

Lesson 1 Fan Tracking

1. Getting Ready

Prepare a fan module and install it on the expansion hole of the robot's right arm. The specific installation method can refer to the file "Lesson 1 Sensor Installing and Wiring" under the same directory.



2. Working Principle

Let's look at the working principle of this lesson:

Firstly, scale the screen to detect the human face. Then convert the recognized face coordinates into the coordinates before scaling, and then judge whether it is the biggest face, and frame the recognized face.

The source code of the program is located in:
`/home/pi/TonyPi/Extend/FaceTrack_Fan.py`

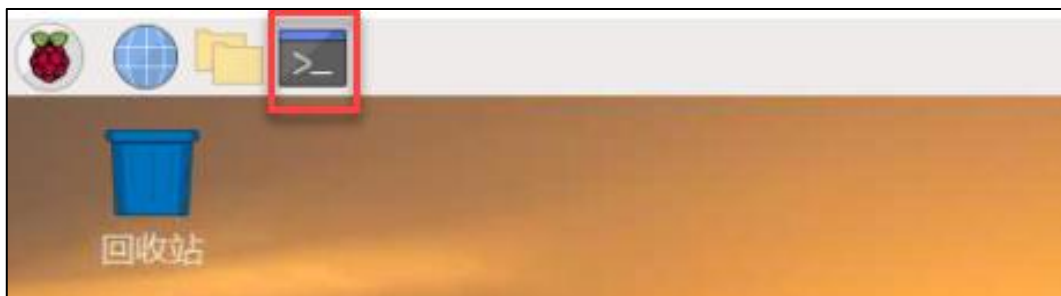
```
25
26 # 模型位置
27 modelFile =
"/home/pi/TonyPi/models/res10_300x300_ssd_iter_140000_fp16.caffemo
del"
28 configFile = "/home/pi/TonyPi/models/deploy.prototxt"
29 net = cv2.dnn.readNetFromCaffe(configFile, modelFile)
30
31 servo_data = None
32 def load_config():
33     global servo_data
34
35     servo_data = yaml_handle.get_yaml_data(yaml_handle.
servo_file_path)
36
37 load_config()
38 servo2_pulse = servo_data['servo2']
39
40 # 初始位置
41 def initMove():
42     Board.setPWMServoPulse(1, 1500, 500)
```

3. Operation Steps

i The entered command must pay attention to case sensitivity and space.

1) Turn on the robot and connect to Raspberry Pi desktop with VNC.

2) Click  or press "Ctrl+Alt+T" to open LX terminal.



3) Enter "cd TonyPi/Extend/" command and press "Enter" to come to the directory of the game programmings.

```
pi@raspberrypi:~ $ cd TonyPi/Extend/
```

4) Enter "sudo python3 FaceTrack_Fan.py" command, and then press "Enter" to start the game.

```
pi@raspberrypi:~ $ cd TonyPi/Extend/  
pi@raspberrypi:~/TonyPi/Extend $ sudo python3 FaceTrack_Fan.py
```

5) If want to exit the game, press “Ctrl+C” in the LX terminal. Please try multiple times if fail to exit.

4. Project Outcome

After the program is started, TonyPi Pro raises left arm and detects face. When the human face is detected, the fan revolves, vice verse.