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COMPUTER PROJECT 1 – PROJECT 1/REPORT 3

VOICE BASED MAIL SYSTEM FOR VISUALLY IMPAIRED PEOPLE

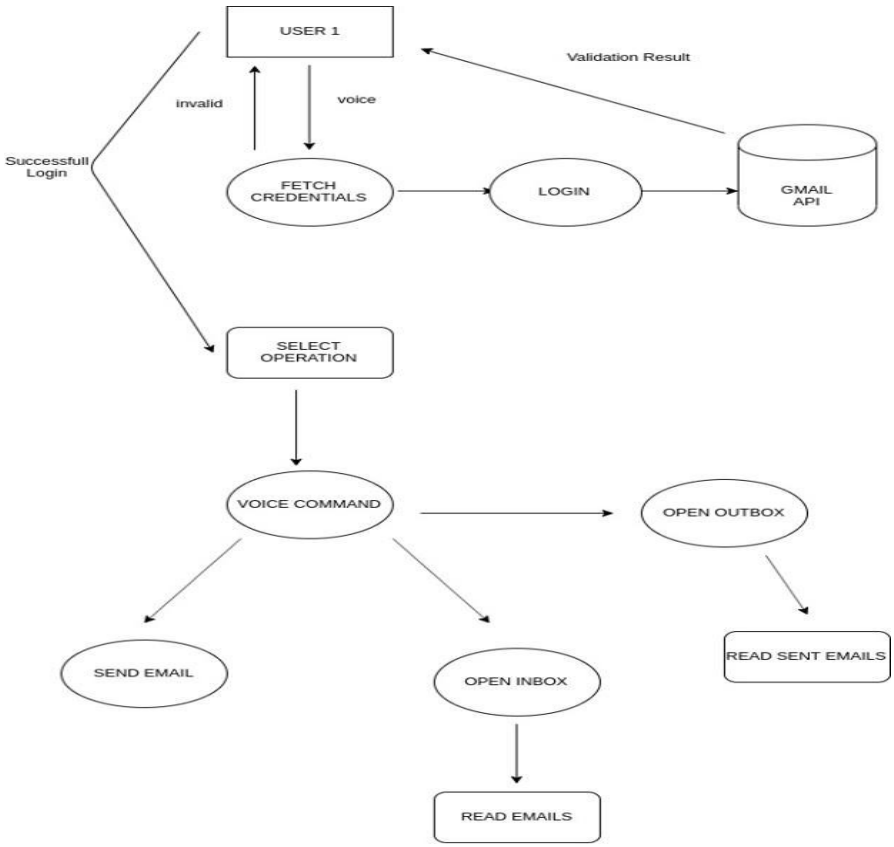
An executable programme which is a mail system that can be controlled by sound for visually impaired people. The logic of the programme will be similar to a voice assistance logic. Visually impaired person will easily be able to send and receive mails via gmail.com. Programme will read received messages and communicate with the user. There will be 3 main commands which can create new mail, open inbox, open outbox.

- **Create New Mail Task:** It will get to, cc, subject informations from user by sound. Then it will get text message to be sent. According to these informations. It will connect to gmail.com and send the message.

- **Open Inbox:** It will connect to gmail.com and read messages in inbox. User will determine how many messages will be read by the programme. User will also be able to stop programme to read the message.

- **Open Outbox:** It will connect to gmail.com and read messages in outbox. User will determine how many messages will be read by the programme. User will also be able to stop programme to read the message.

FLOWCHART OF THE PROGRAMME



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USED TECHNOLOGIES

- Python 3.7
- Python's libraries mainly used:
  - pygame,
  - speech_recognition,
  - gTTS
  - pyaudio
  - mutagen
  - email
  - base64
  - apiclient
- Gmail API
- Text to speech and speech to text technologies of google.

INSTRUCTIONS TO RUN THE PROGRAMME

- Follow the first step in link given to create credentials.json to turn on the Gmail API https://developers.google.com/gmail/api/quickstart/python

- Install the Google Client Library by running following command:
  - pip install --upgrade google-api-python-client google-auth-httplib2 google-auth-oauthlib

- Put main.py, gmail_api.py, send_mail, read_mail.py and credentials.json(created in first step) files in a same folder named voice_project.

- Be sure python's SpeechRecognition, gtts, pygame, pyaudio, mutagen, email, base64 and apiclient libraries installed.

- Navigate to folder 'voice_project' and run 'python3 main.py' in terminal.

FINAL PROGRAMME FLOW AND LOGIC

- **main.py:** Programme starts and wait for open inbox, open outbox and send mail commands. It first run main() function in gmail_api.py to connect to Gmail API and get authorization. There are speak() which converts text to speech in english, speak_turkish() which converts text to speech in turkish and get_audio() which converts speech to text functions. There are also if else blocks that navigate to the desired seciton. With the help of these functions talks to user and understands what user said and with the help of if else blocks, it runs the desired sections.

- **gmail_api.py:** It connects to Gmail API and desire user login in the first run. After first run it saves authorization token in user's local and doesn't want user login in the next runs. It gives full access to the account, including permanent deletion of threads and messages.

- **send_mail():** It gets 'to' line from keyboard in the command line because it was difficult to understand the receiver mail. Then it gets subject and body of message informations from

user by sound. According to these informations. It connects to gmail.com and send the message.

- **read_mail.py:** It connects to gmail.com and reads messages in inbox or outbox. According to the given parameters in main.py file, it brings inbox or outbox messages. And also user can choose programme to read last message, today's messages and messages left from yesterday in inbox or outbox.