Quick Start Guide of SIMcam in Developer Mode

ver 1.0.0
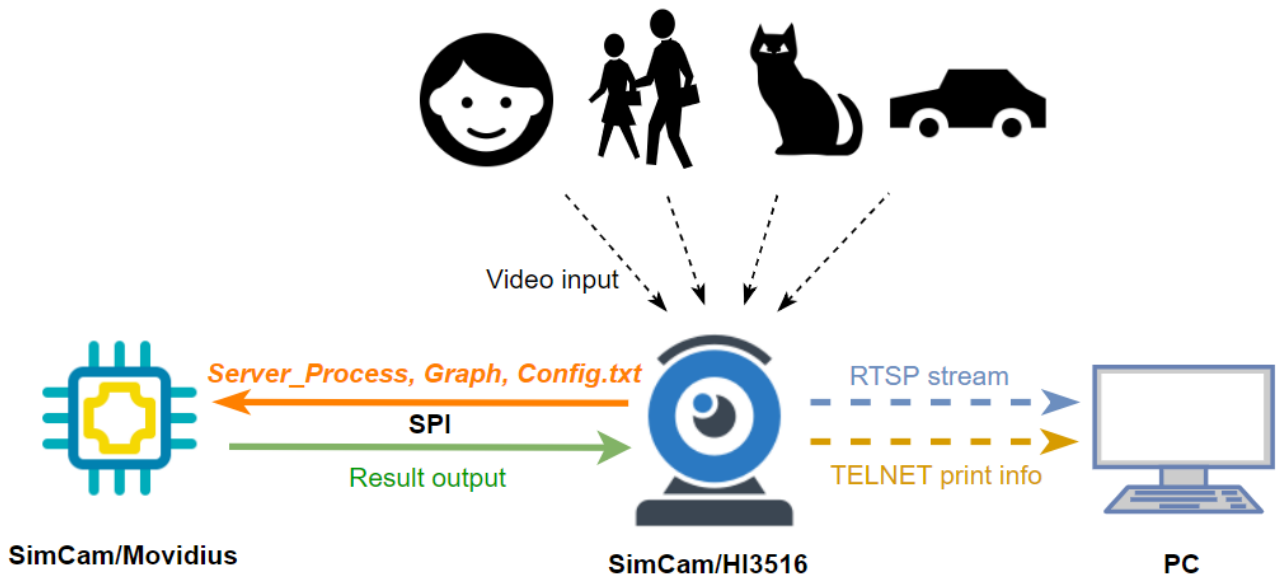
Release History

ver 1.0.0	2019/03/16	First version content

1 INTRODUCTION

With the open SDK of SIMcam, you can customize the settings to meet your needs. This document describes how to quickly start Simcam in developer mode and how to generate user-defined programs.

The workflow of SIMcam in developer mode is shown in the following figure.

As shown in the figure, SIMcam consists of two embedded boards, one is HI3516 and another is Movidius. HI3516 is used for video capture and video play. Movidius is used for deep learning computing. Two embedded boards communicate by SPI.

Movidius needs a server process program to start and compute, needs a model file named *Graph* to obtain the structure and weight information of a neural network, and it also needs a configure file to process the model file. The program running in HI3516 will send these files to Movidius through SPI and get the deep learning result back.

At present, Simcam supports the running of custom detection model to recognize the desired objects of developers. Follow these steps to get ready to run our demo.

2   HOW TO SEE RESULT

2.1 Prepare SD-Card

First, please prepare a SD-Card that contains the following files:

——*Detect_Demo*

      A demo for objects detection and recognition, can be found in folder

    /examples/detect.

——*Detect_Graph*

      A detection model file containing neural network structure and weights. It can be found in folder */examples/convert*.

——*Detect_Config.txt*

      A configure file containing process parameters of *Detect_Graph*. It can be found in folder */src*.

      Currently, Movidius supports only one model running at each time, so the value of left two *model_have* in *Detect_Config.txt* should be 0.

——*Detect_Server_Process*

      A service process program running in Movidius, used to start Movidius and make it run, supports the running of *Detect_Graph*. It can be found in folder */src*.

      Developers cannot modify this file. We will provide more service process programs to support the running of other kind of models.

——*rtl_hostapd_2G.conf*

This is the configuration file for SIMcam to create a hot spot in AP mode. You can modify ssid and password in this file. It can be found in folder */src*.

2.2 Power on

Put the SD-Card into SIMcam, connect the power supply and power on it. SIMcam will create a LAN hotspot to run in AP mode. The default ssid and password of this hotspot is:

"REVO_DPL

87654321"

The IP address of this hotspot is *192.168.0.1*. Developers can use laptops to connect to the hotspot.

Developers can see real-time video through RTSP stream, open VLC media player, select network video stream and input IP address as follows:

rtsp://192.168.0.1

Developers can use TELNET to log in the camera system and view the contents of the SD-Card and see the print messages of *Detect_Demo*. Open a terminal, input as follows:

telnet 192.168.0.1

The login user is *"root",* password is blank. The path of SD-Card is */mnt/DCIM*.

2.3 Run a demo

After you log in to the system using telnet, enter as following instructions:

cd /mnt/DCIM

./Detect_Demo

At this point, you will see the print messages of the ***Detect_Demo*** on the terminal. Print messages show SIMcam's detection results, including the class of the detected object and the coordinates of the target recognition box in the screen.

3   HOW TO GENERATE *DETECT_DEMO*

Enter the folder */examples/detect,* use the Makefile to generate ***Detect_Demo.***

Developers can read the source code of ***Detect_Demo*** first, and modify their own code on this basis.

The source code of ***Detect_Demo*** is in folder */examples/detect,* detailed comments are included in the source code. The toolchain for compiling this code is in the folder ***tools/arm_toolchain.***

Open ***Toolchain_Install_Use.pdf*** to see how to install and use the arm toolchain.

Open ***SIMCAM_API.pdf*** to see how to use the APIs.

4   HOW TO GENERATE *DETECT_GRAPH*

Enter folder */examples/convert,* use the script to generate ***Detect_Graph.***

Developers can use ***mvNCCompile*** to generate ***graph,*** which contains the structure and weights of a neural network. The toolchain is in the folder ***tools/mv_toolchain.***

Open ***Toolchain_Install_Use.pdf*** to see how to install and use the toolchain.