

VOICE BASED E-MAIL FOR BLIND

Team Members

- Akhil Murugan
- Anandhu A
- Ashwin M
- Aswin Prakash

GUIDE: Dr Afzal A L

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INTRODUCTION

- ❑ In today's age of communication, the internet is crucial. The internet has become the foundation of today's world. Without the internet, no work can be completed.
- ❑ Email, or electronic mail, is the most vital aspect of daily living. According to a poll, there are around 260 million visually impaired people worldwide.
- ❑ Dictation using speech recognition could potentially serve as an efficient input method for mailing devices for blind.
- ❑ However, dictation systems follows a speech interaction model.
- ❑ We introduce Voice Typing, a new speech interaction model where blinds, utterances are transcribed as they produce them to enable real-time error identification.

OBJECTIVE

- ❑ This project is proposed for the betterment of society.
- ❑ This project aims to help the visually impaired people to be a part of growing digital India by using internet and also aims to make life of such people quite easy.
- ❑ Our objective on this project is to develop a voice based Email that is more useful for visually impaired or illiterate people.

LITERATURE SURVEY

TITLE	Voice Based System in Desktop and Mobile Devices for Blind People
AUTHOR AND YEAR	Payal Duhbale , Prof. Jagruti S. Wankhade, Chetan J. Ghyar, Pallavi S. Narawade IJSRST ,2020
INFERENCE	Voice mail architecture helps blind people to access multimedia functions of operating system (songs, text).Also in mobile application SMS can be read by system itself.
LIMITATIONS	It cannot access or work in third-party application like Gmail,Chrome browser.

TITLE	Telephone Interface for the Email Service
AUTHOR AND YEAR	Manuel Eduardo Correia , International Conference on Natural Sciences and Technology ,2018
INFERENCE	This paper describes a method and system for providing customizable audio access to email messages kept in several IMAP (Internet Message Access Protocol) back storages using an IVR application that takes full advantage of TTS (Text-To-Speech) software
LIMITATIONS	But it has not Speech-To-Text feature and also not providing security in login

TITLE	Voice Based Interactive System for Visually Impaired
AUTHOR AND YEAR	Sadaf Abdul Rauf,Gulnoor Ahmad,Mahnoor Yaqoob IEEE,2019
INFERENCE	A voice enabled interactive framework for applications based on Automatic Speech Recognition and Speech Synthesis.The framework would be equally beneficial for visually impaired as well as normal audience.
LIMITATIONS	It is a framework not a application No user interface

TITLE	Voice mail application for visually impaired persons
AUTHOR AND YEAR	Taslima Binte Hossain, Yeasmin Ara Akter, Md. Ataur Rahman issue on 6th International Conference on Natural Sciences and Technology ,2020
INFERENCE	The functional E-mail software that use speech to text and text to speech technology
LIMITATIONS	Does not provide any login feature and no security feature i.e anyone can login to Email account that is available in their system

Methodology and Design

Design

User Interface Design

Our application user interface is simply a standalone application (Desktop based application) which is very easy to access in a fast way than any other website or app.

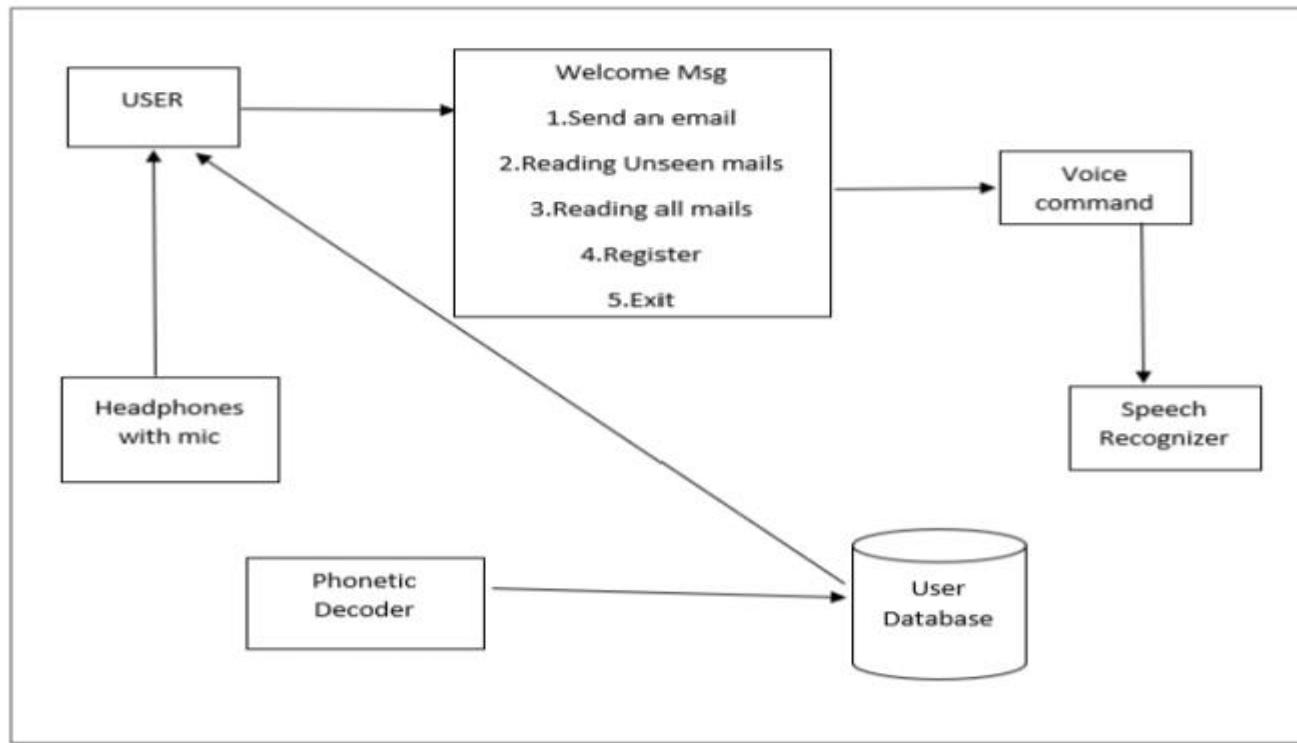
Database Design

Our system maintains a database for user validation. We have created a table which contains Name, Mail-id, Password and Personal keyword as attributes.

System Design

Our System is voice oriented. When user is over every legal space in website, it will receive voice messages where user is right now. If normal people don't want this feature they can turn it off.

Architecture



Methodology

ALGORITHMS

- STT(SPEECH TO TEXT): Here speech is converted to text.
- TTS(TEXT TO SPEECH): Here text is converted to speech.
- IVR(INTERACTIVE VOICE RESPONSE): It is an advance technology describes the interaction between the user and the system.

LIBRARIES USED

- Opencv
- gTTs
- Speech Recognition

Computational Environment

□ Configuration of Laptop:

AMD Ryzen 3 4600H with Radeon Graphics 3.00 GHz or Intel i3
8.00 GB RAM
64-bit operating system, x64-based processor

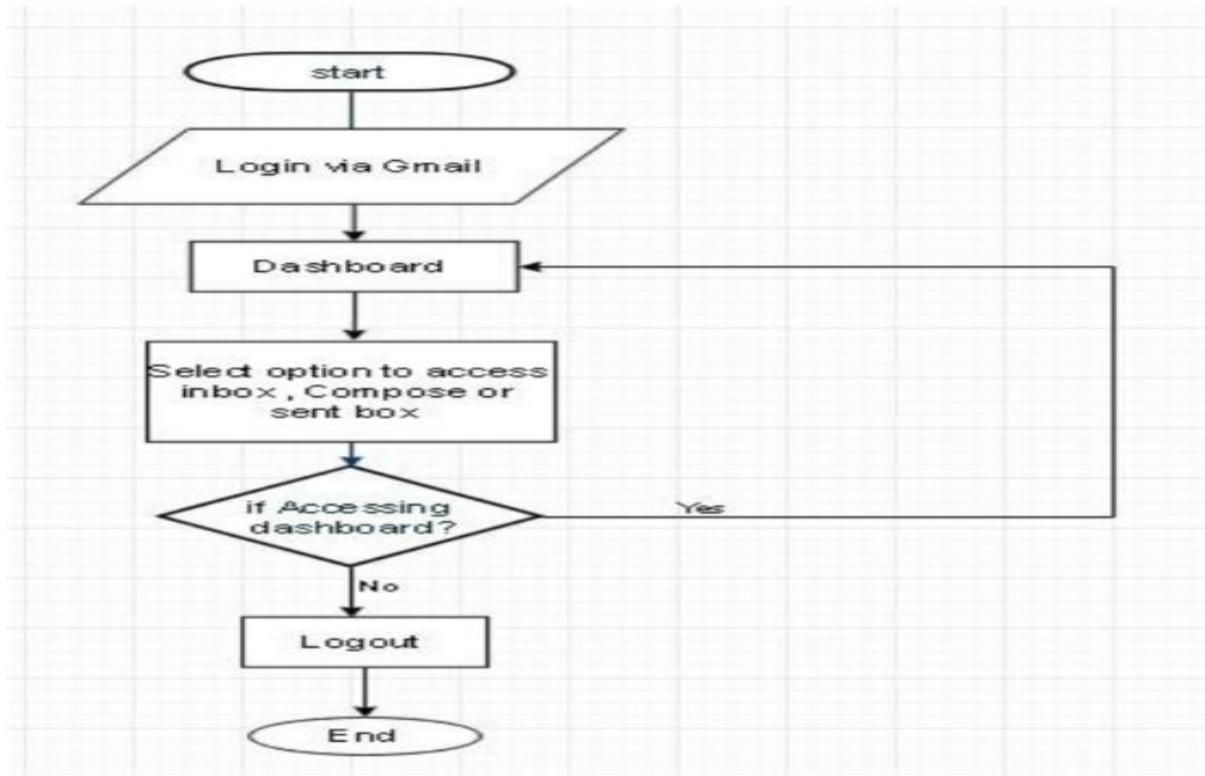
□ Programming Language:

Python
Html
CSS

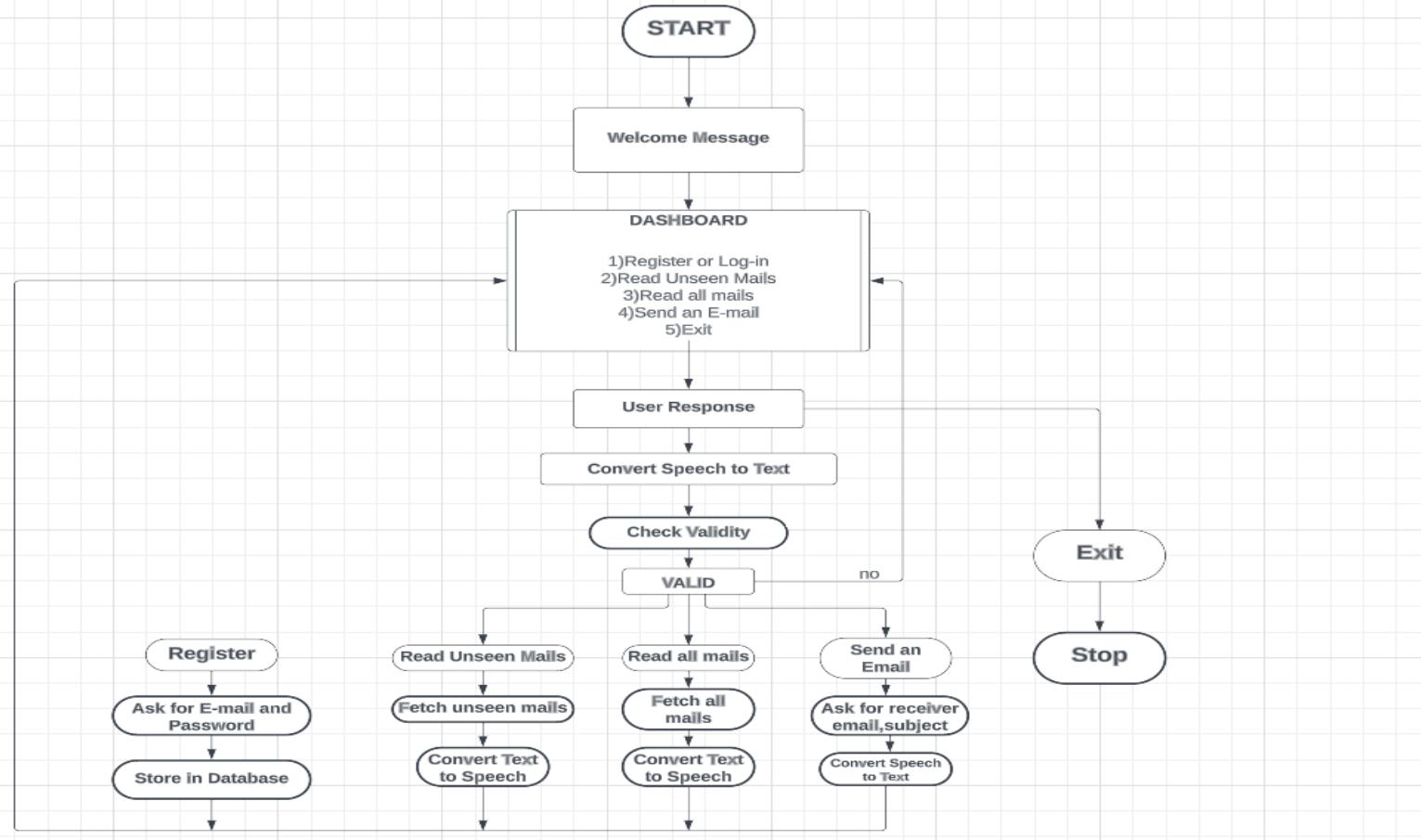
□ Software Tools used:

Pycharm
VsCode

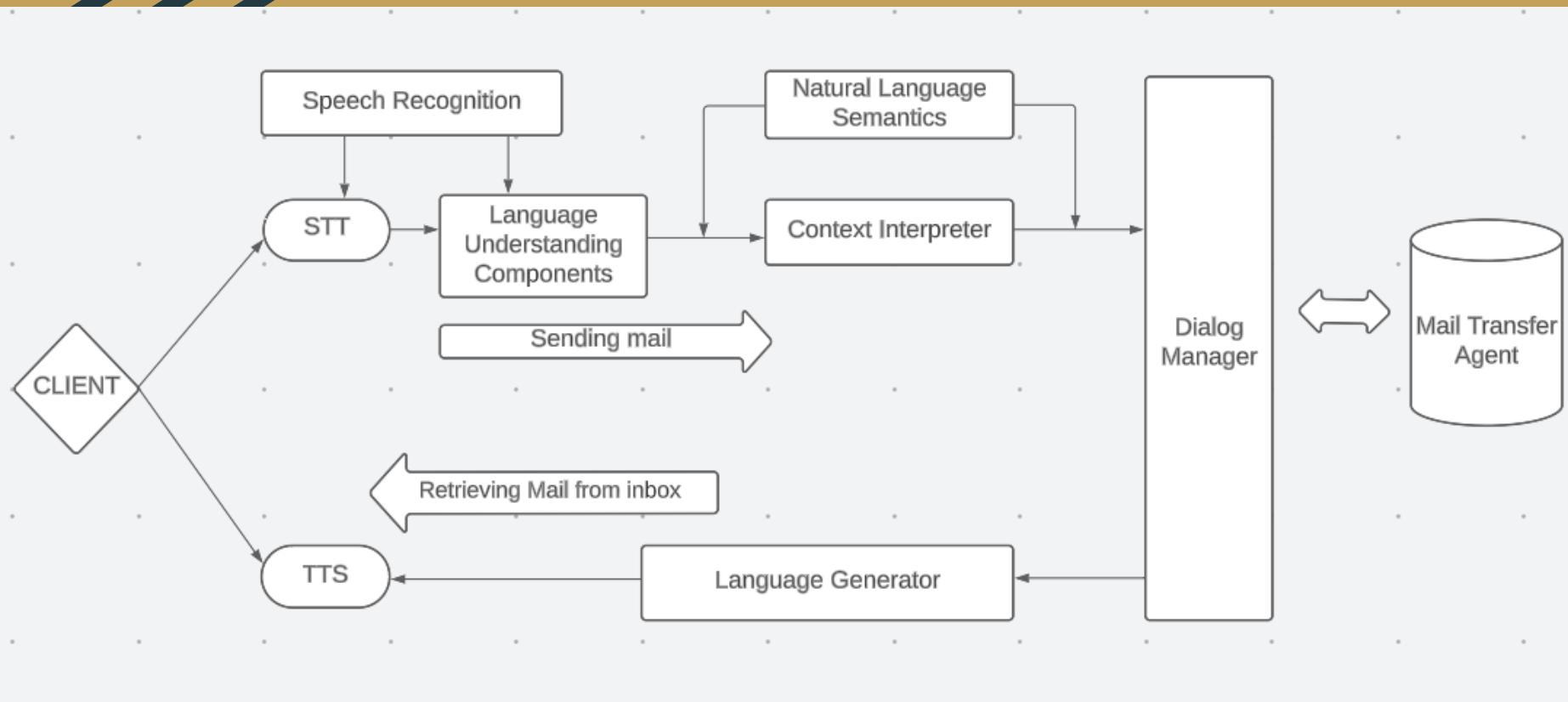
Work Flow Diagram



WORK FLOW DIAGRAM

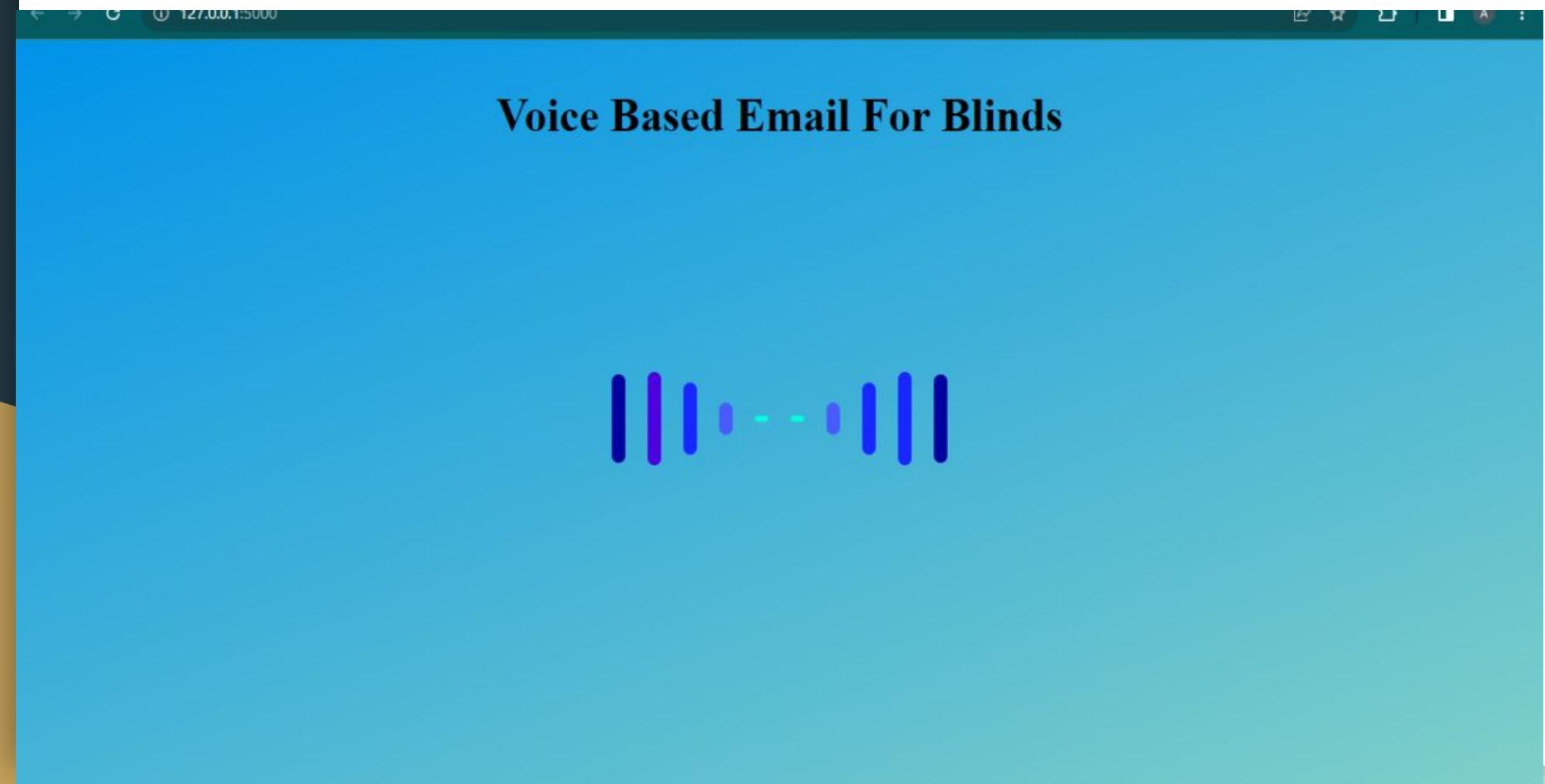


BLOCK DIAGRAM



Results and Discussion

Front end



Back End

The screenshot shows the PyCharm IDE interface. On the left, a sidebar titled 'Keymap' lists various configuration sections: Editor, Plugins, Version Control, Project: pythonProject VMAIL (which is expanded), Python Interpreter (selected and highlighted in blue), Project Structure, Build, Execution, Deployment, Languages & Frameworks, Tools, and Advanced Settings. The main window displays a table of installed packages, their current versions, and the latest available versions. The table has columns for 'Package', 'Version', and 'Latest version'. An upward arrow icon is present in the 'Latest version' column next to several package entries.

Package	Version	Latest version
Flask	2.3.2	2.3.2
Jinja2	3.1.2	3.1.2
MarkupSafe	2.1.2	▲ 2.1.3
PyAudio	0.2.13	0.2.13
SpeechRecognition	3.9.0	▲ 3.10.0
Werkzeug	2.3.4	▲ 2.3.6
beautifulsoup4	4.11.2	▲ 4.12.2
blinker	1.6.2	1.6.2
certifi	2022.12.7	▲ 2023.5.7
charset-normalizer	3.0.1	▲ 3.1.0
click	8.1.3	8.1.3
colorama	0.4.6	0.4.6
gTTS	2.3.1	▲ 2.3.2
idna	3.4	3.4
itsdangerous	2.1.2	2.1.2
mouse	0.7.1	0.7.1
pip	21.3.1	▲ 23.1.2
playsound	1.2.2	▲ 1.3.0
pyglet	2.0.5	▲ 2.0.7

ANAN

```
1 "C:/Users/ANANDHU A/PycharmProjects/pythonProject VMAIL/venv/Scripts/python.exe" "C:/Users/ANANDHU A/PycharmProjects/pythonProject VMAIL/flas.py"
2 * Serving Flask app 'flas'
3 * Debug mode: off
4 WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
5 * Running on http://127.0.0.1:5000
6 Press CTRL+C to quit
7 127.0.0.1 -- [19/Jun/2023 12:04:28] "GET / HTTP/1.1" 200 -
8 127.0.0.1 -- [19/Jun/2023 12:04:28] "GET /style.css HTTP/1.1" 404 -
9 127.0.0.1 -- [19/Jun/2023 12:04:28] "GET /static/styles.css HTTP/1.1" 304 -
10 127.0.0.1 -- [19/Jun/2023 12:04:28] "GET /favicon.ico HTTP/1.1" 404 -
11 Speak now...
12 result2:
13 { 'alternative': [ { 'confidence': 0.85369569,
14   'transcript': 'project group B at Gmail.com'},
15   'transcript': 'project group by at Gmail.com'},
16   'transcript': 'project group buy at Gmail.com'},
17   'transcript': 'project group bye at Gmail.com'},
18   'transcript': 'project group bi at Gmail.com'}],
19 'final': True}
20 You said: project group B at Gmail.com
21 Speak now...
22 result2:
23 { 'alternative': [ { 'confidence': 0.64370626, 'transcript': 'yes correct'},
24   'transcript': 'face correct'},
25   'transcript': 'is correct'},
26   'transcript': 'please correct'},
27   'transcript': 'he is correct'}],
28 'final': True}
29 You said: yes correct
30 Speak now...
31 result2:
32 { 'alternative': [{ 'confidence': 0.88687539, 'transcript': '12345678'}],
33 'final': True}
34 You said: 12345678
35 12345678
36 Speak now...
37 result2:
38 { 'alternative': [ { 'confidence': 0.88687539,
39   'transcript': 'yes that is correct'},
40   'transcript': 'yes there is correct'},
41   'transcript': "yes they're is correct"},
42   'transcript': 'yes their is correct'},
43   'transcript': 'yes Thehre is correct'}],
44 'final': True}
```

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ANAN

```
45 You said: yes that is correct
46 Speak now...
47 result2:
48 { 'alternative': [ { 'confidence': 0.82553166,
49   'transcript': 'speak now I want to write a mail'},
50   'transcript': 'speak now I want to write a meet'},
51   'transcript': 'speak now I want to write a m'},
52   'transcript': 'speak now I have to write a mail'},
53   'transcript': 'speak now how to write a mail'}],
54 'final': True}
55 You said: speak now I want to write a mail
56 composing
57 Speak now...
58 result2:
59 { 'alternative': [ { 'confidence': 0.82505739,
60   'transcript': 'a n a n d h u m a n u 1433 '},
61   'transcript': 'gmail.com'},
62   { 'transcript': 'a n a n d h u m a n u 143 at the '},
63   'transcript': 'gmail.com'},
64   'transcript': 'a n a n d h u m a n u 143 at Gmail.com'},
65   'transcript': 'a n a n d h u m a n u 13 at Gmail.com'},
66   { 'transcript': 'a l a n d h u m a n u 13 at the '},
67   'transcript': 'gmail.com'}],
68 'final': True}
69 You said: a n a n d h u m a n u 1433 gmail.com
70 a n a n d h u m a n u 1433 gmail.com
71 anandhumanu1433@gmail.com
72 Speak now...
73 result2:
74 { 'alternative': [ { 'confidence': 0.84690768,
75   'transcript': 'no no no that is not'},
76   'transcript': 'no no that is not'},
77   'transcript': 'no no no no that is not'},
78   'transcript': 'no not that is not'},
79   'transcript': 'no known that is not'}],
80 'final': True}
81 You said: no no no that is not
82 Speak now...
83 result2:
84 { 'alternative': [ { 'confidence': 0.88687521,
85   'transcript': 'a n a n d h u m a n u 143@gmail.com'},
86   'transcript': 'a n a n d h u m a n you 143@gmail.com'},
87   'transcript': 'a n a n d h u m a n Yu 143@gmail.com'},
88   'transcript': 'a n a n d h u m a n ew 143@gmail.com'},
89   'transcript': 'a an a n d h u m a n u 143@gmail.com'}],
90 'final': True}
91 You said: a n a n d h u m a n u 143@gmail.com
```

Page 2 of 5

```
Speak now...
result2:
{  'alternative': [    {    'confidence': 0.88687533,
                           'transcript': 'I want to write a mail'},
                           {'transcript': 'I want to write a male'},
                           {'transcript': 'I want to write a Mel'},
                           {'transcript': "I won't to write a mail"},
                           {'transcript': 'I wont to write a mail'}],
  'final': True}
You said: I want to write a mail
```

composimg

Speak now...

```
result2:
```

PERFORMANCE

1. ACCURACY : The ratio of correctly translated sentences to the total number of sentences.
 - i.Tested against 100 common english sentences and it correctly translated 76 of them

The Accuracy = 76%
1. RESPONSE TIME :Time taken to get the response from the server when the client input received

PERFORMANCE

- EXECUTION TIME : Total time taken for translation of speech to text and text to speech

The Execution of text to speech conversion take less than 1 second

The Execution of speech to text conversion take an average time of 5 seconds.

APPLICATION AND FUTURE SCOPE

- This can be used as communication system for visually impaired person.
- Illiterate people can also use this.
- In future we can add multiple languages,improve accuracy,can add media files.

CONCLUSION

Voice based email system helps visually challenged people to access email services efficiently. It has been observed that nearly about 60 percent total blind population across the world is present in India. This system overcomes difficulties faced by visually impaired people as well as illiterate people. This will reduce the drawbacks of existing system such as software load of using screen readers and Automatic SpeechRecognizer(ASR). The system will be guiding the user what needs to be performed for obtaining desired results by prompting. Hence this reduces the user's load of remembering keyboard shortcuts and location of keys. The user needs to follow the instructions given by the system.

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THANK YOU

