Voice Based Email System for Visually Impaired Person

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Abstract— Internet has made life of people so easy that people today have access to any information they want sitting at their home. One of the main fields that Internet has revolutionized is communication. And talking about communication over Internet, the first thing that comes in our mind is E-mail. E-mails are considered to be the most reliable way of communication over Internet, for sending or receiving some important information. But there is a special criterion for humans to access the Internet and the criteria is you must be able to see. You must be thinking that what sort of criteria is this, everyone with eyes can see. But there are also especially abled people in our society who are not gifted with what you have. Yes, there are some visually challenged people or blind people who cannot see things and thus cannot see the computer screen or keyboard. So, for the betterment of society and giving an equal status to such especially abled people we have come up with this project idea which provides the user with ability to send mails using voice commands without the need of keyboard or any other visual things. This project introduces the Voicemail system structural design that can be used by a blind person to access E-Mails easily. The involvement of research is helping blind individual to send and receive voice-based mails messages in their inhabitant language with the help of a computer.

Keywords: Email System, Interactive Voice Response (IVR), Simple Mail Transfer Protocol (SMTP), Text-to-Speech (TTS) and Speech-to-Text (STT) Conversion, Visually challenged people.

I. INTRODUCTION

We have seen that the introduction of Internet has revolutionized many fields. Internet has made life of people so easy that people today have access to any information they want easily. Communication is one of the main fields highly changed by Internet.

E-mails are the most dependable way of communication over Internet, for sending and receiving some important information. But there is a certain norm for humans to access the Internet and the norm is you must be able to see.

But there are also differently abled people in our society who are not gifted with what you have. There are some visually impaired people or blind people who can't see things and thus can't see the computer screen or keyboard.

A survey shows that there are more than 285 million visually challenged people around the globe. That is, around 285 million people are unaware of how to use Internet or E-mail. The only way by which a visually impaired person can send an E-mail is, they have to dictate the entire content of the mail to a third person (not visually challenged) and then the third person will compose the mail and send on the behalf of the visually impaired person. But this is not a correct way to deal with this problem. It is very less likely that every time a visually challenged person can find someone for help. Although for these reasons the especially abled people are criticized by our society.

II. EXISTING SYSTEM

In 2020, approximately 306 billion e-mails were sent and received every day worldwide. This figure is projected to increase to over 376 billion daily e-mails in 2025. Recent industry data shows that the trend towards mobile also holds true for e-mail: in December 2018, 43 percent of e-mail opens were via mobile. Desktop e-mail clients' open share had declined to 18 percent, and webmail accounted for 39 percent of opens. Based on the dominance of mobile, it is no surprise that the iPhone e-mail app was the most popular e-mail client, accounting for 29 percent of e-mail opens.

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

III. PROPOSED SYSTEM

The planned system is relying on a very fresh plan and obscurity just like the accessible mail systems. The foremost necessary facet that erstwhile unbroken in brain whereas developing the planned system's accessibility. The present systems don't give this much convenience. So, the systems present have a tendency to area unit developing is totally dissent from this system. In contrast to present system which emphasize more on user easiness of naive users, this system focusses more on user easiness of all kind of folks including naive folks visually disabled people as well as uneducated people.

The entire structure is based on IVR- interactive voice response. When using this system, the computer will prompt the client to perform precise operations to gain relevant services and if the client needs to way in the relevant services, then they need to perform that particular operation. One of the most important recompense of this system is that user will not need to use the keyboard. All operations will be based on voice proceeding.

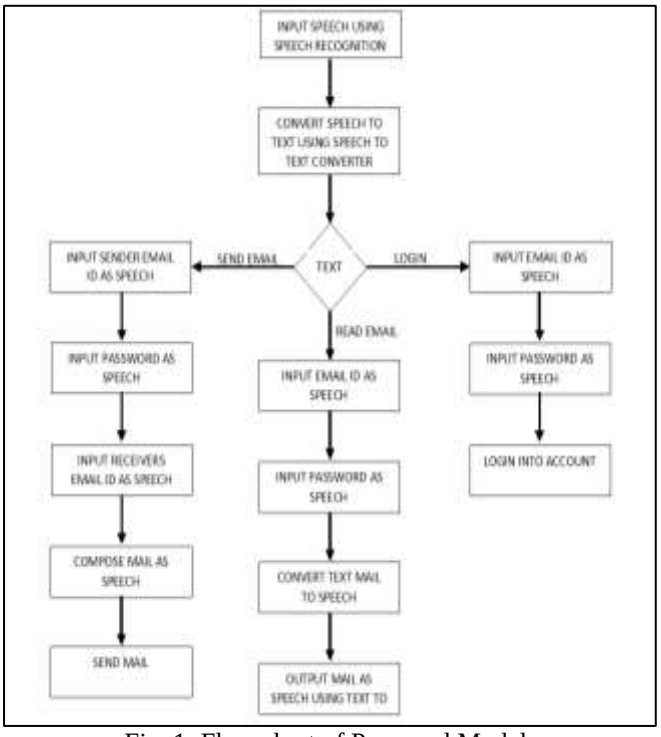

Fig. 1: Flow chart of Proposed Model

IV. SYSTEM DESIGN

- Phase-1: The tasks that can be performed using the program developed will be prompted using the voice prompt. In background python module pyttsx3 is used. for text to speech conversion. User will be asked to provide input for the following tasks written below. The input is expected in the form of speech by the user which will be converted to text by the Google speech application interface in python and accordingly tasks will be performed.
- Phase-2: In phase-2 of our program the user will give speech input to the system. This speech input will be handled by speech_recognition module. It is a python library which is used to handle the voice requests and it converts speech into text. Now after receiving input from the user speech to text converter will save the response in respective variables used in the script and based on their value it will further enter into respective modules.
- Phase-3: In this phase our program will handle the requests by the user. Based on the speech input given by the user it will launch the modules.
  - Login to G-mail account
  - Send E-mail through G-mail
  - Read E-mail through G-mail
  - Delete E-mails

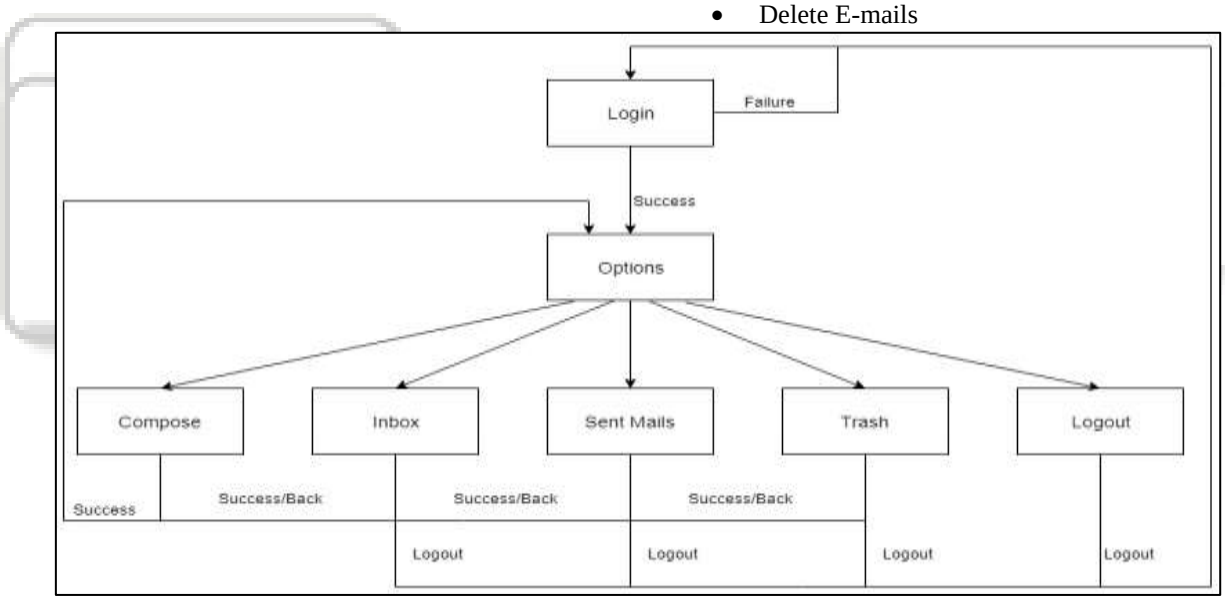

Fig. 2: Flowchart: System working Structure

V. SYSTEM REQUIREMENTS

A. *Software Requirements are:*

- Python:

1) Version: 2.7.13
2) Requirements: Windows (All Versions), Linux
3) Languages: Multiple languages
4) License: Open Source
5) Packages: Django, mp3play, pyaudio, wave

B. *Hardware Requirements are:*

- Mouse
- Headphone with microphone jack

VI. APPLICATION AND FUTURE SCOPE

This project is proposed for the betterment of society. This project aims to help the visually impaired people to be a part of growing digital India by using internet and also aims to make life of such people quite easy. Also, the success of this project will also encourage developers to build something more useful for visually impaired or illiterate people, who also deserves an equal standard in society.

VII. FUTURE SCOPE:

Voice could be extended to image attachments and other options such as indentation, fonts etc., that are available with normal E-Mail.

VIII. CONCLUSION

The project that we have projected is a system which will help the visually impaired people to access email services efficiently. This system will help in overcoming some drawbacks that were earlier faced by the blind people in accessing emails. We have eliminated the concept of using keyboard shortcuts along with screen readers which will help reducing the cognitive load of remembering keyboard shortcuts.

Also, any non-sophisticated user who does not know the position of keys on the keyboard need not bother as keyboard usage is eliminated. Instructions given by the IVR accordingly to get the respective services offered. Other than this the user might need to feed in information through voice inputs when specified. It is a observation that about 70% of total blind population across the world is present in INDIA. This project, describe the voice mail architecture used by blind people to access Email and multimedia functions of operating system easily and efficiently.

This architecture will also reduce cognitive load taken by blind to remember and type characters using keyboard. It also helps handicapped and illiterate people.

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