Documentation for VISTA

Hardware Requirements.

1. Host Machine:
    a. RAM: 4GB.
    b. CPU: Dual Core CPU with 64-bit instruction set architecture.
    c. Monitor: 1080x720, 60 Hz refresh rate, HDR Display.
    d. Storage: 700 MB for the application.
    e. Microphone and Speaker
2. XTrans Kit:
    a. Raspberry Pi 3 B+.
    b. Arduino Uno.
    c. Temperature and Humidity Sensor.
    d. LED lights.
    e. Ultrasonic Sensor.
    f. Monitor supported by Raspberry Pi.
    g. Storage: 20KB.

Software Requirements.

1. Host Machine:
    a. OS: Windows 10 or later.
    b. Interpreter: Python 3.12.7.
    c. Browser that supports SpeechRecognition Module in JavaScript.
    d. Gemini API.
    e. Django Web Framework and Flask.
    f. VSCode [For installation refer this: **https://medium.com/nerd-for-tech/install-visual-studio-code-fe3908c5cf15**].
2. XTrans Kit:
    a. OS: Raspberry Pi 32-bit.
    b. Interpreter: Python that supports Raspberry Pi.
    c. Flask.
    d. RPi.GPIO Module and Adafruit_DHT Module.

Host Machine Installation Instructions.

1. Copy the Project Folder named “AIOTVISTA” to the Desktop.
2. Right click on AIOTVISTA Folder and select “Open with Code” [If Windows 11 then go to “Show more options” and then select “Open with Code”].
3. When the VSCode Editor open’s Open a new CMD Terminal in the VSCode.
4. Activate the Virtual Environment by Entering following Command in the Command Prompt Terminal.

```
(env) C:\Users\[user-name] \Desktop\AIOTVISTA> env\Scripts\Activate
```

5. Install the Dependencies using the following Command.

```
(env) C:\Users\[user-name] \Desktop\AIOTVISTA> pip install -r requirements.txt
```

6. Generate an API Key from the Google Gemini’s website.
7. Set the API key Under an Environment Variable called GOOGLE_GEMINI_API_KEY for both System and User Variable.
8. Go to vistachat.html in line Number 315 paste Gemini API key.
9. Go to gemini.py in Line number 22 change the IP- address to the IP address of the Raspberry PI by typing the following command . Goto Line number 28 change the IP-address to the IP-address of the Host machine i.e, windows machine.

```
~pi@raspberry$ ifconfig
```

10. Generate an OpenWeather API and paste it in line number 79 in views.py.
11. Migrate the Database by entering the following Command.

```
(env) C:\Users\[user-name] \Desktop\AIOTVISTA> cd vista && python manage.py migrate
```

12. Run the Django server by Entering the following command.

```
(env) C:\Users\[user-name] \Desktop\AIOTVISTA\vista> python manage.py runserver
```

13. Create a new Terminal in the VSCode.
14. Enter the following command.

```
(env) C:\Users\[user-name] \Desktop\AIOTVISTA > cd vista

(env) C:\Users\[user-name] \Desktop\AIOTVISTA\vista > python vistabackendserver.py
```

XTrans Kit Installation Instructions.

1. Navigate to Project Folder named ProjectV.
2. In the file notification.py, Line number 16 change the IP-address to the IP-address of the host machine, similarly change IP address in the line number 10 to the IP-address of the host machine.
3. Run the following command to install all the dependencies.

```
~pi@raspberry\Desktop\ProjectV$ pip install -r requirements.txt
```

4. Run the python files listenled.py, notification.py and tempertureprovider.py in separate terminals.

Usage Instructions.

1. Sign up to create a new account.
2. Login through the new account.
3. Speak after the music is played.

Refer the below video for demonstration

VISTA Demonstration:
https://drive.google.com/file/d/15ly29BAPpL5H9PEMe7qVdFMsyLYvIiNq/view?usp=sharing