
VOICE BASED EMAIL SYSTEM FOR VISUALLY IMPAIRED

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ABSTRACT

E-mail is the technology that enables user to contact with others by sending mails and also helps in business world communication. There are people who cannot use these technologies because either they lack knowledge or do not have the ability to see the screen. So, we proposed a Voice-based Email System using AI that will make the email system very easily accessible to visually challenged people and also help society. This voice-based email system will be containing new technologies that will help blind people to access e-mail and other multimedia functions. The users of this system don't need to remember any basic information about keyboard shortcuts as well as location of the keys. Simple mouse click operations are needed for functions making system easy to use for user of any age group. We made use of Jupyter notebook/ Spyder and Python Frameworks.

Keywords: Voice Based Email, Speech-to-Text, Text-to-Speech, Speech Recognition.

I. INTRODUCTION

A voice dependent email system is an android solution which allows the user to send and receive emails without using any visual features, which means everything can be done by voice commands. This application is designed and engineered especially for people with visual disabilities. According to a survey, around 250 million and more visually challenged or visually impaired are present in this world. That means around 250 million people are deprived or un aware of the science boon i.e Internet. They are fully dependent on the people with sight for their work. They are unable to use the internet and many facilities provided by it. Among that the main and basic feature is sending and reading mails. People who are visually impaired cannot access the normal type of email system so they have to depend on others, but this application will enable them to send and receive emails with voice commands and minimal action which can be carried out by themselves. So by using this voice-based email system, they can take a step forward to independently use the benefits of the internet. This application is also useful for normal people who don't like to type so much, they can just use this application to compose a whole email by voice commands only. Project WE-Talk is a sort of aid to the visually impaired people by giving them access to the basic and mandatory features of the internet i.e. emails. The major goal is to create a voice-based email system for those who are blind or visually impaired, allowing them to send and receive emails using computers.

II. METHODOLOGY

Python

In this project we are making use of python language. Python is an interpreted, interactive, object-oriented programming language. It incorporates modules, exceptions, dynamic typing, very high level dynamic data types, and classes. It supports multiple programming paradigms beyond object-oriented programming, such as procedural and functional programming. Python combines remarkable power with very clear syntax. It has interfaces to many system calls and libraries, as well as to various window systems, and is extensible in C or C++. It is also usable as an extension language for applications that need a programmable interface. Finally, Python is portable: it runs on many Unix variants including Linux and macOS, and on Windows.

III. MODELING AND ANALYSIS

In this project we are using different libraries of python in order to successfully implement the idea. The modules or libraries used in this project are SMTP, EASYIMAP, SPEECH RECOGNIZATION, PYTTX3 and

PYAUDIO module. These libraries help to perform different action easily just we need to download and import it.

Let's understand about those modules

SMTP: Simple Mail Transfer Protocol (SMTP) is a protocol, which handles sending e-mail and routing e-mail between mail servers. Python provides smtplib module, which defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon.

EASYIMAP: IMAP is an email retrieval protocol which does not download the emails. It just reads them and displays them. This is very useful in low bandwidth condition. Python's client side library called imaplib is used for accessing emails over imap protocol.

SPEECH RECOGNITION: Speech recognition is a machine's ability to listen to spoken words and identify them. You can then use speech recognition in Python to convert the spoken words into text, make a query or give a reply. You can even program some devices to respond to these spoken words.

PYTTSX3: pyttsx3 is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline and is compatible with both Python 2 and 3. An application invokes the pyttsx3.init() factory function to get a reference to a pyttsx3.Engine instance.

PYAUDIO: PyAudio provides Python bindings for PortAudio v19, the cross-platform audio I/O library. With PyAudio, you can easily use Python to play and record audio on a variety of platforms, such as GNU/Linux, Microsoft Windows, and Apple macOS. PyAudio is distributed under the MIT License.

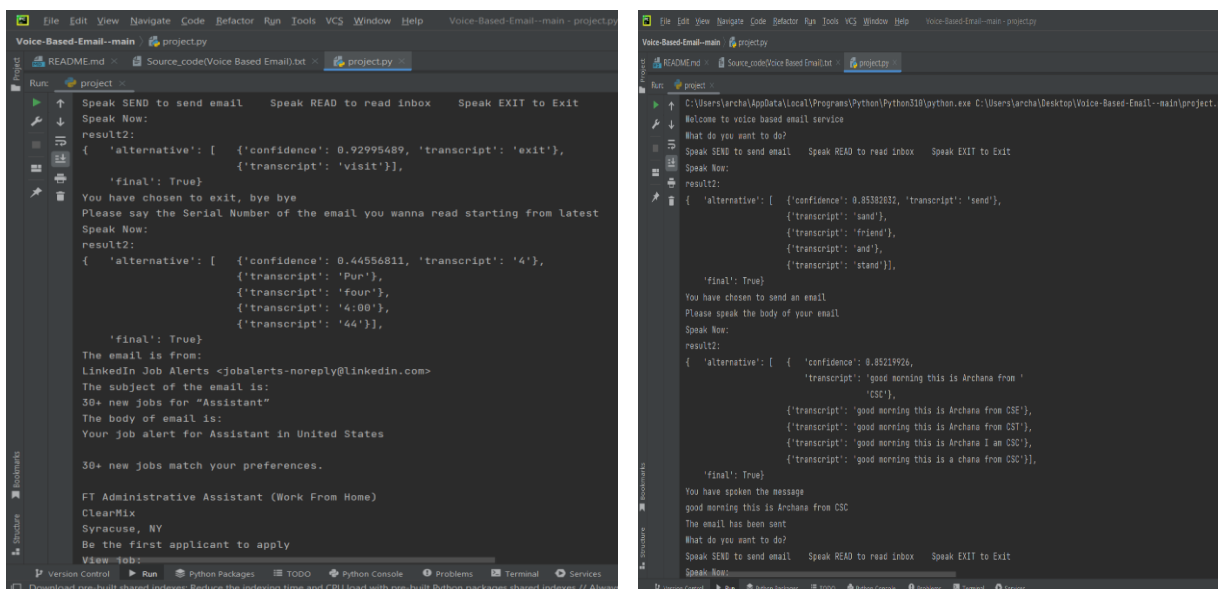
Below is about existing and proposed system of our project:

The existing system Most widely known mail services can not be used by visually impair individuals in our day-to-day lives. The present electronic mail system does not provide any additional feature that could enable the end user to listen the written mail and other digital content present on the panel of the computer device like laptop, mobile phone and alike. 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 proposed system has overcome all of the disadvantages of the present system. Interactive voice response animated pronunciation answer is the basis of the whole working of the proposed system. When using this scheme, the machine will prompt the end user to do certain activities and if the end user wants to enter the corresponding facilities, the proper procedure is requires to be carried out just through voice commands. The major benefit is that the user will not need to use the keyboard and also doesn't need to view the screen.

This system is available to all category of end users as it is focused on easy mouse clicks and voice input.

IV. RESULTS AND DISCUSSION

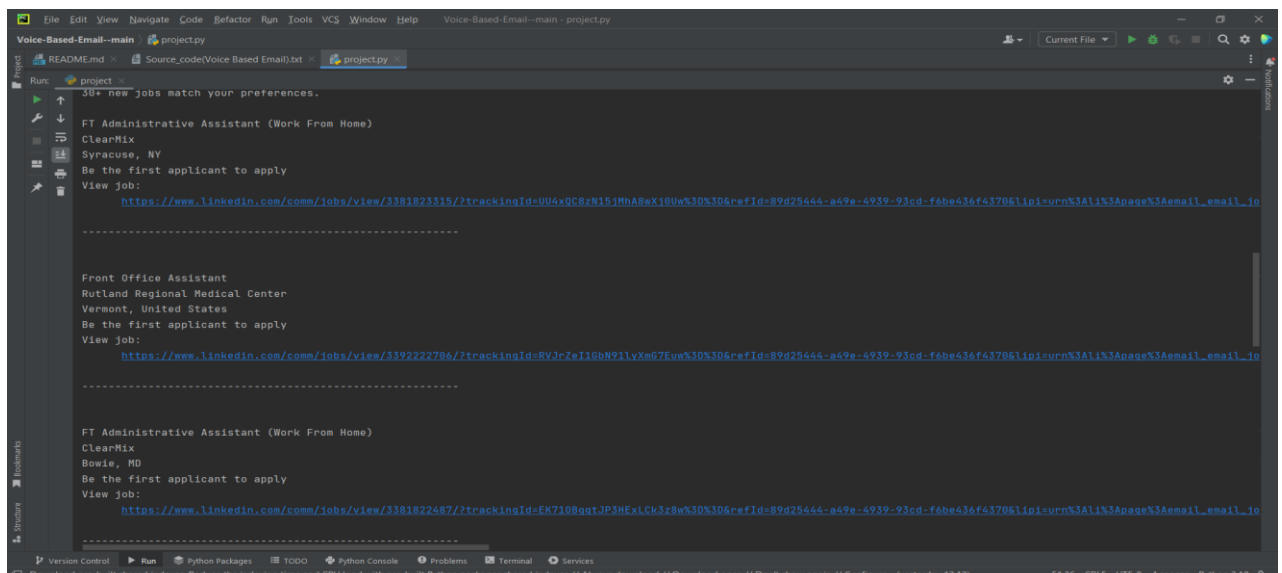


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Please say the Serial Number of the email you wanna read starting from latest
Speak Now:
result2:
{  'alternative': [      {'confidence': 0.44556811, 'transcript': '4'},
                        {'transcript': 'Pur'},
                        {'transcript': 'four'},
                        {'transcript': '4:00'},
                        {'transcript': '44'}],
  'final': True}

The email is from:
LinkedIn Job Alerts <jobalerts-noreply@linkedin.com>
The subject of the email is:
30+ new jobs for "Assistant"
The body of email is:
Your job alert for Assistant in United States

30+ new jobs match your preferences.

FT Administrative Assistant (Work From Home)
ClearMix
Syracuse, NY
Be the first applicant to apply
View job:
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30+ new jobs match your preferences.

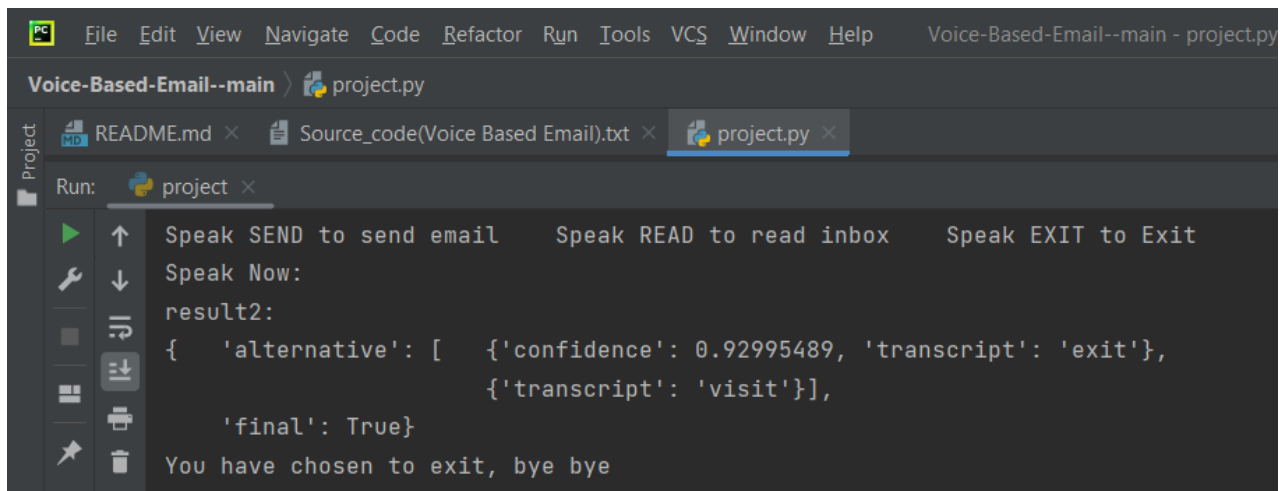
FT Administrative Assistant (Work From Home)
ClearMix
Syracuse, NY
Be the first applicant to apply
View job:
https://www.linkedin.com/company/jobs/view/3381822315/?trackingId=UW4x0C8zN151HhA8eX10Iuw3Dx3D6refId:89d25444-a69e-6939-93cd-f6be636f637061ipicorn%3A1%3Apage%3Aemail_email_id

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Front Office Assistant
Rutland Regional Medical Center
Vermont, United States
Be the first applicant to apply
View job:
https://www.linkedin.com/company/jobs/view/3392222706/?trackingId=RVJrZe11GbN91yXm67EuW3Dx3D6refId:89d25444-a69e-6939-93cd-f6be636f637061ipicorn%3A1%3Apage%3Aemail_email_id

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FT Administrative Assistant (Work From Home)
ClearMix
Bowie, MD
Be the first applicant to apply
View job:
https://www.linkedin.com/company/jobs/view/3381822487/?trackingId=EK710BggTjP3HEXlCk3z8W53Dx3D6refId:89d25444-a69e-6939-93cd-f6be636f637061ipicorn%3A1%3Apage%3Aemail_email_id
```



```
Speak SEND to send email   Speak READ to read inbox   Speak EXIT to Exit
Speak Now:
result2:
{  'alternative': [      {'confidence': 0.92995489, 'transcript': 'exit'},
                        {'transcript': 'visit'}],
  'final': True}

You have chosen to exit, bye bye
```

V. CONCLUSION

We have proposed a system which will help the visually impaired and differently abled people to access email services efficiently. This system will help in overcoming some drawbacks that were earlier faced by the visually

impaired and differently abled people in accessing the emails. We have eliminated the concept of using keyboard and mouse control for them. However, normal people can still use keyboard and mouse control. The user is only supposed to follow the instructions which will be given by Google speech technology. Along with this, the user might need to give the information through voice inputs wherever mentioned. Also android mobile phone are not majorly used by visually impaired people since it is difficult for them to operate it. Therefore we are creating a web based application which works on only mouse clicks and voice inputs.

VI. REFERENCES

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