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 used to build data sources in various forms, 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 packets, streams, calculators, graphs, and subgraphs.

Features of MediaPipe:

- End-to-end acceleration: built-in fast ML inference and processing can be accelerated even on ordinary hardware.
- Build once, deploy anywhere: unified solution for Android, iOS, desktop/cloud, web and IoT.
- Ready-to-use solution: cutting-edge ML solution that demonstrates the full functionality of the framework.
- Free and open source: framework and solution under Apache2.0, fully extensible and customizable.

Gesture recognition

Note: The AI camera in this case has no computing power bonus, it is called as a normal camera!

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

```
The gesture recognition is designed based on the right hand and can accurately recognize gestures when certain conditions are met. The gestures that can be recognized are: [Zero, One, Two, Three, Four, Five, Six, Seven, Eight, Ok, Rock, Thumb_up (Like), Thumb_down (Thumbs down), Heart_single (heart with one hand)], a total of 14 categories.
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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!
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```
cd /home/pi/yahboomcar_ws/src/yahboomcar_mediapipe/scripts
python3 06_GestureRecognition_CSI.py
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