

# Raspberry Pi 5 configure camera

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

## 1. Experimental preparation

- A Raspberry Pi 5 main control
- An esp32 camera

## 2. Wiring diagram



## 4. Experimental steps and experimental results

1. Open a new Raspberry Pi terminal and send the source code of this experiment to the Raspberry Pi
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密码 sta的wifi密码

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 = QR_AI                    #ai模式选择 AI mode selection
```

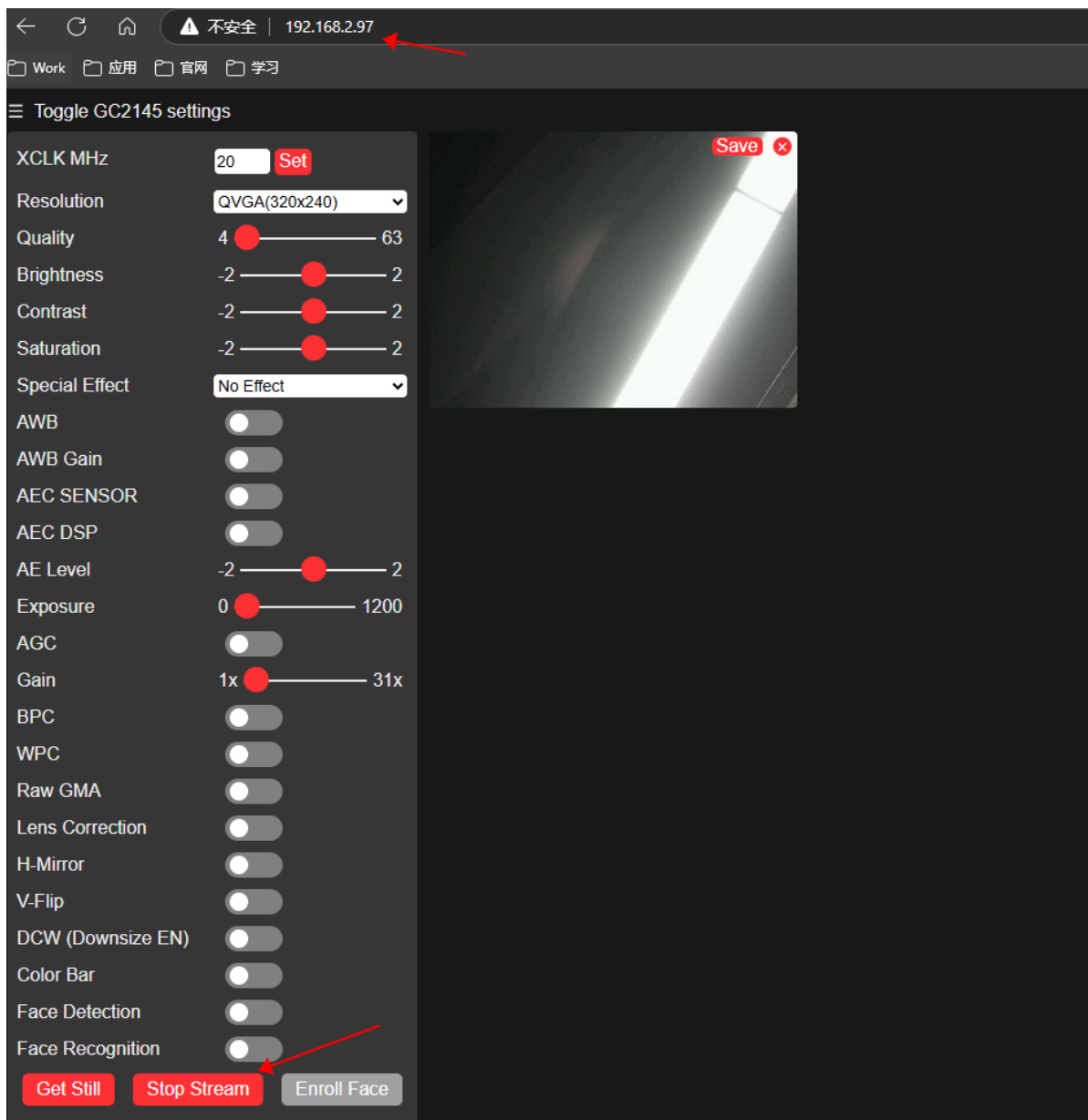
3. Execute the following command, and the IP address of the current network connection and the address of the hotspot will be returned

```
sudo chmod 777 /dev/ttyUSB0
sudo python3 PI_SET_WIFI.py
```

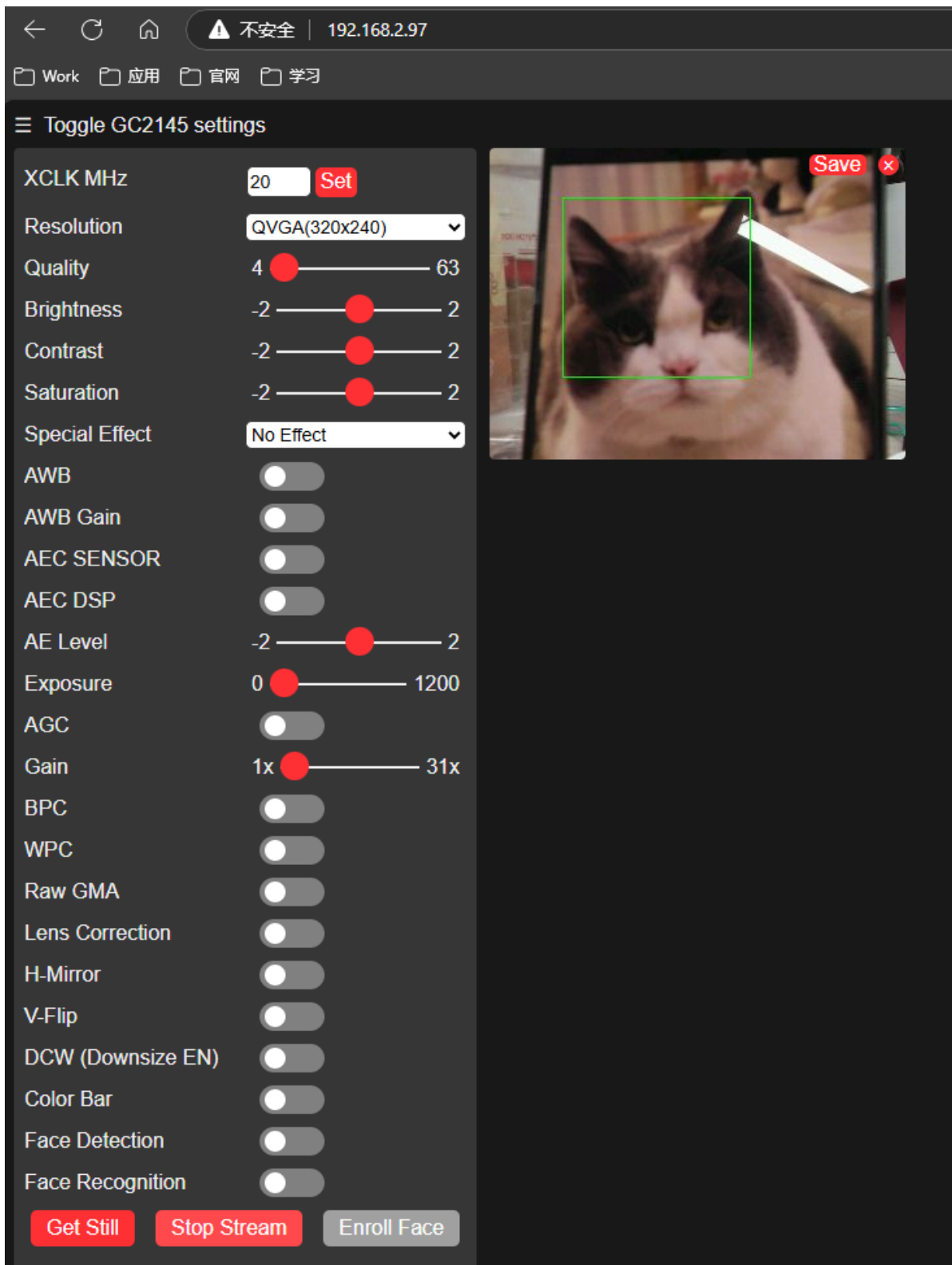
```
pi@raspberrypi:~$ sudo python3 PI_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
ap_ip:192.168.4.1

sta_ip:192.168.2.97
```

3. You can view the camera screen on the web page according to the above two addresses. When using ap\_ip, you need to connect to the hotspot of the esp32 camera. When using sta\_ip, the computer needs to be in the same network. Enter **192.168.2.97** through the browser below This access camera screen



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, and the area has been selected.

```

pi@raspberrypi:~ $ sudo python3 PI_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
ap_ip:192.168.4.1

sta_ip:192.168.2.97

$017,002,145,116,#
$033,004,174,132,#
$057,005,191,131,#
$053,003,190,138,#
$056,006,190,141,#
$052,005,183,138,#$050,003,180,138,#
$040,010,170,134,#
$038,010,170,135,#
$036,009,173,140,#
$035,008,177,143,#
$036,010,173,140,#
$035,009,171,141,#
$039,011,171,138,#
$037,010,177,144,#
$036,009,173,141,#

```

### Face recognition mode

When switching to face recognition mode, the terminal will additionally print the current face id

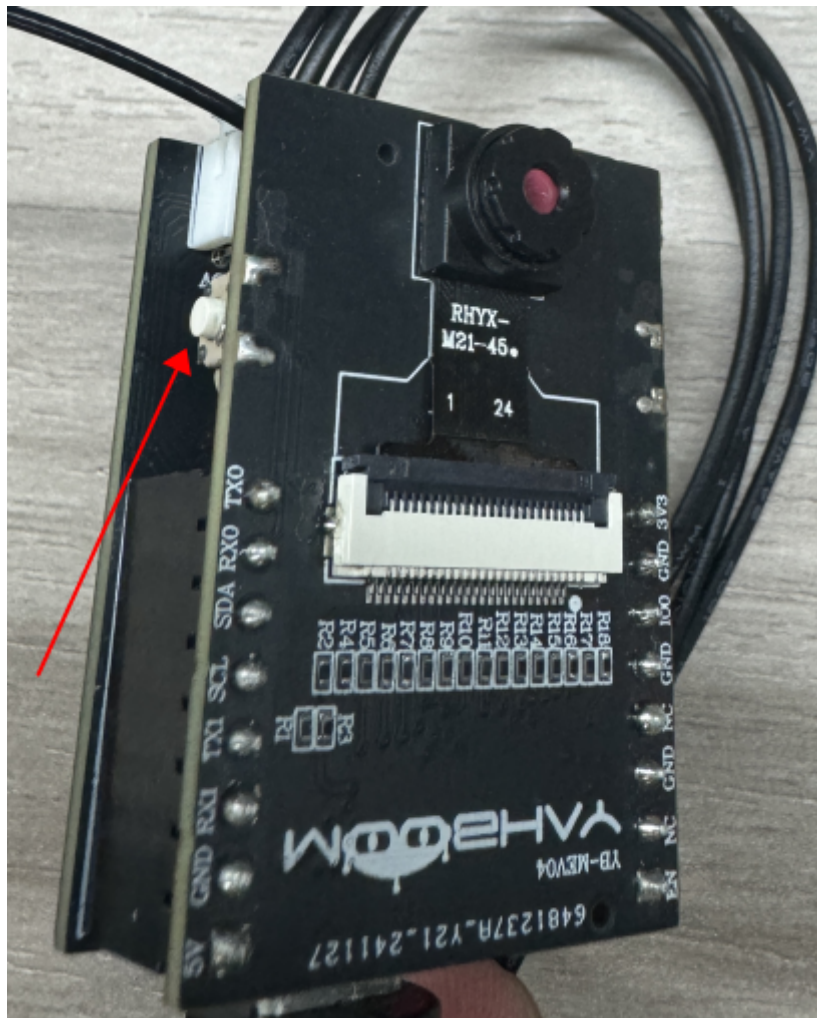
```
ai_mode = Face_identify #ai模式选择 AI mode selection
```

```

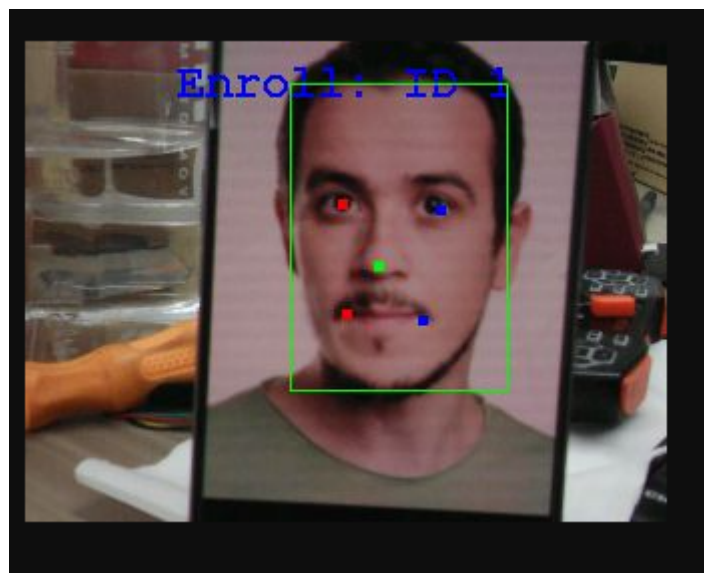
sudo chmod 777 /dev/ttyUSB0
sudo python3 PI_SET_WIFI.py

```

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

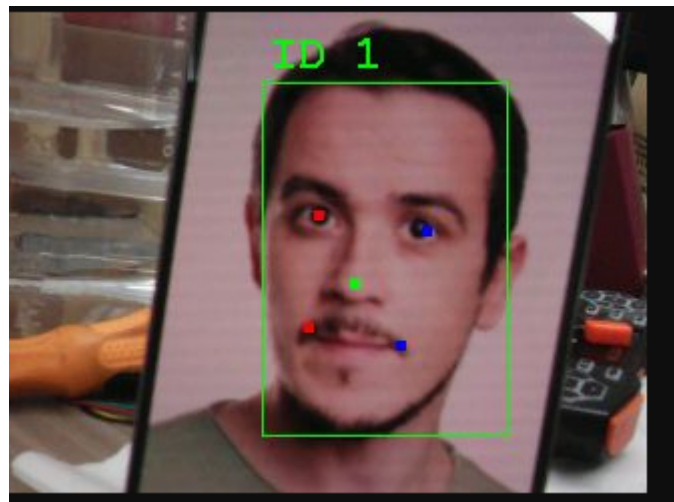


The following picture appears, which means the recording is successful, and the face 1 is recorded



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 the coordinates of the upper left corner and the lower right corner, as well as the recognized face.

```
pi@raspberrypi:~ $ sudo python3 PI_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi

key_down!! flag:1
key_down!! flag:1
key_long_down!!
key_down!! flag:2
$134,066,229,207,#@ID:2!
key_down!! flag:2
$128,070,221,208,#@ID:2!
```

## Color detection mode

When we switch to color detection mode,

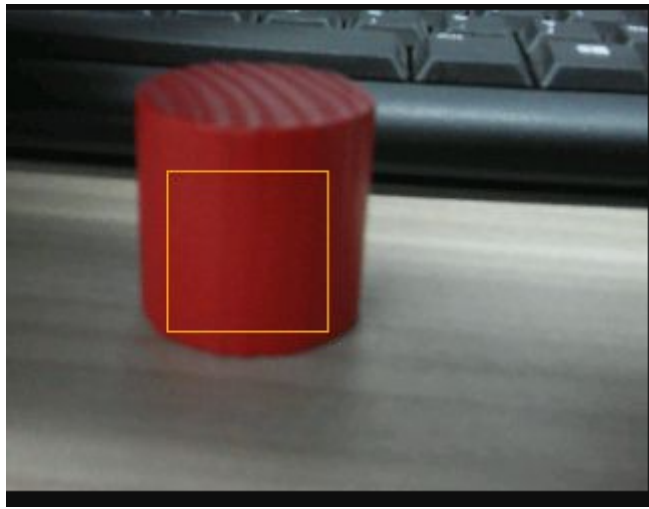
```
Sta_wifi_ssid = "Yahboom2"      #sta的wifi名称 wifi name of sta
Sta_wifi_pd = "yahboom890729"  #sta的wifi密码 sta的wifi密码

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

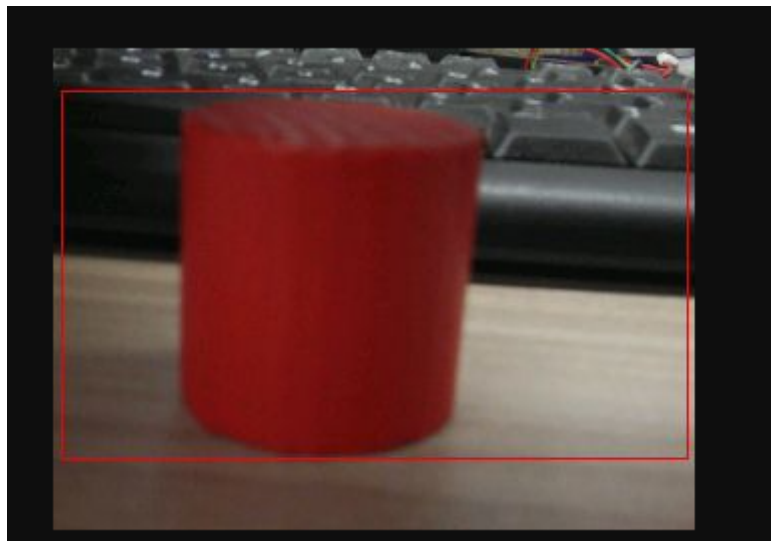
wifi_mode = '2' #wifi模式选择 '0':AP模式 '1':STA模式 '2':AP+STA模式 Wi-Fi mode selection '0': AP mode '1': STA mode '2': AP+STA mode
ai_mode = Color_identify      #ai模式选择 AI mode selection
```

```
python3 I2C_TEST.py
```

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.



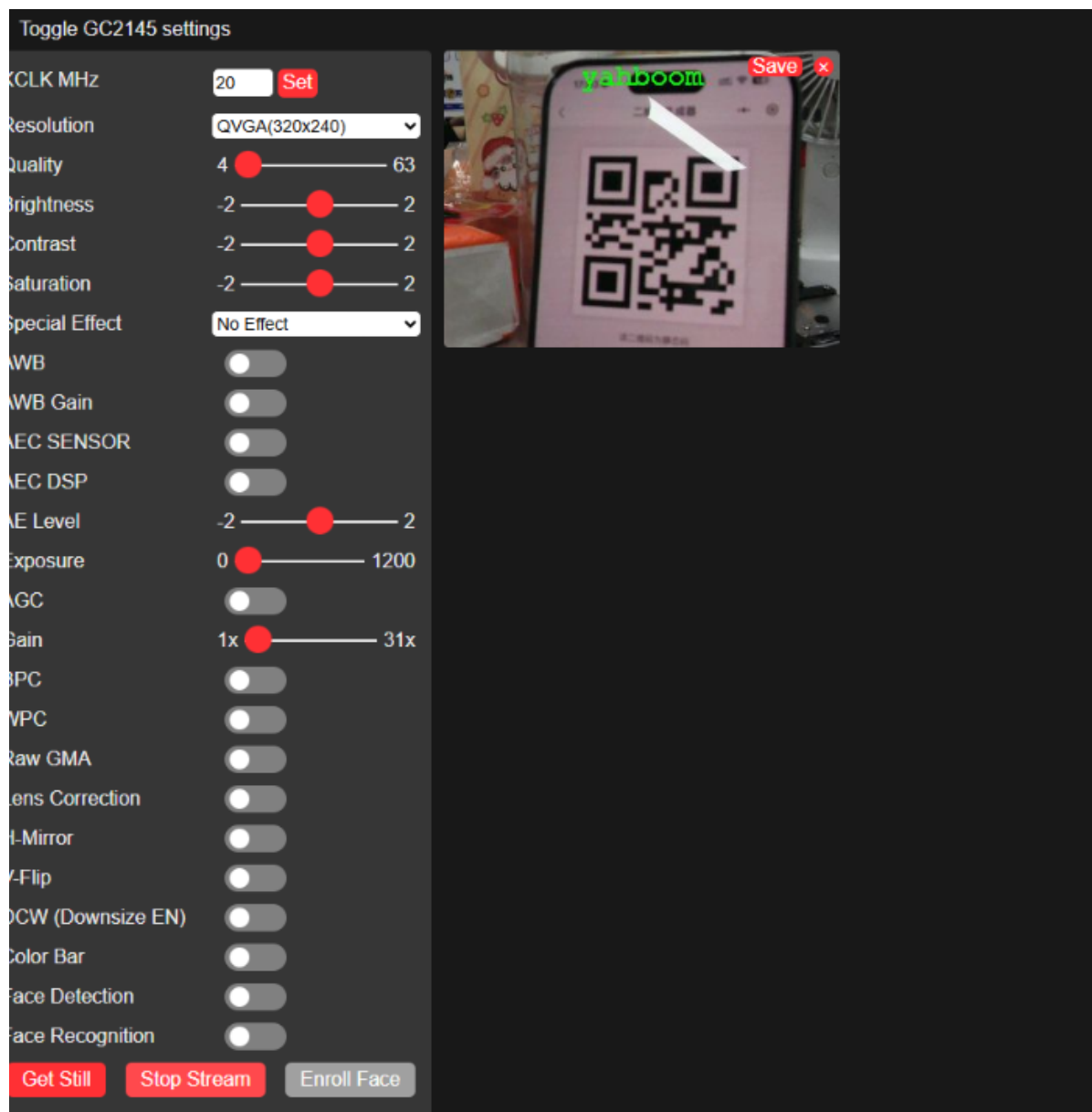
At the same time, the terminal will print out the current upper left corner coordinates and lower right corner coordinates.

### QR code detection mode

When we switch to **QR code detection mode**,

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

Use the WeChat applet on your mobile phone to search for the QR code generator. A QR code will be generated for the corresponding text and saved to the album. The following is the QR code recognition.



At the same time, the terminal will print out the recognized text.



[illegible]