VOICE RECOGNITION EMAIL USING SMTP AND IMAP SERVER

A MINI PROJECT REPORT

Submitted by

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CERTIFICATE OF EVALUATION

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ABSTRACT

Email communication has become an integral part of our daily lives. However, typing emails can be time-consuming, inconvenient, and challenging for people with disabilities. To address these issues, this paper presents a voice-based email system that utilizes the IMAP and SMTP protocols, speech recognition, text-to-speech conversion, and Python libraries such as pyttxt, email, and send_email. The proposed system allows users to dictate the content of their emails using their voice, which is then converted to text using speech recognition technology. The text is then read back to the user through a text-to-speech conversion module, enabling them to verify the accuracy of their email's content. Additionally, the system allows users to retrieve their emails and have them read aloud through the text-to-speech conversion module. This feature makes the system more accessible to people with visual or physical impairments. Overall, the voice-based email system presented in this paper provides a more accessible and user-friendly approach to email communication, allowing users to compose, send, and retrieve their emails using their voice.

KEYWORDS: imap, smtp, pyttsx3, speech_recognition, send_email,

speech-to-text, text-to-speech, rfc822, ttls.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

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. Many people find it difficult to manage their emails on a daily basis, especially when they are on the go. Typing out emails on a mobile device can be time-consuming and tedious, and it may not be possible to do so when driving or engaging in other activities. This leads to delayed responses to important emails and an overall lack of productivity. And 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 has shown that there are more than 240 million visually impaired people around the globe. That is, around 240 million people are unaware of how to use Internet or E-mail. This system aims at developing an email system that will help even a visually impaired person to use the services for communication without previous training. The system is completely built on interactive voice response which will make it user-friendly and efficient to use. The entire project is based on voice interaction which means speech recognition and synthesis.

1.1. OVERVIEW

The voice-based email project aims to make email communication more accessible and convenient for users who have limited typing abilities or who prefer to use voice commands. The project utilizes speech recognition technology to allow users to dictate and send emails using their voice, making it an innovative solution to traditional email communication.

The system uses automatic speech recognition algorithms to convert the user's voice into text and includes features such as voice-based email retrieval and organization, allowing users to manage their emails using voice commands.

The voice-based email project has the potential to revolutionize the way people interact with email and make it more inclusive for individuals with disabilities or those who prefer to use voice commands for communication. It can also be used in various settings, such as in a workplace where users can send and manage emails hands-free, increasing productivity and efficiency.

1.2 PROBLEM STATEMENT

The traditional email communication system requires users to type out their messages, which can be challenging for individuals who have limited typing abilities, such as people with disabilities or the elderly. Additionally, many people prefer using voice commands to interact with technology for convenience and speed. The absence of a voice-based email system creates a barrier to access for these users.

The problem statement for the voice-based email project is to develop an innovative solution that makes email communication more accessible and convenient for users who have limited typing abilities or who prefer to use voice commands. The goal is to create a user-friendly interface that enables users to dictate and send emails using their voice while incorporating features such as voice-based email retrieval and organization, which will allow users to manage their emails efficiently.

1.3 EXISTING SYSTEM

Email is the most common way of communication around the world. There are more than 6 billion email accounts are there and this is still counting. But these services cannot be used by physically challenged people. This is because of the lack of facilities to know the procedure and use the system. There is no system to hear the actions of the email system. They cannot perform the required actions to have the desired interaction. And at the same time if the person has typing disabilities and to send and receive emails they become a major burden to them.

There are various screen readers available in the market, but they suffer some problems to encounter the system.Typing out emails on a mobile device can be time-consuming and tedious, and it may not be possible to do so when driving or engaging in other activities. This leads to delayed responses to important emails and an overall lack of productivity. Thus the available system doesn’t provide the efficient and comfortable way of sending and receiving emails.

1.3.1 MATERIALS AND METHODS

a. Libraries

Libraries are an essential part of programming, and for sending emails, we can use several libraries such as smtplib, email, email.message, and imaplib. Smtplib is a library that provides an interface to send emails via Simple Mail Transfer Protocol (SMTP). Speech_recognition is a library that can recognize speech from audio sources, which can be helpful for implementing voice-controlled applications. Pyttsx3 is a library that can convert text into speech, allowing us to generate audio output from our Python code. Email and email.message libraries can be used to create and send emails, while imaplib is a library that allows us to interact with IMAP servers to retrieve email messages.

b. Speech-to-Text Translation

One of the key components of a voice-based email system is the ability to accurately transcribe spoken words into text. In this section, we will discuss the methodology for implementing speech-to-text translation using the speech_recognition library. This may involve configuring the audio input settings, selecting the appropriate speech recognition engine, and applying pre-processing techniques such as noise reduction and speech enhancement.

c. Email Composition

Once the user's speech has been transcribed into text, the next step is to create the email message itself. This section will cover the methodology for composing email messages using the email.message library. This may involve setting the email subject, adding attachments, and formatting the email body.

d. Text-to-Speech Translation

In addition to speech-to-text translation, a voice-based email system may also need to convert text into speech for audio output. This section will discuss the methodology for implementing text-to-speech translation using the pyttsx3 library. This may involve selecting the appropriate voice type, setting audio output settings such as volume and speed, and configuring any additional speech synthesis parameters.

e. Email Sending

Once the email message has been composed, the next step is to send it to the intended recipient. This section will cover the methodology for sending email messages using the smtplib library. This may involve establishing a secure connection to the SMTP server, providing login credentials, and sending the email message.

f. Email Retrieval

In addition to sending email messages, a voice-based email system also needs to be able to retrieve incoming email messages. This section will cover the methodology for retrieving email messages using the imaplib library. This may involve connecting to the IMAP server, navigating the folder hierarchy, and fetching the email messages.

g. Email Filtering

To help users manage their email more efficiently, a voice-based email system may need to implement filtering capabilities. This may involve implementing custom filter rules or integrating with external email filtering services. Finally, Security is a critical consideration in any email system. This section will cover the methodology for implementing security features such as SSL/TLS encryption,spam filtering, and user authentication. It will also cover best practices for

securely storing credential details.

1.4 PROPOSED SYSTEM

There can be many proposed systems for the above problems. The present proposed system is completely based on the user's accessibility and easiness of the email system. It is completely useful for both types of people whether they are able or disable. The current system is not available for both types of people in the market. This system is focused on the user's behaviour and their perspective view. It is accessible to all types of people including illiterate people and even new users. The system uses IVR (interactive voice response) in order to interact with the users. It makes the system realistic and natural way to impart the messages and feelings.

When the users interact with the system it will automatically generate the voices to do the actions. There is a step by step process to perform the actions. The users have to hear the voices and respond for the desired actions. Once the system is started every step is voiced based the users have to wait and respond for the desired actions. The user can terminate the listening by using voice command "stop". The users do not have to worry to have the mouse operations. Every functionality is voiced based if one action is performed it conveys the message of completion to the users. Whether it is successful or not it will tell everything with reason.

The contribution made by this research has enabled the blind people and the one having typing disabilities to send and receive voice-based e-mail messages in their native language

with the help of a computer or a mobile device. Our proposed system GUI has been evaluated against the GUI of a traditional mail server. We found that our proposed architecture performs much better than that of the existing GUIS.

In conclusion, a voice-based email system can greatly enhance the user experience and productivity for individuals who struggle with traditional text-based communication. By leveraging voice recognition technology, users can compose and send emails hands-free, freeing up their hands for other tasks while also reducing the time and effort required to type out a message.

The system would also provide a more accessible and inclusive communication option for individuals with disabilities or language barriers, as they can dictate their message in their native language or using assistive technology.

Furthermore, it is important to consider the potential challenges of voice recognition technology, such as inaccuracies in transcription and the need for a quiet environment. These challenges can be mitigated through continuous improvement and refinement of the underlying technology.

Overall, a voice-based email system has the potential to revolutionize the way we communicate, making it more accessible, efficient, and convenient for users across diverse backgrounds and needs.

CHAPTER 2

LITERATURE REVIEW

R.Jeyanthi and K.R.Rajeswari et al.(2015) [1],The paper provides a comprehensive review of the existing literature on voice-based email systems. It covers various aspects such as the history of voice-based email systems, the benefits and limitations of these systems, the technology used in implementing them, and their potential applications. The authors have also discussed the various challenges that need to be addressed in order to improve the usability and functionality of voice-based email systems. The paper is a valuable resource for researchers and practitioners who are interested in developing and implementing voice-based email systems, as it provides insights into the current state-of-the-art and identifies areas for future research.

G. Mahadevan and M. Jayasree et al.(2015) [2],The paper "Voice-Based Email for the Visually Impaired: A Literature Review" focuses on the use of voice-based email systems for visually impaired users. The authors provide a detailed review of the existing literature on this topic and discuss the challenges faced by visually impaired users in accessing email through traditional interfaces. They highlight the benefits of using voice-based email systems, such as improved accessibility and independence, and discuss the various technologies used to develop these systems. The paper also presents case studies of voice-based email systems developed

specifically for visually impaired users and discusses their effectiveness in improving accessibility and user satisfaction.

V. Sharma and M. M. Sharma et al.(2016) [3], The paper "Voice-Based Email Systems: A Comprehensive Survey" provides a comprehensive survey of the existing research on voice-based email systems. The authors review the various technologies used in these systems, such as speech recognition, natural language processing, and text-to-speech conversion. They also discuss the benefits of using voice-based email systems, such as their ease of use and potential to improve productivity. The paper also addresses the challenges associated with these systems, such as the accuracy of speech recognition technology and privacy concerns. Finally, the authors highlight the potential applications of voice-based email systems in various domains and emphasize the need for further research to improve their accuracy and usability.

A. B. Khandakar and J. Islam et al.(2017) [4], The paper "Voice-Based Email Systems: A Review of the Literature" presents a comprehensive review of the existing research on voice-based email systems. The authors discuss the benefits of these systems, such as their potential to improve productivity and accessibility. They also address the challenges associated with these systems, such as the accuracy of speech recognition technology and privacy concerns. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. Finally, the authors highlight the potential applications of voice-based email systems in various domains and emphasize the need

for further research to improve their accuracy and usability.

M. C. Sharma and A. Verma et al.(2018) [5], The paper "A Review of Voice-Based Email Systems and Their Applications" presents a comprehensive review of the existing research on voice-based email systems and their potential applications. The authors discuss the benefits of these systems, such as their ease of use and potential to improve productivity. They also address the challenges associated with these systems, such as the accuracy of speech recognition technology and privacy concerns. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. Finally, the authors highlight the potential applications of voice-based email systems in various domains, including healthcare, education, and business.

M. R. Hasan and M. A. Hossain et al.(2018) [6], The paper "A Systematic Review of Voice-Based Email Systems" provides a comprehensive and systematic review of the existing research on voice-based email systems. The authors discuss the benefits and challenges associated with these systems and review the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. The paper also highlights the potential applications of voice-based email systems in various domains, such as healthcare and education. Finally, the authors identify gaps in the existing research and suggest avenues for future research to improve the accuracy and usability of voice-based email systems.

N. A. Khan and T. Ahmad et al.(2019) [7], The paper "Voice-Based Email for People with Disabilities: A Review" presents a comprehensive review of the existing research on voice-based email systems designed for people with disabilities. The authors discuss the benefits of these systems, such as their potential to improve accessibility and independence for people with disabilities. They also address the challenges associated with these systems, such as the accuracy of speech recognition technology and privacy concerns. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. Finally, the authors highlight the potential applications of voice-based email systems in various domains and suggest avenues for future research.

H. A. Al-Bdour and M. Al-Saidi et al.(2019) [8], The paper "A Systematic Literature Review of Voice-Based Email Systems" provides a comprehensive and systematic review of the existing research on voice-based email systems. The authors discuss the benefits of these systems, such as their potential to improve accessibility and productivity. They also address the challenges associated with these systems, such as the accuracy of speech recognition technology and privacy concerns. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. Finally, the authors highlight the potential applications of voice-based email systems in various domains, and identify gaps in the existing research for future

investigation.

S. S. Patil and S. R. Kulkarni et al.(2019) [9], The paper "A Review on Voice-Based Email Systems" presents a comprehensive review of the existing research on voice-based email systems. The authors discuss the benefits and challenges associated with these systems and review the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. The paper also highlights the potential applications of voice-based email systems in various domains, such as healthcare and education. Finally, the authors identify gaps in the existing research and suggest avenues for future research to improve the accuracy and usability of voice-based email systems.

S. S. Pimple and K. S. Kene et al.(2020) [10], The paper "A Comprehensive Survey of Voice-Based Email Systems" provides a comprehensive survey of the existing research on voice-based email systems. The authors discuss the benefits of these systems, such as their potential to improve accessibility and productivity. They also address the challenges associated with these systems, such as the accuracy of speech recognition technology and privacy concerns. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. Finally, the authors highlight the potential applications of voice-based email systems in various domains and suggest avenues for future research.

A.A.A. Alkhuzai and N. Alshammari et al.(2020) [11], The paper "Voice-Based Email Systems: A Systematic

Literature Review" presents a systematic literature review of existing research on voice-based email systems. The authors discuss the benefits and challenges associated with these systems and review the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. The paper also highlights the potential applications of voice-based email systems in various domains, such as healthcare and education. Finally, the authors identify gaps in the existing research and suggest avenues for future research to improve the accuracy and usability of voice-based email systems.

A.N.A. Alshaikh and S.A. Basuni et al.(2020) [12], The paper "A Review on Voice-Based Email Systems for Business and Enterprise Communication" provides a review of the existing research on voice-based email systems in the context of business and enterprise communication. The authors discuss the benefits of these systems for improving productivity and accessibility in the workplace. They also address the challenges associated with these systems, such as the need for reliable and accurate speech recognition technology. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing, and highlights the potential applications of these systems in various business and enterprise domains. Finally, the authors suggest avenues for future research to improve the usability and effectiveness of these systems.

A.M. Al-Hattami and S.M. Al-Mahbashi et al.(2021) [13], The paper "Voice-Based Email Systems: A Literature

Review" presents a comprehensive review of the existing research on voice-based email systems. The authors discuss the importance of these systems for individuals with disabilities and for improving productivity and accessibility in the workplace. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing. The authors also address the challenges associated with these systems, such as the need for accurate and reliable speech recognition technology. Finally, the authors suggest areas for future research to improve the usability and effectiveness of voice-based email systems.

M. Alotaibi and A. Alamri et al.(2021) [14],The paper "A Review on Voice-Based Email Systems for Health Care Services" provides a comprehensive review of the use of voice-based email systems in the healthcare industry. The authors highlight the potential benefits of these systems, including improving patient communication and enhancing the efficiency of healthcare providers. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing, and provides examples of their applications in healthcare settings. The authors also address the challenges associated with these systems, such as privacy and security concerns. Finally, the authors suggest areas for future research to improve the adoption and effectiveness of voice-based email systems in healthcare services.

A. S. Alqahtani and F. Alsolami et al.(2021) [15],The paper "Voice-Based Email Systems: A Systematic Review of

the Literature" provides a comprehensive review of the literature on voice-based email systems. The authors highlight the potential benefits of these systems, including improving accessibility and enhancing the efficiency of communication. The paper reviews the various techniques and technologies used in voice-based email systems, such as speech recognition and natural language processing, and provides examples of their applications in different settings. The authors also address the challenges associated with these systems, such as accuracy and user satisfaction. Finally, the authors suggest areas for future research to improve the adoption and effectiveness of voice-based email systems.

S.G. Shinde, S.S. Rathod, and S.S. Salve et al.(2022) [16] ,The paper presents a review of recent developments in voice-based email systems for the visually impaired, focusing on the use of machine learning techniques.The authors discuss various machine learning algorithms and techniques, such as deep learning and natural language processing, that have been used to improve the accuracy and efficiency of voice-based email systems. They also highlight the importance of designing user-friendly interfaces and incorporating feedback mechanisms to ensure the usability and effectiveness of these systems.Overall, the paper provides valuable insights into the latest advancements in voice-based email systems, particularly in the context of serving the needs of visually impaired users. It underscores the potential of machine learning techniques to enhance the accessibility and inclusivity of these systems.

CHAPTER 3

SYSTEM DESIGN

In this chapter, the various UML diagrams for the Voice Recognition Email using SMTP Server is represented and the various functionalities are explained.

3.1 UNIFIED MODELING LANGUAGE

Unified Modeling language (UML) is a standardized modeling language enabling developers to specify, visualize, construct and document artifacts of a software system. Thus, UML makes these artifacts scalable, secure and robust in execution. It uses graphic notation to create visual models of software systems. UML is designed to enable users to develop an expressive, ready to use visual modeling language. In addition, it supports high-level development concepts such as frameworks, patterns and collaborations. Some of the UML diagrams are discussed.

3.1.1 Use Case Diagram of Voice Recognition Email using SMTP and IMAP Server

Use case diagrams are considered for high level requirement analysis ofa system. So when the requirements of a system are analyzed the functionalities are captured in use cases. So it can be said that uses cases are nothing but the system functionalities written in an organized manner. Now the second things which are relevant to the use cases are the actors.

Actors can be defined as something that interacts with

the system. The actors can be human user,some internal applications or may be some external applications.

Use case diagrams are used to gather the requirements of a system including internal and external influences. These requirements are mostly design requirements.

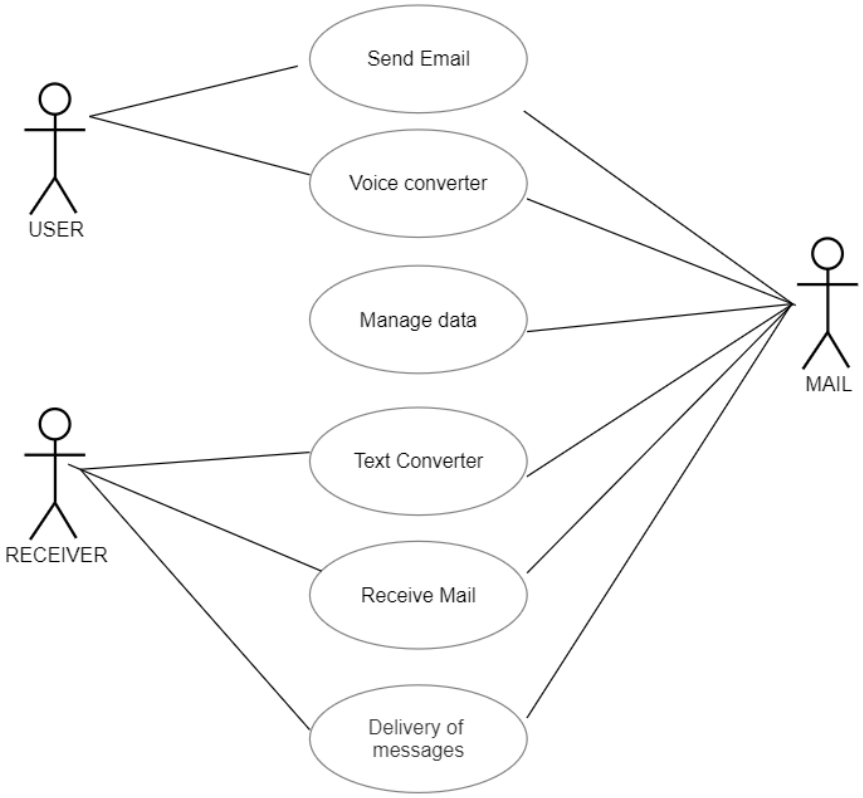

Figure 3.1 Usecase Diagram of Voice Recognition Email Using SMTP an IMAP Server

Figure 3.1 shows that the functionalities are to be represented as a use case in therepresentation. Each and every use case is a function in which the user or the server can have the access on it. The names of the use cases are given in such a way that the functionalities are preformed, because the main purpose of the functionalities is to identify the requirements. To

add some extra notes that should be clarified to the user, the notes kind of structure is added to the use case diagram. Only the main relationships between the actors and the functionalities are shown because all the representation may collapse the diagram.

3.1.2 Class Diagram of Voice Recognition Email Using SMTP and IMAP Server

Figure 3.2 shows that class diagram is basically a graphical representation of the static view of the system and represents different aspects of the application. So a collection of class diagrams represent the whole system. Thename of the class diagram should be meaningful to describe the aspect of the system.

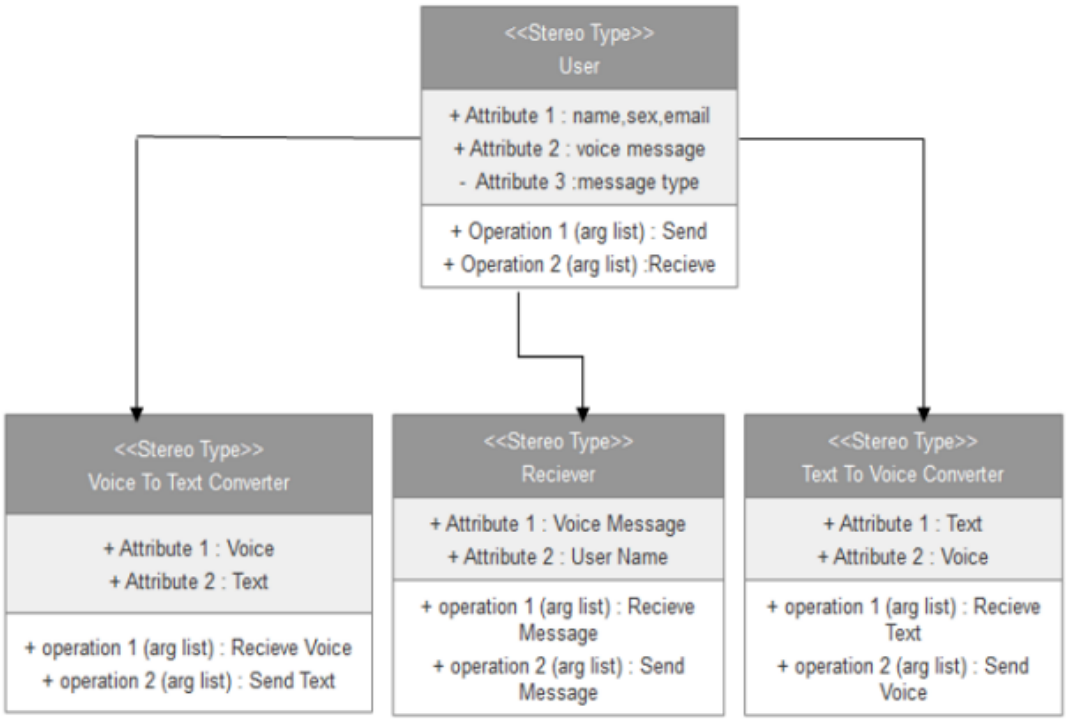

Figure 3.2 Class Diagram of Voice Recognition Email Using SMTP an IMAP Server

Each element and their relationships should be identified in advance responsibility(attributes and methods) of each class should be clearly identified.

3.13 Sequence Diagram of Voice Recognition Email Using SMTP and IMAP Server

Figure3.3 shows that UML sequence diagrams model the flowof logic within the system in a visual manner, enabling to both document and validate the logic, and are commonly used for both analysis and design purposes.

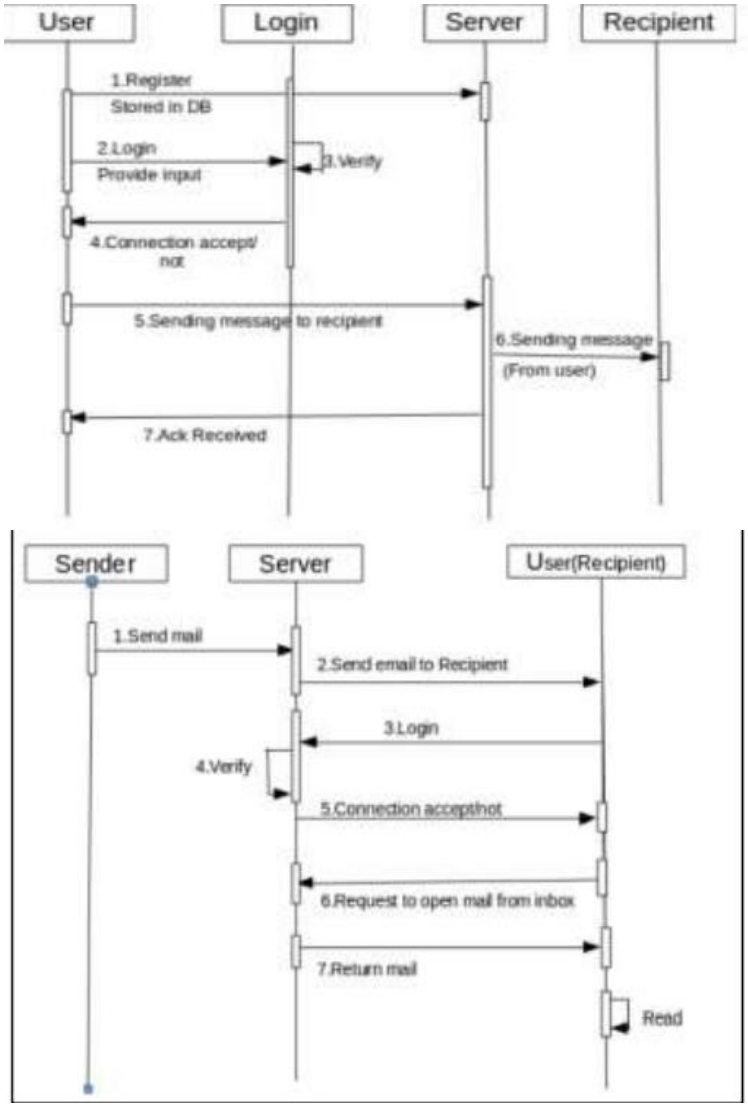

Figure 3.3 Sequence Diagram of Voice Recognition Email Using SMTP an IMAP Server

The various actions that take place in the application in the correct sequence are shown in Figure 3.3 Sequence diagrams are the most popular UML for dynamic model.

3.14 Activity Diagram of Voice Recognition Email Using SMTP and IMAP Server

Figure 3.4 shows that activity is a particular operation of the system. Activity diagram is suitable for modeling the activity flow of the system.

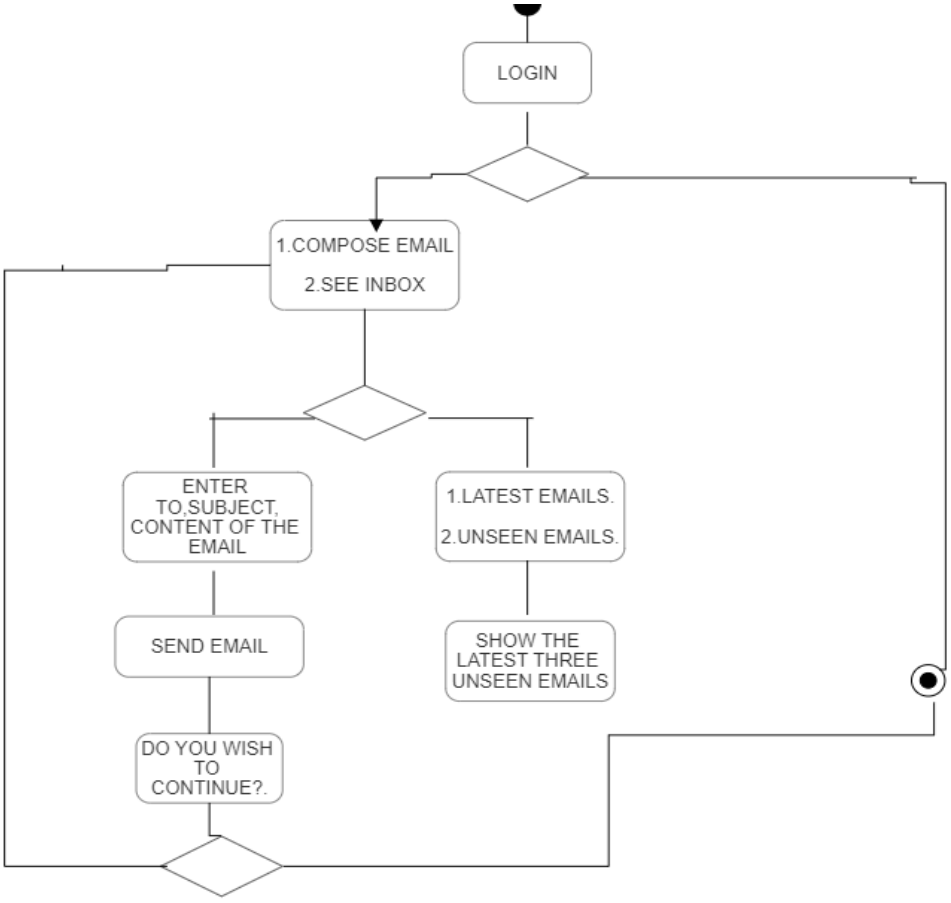

Figure 3.4 Activity Diagram of Voice Recognition Email Using SMTP and IMAP Server

Activity diagrams are not only used for visualizing dynamic nature of a system but they are also used to construct the executable system by using forward and reverse engineering techniques.

The only missing thing in activity diagram is the message part. An application can have multiple systems. Activity diagram also captures these systems and describes the flow from one system to another.

This specific usage is not available in other diagrams. These systems canbe database, external queues, or any other system.

Activity diagram is suitable for modeling the activity flow of the system. It does not show any message flow from one activity to another. Activity diagram is sometime considered as the flow chart.

Although the diagrams looks like a flow chart but it is not. It shows different flow like parallel, branched, concurrent and single. The figure 3.4 shows the activity diagram of the developed application.

In our project, activity diagram flow starts from collecting datasets, cleaning and exploration, and training using supervised machine learning algorithm and testing using the user input.

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CHAPTER 4

SYSTEM ARCHITECTURE

In this chapter, the System Architecture for the Voice Recognition Email using SMTP server is represented and the modules are explained.

4.1 ARCHITECTURE DIAGRAM

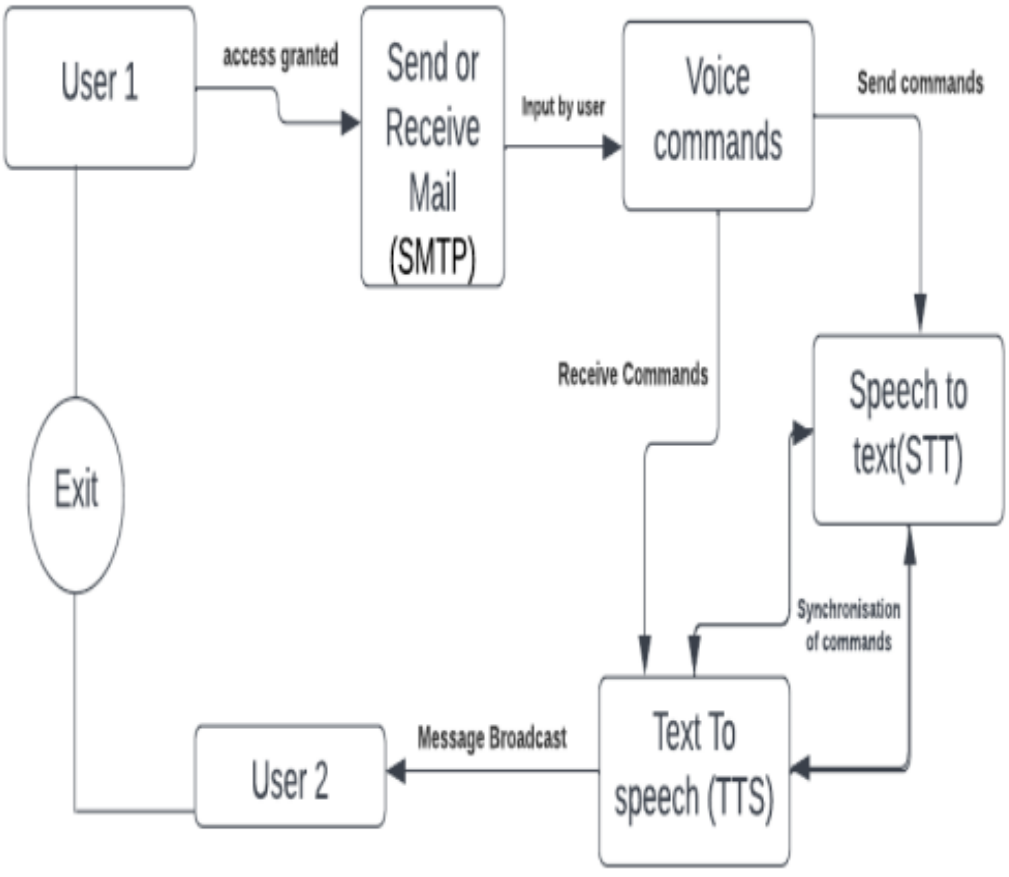

Figure 4.1 System Architecture Diagram

4.2 ARCHITECTURE DESCRIPTION

The system architecture for a voice-based email system would typically involve several components that work together to enable users to compose, send, and receive emails using voice commands. Here are some of the key components that could be included in the architecture:

Voice Input Module: This component is responsible for capturing the user's voice input and converting it into text using speech recognition technology. The text output is then used as input for the next component.

Natural Language Processing (NLP) Module: This component analyzes the text input generated by the voice input module to extract the user's intent and meaning. It uses NLP algorithms to identify the key elements of the email such as the recipient, subject, body, and attachments.

Email Composition Module: This component assembles the various elements of the email (recipient, subject, body, and attachments) based on the user's voice input and NLP analysis. It generates an email draft which is ready for review and editing by the user.

Email Sending Module: This component sends the email to the recipient's email server using standard email protocols such as SMTP (Simple Mail Transfer Protocol).

Email Receiving Module: This component receives incoming emails from the user's email server using standard email protocols such as POP3 (Post Office Protocol version 3) or IMAP (Internet Message Access Protocol).

Text-to-Speech Module: This component converts the incoming email text into synthesized speech that can be played back to the user using text-to-speech technology.

Speech-to-Text Module: This component is responsible for converting the user's voice commands into text so that they can be processed by the system.

User Interface: The user interface provides a way for users to interact with the system using voice commands, touch screens, or other input methods.

Cloud Infrastructure: The system may be deployed on cloud infrastructure such as Amazon Web Services (AWS), Microsoft Azure, or Google Cloud Platform (GCP) to provide scalability, reliability, and security.

System architecture of our project provides the detailed description about the datasets, pre-processing of data, extraction of data, training of data using supervised artificial intelligence and natural language processing algorithm and classification of user as sender and receiver.

The following system architecture Figure 4.1 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 many other modules which support the SMTP.

Voice-based email architecture enables users to send and receive emails using their voice. The architecture involves several components that work together to provide a seamless user experience. At a high level, the architecture consists of a client-side component and a server-side component.

The client-side component includes a microphone or other voice input device, a speech recognition system, and an email client application. The user speaks into the microphone, and the speech recognition system converts the spoken words into text. The email client application then sends the text to the server-side component for further processing.

The server-side component includes a natural language processing (NLP) engine, an email server, and a text-to-speech (TTS) system. The NLP engine analyzes the text to determine the user's intent and then generates an appropriate email message. The email server sends the email message to the recipient, and any response emails are retrieved and processed by the NLP engine. The TTS system converts the text of the response email into speech, which is then played back to the user.

The architecture may also include additional components for security and privacy, such as user authentication, data encryption, and data storage mechanisms. User authentication ensures that only authorized users can access the system, while data encryption and storage mechanisms protect sensitive user data from unauthorized access or theft.

CHAPTER 5

SYSTEM IMPLEMENTATION

In this chapter, the System Implementation for the voice recognition email using SMTP and IMAP server is explained in detail.

5.1 IMPLEMENTATION OF VOICE RECOGNITION EMAIL USING SMTP and IMAP SERVER

The project is implemented in python using vscode. Here, the various functionalities required for the application are implemented by imap and smtp in Python.

5.2 MODULES

5.2.1 Voic.py

The voic.py file is a Python script that provides functions for checking an email inbox using IMAP protocol. Specifically, it allows you to check for unseen emails in inbox and retrieve their details.

To accomplish this, the script of uses the built-in imaplib module in Python, which provides an easy-to-use interface for interacting with an IMAP server. It establishes a connection to server, logs in with your credentials,and selects inbox folder to perform the search. The retrieved email data is then printed to the console, allowing you to see the details of any of unseen emails in your inbox.

5.2.2 Information.py

The information.py file is a Python script that utilizes the Speech Recognition library to perform voice recognition.

Specifically, it listens to the user's spoken input and uses Google's speech recognition API to convert it to text. The script can be used to perform a variety of tasks, such as searching the web or retrieving information from a database, based on the user's spoken.

5.2.3 Talk.py

The talk.py file is a Python script that uses the pyttsx3 library to convert text to speech. It initializes a text-to-speech engine using pyttsx3.init() and defines a talk() function that accepts a text input, converts it to speech using the engine's say() method, and then plays the audio using engine.runAndWait(). This script can be useful in applications that require voice prompts or audio feedback, such as virtual assistants or interactive systems.

5.2.4 Send_email.py

The send_email function in this Python script uses the built-in smtplib library to send an email message through a Gmail account. It takes three arguments as inputs: the email address of the recipient (receiver), the subject line of the email (subject), and the content of the email message (message).

The function first creates a connection to the Gmail SMTP server and starts a TLS connection for secure communication. It then logs in to the account using the provided Gmail email and password.

Next, it creates an EmailMessage object and sets the sender email address, recipient email address, subject, and content using the provided arguments. Finally, the function sends the email message using the SMTP server's

send_message() method.

This script can be useful for automating the process of sending email messages through a Gmail account, and could be integrated into larger projects or used on its own to simplify email communication. Note that in order to use this script, you will need to replace the email and password values with your own valid Gmail credentials.

The use of voic.py, information.py, talk.py, and send_email.py in a voice-based email system offers a seamless and intuitive way to compose, send, and receive emails through voice commands. voic.py enables voice recognition and converts the user's speech to text, which is further processed by information.py to extract relevant information such as email address and message content. talk.py then converts the text to speech and reads it back to the user for confirmation before using send_email.py to send the email.

This approach simplifies the email composition and sending process, especially for users who are visually impaired or have mobility impairments. It reduces the need for typing, which can be time-consuming and error-prone, and allows users to compose and send emails while performing other tasks. However, there may be limitations to this approach, such as the accuracy of the voice recognition software and the need for a stable internet connection to send and receive emails.

Overall, the integration of voic.py, information.py, talk.py, and send_email.py can offer a convenient and accessible way for users to manage their emails hands-free.

CHAPTER 6

CODING AND SCREENSHOTS

6.1 Sample Code

Voic.py

```
import email
import imaplib
from send_email import send_email
from information import get_info

email_list = {
    'ak': 'ashokmithra02072003@gmail.com',
    'bk': 'aashokmithra4@gmail.com',
    'ck': 'abdulathif9080485766@gmail.com'

}

# To Whom you want to send email
def get_email_info():
    print('Hello Sir I am your assistant for today')
    talk('Hello Sir I am your assistant for today')
    print('You are loggend into your email Choose the option')
    talk('You are loggend into your email Choose the option')
    print('1. Compose Mail')
    talk('1. Compose Mail')
    print('2. Check your inbox')
    talk('2. Check your inbox')
    print('Choose your option')
```

```
            talk('Choose your option')
            text = get_info()
            if text == '1' or text == '11' or text == 'one' or text == "one one":
                talk('To whom you want to send email')
                name = get_info()
                receiver = email_list[name]
                print(receiver)
                talk('What is the subject of your email?')
                subject = get_info()
                talk('Tell me the text in your email')
                message = get_info()
                send_email(receiver, subject, message)
                talk('Thankyou sir for using me. Your email has been send')
                talk('Do you want to send more email?')
                send_more = get_info()
                if (send_more is None):
                    talk('Thank you sir for using me')
                elif 'yes' in send_more:
                    get_email_info()
                else:
                    talk('Thank you sir for using me')
            elif text == '2' or text == "22" or text == 'tu' or text == 'tu tu' or text
==='two' or  text == 'to' or text == "two two":
            server = imaplib.IMAP4_SSL('imap.gmail.com', 993)
            server.login('aashokmithra@gmail.com', 'sppcjhxsqgcaivzy')
            print('Select the choice from the inbox')
            talk('Select the choice from the inbox')
            print('1 latest emails received')
```

```
            talk('1 latest emails received')
            print('2 unseen emails')
            talk('2 unseen emails')
            print('Choose your option')
            talk('Choose your option')
            response = get_info()
            if response == '1' or response == 'one' or response == '11' or response
== 'one one':
                status, messages = server.select('Inbox')
                print(str(messages))
            elif response == '2' or response == '22' or response == 'tu' or response
== 'two' or response == 'tu tu' or response == 'two two' or response == 'to' or
response == "to to":
                status, messages = server.select(None, 'Unseen')
            N = 1
            messages = int(messages[0])
            for i in range(messages, messages-N, -1):
                # fetch the email message by ID
                res, msg = server.fetch(str(i), "(RFC822)")
                for response in msg:
                    if isinstance(response, tuple):
                        # parse a bytes email into a message object
                        msg = email.message_from_bytes(response[1])
                        # decode the email subject
                        subject = msg["Subject"]
                        # decode email sender
                        From = msg.get("From")
```

```
            print("From:", From)
            talk('From '+From)

            print("Subject:", subject)
            talk('Subject:'+subject)
            # if the email message is multipart
            if msg.is_multipart():
                # iterate over email parts
                for part in msg.walk():
                    # extract content type of email
                    content_type = part.get_content_type()
                    print(content_type)
                    try:
                        # get the email body
                        body = part.get_payload(decode=True).decode()
                    except:
                        pass
                    if content_type == "text/plain":
                        print(body)
                        talk(body)
            else:
                content_type = part.get_content_type()
                if content_type == "text/plain":
                    print(body)
                    talk(body)
            print("="*100)
print('Thank you sir for using me')
talk('Thank you sir for using me')
```

```
get_email_info()
```

Information.py

```
import speech_recognition as sr
from talk import talk
# create a recognizer instance
r = sr.Recognizer()
# create a microphone instance
mic = sr.Microphone()
# adjust the recognizer sensitivity to ambient noise
r.energy_threshold = 300
def get_info():
    s = ""
    with mic as source:
        # adjust the microphone sensitivity to ambient noise
        r.adjust_for_ambient_noise(source)
        while True:
            # listen for speech
            print("Listening...")
            audio = r.listen(source)
            print('Ok!!')

            try:
                # recognize speech using Google Speech Recognition
                print("-->")
                text = r.recognize_google(audio).lower()
                print(f"You said: {text}")
```

```
                if text == "stop" or text == "top" or text == "Stop" or text ==
"op" or text == "stop stop stop stop" or text == "stop stop stop" or text == "stop
stop":
                    print("one")
                    return s
                else:
                    print("two")
                    s += text
            except sr.UnknownValueError:
                print("Speech recognition could not understand audio")
                talk("Speech recognition could not understand audio")
                print("Please repeat again")
                talk("Please repeat again")
            except sr.RequestError as e:
                print(
                    f"Could not request results from Google Speech
Recognition service; {e}")
                talk(
                    f"Could not request results from Google Speech
Recognition service;{e}")
```

Talk.py

```
import pyttsx3
engine = pyttsx3.init()
def talk(text):
    engine.say(text)
    engine.runAndWait()
```

Send_email.py

```
from email.message import EmailMessage
import smtplib
def send_email(receiver, subject, message):
    server = smtplib.SMTP('smtp.gmail.com', 587)
    server.starttls()
    server.login('aashokmithra@gmail.com', 'sppcjhxsqgcaivzy')
    email = EmailMessage()
    email['From'] = 'Sender_Email'
    email['To'] = receiver
    email['Subject'] = subject
    email.set_content(message)
    server.send_message(email)
```

6.2 Screenshots

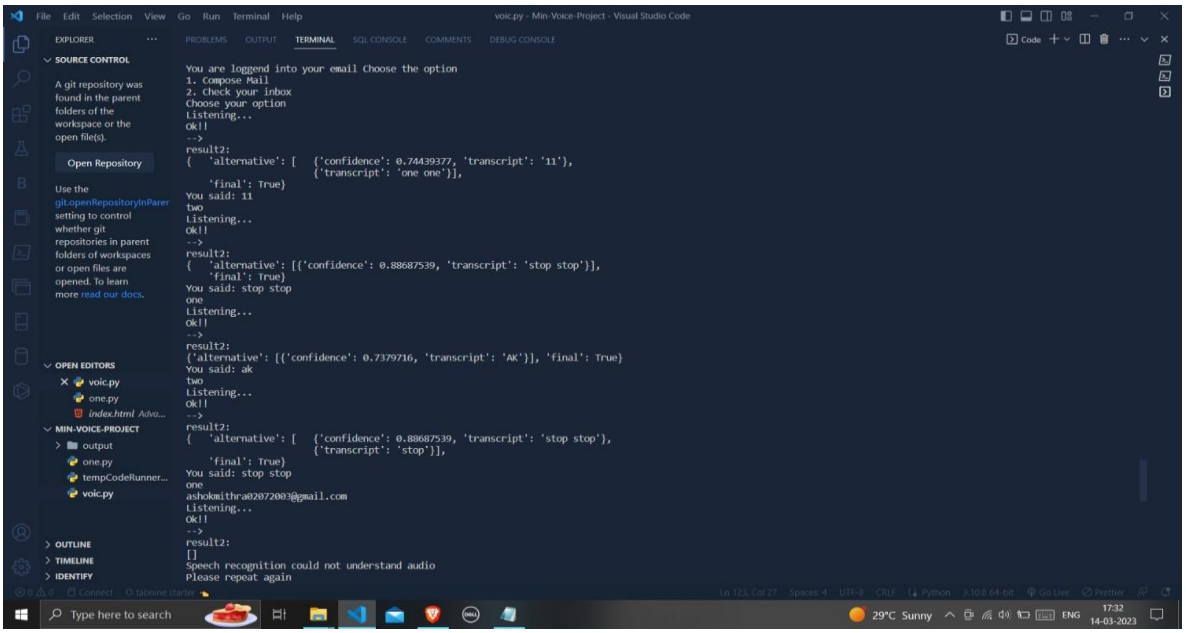

Figure 6.2.1.1 Result of send email through the smtp server

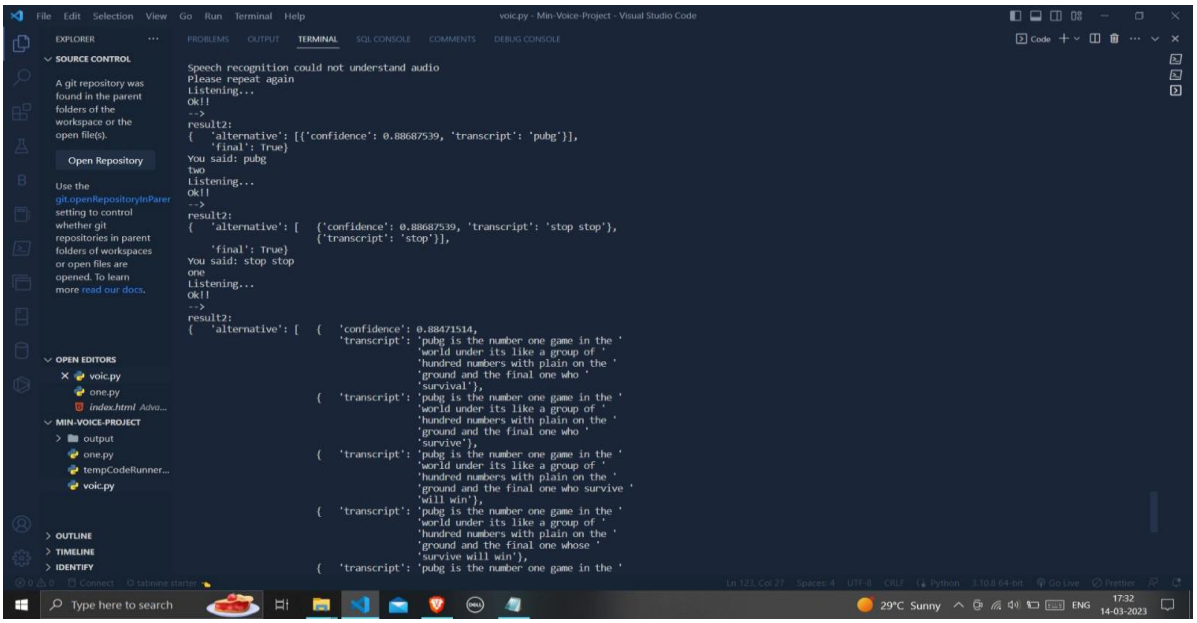

Figure 6.2.1.2 Result of choosing the receiver and subject

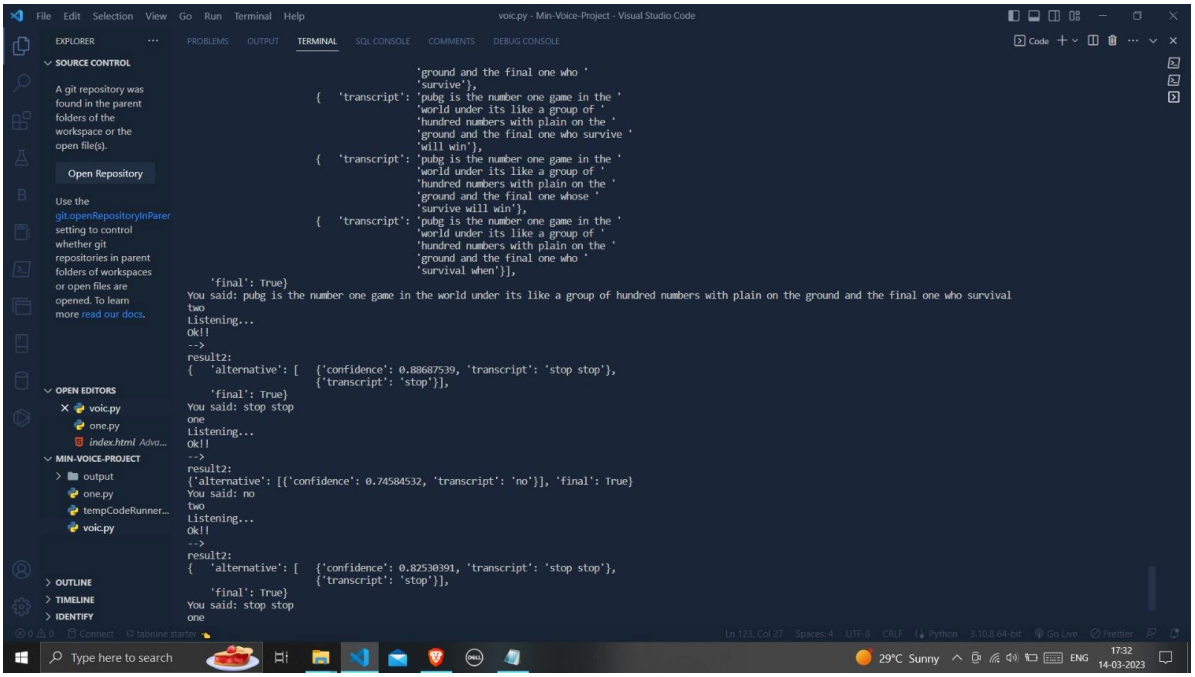

Figure 6.2.1.3 Result filling the body of the mail

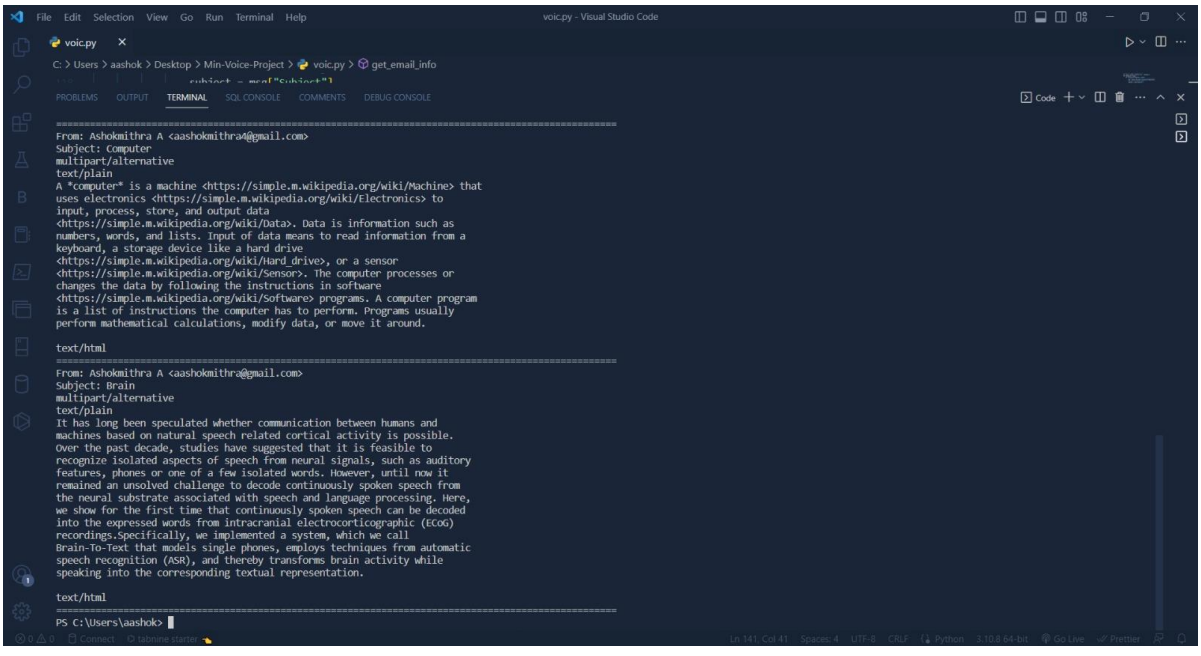

Figure 6.2.2 Result of the unseen emails

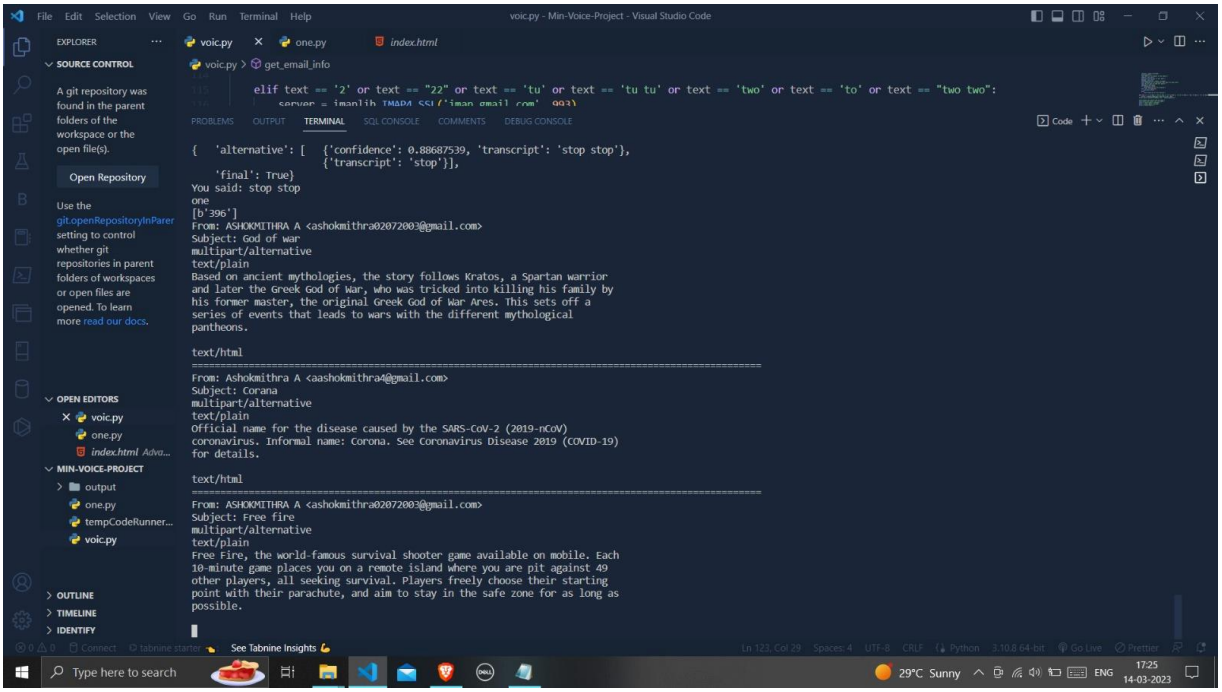

Figure 6.2.3 Result of the inbox

☆	ASHOKMITHRA A	God of war - Based on ancient mythologies, the story follows Kratos, a Spartan warrior and later the Greek God of War, who was...	5:22 PM
☆	Ashokmithra A	Corana - Official name for the disease caused by the SARS-CoV-2 (2019-nCoV) coronavirus. Informal name: Corona. See Coron...	5:10 PM
☆	ASHOKMITHRA A	Free fire - Free Fire, the world-famous survival shooter game available on mobile. Each 10-minute game places you on a remote ...	5:08 PM
☆	me, Abdul 2	vanakkam thala - It works! On Tue, 14 Mar, 2023, 4:57 pm , <aashokmithra@gmail.com> wrote: this is this testings from voice bes...	4:58 PM
☆	Google 3	Security alert - App password created to sign in to your account aashokmithra@gmail.com If you didn't generate this password ...	4:53 PM
☆	**Google**	**2-Step Verification turned on** - 2-Step Verification turned on aashokmithra@gmail.com Your Google Account aashokmithra@g...	**4:40 PM**
☆	ashokmithra02072003	play with the background hashtag 123 - bread butter songbread butter jam peanut that very good for hot	4:16 PM
☆	**ashokmithra02072003**	**(no subject)** - bb posted Notes for subject Social Science and unit 8	**Mar 11**
☆	**ashokmithra02072003**	**(no subject)** - bb posted Notes for subject Science and unit 7	**Mar 11**
☆	**ashokmithra02072003**	**(no subject)** - bb posted Notes for subject Maths and unit 8	**Mar 11**
☆	**ashokmithra02072003**	**(no subject)** - bb posted Notes for subject English and unit 7	**Mar 11**

Figure 6.2.4 Inbox of the email

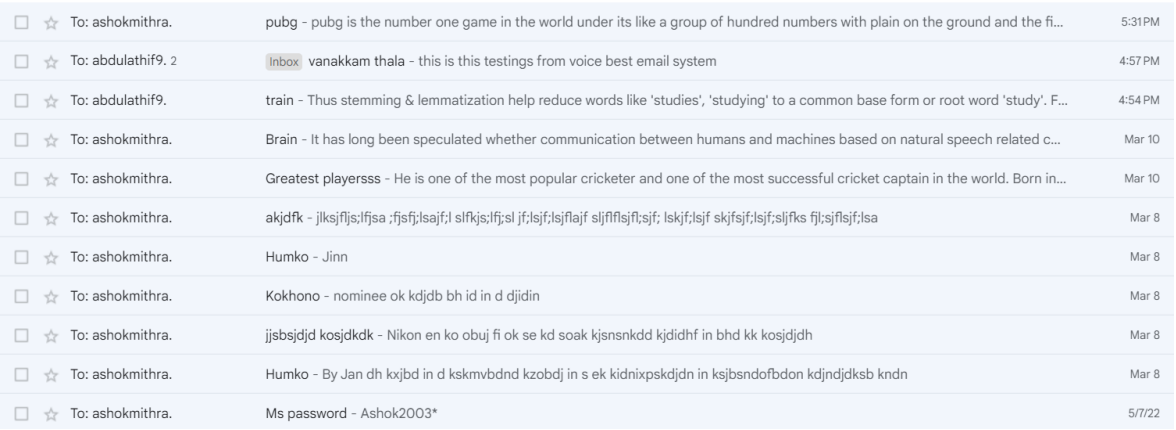

Figure 6.2.5.1 Sent section of the email

Figure 6.2.5.2 Body and subject of the email

CHAPTER 7

CONCLUSION AND FUTURE WORK

7.1 CONCLUSION

This project is the best applicable for physically challenged people and the one who has typing disabilities. One who is unable to read and write for the communication. The system is based on IVR voices and there is no use of keywords. Any users are able to use the system as it does not require any prior knowledge. The only thing to keep in mind is to follow the instructions to do the right actions. The system is quite efficient and accessible to utilize for the communication for the blind people and persons loving voice based applications. There is no need to write or type the messages in the inbox of the email only through your voice's communication is possible. The system is completely made for physically challenged people for easy communication. It enhances the path of communication in a fast and interesting way. Even the normal users can utilize the system smoothly. This system will help the blinds to overcome difficulties in accessing the emails.

This e-mail system can be used by any user of any age group with ease of access. It has the feature of speech to text as well as text to speech with speech reader which makes designed a system to be handled by a visually impaired person.

7.2 FUTURE WORK

There can be wide scope of the system with its functionalities. It can consist of options for reading deleted and spam emails. The system will be more in demand if it will be accessible in all the regional languages. It will promote interaction at a higher level as it

will require nothing special to use the system. It can be designed in more advanced ways by adding options of voice call and short messaging services (SMS). Further adding the proposed functionalities will take it to the global market and also will give facilities to communicate with each other in different ways.

Future work for voice-based email systems can include further development of speech recognition and natural language processing algorithms to improve the accuracy of the system. Additionally, incorporating machine learning techniques to personalize the system to each user's voice and preferences can enhance the overall user experience.

Another area of future work is the integration of other modes of communication, such as text messages and social media, into the voice-based email system to provide a more comprehensive communication platform. The inclusion of advanced security features such as two-factor authentication and biometric authentication can also improve the security of the system.

Moreover, research can be done to explore the potential use of voice-based email systems in industries such as healthcare, education, and finance to enhance communication and accessibility. Finally, the development of user-friendly interfaces and intuitive voice commands can make the system more accessible to people with disabilities, such as those with visual impairments.

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