Gesture recognition

Introduction

MediaPipe is an open source data stream processing machine learning application development framework developed by Google. It is a graph-based data processing pipeline for building and using multiple forms of data sources, such as video, audio, sensor data, and any time series data.

MediaPipe is cross-platform and can run on embedded platforms (Raspberry Pi, etc.), mobile devices (iOS and Android), workstations and servers, and supports mobile GPU acceleration. MediaPipe provides cross-platform, customizable ML solutions for real-time and streaming media.

The core framework of MediaPipe is implemented in C++ and provides support for languages such as Java and Objective C. The main concepts of MediaPipe include Packet, Stream, Calculator, Graph and Subgraph.

Features of MediaPipe:

- End-to-end acceleration: Built-in fast ML inference and processing accelerates even on commodity hardware.
- Build once, deploy anywhere: Unified solution for Android, iOS, desktop/cloud, web and IoT.
- Ready-to-use solutions: cutting-edge ML solutions that showcase the full capabilities of the framework.
- Free and open source: frameworks and solutions under Apache2.0, fully extensible and customizable.

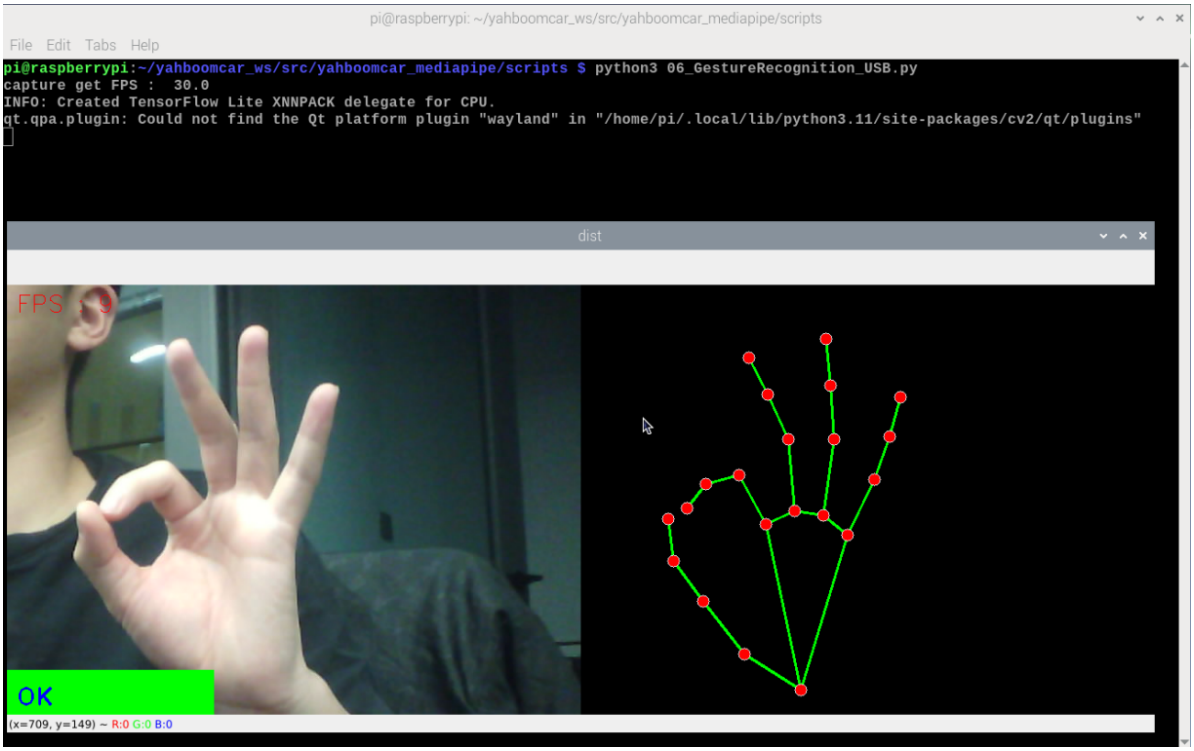
Gesture Recognition

Source code location:/home/pi/yahboomcar_ws/src/yahboomcar_mediapipe/scripts

```
Gesture recognition designed with the right hand in mind can be accurately
recognized when certain conditions are met. The recognized gestures are: [Zero,
One, Two, Three, Four, Five, Six, Seven, Eight, Ok, Rock, Thumb_up (like),
Thumb_down (thumb down), Heart_single (one-handed heart) ], 14 categories in
total.
```

```
If you want to exit the program, you can press q in the preview window or press
Ctrl+C in the terminal to terminate the program!
```

```
cd /home/pi/yahboomcar_ws/src/yahboomcar_mediapipe/scripts
python3 06_GestureRecognition_USB.py
```


pi@raspberrypi: ~/yahboomcar_ws/src/yahboomcar_mediapipe/scripts
File Edit Tabs Help
pi@raspberrypi:~/yahboomcar_ws/src/yahboomcar_mediapipe/scripts $ python3 06_GestureRecognition_USB.py
capture get FPS : 30.0
INFO: Created TensorFlow Lite XNNPACK delegate for CPU.
qt.qpa.plugin: Could not find the Qt platform plugin "wayland" in "/home/pi/.local/lib/python3.11/site-packages/cv2/qt/plugins"
dist
FPS : 9
OK
(x=709, y=149) ~ R:0 G:0 B:0