3D object 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.

3D object recognition

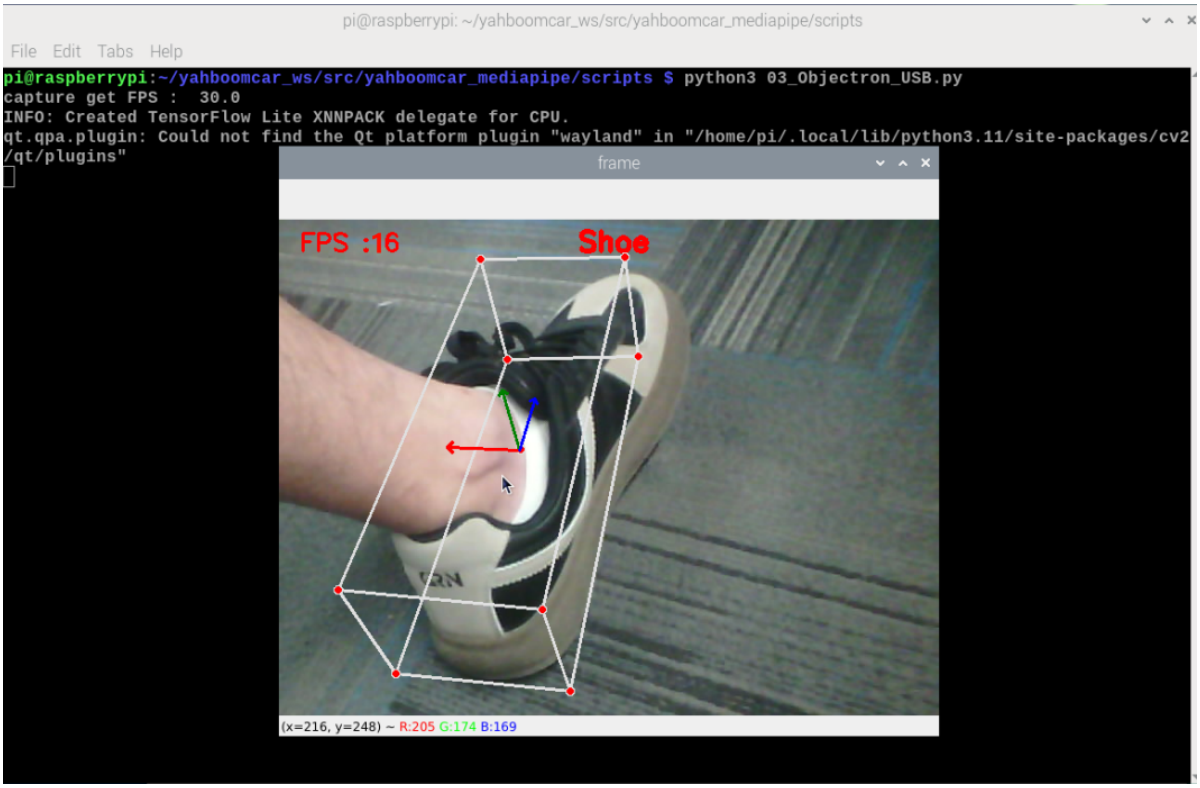
Source code location:/home/pi/yahboomcar_ws/src/yahboomcar_mediapipe/scripts

```
Three-dimensional object recognition: The objects that can be recognized are:
['Shoe', 'Chair', 'Cup', 'Camera'], a total of 4 categories; click [F key] to
switch to recognized objects.
```

```
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!
```

1. USB camera

```
cd /home/pi/yahboomcar_ws/src/yahboomcar_mediapipe/scripts
python3 03_Objectron_USB.py
```



2. CSI camera

```
cd /home/pi/yahboomcar_ws/src/yahboomcar_mediapipe/scripts
python3 03_Objectron_CSI.py
```