



## VOICE BASED EMAIL SYSTEM USING PYTHON

**Akshita Bhandari<sup>1</sup>, Aayushi Shukla<sup>2</sup>, Darshita Khanna<sup>3</sup>, Garima Verma<sup>4</sup>,  
Poorva Shinde<sup>5</sup>, Prof. Asif Ali<sup>6</sup>**

<sup>1,2,3,4,5</sup> Student, Department of Information Technology

<sup>6</sup>Associate Professor, Department of Information Technology

<sup>1,2,3,4,5,6</sup>Acropolis Institute of Technology and Research, RGPV, Indore, India

### ABSTRACT

*The Internet has made people's lives easier by allowing them to access information, communicate with others, and expand their businesses. Using the internet to communicate E-mail is often regarded as the most secure method of delivering and receiving sensitive information. Humans must satisfy a specific condition in order to access the Internet, and that condition is that they must be able to see. However, some visually impaired or blind people are unable to see things and hence are unable to profit from technology. As a result, we have come up with this project idea for the improvement of society and to give such specially abled persons an equal standing.*

**KEYWORDS :** Python, Django, MySql, Technology, Database

### 1. INTRODUCTION

There were 4.1 billion email accounts generated until 2014, and by the end of 2018, there will be an anticipated 5.2 billion accounts. As a result, emails are the most often used mode of communication. Visually impaired people are unable to use the most common postal services that we use on a daily basis. This is due to the fact that they do not provide any means for the person in front of the screen to hear the content. They are unable to determine where to click in order to complete the essential actions since they are unable to visualise what is currently on screen. Even if it is user friendly, using a computer for the first time for a visually impaired person is not as easy as it is for a typical user.

With the help of a variety of assistive technology, the blind and visually impaired can now access Internet material. Web elements and their contents are translated into synthetic speech by built-in text-to-speech synthesisers in screen readers. Voice commands can be translated to text or computer input using dictation software that uses speech recognition

technology. For those who have been educated to read braille, there are also refreshable braille screens and braille keyboards. In this case, the ultimate goal of technology is to provide the visually impaired with an online experience that is comparable to that of a person who is sighted. We've put together a comprehensive guide that outlines the challenges and limitations with the internet for the blind.

WebAIM recently ran an automatic search of the top one million pages to see if they were accessible. Only a small percentage of the websites met the accessibility compliance standards, according to the findings. One of the most significant discoveries was that most websites use ambiguous labels for page elements. Many images, buttons, and menu items are labelled as "image1," "button1," and so on, rather than being given a meaningful semantic label. When screen readers provide obscure descriptions to blind users, it just adds to their bewilderment and makes it more difficult for them to navigate the website. Incompatibility with screen readers, complex layouts, employing images and graphics instead of text, websites



becoming unavailable due to software updates or adding new material, and so on are all examples of digital obstacles.

Designers and developers like to create appealing interfaces that catch the user's eye, so most online material is focused on visual display. To create a web application for visually impaired people that uses speech to send emails. E-mails are often regarded as the most secure mode of communication over the Internet for delivering and receiving sensitive information. However, people must meet a specific criterion in order to use the Internet, and that criterion is that you must be able to see. However, there are blind persons who cannot read or use a keyboard, thus we've come up with the idea of voice-based email to communicate information. They may quickly communicate and obtain information by sending and receiving emails in voice. Audio feedback virtual environments, such as screen readers, have greatly aided Blind persons in using online apps. We describe the Voicemail system architecture that can be used by a Blind person to access eMails easily and efficiently.

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 utilise email without difficulty. This system's users would not require any basic knowledge of keyboard shortcuts or where the keys are placed. All of the functions are controlled by a single mouse click. The system will issue voice orders to the user to accomplish a certain action, and the user will react. The fundamental advantage of this method is that it eliminates the need for a keyboard; instead, the user must answer solely by voice and mouse clicks.

## 2. RELATED WORK

While working on this project, we discovered a number of applications that had the same goal as us. Visually impaired people are unable to use the most common postal services that we use on a daily basis. This is due to the fact that they do not provide any means for the person in front of the screen to hear the content. They are unable to determine where to click in order to complete the essential actions since they are unable to visualise what is currently on screen.

Existing System	Features	Benefits	Limitations
VoiceTalk	Users can easily interact with anyone without typing any single word from the keyboard	The Application helps not only to the blind individual but also to the individual who is illiterate.	Multiple users cannot use the application due to lack of database.

Even if it is user friendly, using a computer for the first time is not as convenient for a visually impaired person as it is for a typical user. Despite the fact that there are numerous screen readers available, these individuals nevertheless experience some minor challenges. Screen readers read aloud whatever is on the screen, and the user must utilise keyboard shortcuts as blind people cannot use mouse location to trace to conduct the actions. This involves two things: first, the user cannot use the mouse pointer since it is inconvenient if the location of the pointer cannot be traced, and second, the user should be familiar with the keyboard and know where each key is situated. As a result, a user who is new to computers will be unable to use this service since they are unaware of the important places.

The suggested system is based on an entirely new concept and is unlike any other postal system

already in use. The accessibility of the proposed system is the most essential factor that has been considered. Only when a web system can be utilised effectively by all types of individuals, whether able or disabled, is it said to be totally accessible. This accessibility is not provided by current systems. As a result, the system we're creating is vastly different from the current one. Unlike the existing system, which prioritises user friendliness for normal users, our approach prioritises user friendliness for all types of people, including normal persons who are visually impaired and illiterate. IVR (interactive voice response) underpins the entire system.

When utilising this system, the computer will prompt the user to execute specified activities in order to access particular services, and the user must complete those activities in order to access those services. One of the most significant advantages of this system is that it

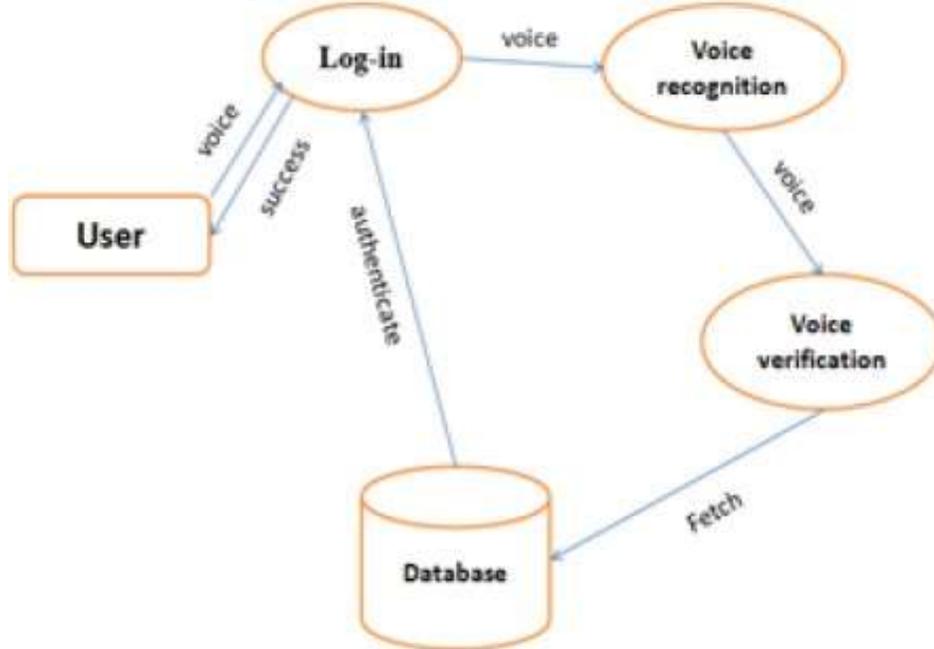
eliminates the need for the user to utilise a keyboard. All actions will be triggered by mouse clicks. The challenge now is how blind users will determine where the mouse pointer is located. Because the blind user cannot track a specific spot, the system has given the user the freedom to click wherever on the screen. The IVR will specify which sort of click will do which function. As a result, the user does not have to be concerned about the mouse's placement.

### 3. METHODOLOGY

The entire system is dependent on voice prompts and mouse clicks. When utilising this system,

the computer will prompt the user to execute specified activities in order to access particular services, and the user must complete those activities in order to access those services. One of the most significant advantages of this system is that the user will rarely need to use a keyboard. All actions will be triggered by mouse clicks. The challenge now is how blind users will determine where the mouse pointer is located. Because the blind user cannot track a specific place, he or she must move the mouse across the screen from top to bottom and then left to right. Because it is only a basic system, it will be fully accessible to all types of users.

Figure 1. Block diagram of Voice BasedEmail



#### Software Requirements

- I. Operating System : Windows 10.
- II. Coding Language : Python 8 andabove.
- III. IDE : Pycharm.
- IV. Front End :HTML CSS, Bootstrap.
- V. Back End : Python
- VI. Database : MySQL



**1. SPEECH\_TO\_TEXT Converter :** The voice recognition system is made up of various components: feature extraction, an acoustic models database constructed from training data, a dictionary, a language model, and the voice recognition algorithm. The time and amplitude axes of an analogue voice signal must be sampled or digitised first. The voice signal is sampled at regular intervals and analysed. Because the signal in this time is deemed stationary, the period is usually 20 milliseconds. The generation of uniformly spaced discrete vectors of speech features is required for speech feature extraction. The parameters of acoustic models are estimated using feature vectors from the training database.

**2. TEXT\_TO\_SPEECH Converter :** Using speech synthesis techniques to convert text to vocal output. Although it was originally developed for the blind to listen to written material, it is now widely used to transmit financial data, e-mail messages, and other information to the general public through telephone. When offering instructions, text-to-speech is also employed on handheld devices such as portable GPS units to proclaim street names. A string of 50 characters of text (alphabets and/or digits) is accepted as input by our Text-to-Speech Converter.

We've connected the keyboard to the controller and defined all of the alphabet and digit keys on it in this. The speech processor has an infinite dictionary and, in most cases, can speak practically any text provided at the input.

After successful login, the user will be redirected to this page and this is the main page from where user can

perform all the activities like, compose a new mail, check inbox, save to draft etc. • Left Click to Compose a new Mail.

- Right Click to Go to the Sent Mails.
- Double Left Click to Go to the Inbox View.
- Scroll Button Click to go to TrashMessages.
- Double Right Click to Log out of theSession.

**Inbox:** This page will store all of the mails received by the user. Below steps explains how to access a mail from inbox:

- All the received Mails will be listed sorted in order of date
- Double left Click to give voice input to filter Mail, when Satisfied Left click to proceed
- In this Stage your mail will be read out, Double Left Click to start/pause

**Trash:** This folder will store all of the mail deleted by the user.

- All the deleted Mails will be listed sorted in order of date
- Double Left Click to start/pause
- Left Click to proceed to Delete the Mail or Right Click to back • If in Delete Section LeftClick to Delete the Mail

**Sent Mail:** This folder will store all of the mails sent from the user.

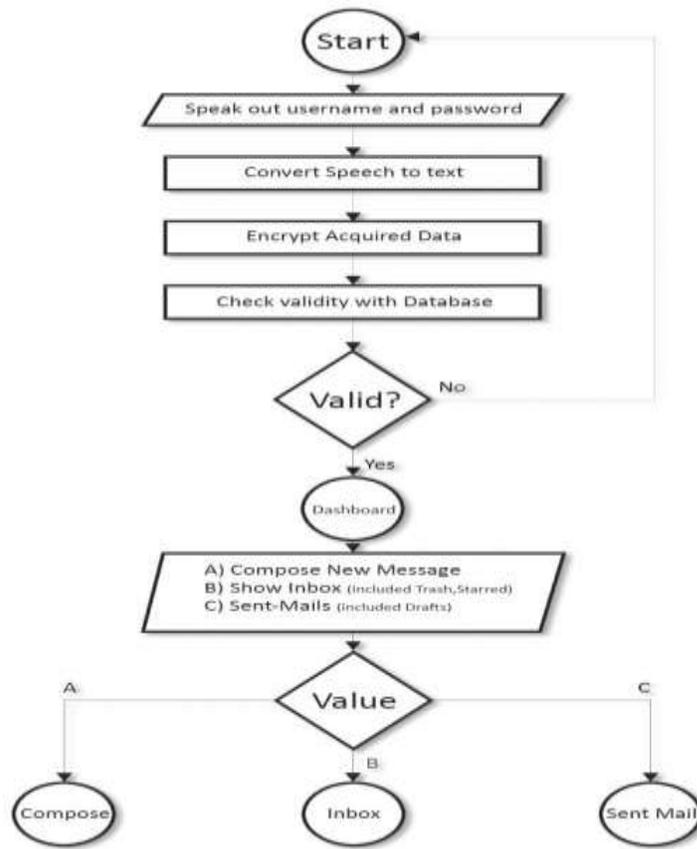


Figure 2. The above figure explains the complete flow of the process.

#### 4. RESULTS AND DISCUSSION

Our team looked at a variety of apps and websites related to the application's growth as well as agriculture. We designed and built a user-friendly mobile application that offers multiple features in one app for the users. The most critical factor is

accessibility which is needed most to access the email services for both visually impaired and illiterate.

The results from the desktop Application are represented with pictures of each page of the desktop Application-





```
File Edit Format Run Options Window Help
# Python code to illustrate Sending mail from
# your Gmail account
import smtplib

# creates SMTP session
s = smtplib.SMTP('smtp.gmail.com', 587)

# start TLS for security
s.starttls()

# Authentication
s.login("saurav.mishral604@gmail.com", "sauravseth123")

# message to be sent
message = "Hi ashwani"

# sending the mail
s.sendmail("saurav.mishral604@gmail.com", "ashwanipanwar2327@gmail.com", message)

# terminating the session
s.quit()
```

Figure 3 and 4 showing the result.

Select the choice you want to perform by speaking and the application will complete the process efficiently without even looking at the screen to access anything.

Using speech synthesis techniques to convert text to voice production. While it was originally developed for the blind to listen to written content, it is now widely used to transmit financial data, e-mail messages, and other information to the general public via telephone. When giving instructions, text-to-speech systems are often used on mobile devices such as portable GPS systems to announce street names.

## 5. CONCLUSION AND FUTURE SCOPE

### CONCLUSION

A detailed report with colourful maps, a colourful graph with the theory, balance, and interest, and a colourful graph with the principle, balance, and interest are all included. The website is user-friendly and accessible to all types of users. In this research, we propose a system to help visually impaired people access email services more successfully. This technology will help blind people.

To use the services, the user only needs to follow the IVR's directions and make the relevant mouse clicks. This e-mail system is simple to use and suitable for people of all ages. With the use of a speech interpreter, it can translate speech to text as well as text to speech, making it a device that can be used by both visually impaired and blind persons.

### FUTURE SCOPE

E-mailing isn't a significant difficulty for those

who can see, but it's a major worry for those who don't have the gift of sight because it intersects with so many job obligations. This voice-based email system is useful for blind individuals since it allows them to comprehend where they are. For example, whenever the cursor travels over the Register icon on the page, it will sound like "Register Button." There are a plethora of screen readers to choose from. People, on the other hand, have to recall mouse clicks. Rather, because the mouse cursor will read out where he or she is, this project will alleviate the difficulty. This method places a greater emphasis on user friendliness for all types of people, including typical people who are visually impaired.

## 6. ACKNOWLEDGMENT

We would like to express our special gratitude to Prof. Asif Ali as well as our college "Acropolis Institute of Technology and Research." who gave us this golden opportunity to do this wonderful project on the topic "VOICE BASED E-MAIL" and to guide us at different stages during preparation of this project and the report following that, which also helped us in doing a lot of research and we came to know about so many things, We are really thankful to them.

## 7. REFERENCES

1. Mukherjee, Pronab, and Harsh Agarwal. "Voice Based Email for Visually Challenged." *GeeksForGeeks*, 03 August 2017, <https://www.geeksforgeeks.org/project-idea-voice-based-email-visually-challenged/>
2. Ingle, Pranjali. "Voice based email System for Blinds." *Journal*, 11 August 2018, <https://www.arcjournals.org/pdfs/ijrscse/v3-i1/5.pdf>



3. "How Do Blind People Use the Internet? Difficulties and Tools to Help Them Out." *pixelplex*, 23 September 2020, <https://pixelplex.io/blog/how-do-blind-people-use-the-internet/>
4. Maysie Gonzales, "Why much of the internet is closed off to blind people", *BBC*, 28 September 2019, <https://www.bbc.com/news/world-us-canada-49694453>
5. "The Visually Impaired Web User's Technology", *AFB*, <https://www.afb.org/about-afb/what-we-do/afb-consulting/afb-accessibility-resources/users-technology>
6. "Voice Based Email for Blinds" <https://www.arcjournals.org/pdfs/ijrscse/v3-i1/5.pdf> [1]"A Review of Coronavirus Disease-2019" 13Mar.