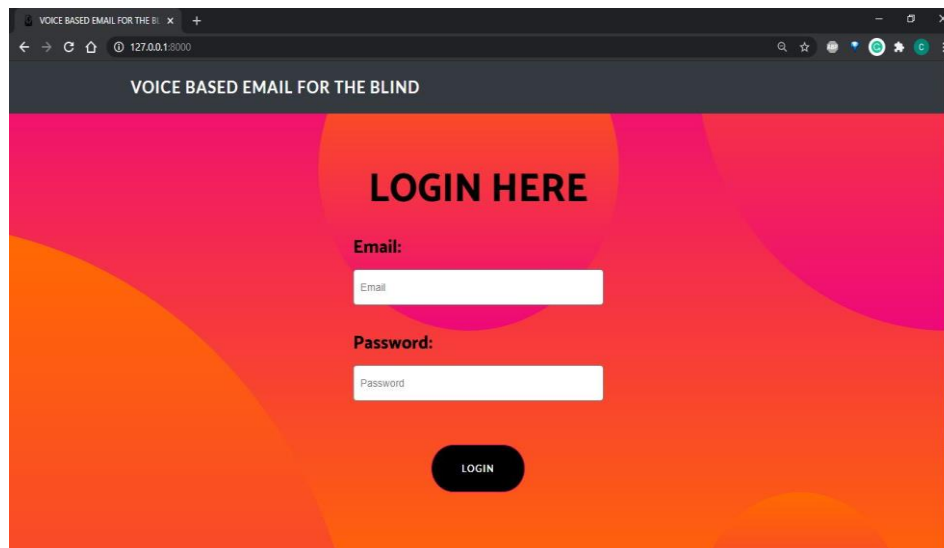

Figure 6: Login Page

This will be the output for the LOGIN page provided to the user. User has to click anywhere on the screen to trigger the execution of speech. This feature is provided in case user need a break and does not want to continue use of system for a short period. After a click, execution will be triggered and following steps will be taken to access the user gmail account, taking username and password respectively. Here registration page is not given as we are assuming an already registered user is trying to use our system.
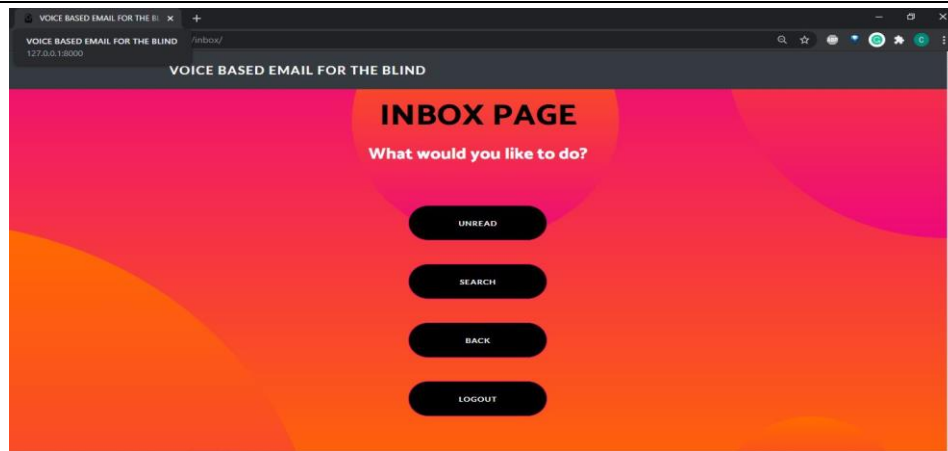
Figure 7: Inbox Page

This will be the output screen for INBOX page. Same as other, user has to click anywhere on the screen to trigger the execution. Options like reading of unread emails, searching a specific email from the inbox, go back to the menu page or can finally logout. Logging out will redirect the screen to Login page.
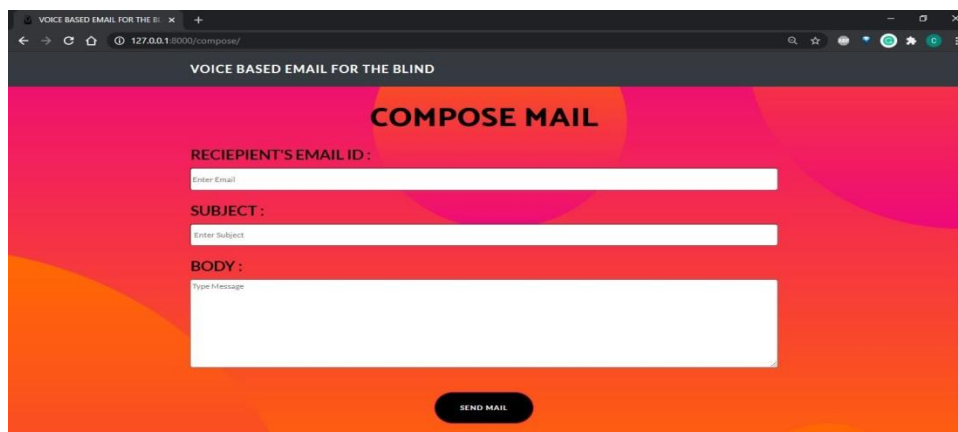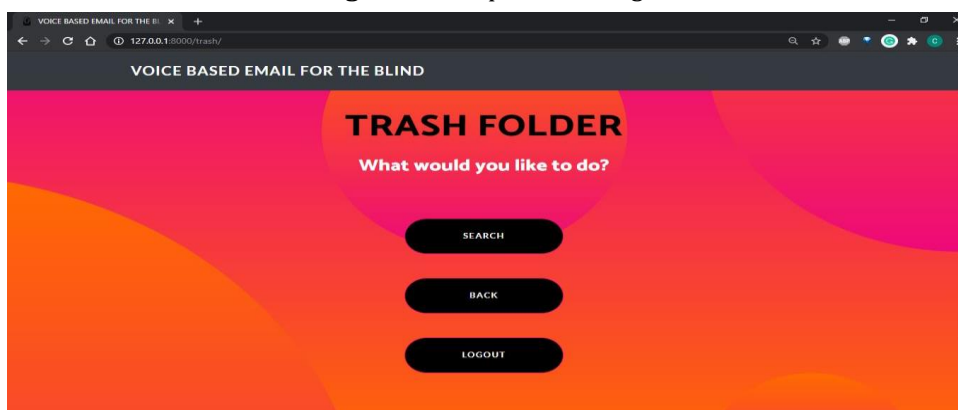

Figure 8: Compose Mail Page

Figure 9: Trash Folder Page

This will the output screen of Compose mail redirected page. Three fields will be the requirement here including Recipient email id, subject for the mail, and the body of the mail. Optional confirmation will be required whether to attach an attachment or not. Thus, we have created a desktop application that makes checking mails and composing mails easier for the visually impaired with the help of Speech-to-text and Text-to-speech converters. We overcame the limitation of creating a user based mailing system by building the application using Gmail's SMTP and POP3 clients. This will not only ensure user's data security but also give users a sense of secure mailing.

V.　CONCLUSION

This research paper is put forward as Voice based emailing system. This website is basically designed for the people who suffered with the color blindness and the people who are visually impaired. But the main idea behind this is, it can be used by both kind of people. This will help the people for sending the mail, receiving the mail. You only need to use the microphone and follow the instructions. As, if we compared it with our applications it will be going to help the visually impaired people a lot. It does not require any use of keyboard but it require a little bit use of mouse. So in the future we will try to make a application that is available without use of mouse. It can be accessed on the desktop and we also focus on the privacy of the system and make it fully authentic. Using this handicapped people can easily access mail and do their desired task. It overcome all the issues that are faced by the suffered people when they access any web based application or when they want to operate the emailing system. The person who is accessing this can follow the instructions easily as we only use simple speech. When the user wants to compose any email then they can speak up the email id and compose the email. For further carrying it out and make it more secure we can add biometric for the authentication purpose and make it more reliable and secure. The people who are visually suffered are more dependent on the other people and they have to take help from the other people. So if they use this website for their work then they are not dependent on any people they can easily access it and perform whatever they want to do. If there will be any small drawback occur in this project we can use it as in the future enhancement. For using this project they do not need any guidance and this can help them a lot.

VI.　REFERENCES

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