PICO configure camera

Note: The esp32 camera needs to be burned with the factory firmware. If the esp32 camera has not been flashed with the firmware after it is received, it is not necessary. The factory default firmware, before using iic communication, you can use the serial port to configure the esp32 camera to the network, and iic is used for data reading

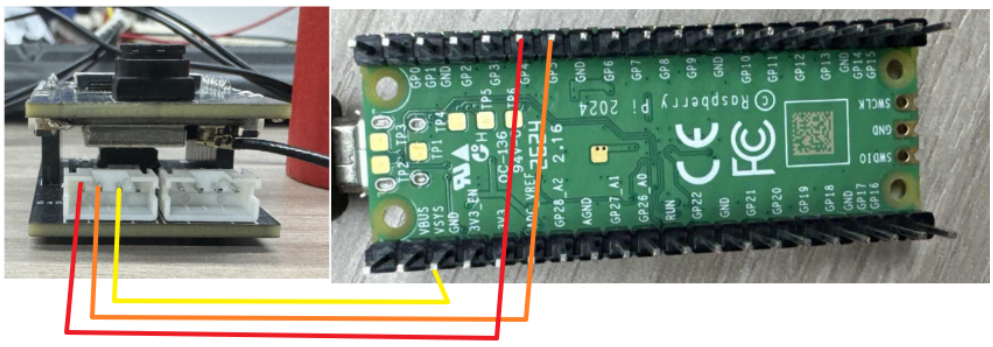
1. Experimental preparation

- A pico
- An esp32 camera

2. Wiring diagram

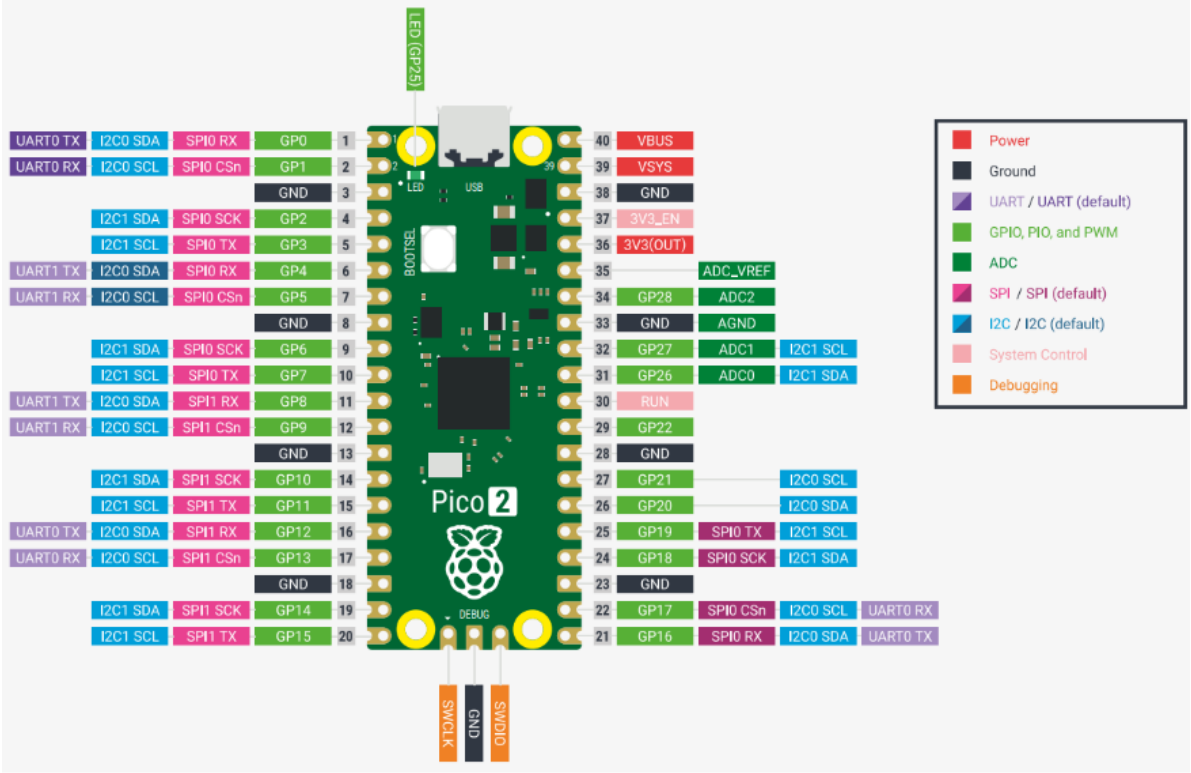
Note: Because pico does not have a 5v interface, the esp32 camera needs to be powered by an additional type-c cable

pico	esp32 camera
P4	RX
P5	TX
GND	GND
NC	5V



Physical connection diagram:

PICO pin diagram:



3. Experimental steps and experimental results

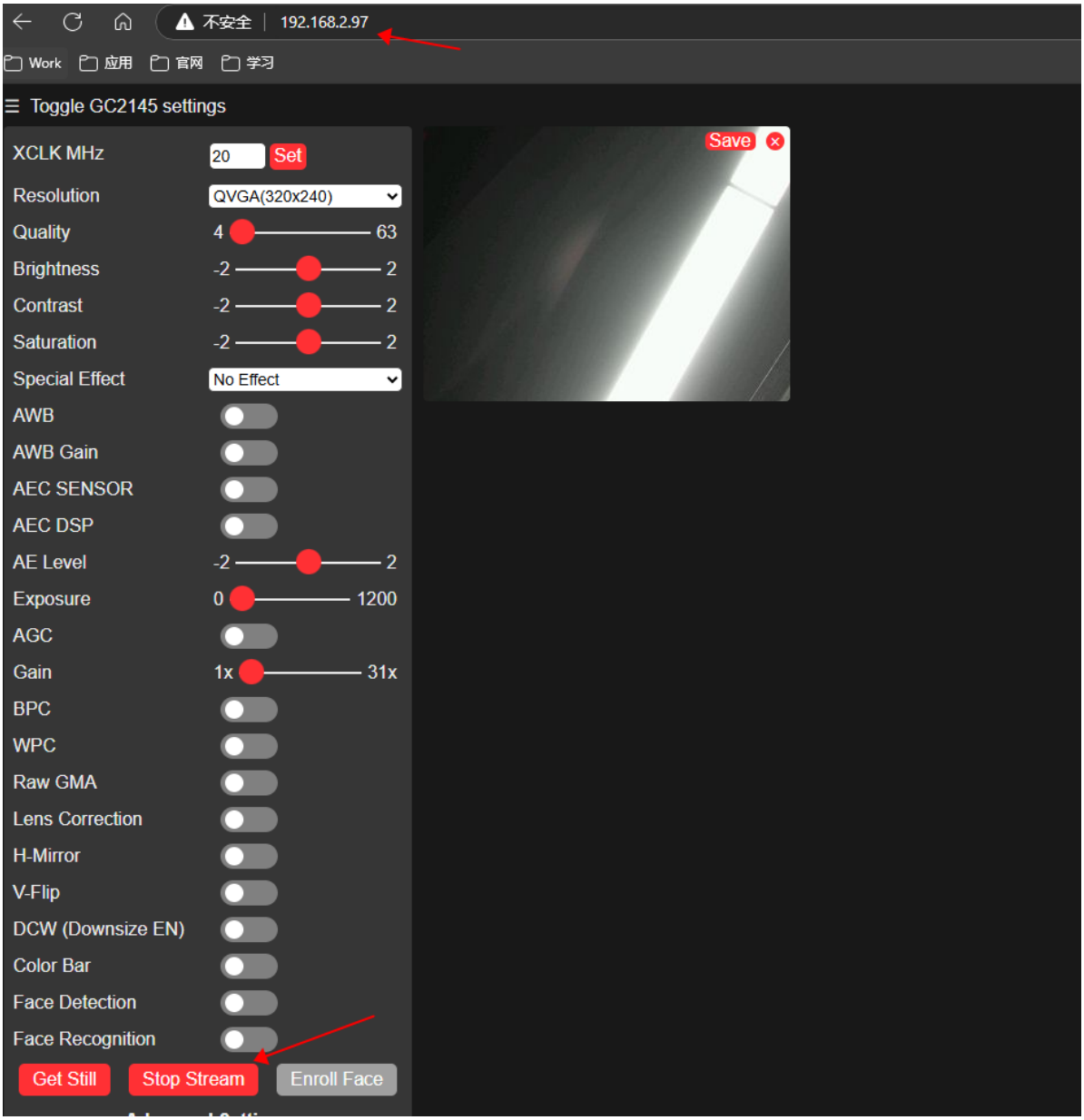
1. Open a thonny software
2. Open the code just uploaded and modify it to the wifi name and password you want to connect to. You can also modify the name of the hotspot, as well as the corresponding wifi mode and ai mode.

```
Sta_wifi_ssid = "Yahboom2"       #sta的wifi名称 wifi name of sta
Sta_wifi_pd = "yahboom890729"        #sta的wifi名称 wifi name of sta
AP_wifi_ssid = "ESP_WIFI_TEST"  #ap的WiFi名称 The WiFi name of the ap
AP_wifi_pd = ""                 #ap的wifi密码 ap's wifi password

wifi_mode = '2'  #wifi模式选择  '0':AP模式  '1':STA模式  '2':AP+STA模式 Wi-Fi mode selection '0': AP mode '1': STA mode '2': AP+STA mode

ai_mode = Cat_Dog_Model  #ai模式选择 AI mode selection
```

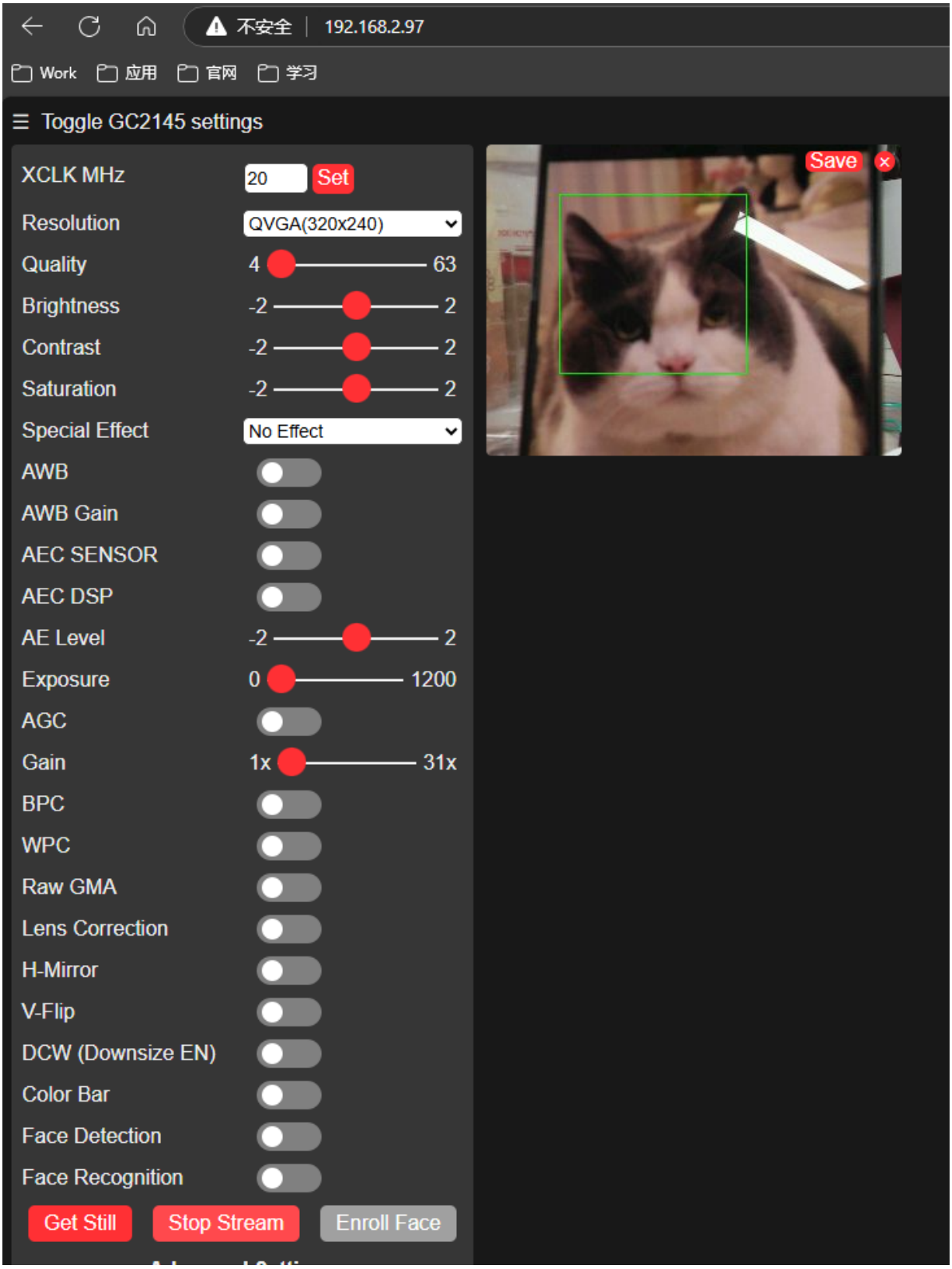
3. Run the program, and it will return the IP address of the current network connection and the address of the hotspot

```
>>> %Run -c $EDITOR_CONTENT
  set_wifi_mode
  set_ai_mode
  set_sta_wifi
  set_ap_wifi
  b'ap_ip:192.168.4.1\r\n'
  b'sta_ip:192.168.2.97\r\n'
```

4. Log in through the WiFi IP configured by the serial port, or through the hotspot connected to the camera. Because wifi has been configured before, the following figure directly uses the previously configured wifi ip address to log in to the webpage and open the camera



4. Because we set it to cat and dog mode, we put the cat or dog in front of the camera and the cat or dog will be selected.



At the same time, the terminal will print out the current upper left corner coordinates and lower right corner coordinates.

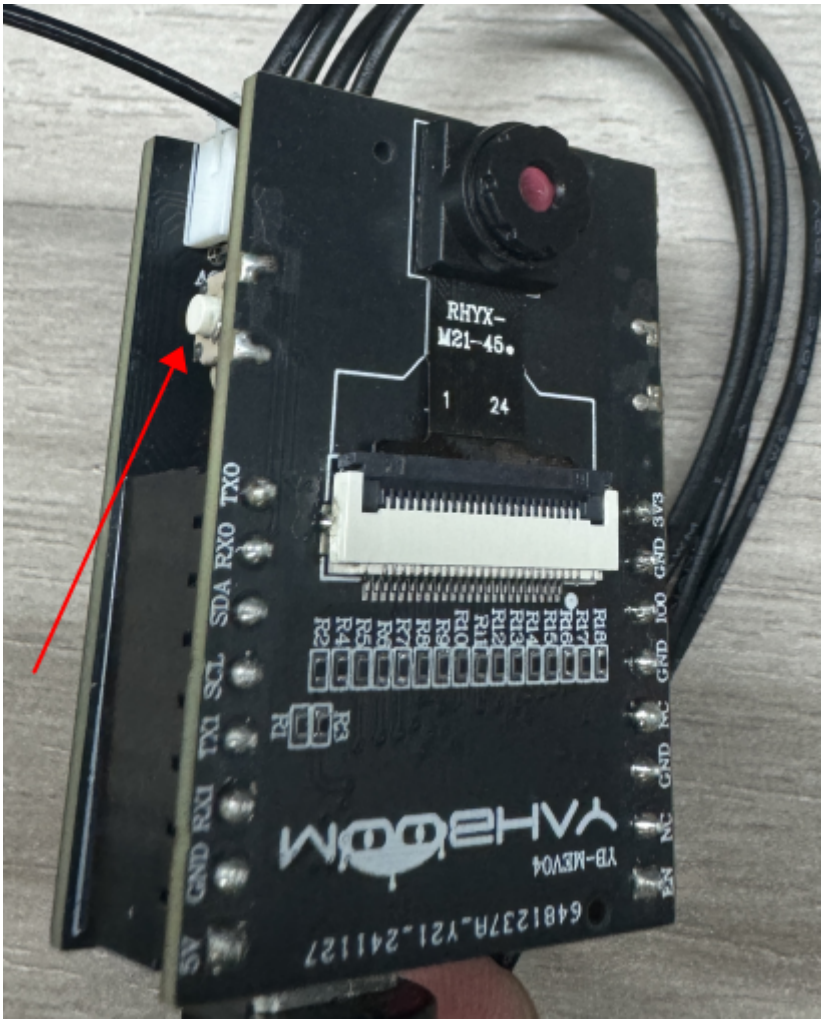
```
Shell ×
  Received: $007,019,126,115,#
  Received: $013,008,136,122,#
  Received: $012,009,135,126,#
  Received: $010,009,137,125,#
  Received: $010,002,149,127,#
  Received: $014,011,129,120,#
  Received: $011,015,133,118,#
  Received: $013,009,132,120,#
  Received: $010,013,126,119,#
  Received: $009,012,127,119,#
  Received: $008,013,132,119,#
  Received: $010,007,138,126,#
  Received: $042,020,178,160,#
```

Face recognition mode

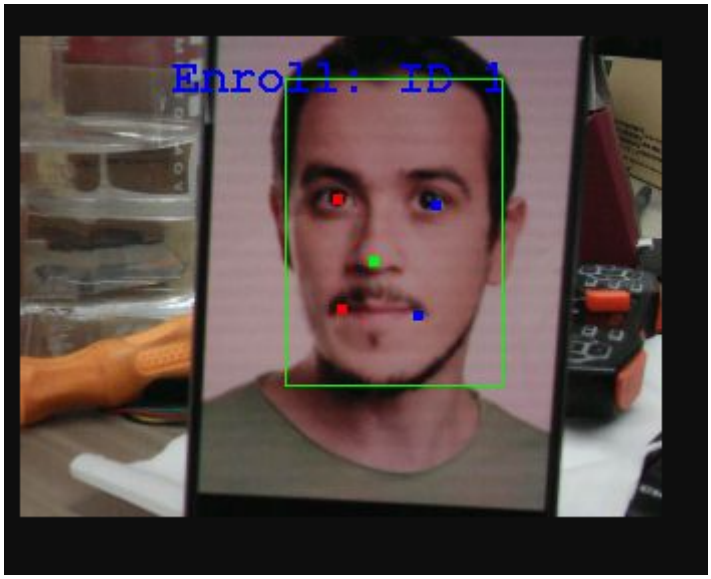
When switching to face recognition mode, run the program

```
ai_mode = Face_identify  #ai模式选择 AI mode selection
```

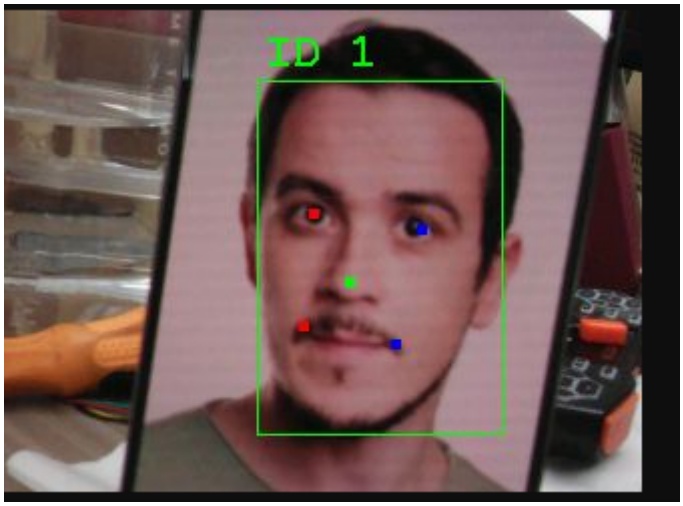
Recognize faces. When you see a face, press the key button to record the face



The following picture appears, which means the recording is successful, and the face 1 is recorded



At this time, you can press and hold the button for two seconds, then release it and press the button again to recognize the current face



At the same time, the terminal will print out the current center coordinates and the recognized face.

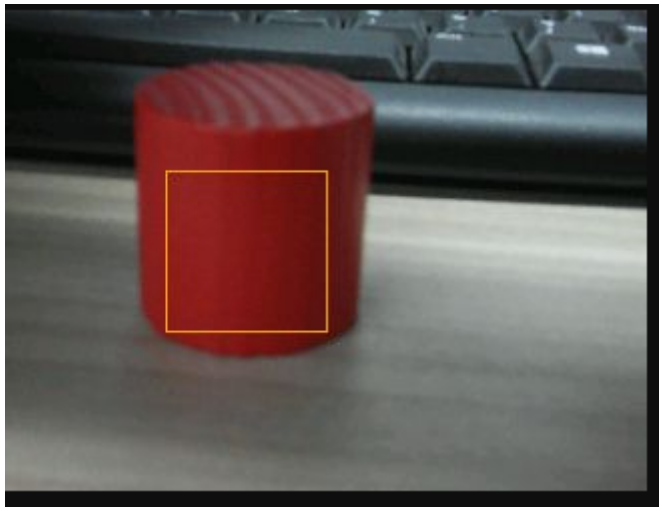
```
MicroPython v1.24.0 on 2024-10-25; Raspberry Pi Pico2 with RP2350
Type "help()" for more information.
>>> %Run -c $EDITOR_CONTENT

  set_wifi_mode
  set_ai_mode
  set_sta_wifi
  set_ap_wifi
  b'ap_ip:192.168.4.1\r\n'
  b'sta_ip:192.168.2.97\r\n'
  Received: $065,059,182,232,#@ID:1!
```

Color detection mode

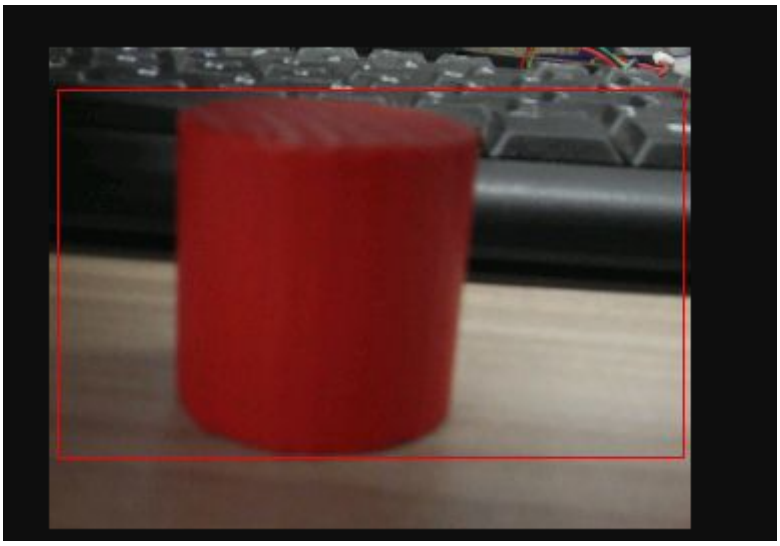
When we switch to color detection mode,

```
ai_mode = Color_identify  #ai模式选择 AI mode selection
```

Recognize the color. Press the button and a box will appear. You can use this box to select the color you want to use.



Press and hold the button for two seconds, release it and press it again to identify the currently selected color, and a red frame will appear.



At the same time, the terminal will print out the current center coordinates.