

Raspberry PI Camera Motion Tracking and PATT Attestation Setup

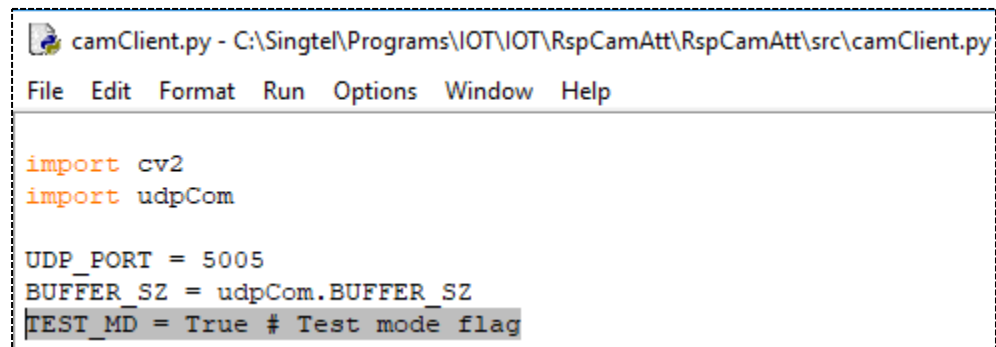
1. Setup Raspberry PI

1.1 Plug in the camera module and install the Opencv and dependency-lib by below cmd:

Raspberry PI install opencv:

```
sudo pip3 install opencv-contrib-python==3.4.3.18
sudo apt-get install libhdf5-dev
sudo apt-get install libatlas-base-dev
sudo apt-get install libjasper-dev
sudo apt-get install libqt4-test
sudo apt-get install libqtgui4
sudo apt-get update
```

1.2 Copy the **src** folder in raspberry PI. If you want to play the pre-saved video (my_video.h264), set the Test_Mode flag in file **camClient.py** to 'True' :



```
camClient.py - C:\Singtel\Programs\IOT\IOT\RspCamAtt\RspCamAtt\src\camClient.py
File Edit Format Run Options Window Help

import cv2
import udpCom

UDP_PORT = 5005
BUFFER_SZ = udpCom.BUFFER_SZ
TEST_MD = True # Test mode flag
```

1.3 Connect the Raspberry PI to your computer. Run the camera client by cmd:

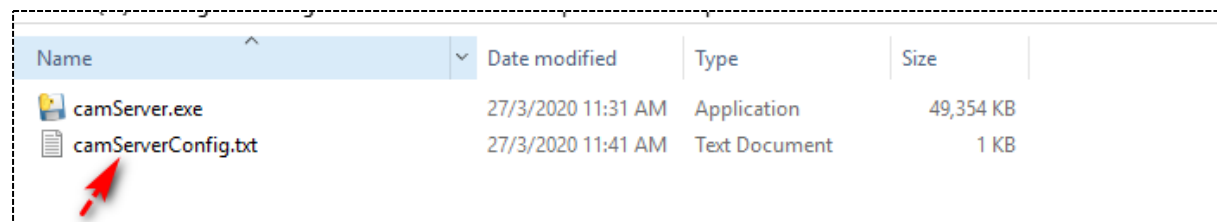
```
Python3 cameraClient.py
```

Run the patt checker client by cmd:

```
Python3 pattClient.py
```

2. Run the camera server to connect to the raspberry PI camera.

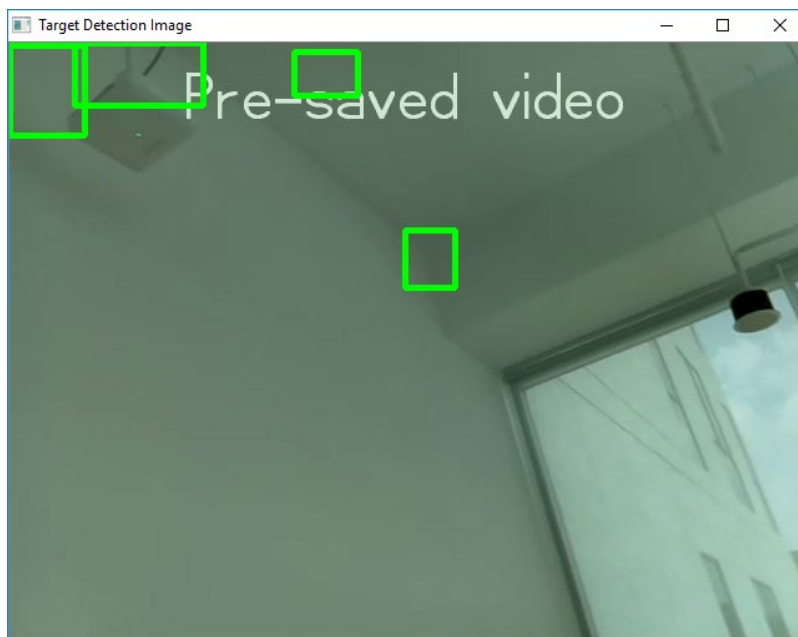
2.1 Open executable\camServer folder and open the config file **camServerConfig.txt**



Get the raspberry PI's IP address and set the IP address in the config file (replaced the IP in the marked line):

```
camServerConfig.txt - Notepad
File Edit Format View Help
# Camera server parameters configuration file. fmt: <Tag:val>
# Camera IP address. fmt: <IPADDR:(str)***.***.***.***>
# IPADD:127.0.0.1
IPADD:172.27.143.255
# Video frame rate. fmt: <FRATE:(int)**>
FRATE:10
|
# Display mode. fmt: <DISMD:(int)**> 0:normal mode, 1:different gray-scale mode.
DISMD:0
# Sensitive level. fmt: <SENLV:(int)**> range(1-100) lower-> Sensitive
SENLV:30
# Min display target :<TGMIN:(int)**>
TGMIN:400
# MAX display target :<TGMIN:(int)**>
TGMAX:10000
```

2.2 Save the config file and double click the **camServer.exe** file the camera window will show:



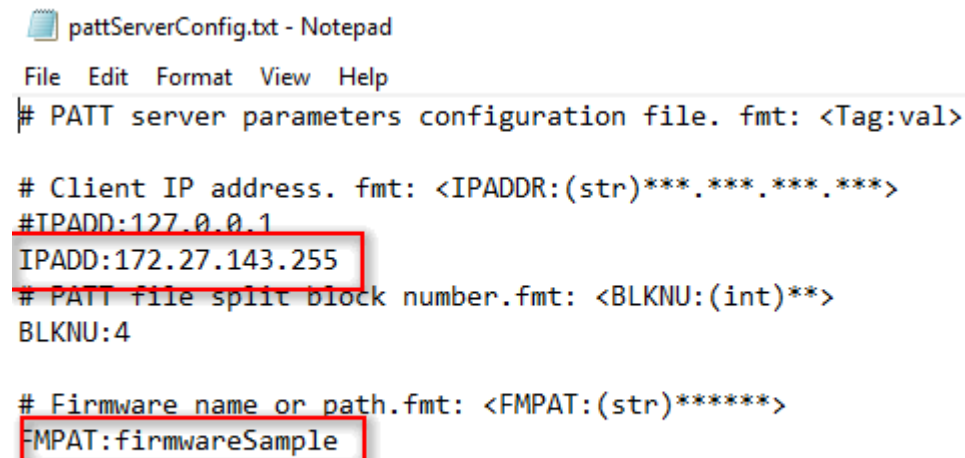
Press "q" button on the keyboard will quit the window.

3. Run the PATT attestation server.

3.1 Open executable\pattServer folder and open the **pattServerConfig.txt** :

Name	Date modified	Type	Size
firmwareSample	4/11/2019 3:05 PM	File	12 KB
pattServer.exe	27/3/2020 11:27 AM	Application	4,717 KB
pattServerConfig.txt	27/3/2020 11:42 AM	Text Document	1 KB

Get the raspberry PI's IP address then set the IP address and the firmware name/path you want to check in the config file:

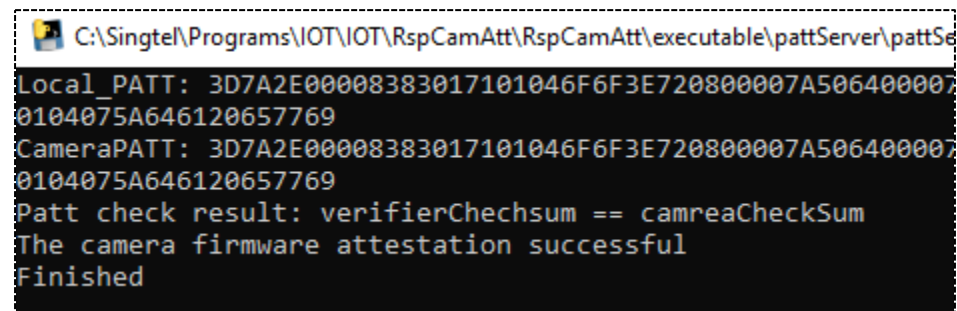


```
pattServerConfig.txt - Notepad
File Edit Format View Help
# PATT server parameters configuration file. fmt: <Tag:val>

# Client IP address. fmt: <IPADDR:(str)***.***.***.***>
#IPADD:127.0.0.1
IPADD:172.27.143.255
# PATT file split block number. fmt: <BLKNU:(int)**>
BLKNU:4

# Firmware name or path. fmt: <FMPAT:(str)*****>
FMPAT:firmwareSample
```

3.2 double click the **camServer.exe** file the patt check result will show:



```
C:\Singtel\Programs\IOT\IOT\RspCamAtt\RspCamAtt\executable\pattServer\pattSe
Local_PATT: 3D7A2E00008383017101046F6F3E720800007A506400007
0104075A646120657769
CameraPATT: 3D7A2E00008383017101046F6F3E720800007A506400007
0104075A646120657769
Patt check result: verifierChechsum == camreaCheckSum
The camera firmware attestation successful
Finished
```

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