

Voice Mail System for Visually Impaired People

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Abstract- One of the most essential privileges for daily life is access to the internet. Everyone uses the internet for facts and information. Communication has gotten much easier in today's society as a result of the integration of communication technologies with the internet. Visually impaired persons, on the other hand, find it extremely difficult to use this technology because it requires visual perception. Despite the fact that many new advancements have been implemented to assist them in using computers more effectively, no naive user who is visually challenged can use this technology as effectively as a normal naive user because, unlike normal users, they require some practice in using the available technologies. This study discusses the structural design of a voice-mail system that may be utilized by a blind person to readily retrieve E-mails. This strategy allows them to communicate easily and generates a lot of stronger and independent workers. The system will not allow the user to utilize the keyboard or keypad, instead relying solely on clicks, swipes, and motions, as well as speech to text conversion. The involvement of research is assisting blind people in sending and receiving voice-based mail messages in their native language via a mobile phone. This framework will be beneficial to people who have other limitations in addition to being visually impaired

I. INTRODUCTION

We can argue that every business can be carried out with high precision and efficiency for a long period of time because technology is advancing extremely quickly, day by day, that is the complete life of the people, that light. With the advancement of technology, the existing linkages in the areas have reached a new level. Computers, smart phones] and tablets, as well as internet technologies, are becoming increasingly affordable and accessible to the general public. As a result, they are no longer just technologies, but have become an integral part of our everyday life. The people that live in this virtual environment come from all walks of life each with their own set of wants and a variety of options to choose from. The Internet has made communication so simple in our era that anyone can readily converse and distance is only a marginal distribution of communication. We must consider Internet communication; the first thought that springs to mind is talking with them via email. The mail is regarded the most dependable means to transmit vital information and an email, and it is used all over the world, but an individual must be able to see in order to have access to the Internet. Given that about 295 million individuals globally are projected to be visually impaired, it is vital to make internet communication tools accessible to them as well. Millions of blind and visually challenged people can't see the screen, so if your keyboard doesn't have internet connectivity, you might have to. As a result, we've devised this project in which we'll create a voice-based email system that will allow visually impaired persons who aren't familiar with computers to utilize email without difficulty. This system's users would not need to know any basic information about keyboard shortcuts or where the keys are placed. All features are based on simple mouse click actions, making this system incredibly simple to use for any sort of user. Furthermore, the user will not have to remember which mouse click operation he or she must conduct in order to access a specific service because the system would prompt them as to which click will supply them with which operations. This technology intends to provide an email system that will allow even visually challenged people to use communication services. The system is entirely based on interactive voice response, making it extremely user-friendly and productive. The main advantage of this program is that it eliminates the need for a keyboard; instead, the user will have to rely solely on voice and touchpad to react. As a result, we developed a voice-based email system for blind individuals, which will greatly assist visually impaired and illiterate people in sending emails.

II. LITERATURE REVIEW

This creates a realistic and natural way for the system to convey the message. The system uses interactive voice feedback to interact with users and does not use keywords. This is done through text-to-speech and automatic speech recognition. This is a program that gives the user email control over the voice rather than touch control. This uses voice feedback to communicate with the user. When a user interacts with the system it will generate action words automatically. In this program only mouse click operations are performed to start tasks. The current update is aimed at features that are accessible in high light and applications and applications, which include instruction, and access to smart phones as a visual aid for visual impairment and blindness. This has been an important milestone in the development of the latest mobile technology, which includes computer technology related to electronic information, and touch screen access.

Introduces an email system that works on the principle of voice control such as interactive voice response (IVR) that makes PC to communicate with people using their voice, and automatic speech recognition (ASR) also known as speech-to-text converter. Technology that allows people to apply their voices to communicate with a computer in a way similar to normal human conversation. Voice messaging engineering encourages blind people to access emails and other interactive media features as well as other functional framework functions. Here the author shows the design of a voice message used by blind people to access the emails and media features of an effective and efficient framework. The proposed activity aims to improve the application that recognizes the voice of the user and executes a given command through speech to text to compose email and text to speech to read emails. Uses the google web kite interface for editing. This app is designed to simplify the process of writing emails not only

to visually impaired people but everyone. Therefore, the additional skills required for typing type will no longer be required. The proposed program aims to develop a method that converts speech into text to compose email and converts text into speech to read emails.

This helps to understand various technologies such as word to voice converter, voice to word converter, braille touches and free text input and provides comparisons with different types of applications currently available. These access apps provide messaging access, drive, text input, and help with medication identification. Touch screen phones are inaccessible to visually impaired users due to the absence of any portable key and insufficient accessibility features.[6] This means developing smart watches that allow users to send emails to desired recipients using speech recognition. The user presses the disk to start the email program. The clock generates a response to indicate to the user that the application is open. The user then searches for the intended recipient's name and email content. The email is then sent using the send command. This program will not allow the user to use the keyboard, instead it will work on speech recognition.

III. OBJECTIVES

The major goal of this article is to create a voice-based emailing system that will enable visually impaired and illiterate persons to use everyday technologies like sending and receiving emails and accessing the internet. With the use of this method, blind users may easily log in by speaking. The primary goal of developing the sort of system outlined in the study is to increase the sense of community among those who are blind or visually impaired. Any user of any age may easily access our email system. In the future, this technology may be improved and used for additional services, such as texting and using voice commands to operate other applications, in addition to email.

IV. SCOPE OF THE PROJECT

The development of computer-based accessible solutions has given the blind and visually impaired many new opportunities all around the world. However, because utilizing them involves visual sight, visually impaired persons find it extremely difficult to utilize this equipment. The weaknesses of the current system are remedied by the proposed system. In contrast to the current systems, the proposed approach is voice command anchored. The availability of the suggested system is the most crucial factor that has been taken into consideration. Since the present system is completely different from the one we're designing.

Python is used to implement the requested task. Ideas focuses on providing basic features like create, read, transfer, and read emails as well as voice-based instructions. Unlike the existing system, which places a strong emphasis on user friendliness and compatibility. By using this system, the user is prompted to give the system certain commands, such as "compose the mail," "display the email id of the previous three unread messages," and "select one mail id" before reading the topic and content of that particular email id. Direct user system interaction is used. Our method is favourable to all sorts of individuals, whether they are normal, visually handicapped, or illiterate, whereas the current system concentrates more on normal people.

V. SYSTEM ARCHITECTURE

The following system architecture Figure shows the flow from the starting where the basic options are spoken out by the google-text-to-speech and the voice commands from the user is recognized and the command is executed, that is if the user wants to compose mail, then the subject and receiver mail id is asked and the message is sent to the receiver. Python has a mail module and many other modules which support the SMTP.

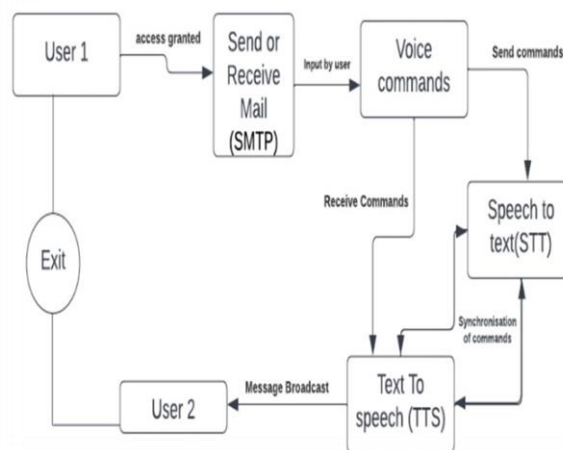


Figure – Architecture for Voice based email system for visually impaired

VI. INTERACTIVE VOICE RESPONSE

Interactive voice response (IVR) is a new invention enable Personal computer to connect with people using voice and keys. In transmit communication, IVR allows customer to communicate with the owner of the organization outline by using the console or

by voice, the management could be questioned about it by IVR interchange. IVR Frame can respond to it regarding recorded sound or power output to customers on the good path forward. IVR frames posted network measurement to deal with big amount of calls. Moreover it is used to make outgoing calls, such as IVR frameworks are better than most experienced drivers structures. The IVR framework can be used for physical purchases, balances and management, sales orders, resources, and weather conditions. Common misconceptions refers to a robotic worker as IVR. The terms say especially and means a variety of things in the general broadcast communication professionals. The reason for IVR taking load, procedure, and the final result, although a expert automated course calls. Touch tones decoding and acknowledgment speech are used specify how the visitor responds to voice commands. Touch tones are available installed with the phone keypad. Different developments combine the use of text-to-speech (TTS) to communicate compound amazing and powerful information, like weather information. IVR renaming is underway delivered to the auto parts of the sans hands work. TTS a the PC created an integrated, non-robotic expression the voice is usually connected to PCs. The words of truth makes it talk into pieces that are put together (connected) and smooth before the guest is played.

VII. SPEECH RECOGNITION

Voice recognition is a controlled pasture for diachrony that develops strategies as well progress to enable admission once translation of language transfer to text by pcs. It also known as "automatic voice recognition", "computer voice recognition", or simply "word-to-voice". Integrates understanding and learning from language courses, Some structures need "instruction" in which each speaker understands a single piece of information or vocabulary in outline. This frame dissipates as human a word and use it to recognize to acknowledge that person's speech, to fulfil it extended accuracy. Voice recognition or visual evidence of a speaker refers to identifying the speaker, rather than what it is seeing a speaker can improve the performance of to clarify speech in structured structures within the voice of a certain person or accustomed to it verify or examine the identity of the voice as a vital part of the safety process. Coming out of the perspective of new inventions, voice recognition has a lengthy record and some important gesture development. Majority the industry has made a profit out of it improves big facts and deep learning (dl). Progress it does not just confirm the overflow of education papers being distributed in the sector, however with much criticism around the world industry allocation array of dl strategies to plan and transfer structures.

VIII. ALGORITHM

A. *User Login*

The login module used in our project is based on face authentication and if there is any problem in face authentication then the system will automatically turn to voice based module where the user need to tell their email id and password .The login system in turn tells email id and password that the user told and asks whether it is correct or not , if the user says correct , the user can proceed with the further operations using the email id and password that he/she told. If the user says not correct, the login system again asks for the email id and password for the login purpose.

We used python to recognize voice using Speech recognition module and used Google text-to-speech module to convert text to speech. The front-end for the login page is developed using Tkinter. The recognized email id and password through speech will be shown in corresponding text boxes.

B. *Option Choosng*

After the successful login, the email system asks for the option whether the user wants to compose a mail or wants to check the inbox. To compose a mail user need to say 'compose'. To check Inbox user need to say 'inbox'.

C. *Composing Mail*

This module first asks for the "subject" of the mail to be sent and then asks the "content" of the mail to be sent. Then the user need to be respond with his/her voice. After giving voice inputs the system will read the voice inputs in order to check the given inputs are correct or not. The user have to respond with Yes/No if yes then the mail will be sent to the destination mail address if no then the user need to respond with the voice commands again.

D. *Checking Inbox*

To check the inbox the user just need to say 'inbox' then the system will show all mail list and will start reading the mails in a sequence. The user is asked to use a mail id among those stored mail ids. Then the user chosen mail id's values in the dictionary (i.e) The list which contains subject and content of the received mail is been read. For reading mechanism Google text-to speech (gTTs) is used.

E. *Text to Speech*

The proposed model converts human language text into human like speech. Python provides many application interface to do the same. The Google Text to Speech is one the most efficient method and this API is used in our system. It is very easy to use the tool and provides many built in function which is utilized to save the text. We don't need an external neural network to train the file into speech, instead we can use the API to complete the work easily.

In our system the text is converted into mp3 file, the language of the text is specified as the function parameters in the gttts function. The mp3 file is saved directly in the same directory as in the project file. The filename of the audio can be specified at the time of code specification.

This function converts the text given to that function to the .mp3 file. And plays the .mp3 file created. use this function first import the gTTs (Google text to- speech) module. This function converts the text given to that function to the .mp3 file. And plays the .mp3 file created.

F. *Speech to Text*

Speech recognition includes the technology and linguistic to identify the spoken words by the user and converts them into text. It helps the computer to understand the human language. The speech recognizer in python is used to convert the spoken words into

text and make a query and reply them with the required functions. The proposed system utilizes this feature to hear the voice commands from the visually impaired people to get the inputs and does the needed function accordingly by checking the condition mentioned in the code.

This module is almost used in all other modules. This function converts the speech recognized through system microphone to the text and stores it in the variable. If not recognized it would rise an exception.

The speech input is done using the external microphone. The external microphone is configured and even blue tooth devices can be used to take the input from the user. Since the environment around the user can be noisy, the program is allowed to adjust a second according to the threshold value of the external noise adjustments.

This function converts the speech recognized through system microphone to the text and stores it in the variable. If not recognized it would rise an exception.

IX. CONCLUSION

We have designed a method that will make it easier for those with visual impairments to use email services effectively. This approach may assist in overcoming several obstacles that blind people previously encountered while trying to access emails. Screen readers, which might lessen the cognitive strain of memorising tasks, have been removed. The major goal of developing the kind of system outlined in the study is to increase the sense of community among those who are blind in this little environment. The decision tree takes a distinct path since each operation has a distinct consequence, making the system considerably more compatible. People who are physically disabled will be able to access the world with the aid of our system. Anyone may use this email system with ease, regardless of their age group. It contains features of speech to content as well as content to speech with discourse reader, making planned structure manageable for those who are externally disabled as well. Now, visually challenged individuals may send and receive mail with ease using only voice instructions and very little keyboard or mouse use. It has helped eliminate the challenges that blind people experience and transformed them into more typical persons. It has eliminated the notion of deploying screen readers in addition to console shortcuts, which would have lessened the cognitive load associated with remembering console shortcuts. In the future, this programme can be improved and used for additional services in addition to email, such as messaging, taking notes, and using other voice-activated applications.

REFERENCES:

- [1] Jagtap Nilesh, Pawan Alai, Chavhan Swapnil and Bendre M.R.. "Voice Based System in Desktop and Mobile Devices for Blind People". In International Journal of Emerging Technology and Advanced Engineering (IJETA), 2014 on Pages 404-407 (Volume 4, issue 2).
- [2] Ummuhany sifa U., Nizar Banu P K , "Voice Based Search Engine and Web page Reader". In International Journal of Computational Engineering Research (IJCER). Pages 1-5.
- [3] Preeti Saini, Parneet Kaur "Automatic Speech Reorganization: A Review", International journal of Engineering Trends and Technology- Volume 4 Issue 2-2013.
- [4] Jisha Gopinath, Aravind S, Pooja Chandran, Saranya SS "Text-to-Speech Conversion System using OCR", International Journal of Emerging Technology and Advanced Engineering website: www.ijetae.com ISSN 2250-2459, ISO 9001:2008 certified journal, Volume 5, Issue 1, January 2015)
- [5] Mel Frequency Cepstral Coefficient(MFCC) tutorial
- [6] <http://practicalcryptography.com/miscellaneous/machine-learning/guidemel-frequency-cepstral-coefficients-mfccs/>
- [7] Speaker/Voice-Command Recognition in MATLAB <http://matlabrecognition-code.com>.