*** This is a guide document for Hand gesture recognition ***

SETUP & Guidelines:

- Before starting make sure you have installed python3 in your computer.

- Do not forget to select Add to path environment variable checkbox while installing python.

- Python version 3.7 is recommended version for this tool. Probably works fine with others as well.

To install dependency use on terminal / cmd: $pip install -r requirements.txt or $pip3 install -r requirements.txt (select based on your pip version)

How to run hand gesture recognition application?

Mac user:

- in terminal go to folder via cd command: $cd [NAME_OF_DIRECTORY]

- use $python main.py

- camera will open automatically

Windows user:

- By just double click on main.py file you get command prompt AND camera.

OR

- in CMD/PowerShell go to folder via cd command: $cd [NAME_OF_DIRECTORY]

- use $python3 main.py OR $python main.py

- camera will open automatically.

Process description & guidelines:

- Camera will start automatically after you run command,

Important NOTE: To quit from the camera screen press 'ESC' from keyboard. Because close button will inactive in web camera screen.

- Algorithm is divided into 2 part.

1. hand detection: We use media pipe library for detecting hand

Reference link: https://google.github.io/mediapipe/solutions/hands.html

2. gesture recognition: We use deep learning base classifier to classify hand gesture.

Currently we can detect 8 gestures of any hand:

1. Stop
2. Close hand
3. Raise finger
4. Thumbs up
5. Ok
6. Peace
7. Rock on
8. Loser

- We can successfully able to detect user left / right hand as well.

List of FEATURES of this TOOL:

1. User level input functionality – user can try with any webcam / video / live stream.

2. Current accuracy of the system is more than 90% and system can successfully able to recognise multiple hands up to 2.5 meters with simple HD camera.

3. **Modular** based code easily separable according to requirement)

4. Easy to deploy on server (**compatibility**)

5. Tool have powerful backend with such advanced deep learning techniques.

6. THRESHOLD available to manage detection. (HIGH THRESHOLD -> very accurate detection)

7. provided output form the script should be further use directly with **FROUNTEND/SERVERS/APIS**.

8. Code is well documented; explanation is available on each line.

Overview of FILEs & FOLDERs:

- main.py : Main script for gesture recognition

- requirement.txt: python dependency

- utils folder: contains files to calculate FPS

- model folder: contain classifier for recognize gesture of hand