PoseTrack

User Manual

2017-11-28

OPEN AI LAB

Revision Record

Date	Rev	Change Description	Author
2017-11-28	1.0.0	Initial	Morris

catalog

1 Purpose

This guide help user start to build an application on Android utilize the CVGesture and TrackerDsst based on OpenCV 3.3.1.

2 Terminology

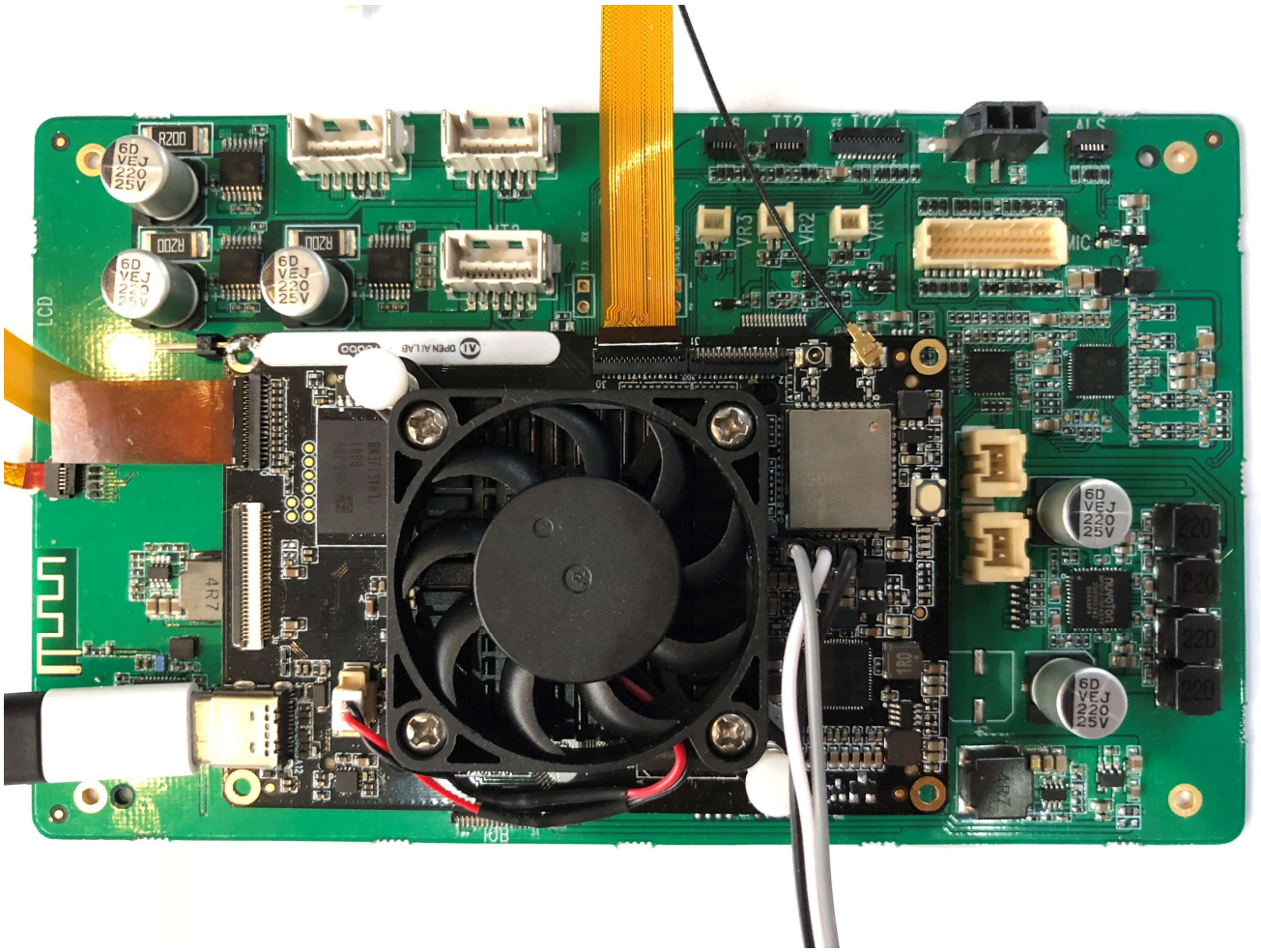
- CVGesture: https://github.com/OAID/CVGesture it uses OpenCV to recognize multi hand gesture.
- TrackerDsst: https://github.com/OAID/TrackerDSST This library includes several tracking methods based on the Kernelized Correlation Filter (KCF) for translation changes and the Discriminative Scale Space Tracker (DSST) ,based on OpenCV
- OpenCV: OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products. Being a BSD-licensed product, OpenCV makes it easy for businesses to utilize and modify the code.

3 Environment

3.1 Hardware Platform

SoC : Rockchip RK3399

- GPU : Mali T864 (800MHz)
- CPU : Dual-core Cortex-A72 up to 2.0GHz (real frequency is 1.8GHz); Quad-core Cortex-A53 up to 1.5GHz (real frequency is 1.4GHz)



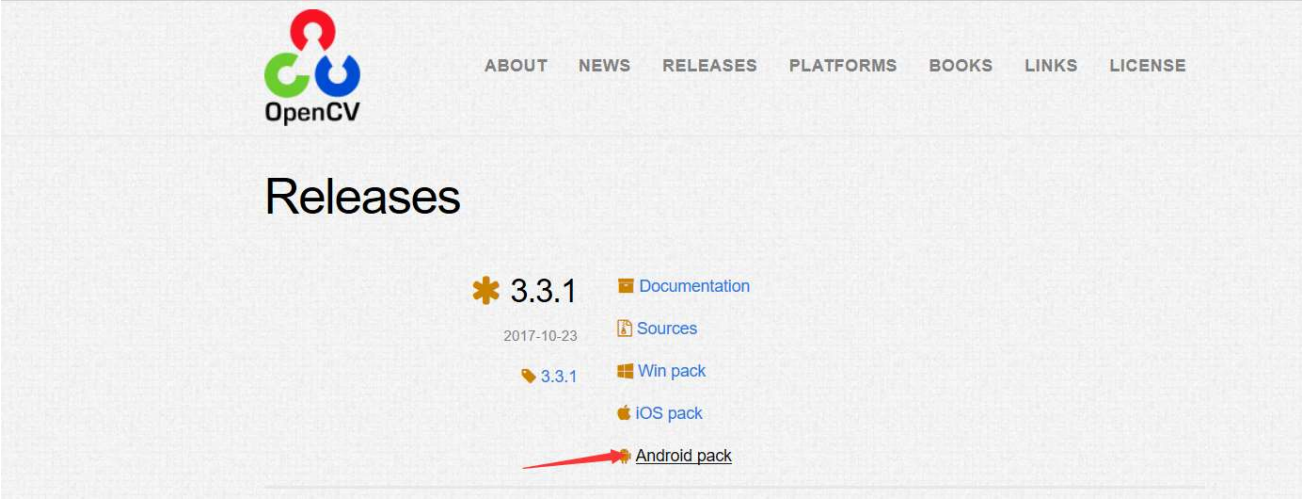
3.2 Software platform

Operating System : Android 6.0

4 Install Guide

4.1 Download OpenCV Android SDK

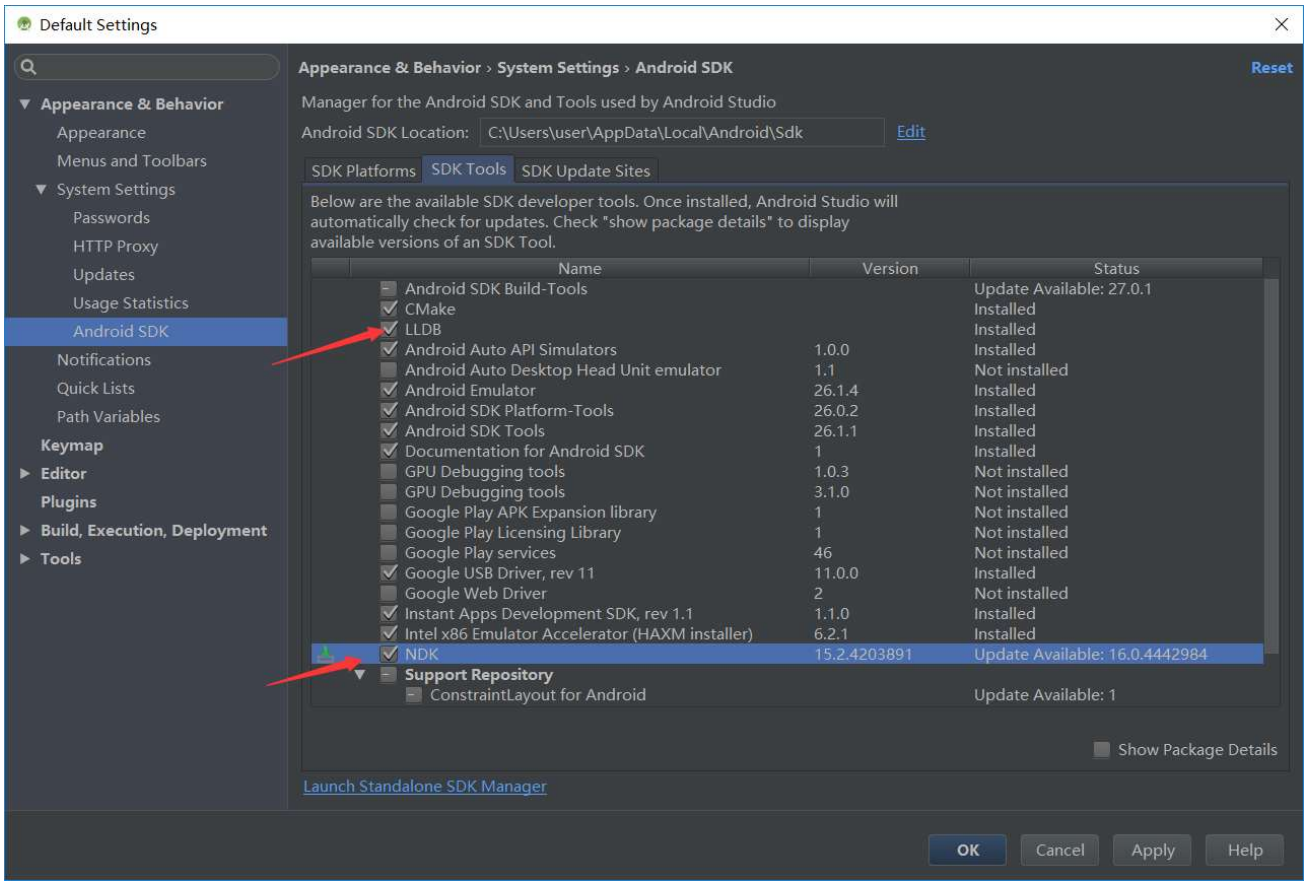
https://opencv.org/releases.html



4.2 Download Development Environment

Install Android Studio version >=2.2, in version 2.2 NDK support cmakelists.txt for NDK compile and link. NDK is needed and LLDB is preferred

http://www.android-studio.org/

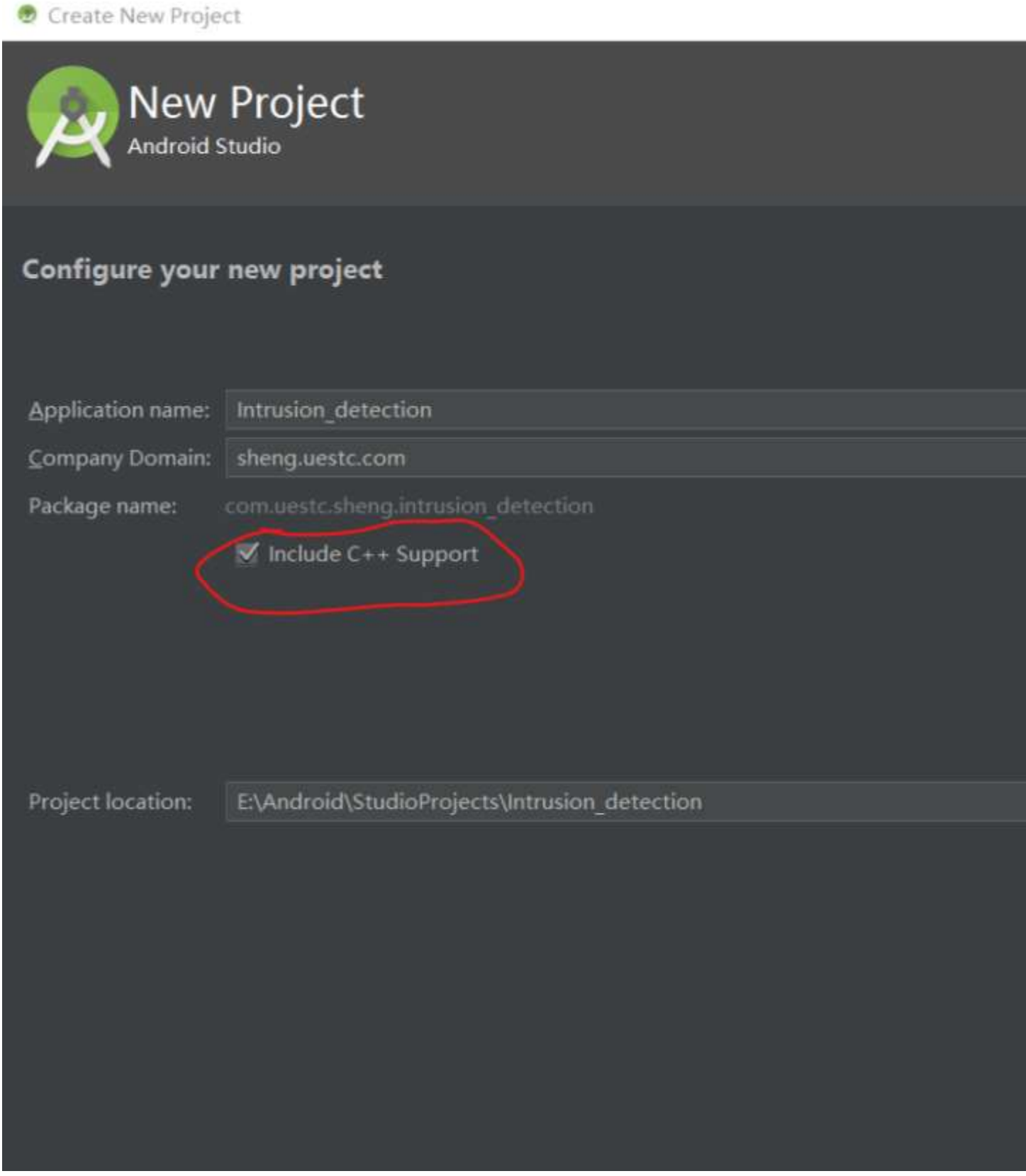


4.3 Download library source code from GitHub

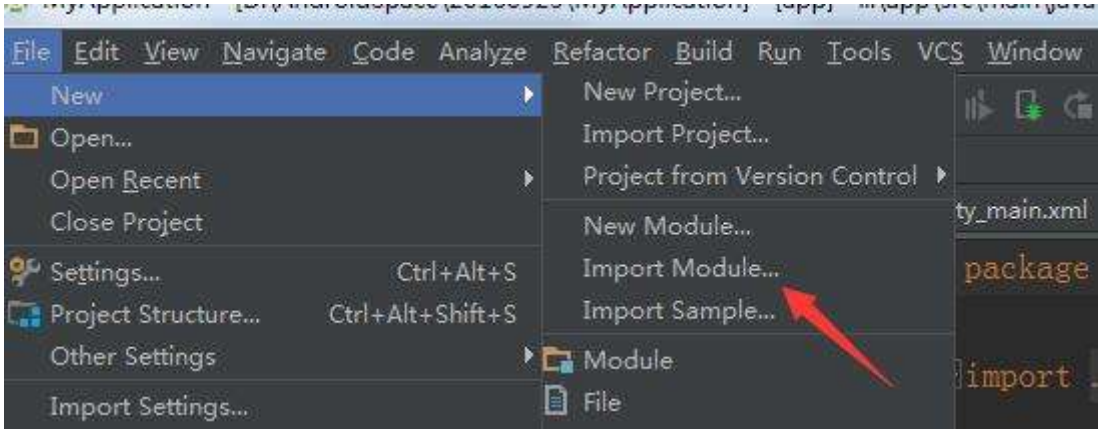
CVGesture : https://github.com/OAID/CVGesture
TrackerDsst: https://github.com/OAID/TrackerDSST

5 Create project Guide

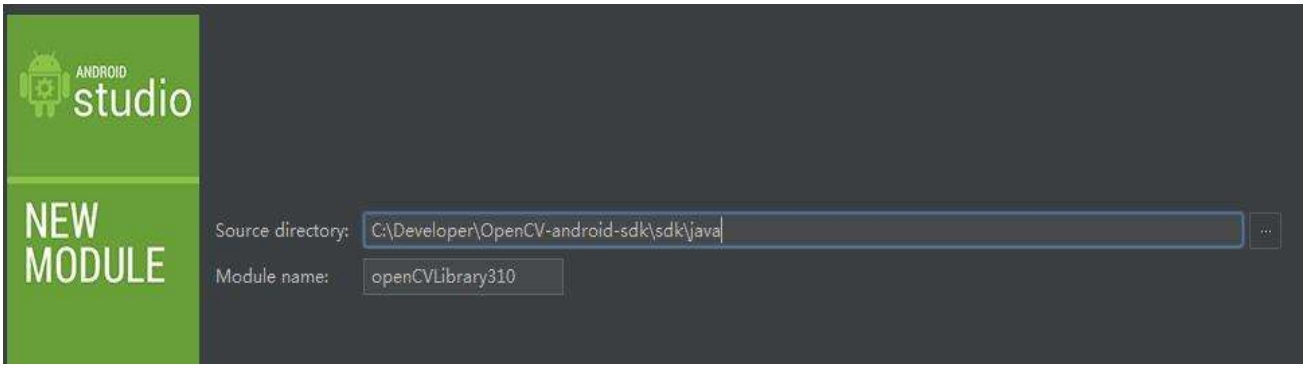
1 In Android Studio create a project with c++ support



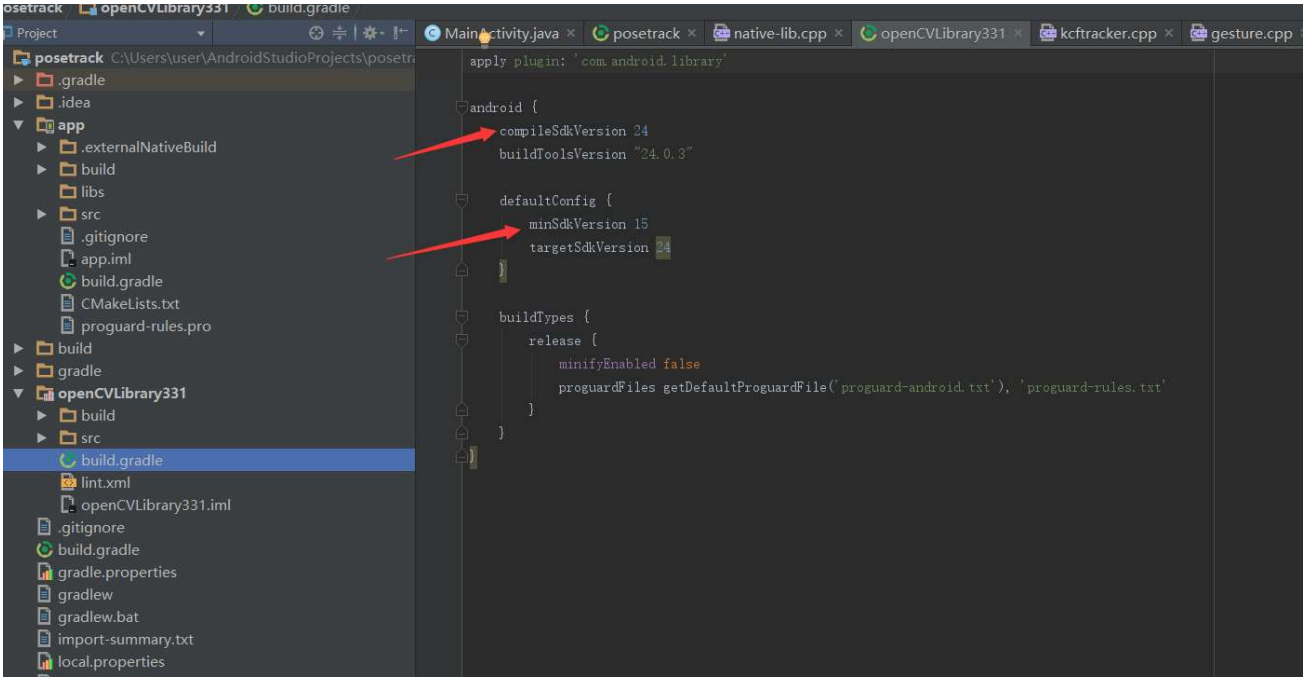
2 import OpenCV-Android-SDK to this project



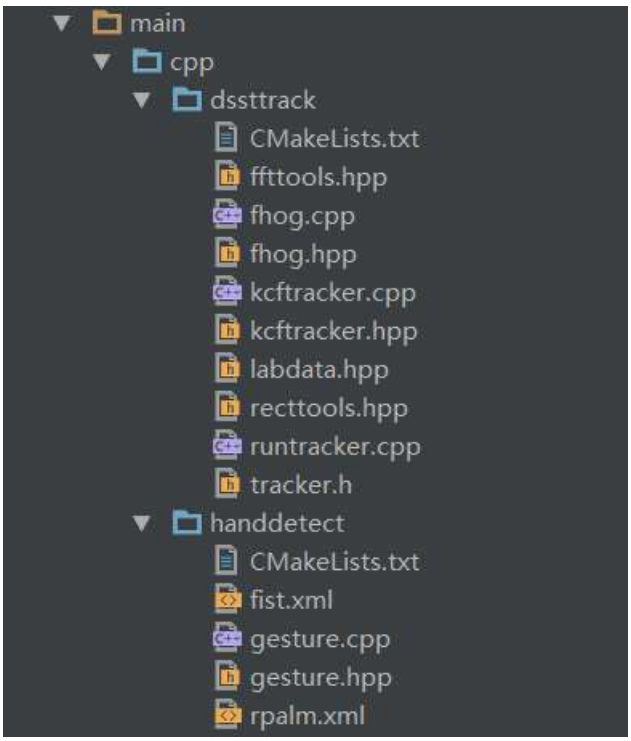
Select the directory where you store your OpenCV-android-sdk, select sub directory sdk\java.



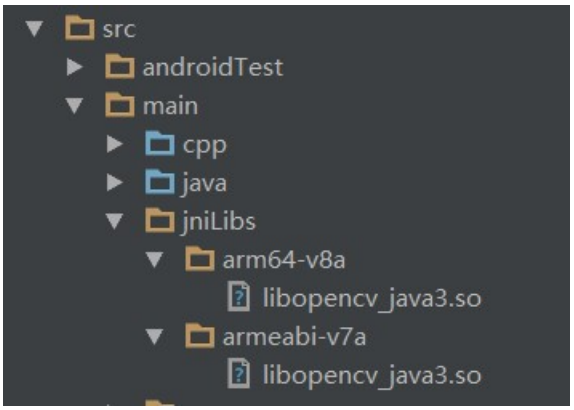
If the module built with error, change it's SDK version according to your project



3 Create sub directory in src/main/cpp named dssttrack, copy source code from GitHub to this directory



4 Copy libopencv_java3.so from OpenCV-Android-SDK according directory such as arm64-v8a and armeabi-v7a to src/main/jniLibs



For details please refer to this blog: http://blog.csdn.net/zxx20145/article/details/53020964

6 Function Guide

After build and install the application, please create a directory /mnt/sdcard/openailab and copy rpalm.xml and fist.xml from CVGesture to this directory before launch the APK, you can use left hand gestures like fist and palm for choose the track sub-window.

1 first palm then fist to choose the first point of sub-window to choose, see image 6-1,2

2 use palm for choose the diagonal point of the sub-window, see image 6-3

3 after choose the point you want use fist for confirm, then there will be a sub-window in which TrackerDsst will track the thing in sub-window when it moves.

Remind: This demo APK uses USB camera, in Android USB camera is used as back camera, we use OpenCV API flip to make it look like mirror mode. If you are using on board front camera please fix this in src/main/cpp/native-lib.cpp.

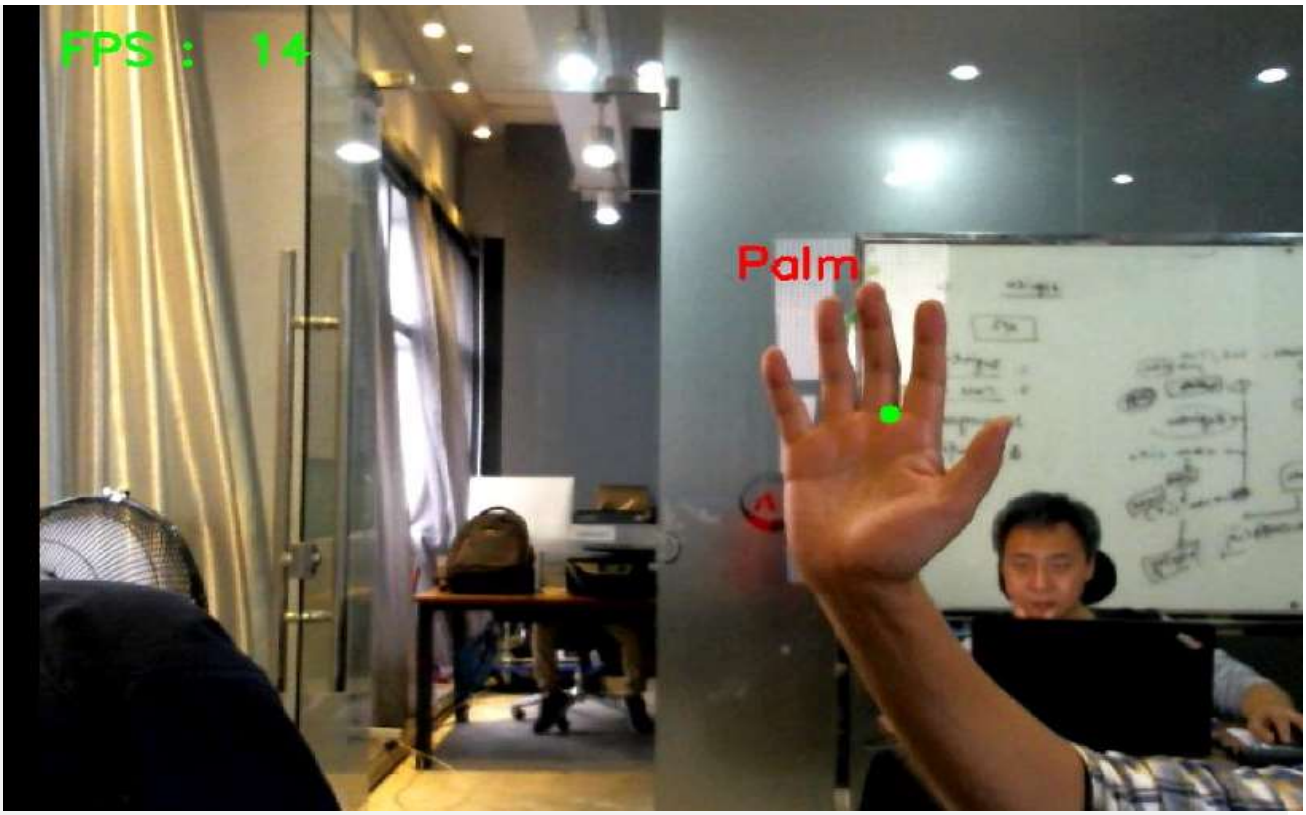


Image 6-1

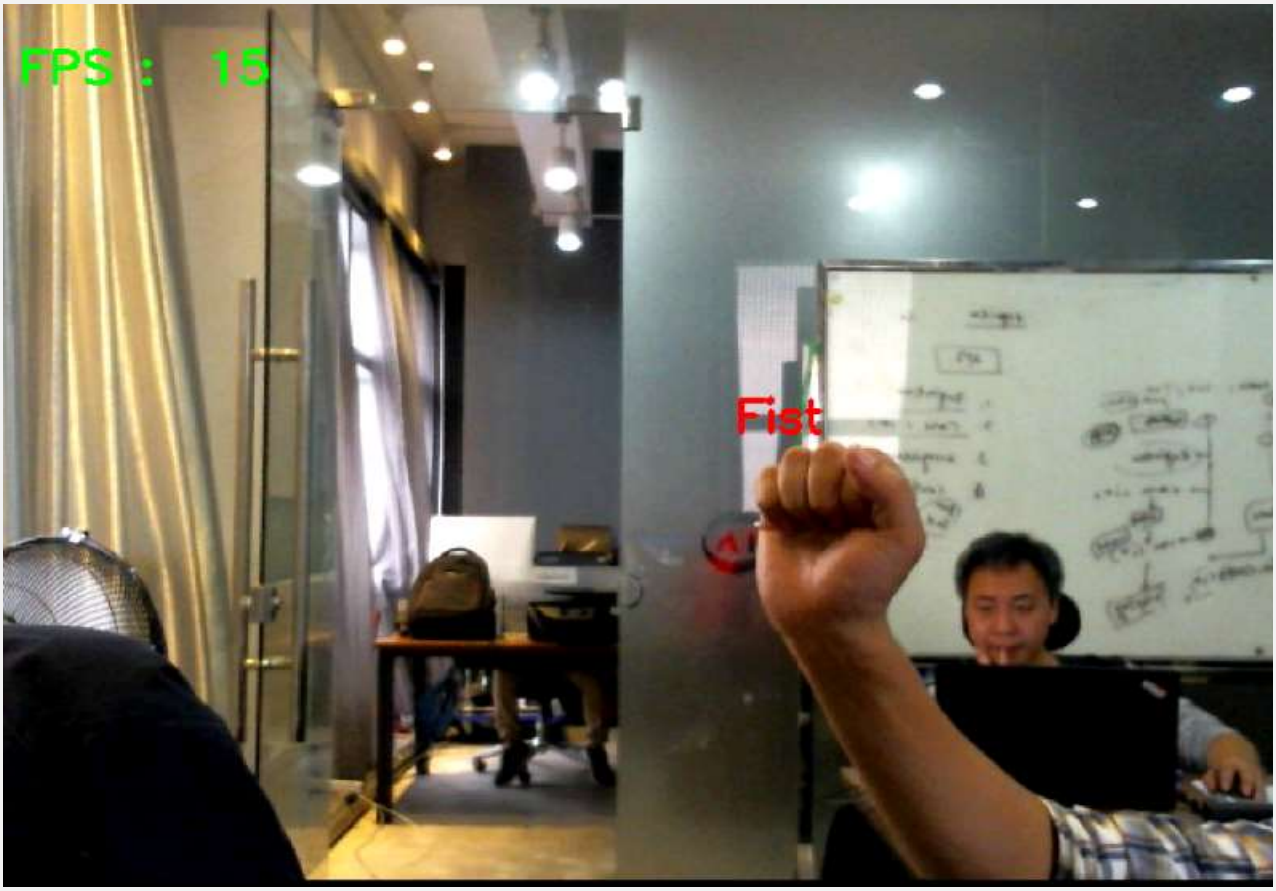


Image 6-2

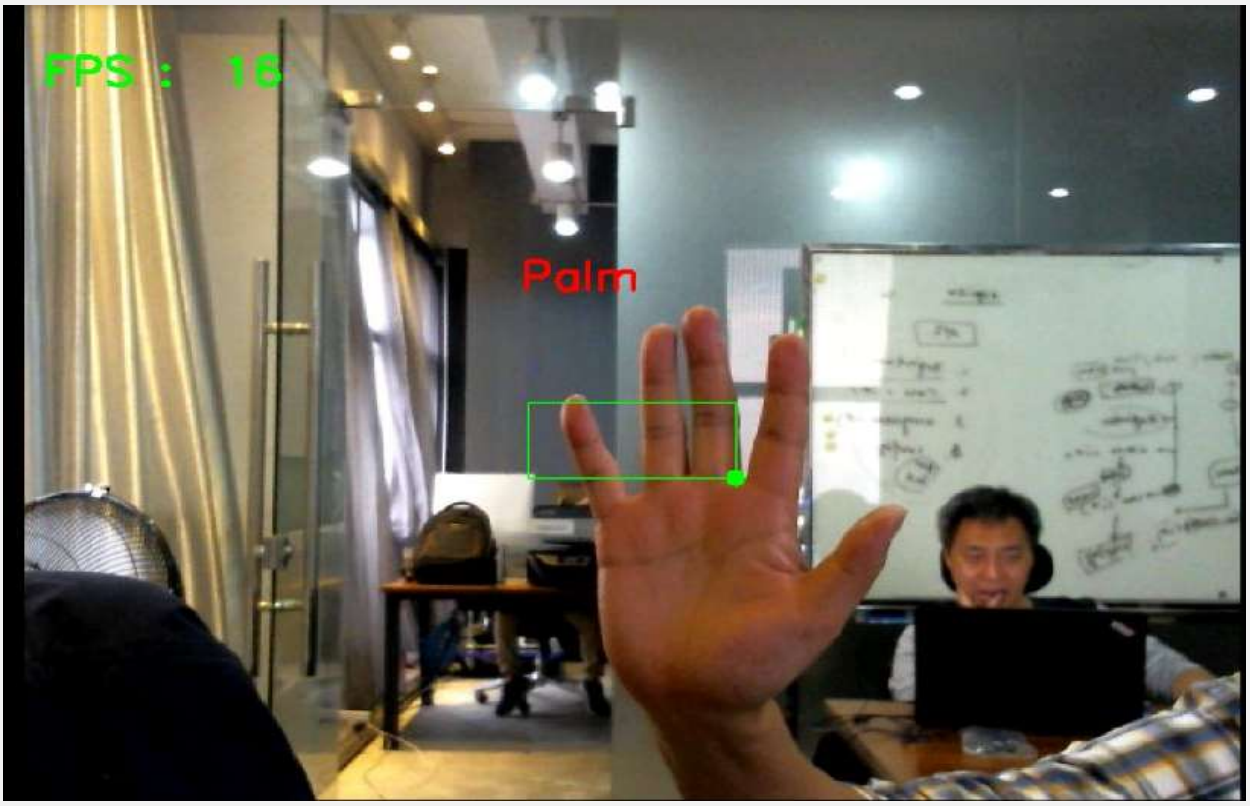


Image 6-3

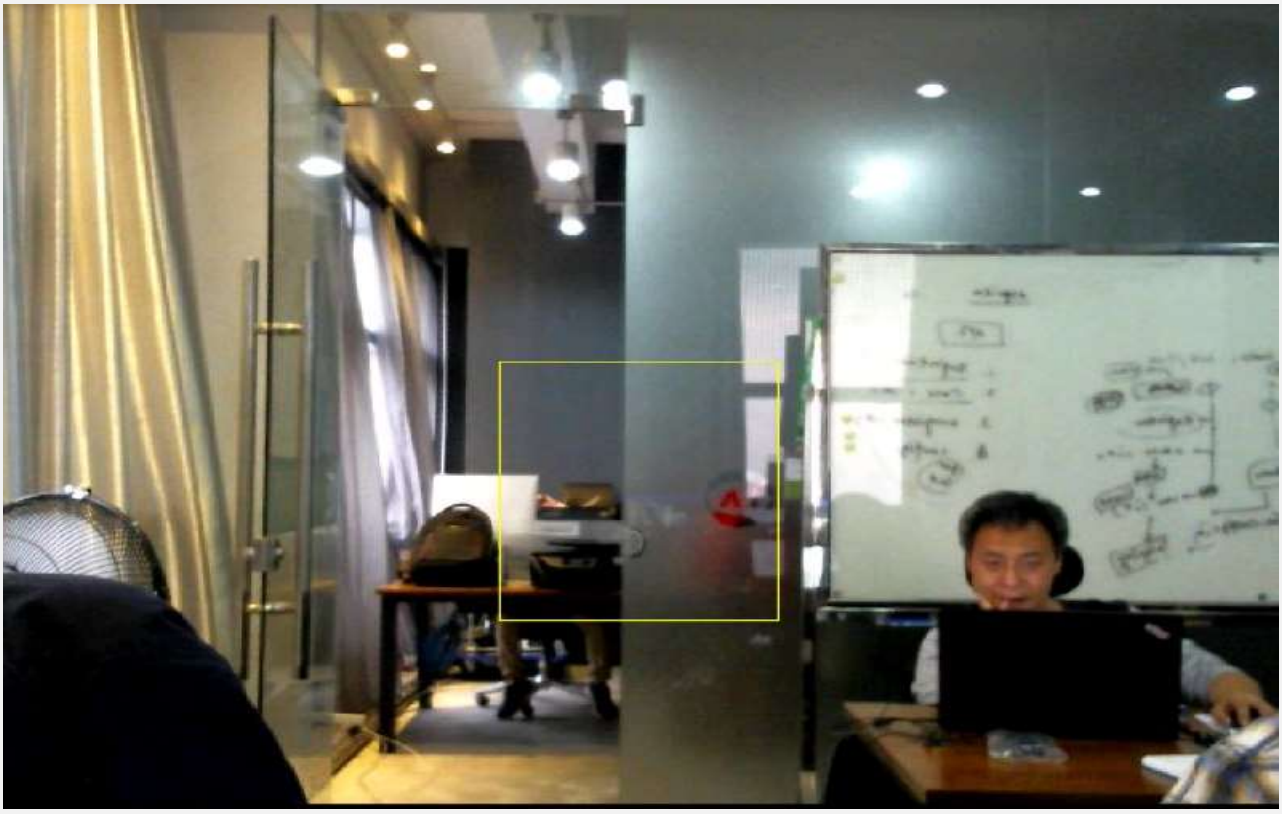


Image 6-4