jetson configure camera

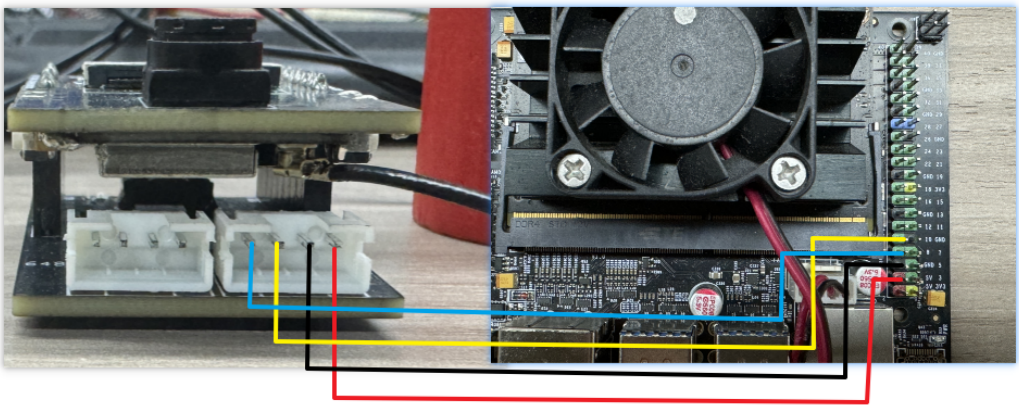
Note: esp32 camera needs to be burned with factory firmware. If you have not flashed the firmware after receiving the esp32 camera, it is not necessary. The factory default firmware, before using iic communication, you can use the serial port to configure the network for the esp32 camera, and iic is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

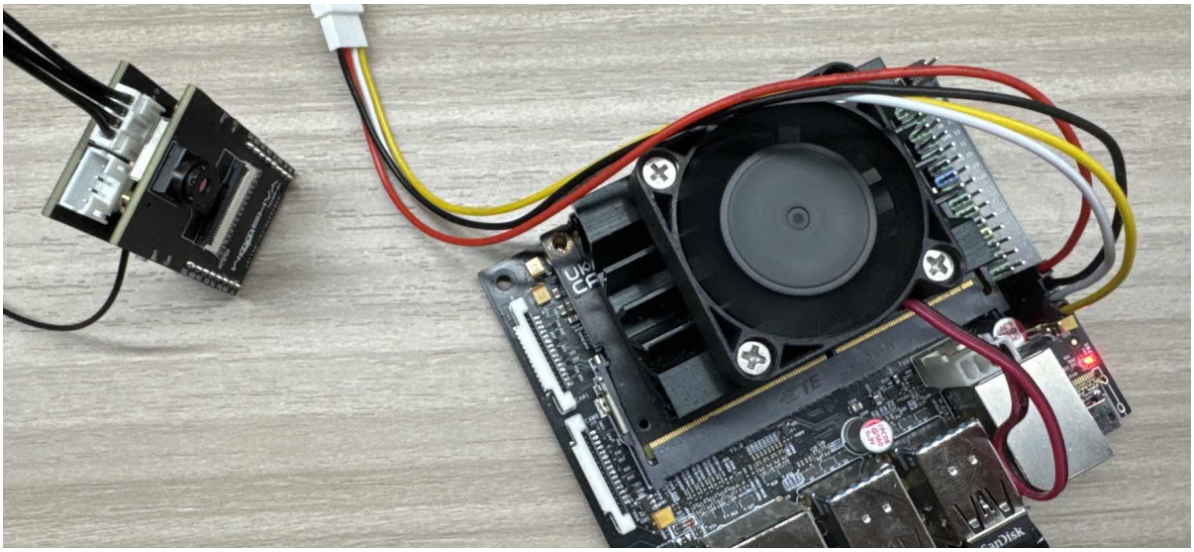
1. Experimental preparation

- A Jetson master control
- An esp32 camera

2. Wiring diagram

jetson	esp32 camera
BOARD8	RX
BOARD10	TX
GND	GND
5V	5V





Jetson pin diagram:

BCM	Name	BOARD	BOARD	Name	BCM
3V3	3.3VDC (Power)	1	2	5.0VDC (Power)	5V
2	I2C_2_SDA (12C Bus 1)	3	4	5.0VDC (Power)	5V
3	I2C_2_SCL (12C Bus 1)	5	6	GND	GND
4	AUDIO_MCLK	7	8	UART_2_TX (dev/ttyTHS1)	14
GND	GND	9	10	UART_2_RX (dev/ttyTHS1)	15
17	UART_2_RTS	11	12	I2S_4_SCLK	18
27	SPI_2_SCK	13	14	GND	GND
22	LCD_TE	15	16	SPI_2_CS1	23
3V3	3.3VDC (Power)	17	18	SPI_2_CSO	24
10	SPI_1_MOSI	19	9	GND	GND
9	SPI_1_MISO	21	20	SPI_2_MISO	25
11	SPI_1_SCK	23	24	SPI_1_CS0	8
GND	GND	25	26	SPI_1_CS1	7
0	12C_1_SDA (12 Bus 0)	27	28	12C_1_SCL (12 Bus 0)	1
5	CAM_AF_EN	29	30	GND	GND
6	CPIO_PZ0	31	32	LCD_BL_PWM	12
13	CPIO_PE6	33	34	GND	GND
19	I2S_4_LRCK	35	36	UART_2_CTS	16
26	SPI_2_MOSI	37	38	I2S_4_SDIN	20
GND	GND	39	40	I2S_4_SDOUT	21

3. Experimental steps and results

1. Open a new jetson terminal and send the source code of this experiment to jetson
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.

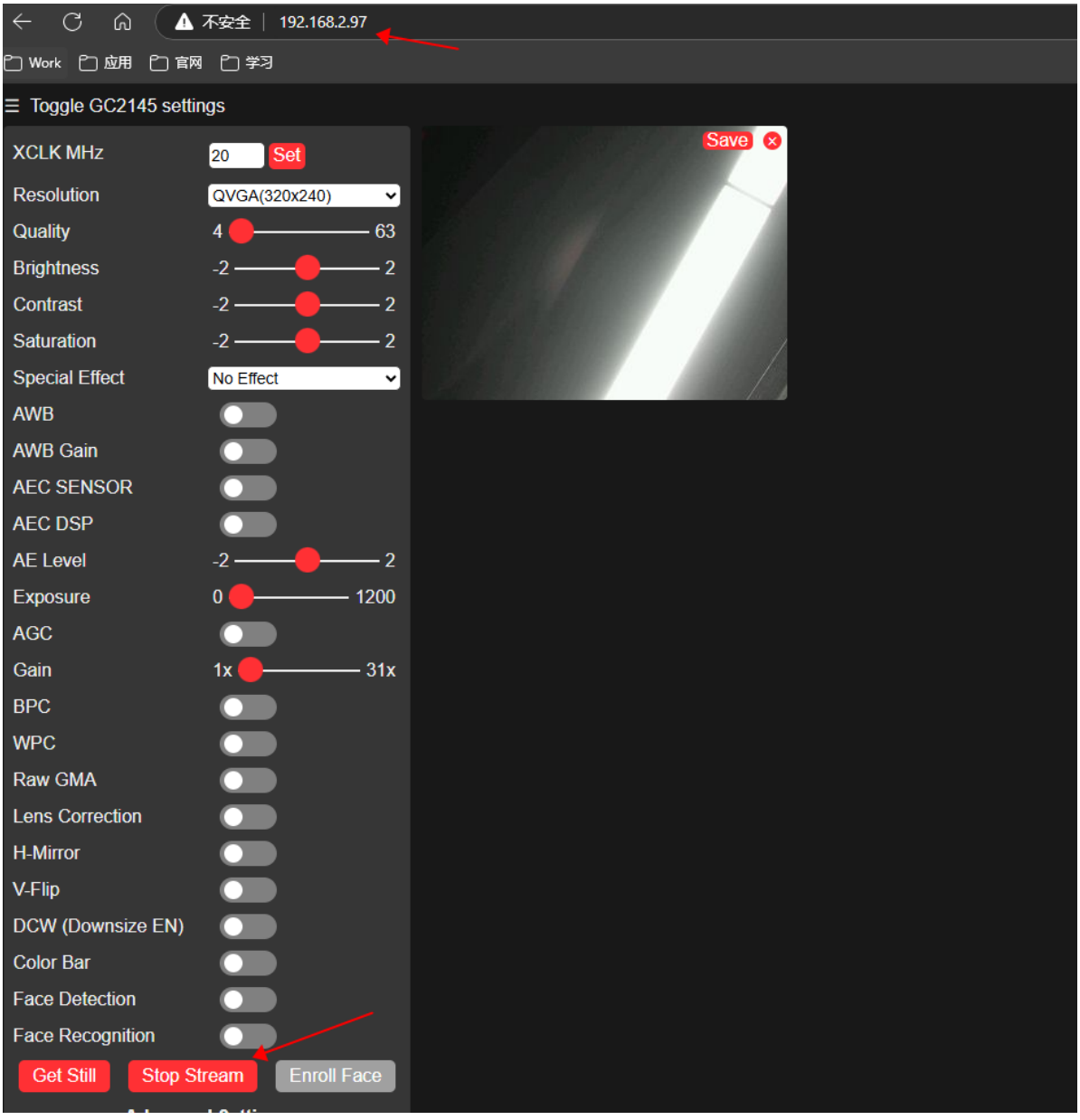
```
Sta_wifi_ssid = "Yahboom2"       #sta的wifi名称 wifi name of sta
Sta_wifi_pd = "yahboom890729"          #sta的wifi密码 sta的wifi密码

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

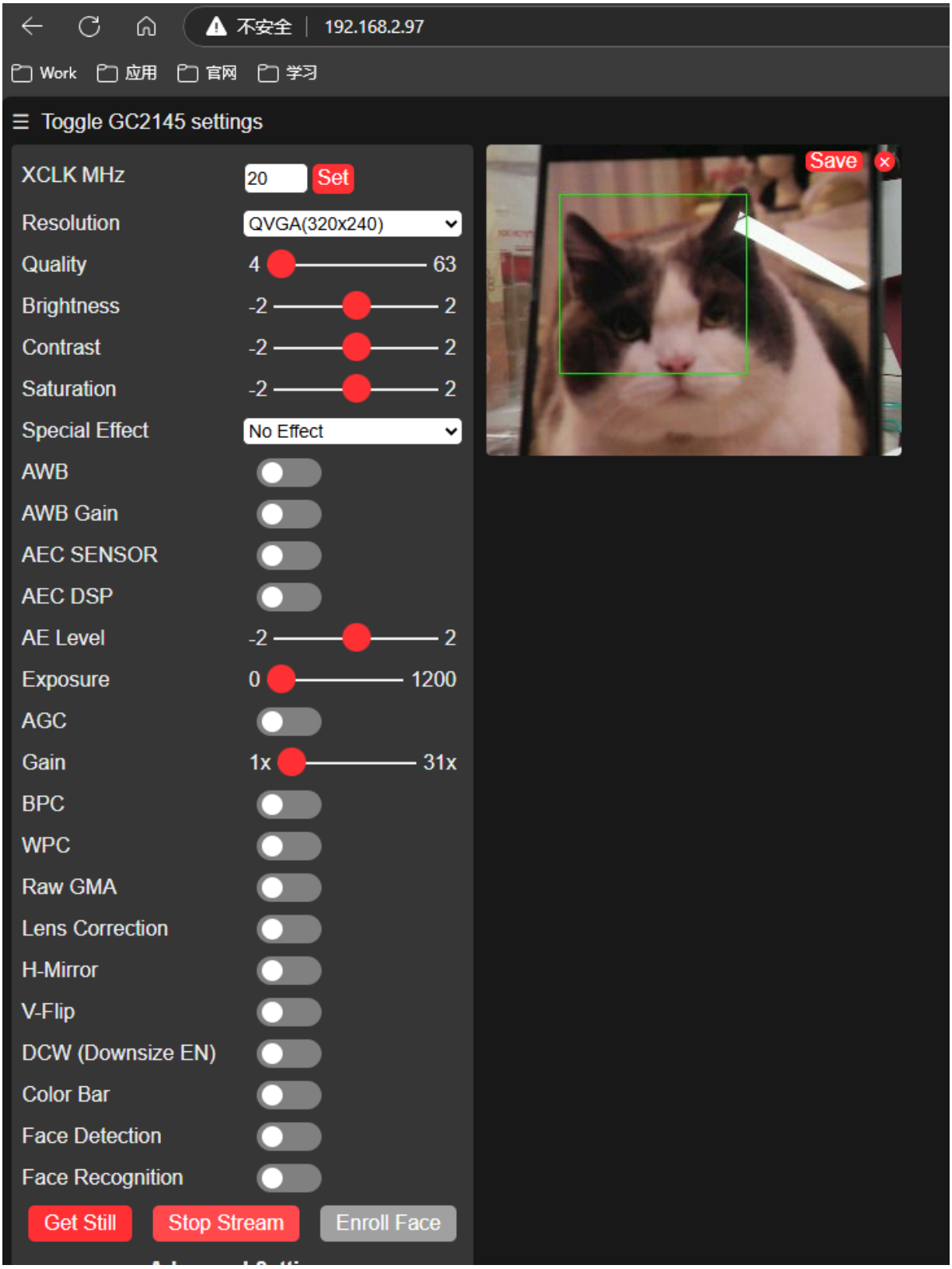
```
sudo chmod 777 /dev/ttyTHS1
python3 JETSON_SET_WIFI.py
```

```
jetson@jetson-desktop:~$ python3 JETSON_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
YAHBOOM Board VerSion:AI_V1.5.0

ap_ip:192.168.4.1

sta_ip:192.168.2.97
```

4. 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 select the cat or dog.



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

```
jetson@jetson-desktop:~$ python3 JETSON_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
YAHBOOM Board VerSion:AI_V1.5.0

ap_ip:192.168.4.1

sta_ip:192.168.2.97

$006,005,140,144,#
$002,022,130,141,#
$007,025,137,163,#
$012,090,137,203,#
$013,093,137,218,#
$013,092,138,213,#
$014,093,139,202,#
$017,088,142,198,#
$019,078,143,195,#
$019,079,148,198,#
$020,084,150,198,#
$014,069,145,195,#
$027,083,148,184,#$024,080,147,187,#
$026,071,159,196,#
$028,086,155,197,#
$028,090,156,198,#
$036,087,163,204,#
$037,088,161,202,#
$036,089,155,202,#
$037,092,163,204,#
$033,092,163,204,#
$034,092,160,203,#
$036,094,159,203,#
$038,093,162,201,#
$040,093,162,201,#
$039,094,160,202,#
$039,095,160,201,#$040,093,159,200,#
$041,093,162,199,#
$041,093,163,200,#
$040,091,164,201,#
```

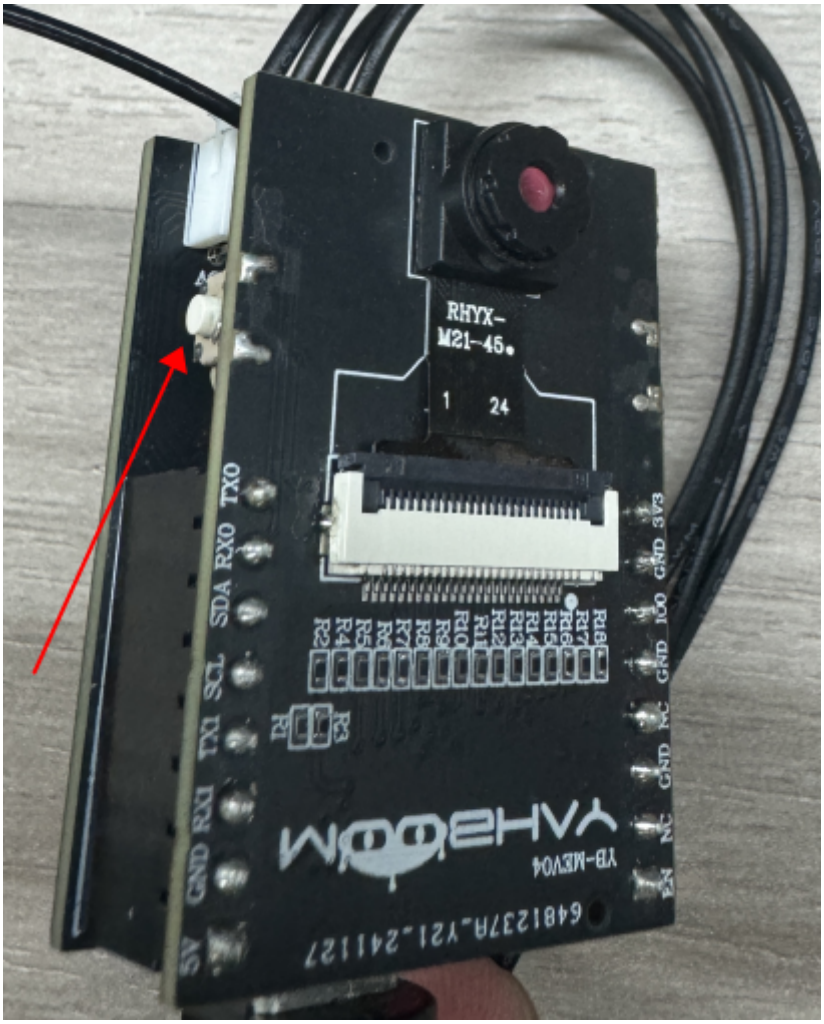
Face recognition mode

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

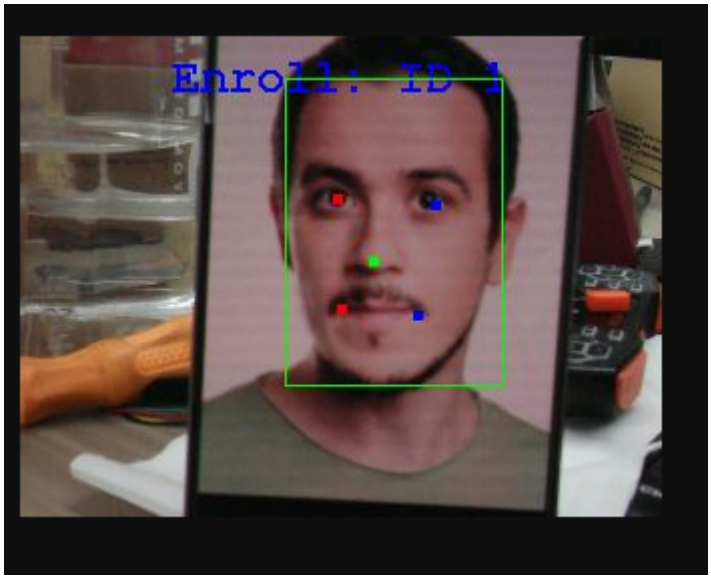
```
ai_mode = Face_identify  #ai模式选择 AI mode selection
```

```
sudo chmod 777 /dev/ttyTHS1
python3 JETSON_SET_WIFI.py
```

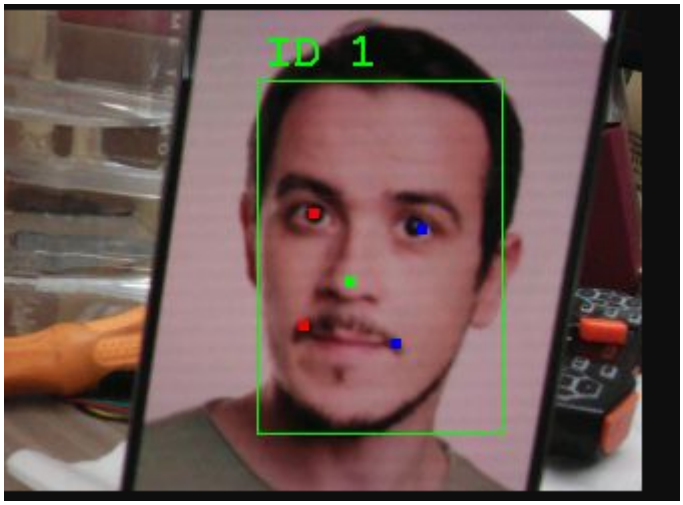
Recognize face. When you see a face, press the key button to record the face



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.

```
jetson@jetson-desktop:~$ python3 JETSON_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
YAHBOOM Board VerSion:AI_V1.5.0

ap_ip:192.168.4.1

sta_ip:192.168.2.97

$075,023,223,216,#@ID:1!

$069,025,221,220,#@ID:1!
```

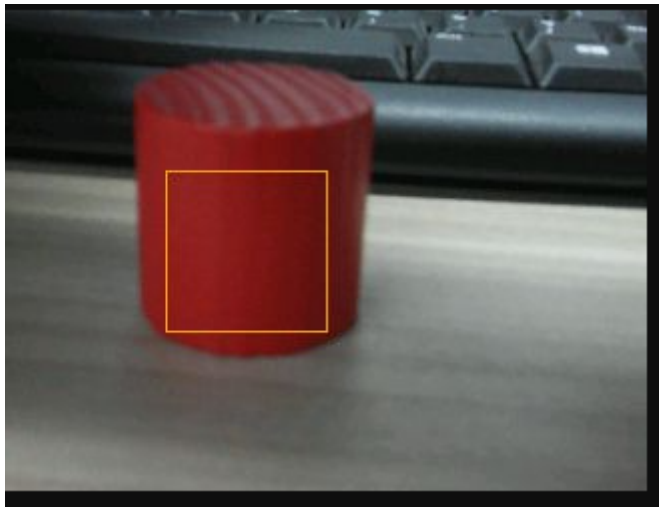
Color detection mode

When we switch to color detection mode,

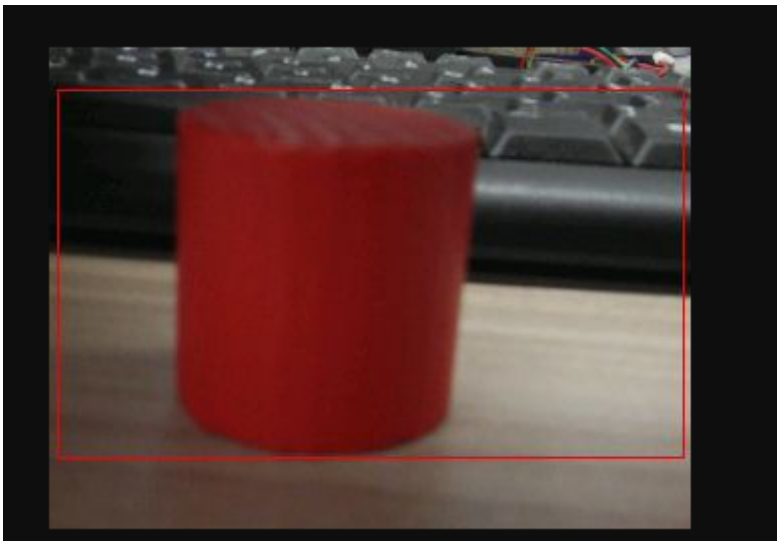
```
Sta_wifi_ssid = "Yahboom2"       #sta的wifi名称 wifi name of sta
Sta_wifi_pd = "yahboom890729"         #sta的wifi密码 sta的wifi密码

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.

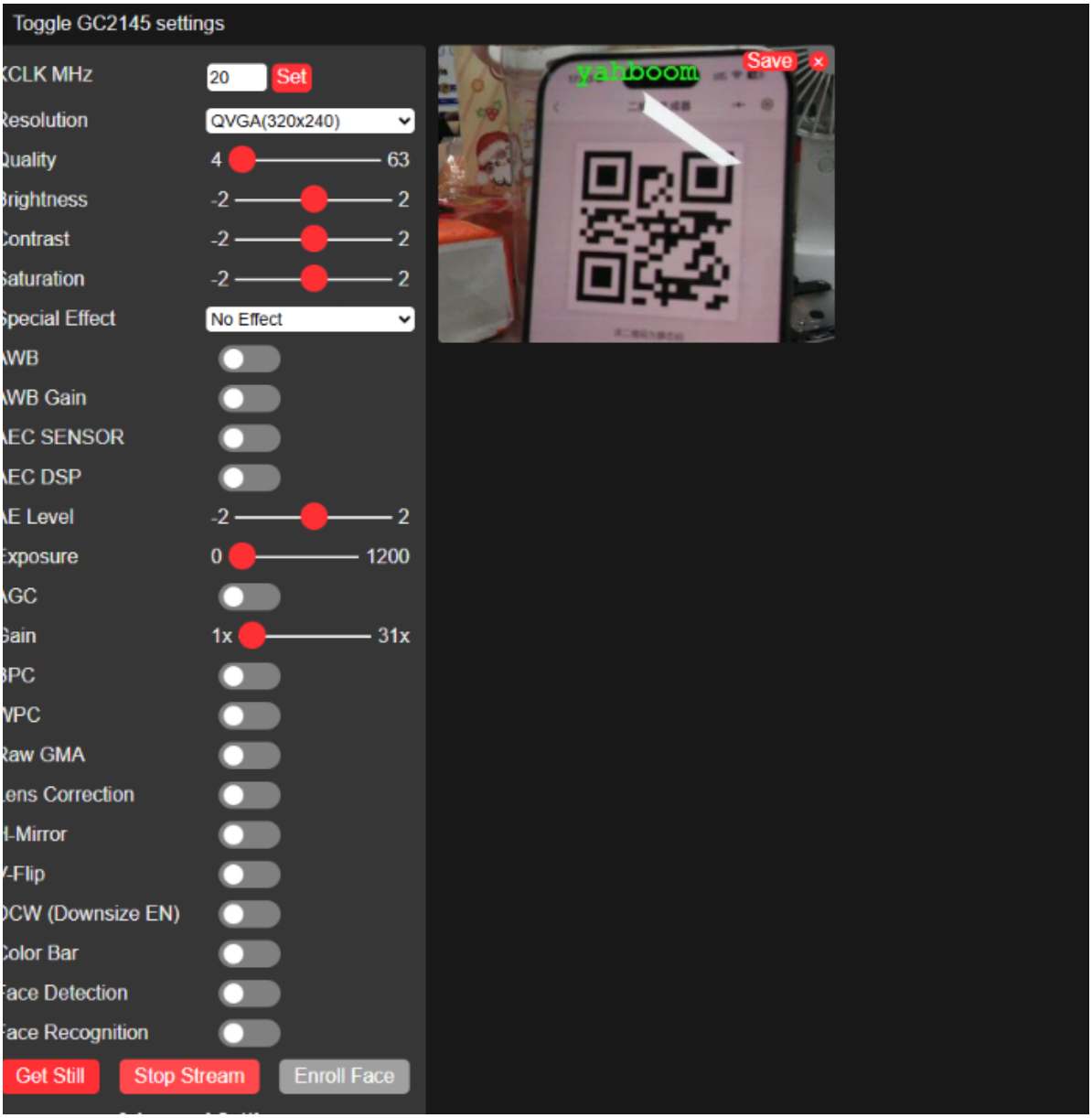
```
jetson@jetson-desktop:~$ python3 JETSON_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
YAHBOOM Board VerSion:AI_V1.5.0

ap_ip:192.168.4.1

sta_ip:192.168.2.97

$000,054,316,201,#
$012,051,316,198,#
$000,054,212,198,#
$000,051,316,198,#$000,057,316,198,#
$000,051,316,201,#
$000,057,316,201,#
$000,060,316,201,#$000,057,316,201,#
$000,057,316,207,#
$000,036,316,207,#
$000,060,316,210,#
$000,057,316,216,#
$016,060,316,210,#
$000,060,316,207,#
$012,063,316,207,#
$000,060,316,213,#
$028,060,316,216,#
$008,063,316,213,#
$000,069,316,204,#
$000,060,316,213,#
$000,057,312,207,#
$000,060,316,213,#$000,060,316,213,#
$008,063,316,213,#
$000,066,316,210,#
$020,054,212,210,#
$028,018,316,237,#
```

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 identification QR code.



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

```
jetson@jetson-desktop:~$ python3 JETSON_SET_WIFI.py
serial start ...
set_wifi_mode
set_ai_mode
set_sta_wifi
set_ap_wifi
YAHBOOM Board VerSion:AI_V1.5.0

ap_ip:192.168.4.1

sta_ip:192.168.2.97

$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
$yahboom#
```