STM32 camera configuration

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 esp32 camera to the network, and iic is used for data reading

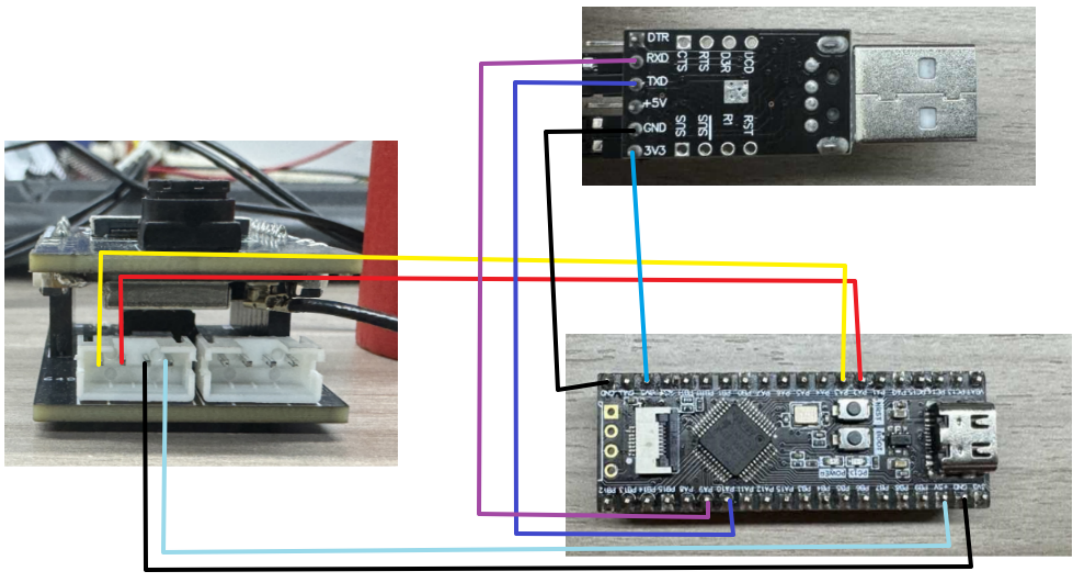
1. Experimental preparation

- stm32 series microcontroller
- wifi camera

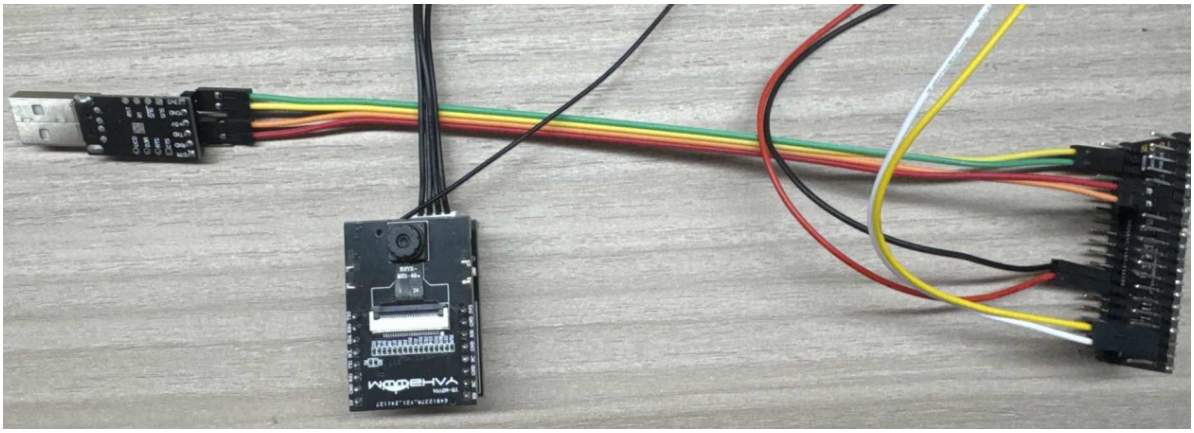
2. Wiring diagram

STM32	ESP32 camera
PA2	RX
PA3	TX
GND	GND
5V	5V

STM32	USB to ttl module
PA9	RX
PA10	TX
GND	GND
5V	5V



Physical connection diagram:



3. Experimental steps and experimental results

1. Check whether the program runs normally
2. In the main function, change to the corresponding ai mode.

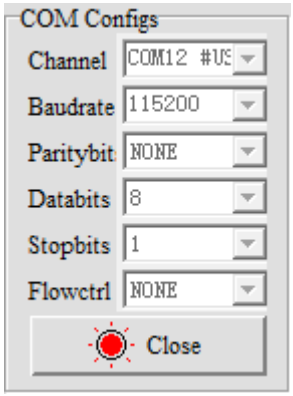
```
#define AI_set_mode Cat_Dog_AI  //设置AI模式 Setting AI Mode
```

3. You can modify the WiFi name and password you want to connect to, as well as the name of the hotspot in the esp32_wifi.cpp file

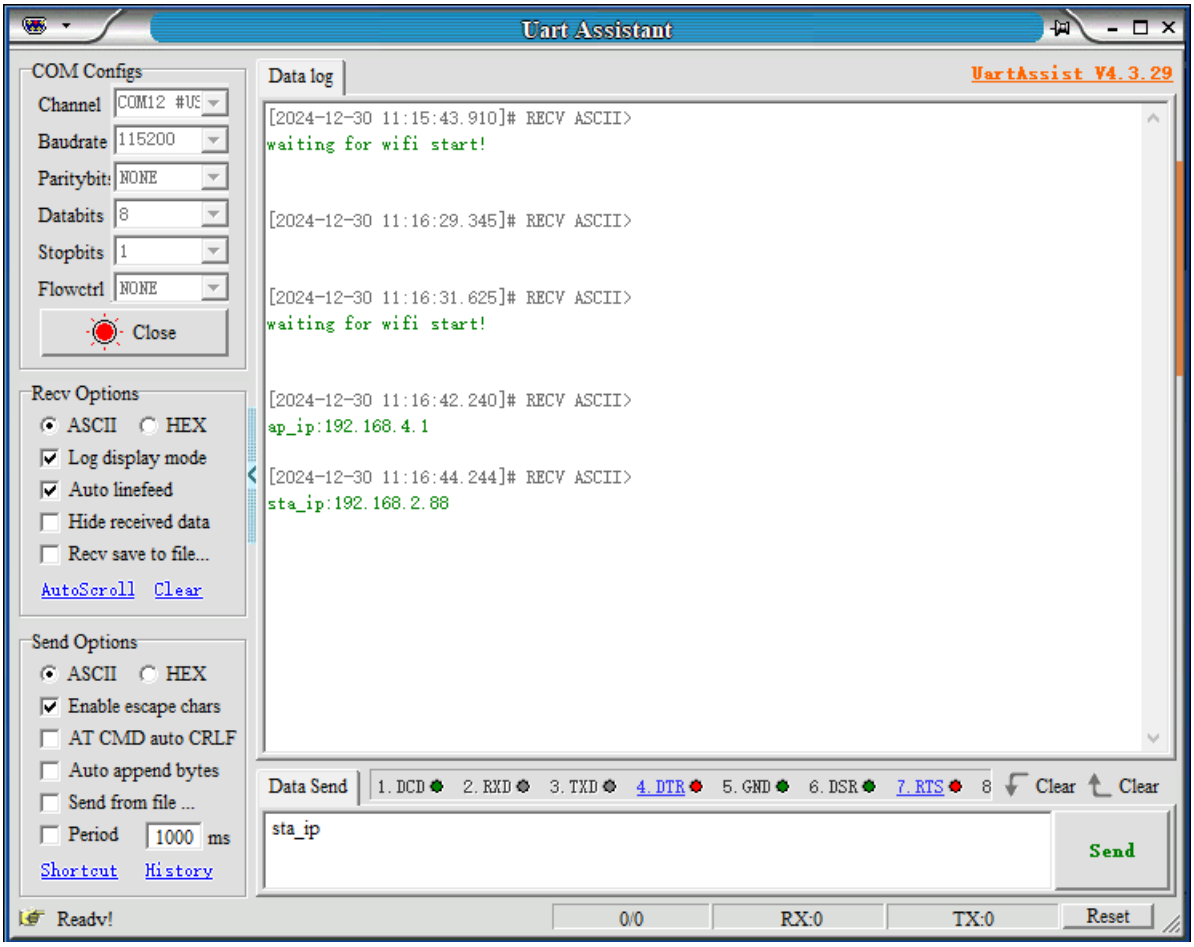
```
#define STAIP "sta_ip"
#define STA_WIFI_SSID "Yahboom2"      //wifi名称 Wi-Fi Name
#define STA_WIFI_PD   "yahboom890729" //wifi密码 Wifi password

#define APIP "ap_ip"
#define AP_WIFI_SSID "ESP32_WIFI_TEST"      //wifi名称 Wi-Fi Name
#define AP_WIFI_PD   "" //wifi密码 -无密码 也可在双引号添加 Wifi password - no password can also be added in double quotes
```

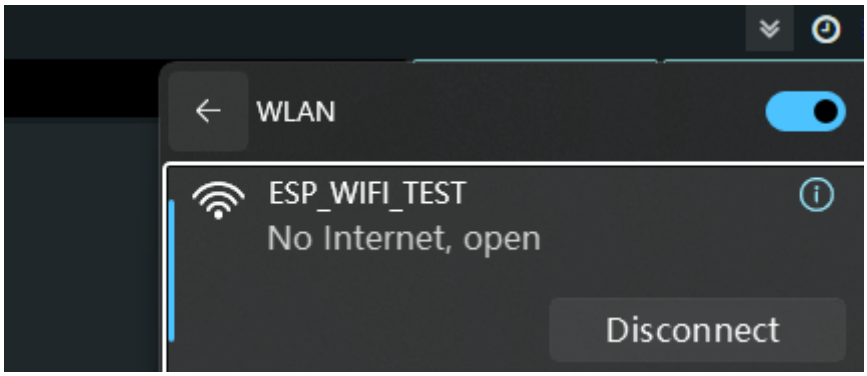
4. Download the program of this project to the STM32 board
5. Open the serial port assistant on the computer, open the computer to detect the serial port of STM32, as shown below



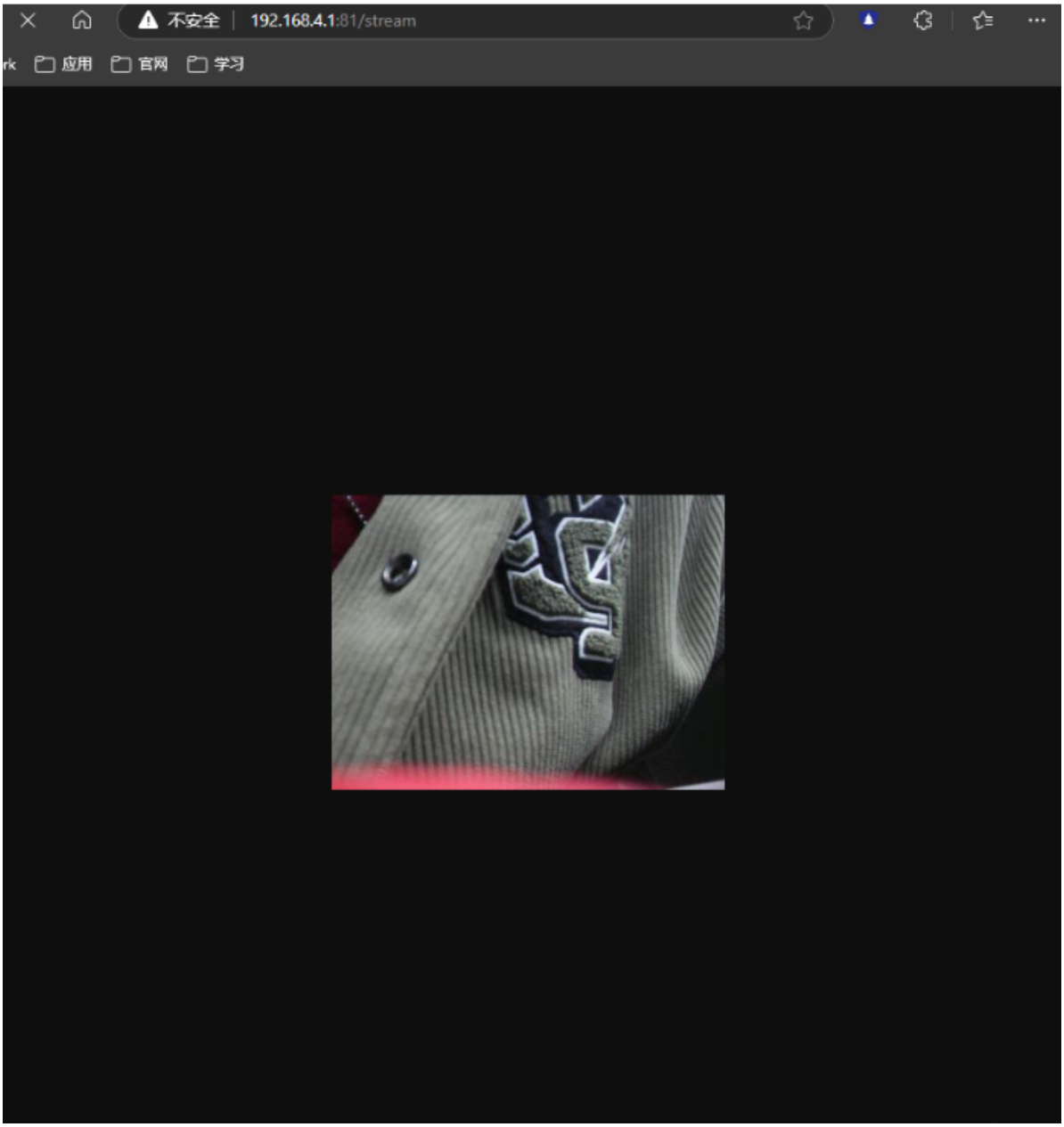
After pressing the reset button of STM32, the serial port assistant will print out the corresponding information



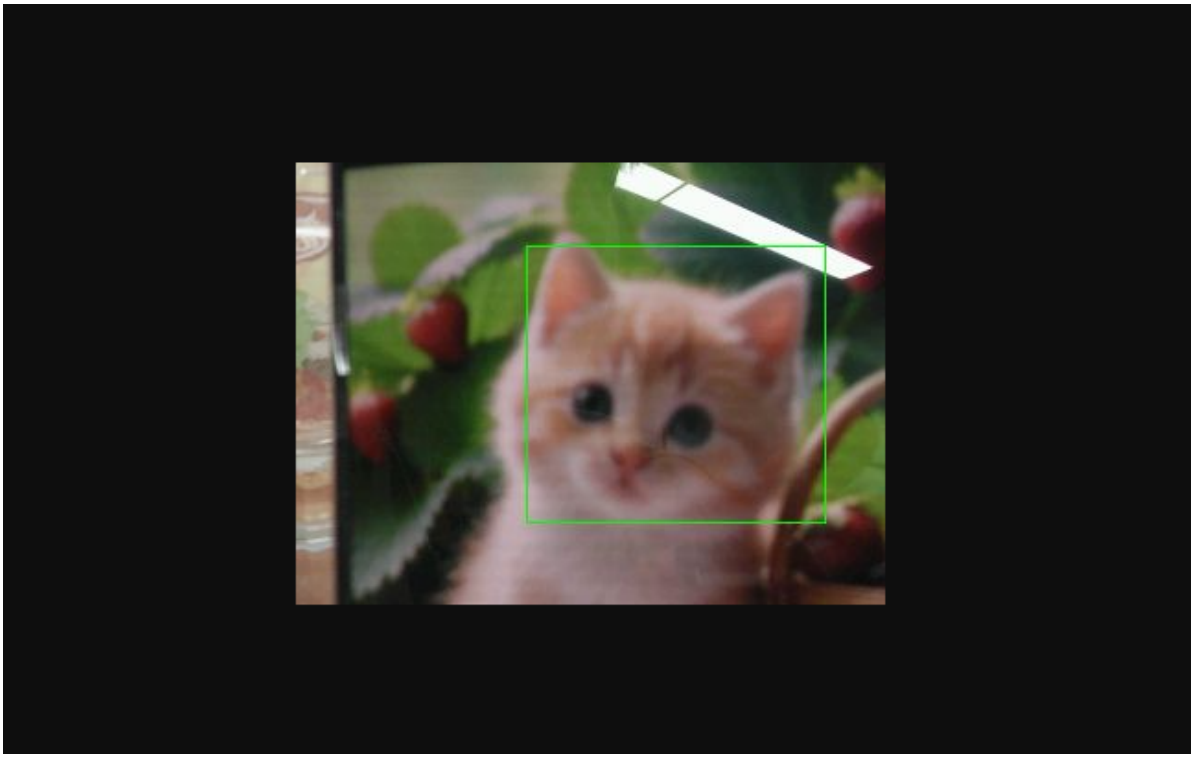
4. Open the camera and connect to the hotspot released by esp32 (you can also log in directly using sta_ip(192.168.2.88))



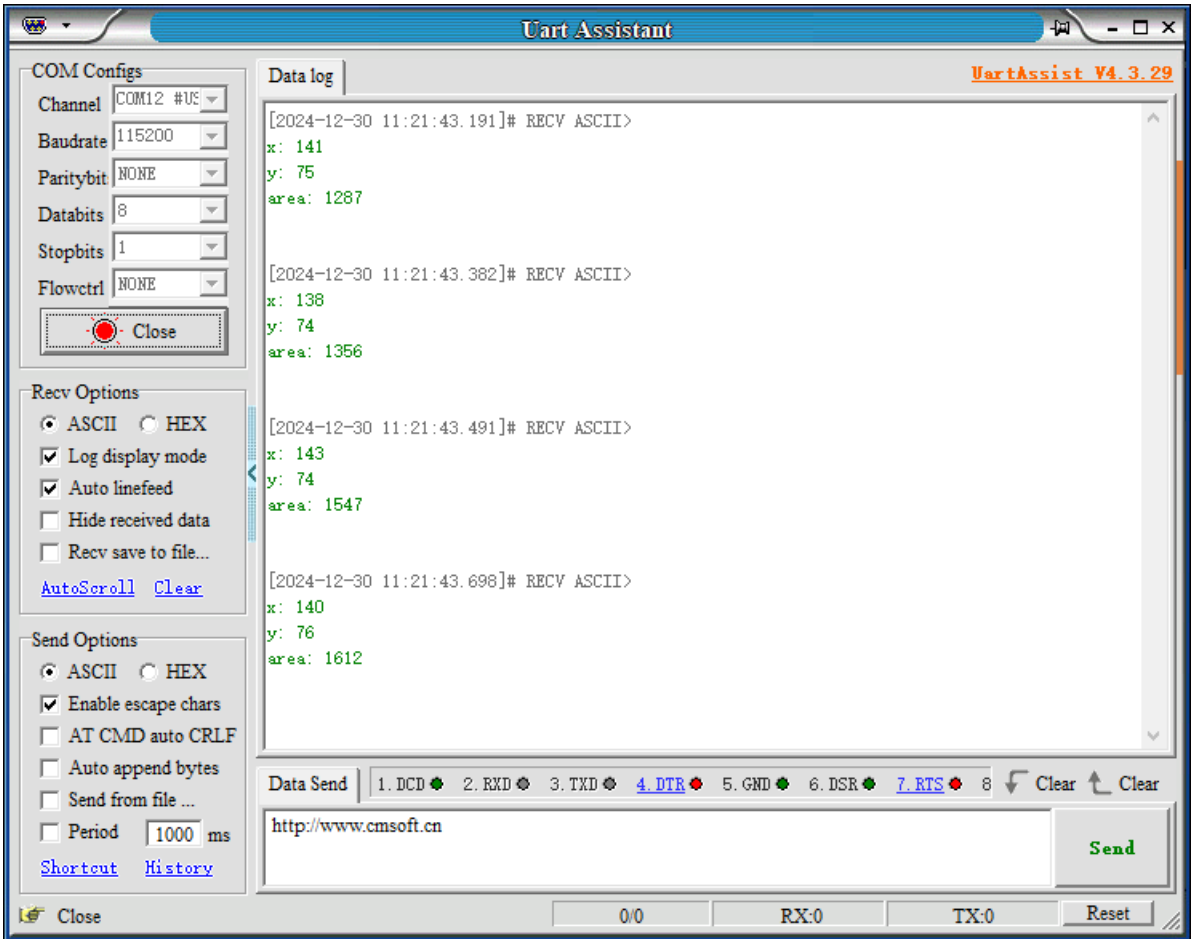
Then enter through the browser http://192.168.4.1:81/stream This accesses the camera screen



5. Identify cats and dogs. If the recognition is successful, the current center coordinates will be printed out, and the cat image will be placed in front of the previous screen.



At the same time, the terminal will print out the current coordinates and the selected area

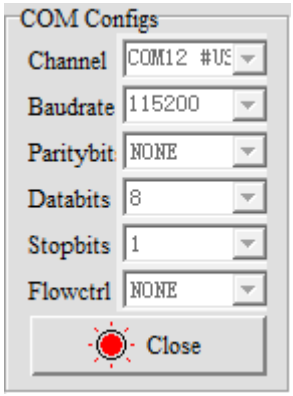


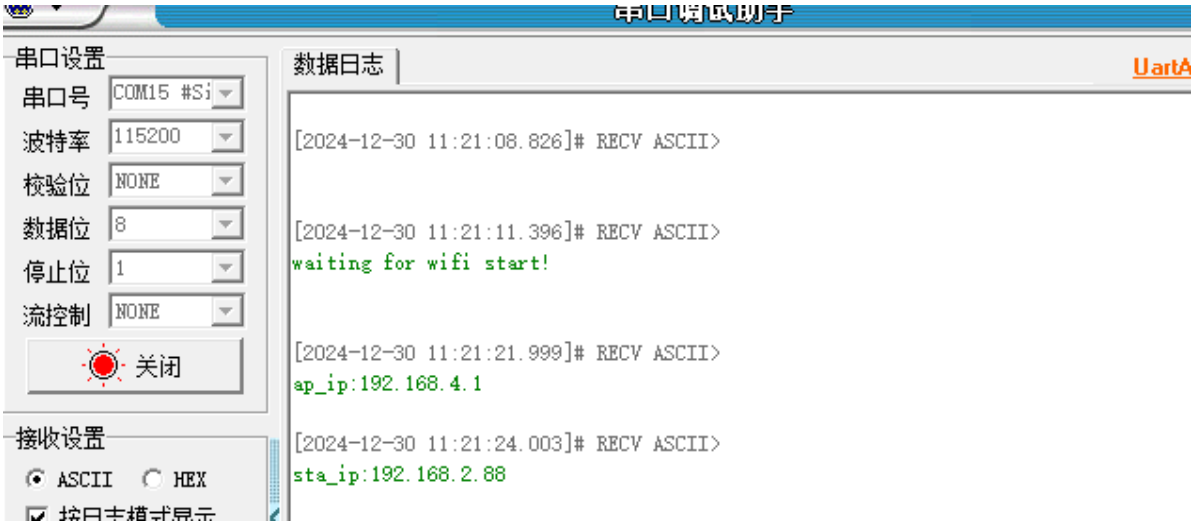
Face recognition mode

When switching to face recognition mode,

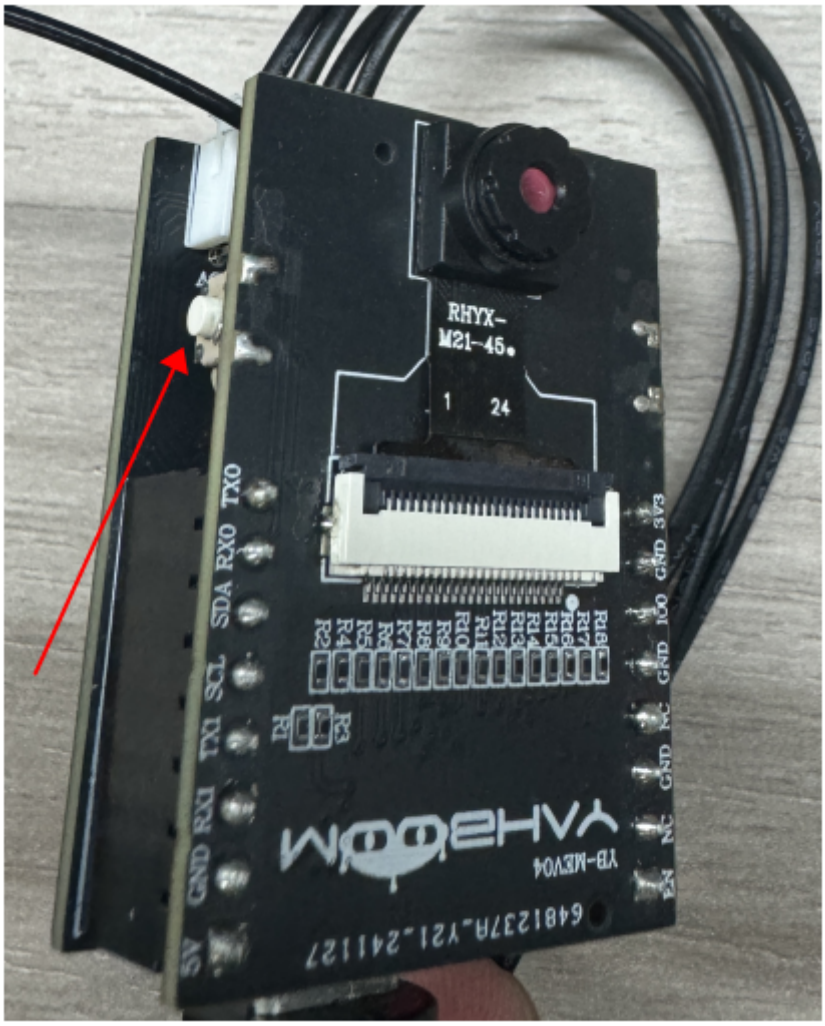
```
#define AI_set_mode REFACE_AI  //设置AI模式 Setting AI Mode
```

Compile and download to the STM32 motherboard, open the serial port debugging assistant

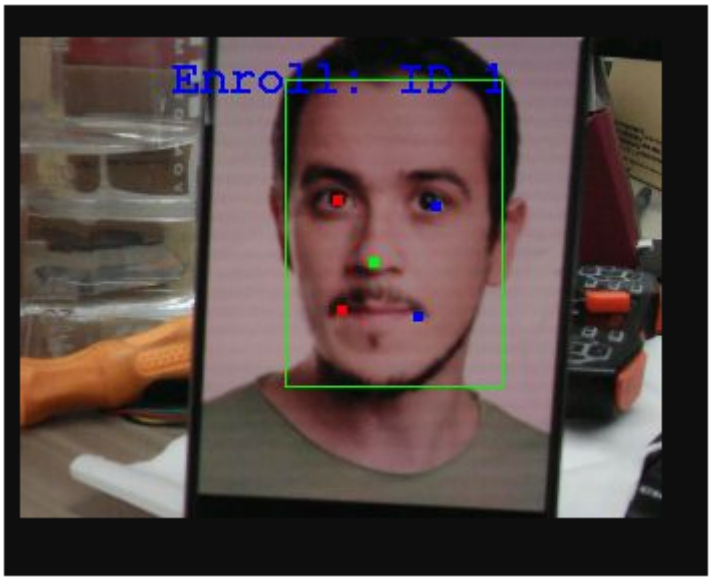




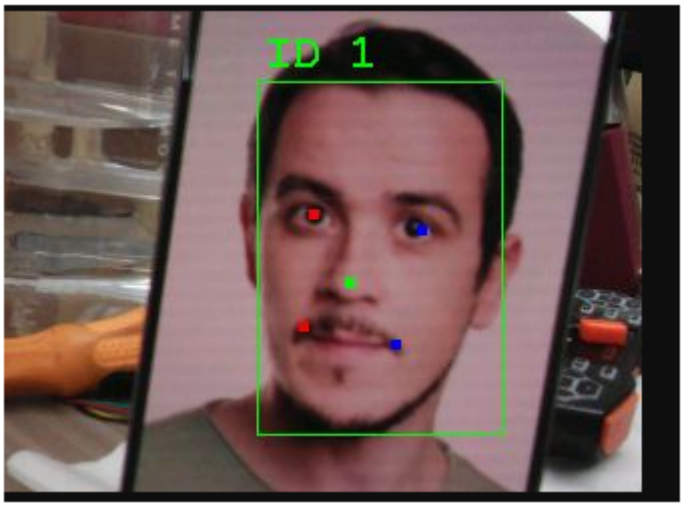
Recognize face. When you see a face, press the key button to record the face



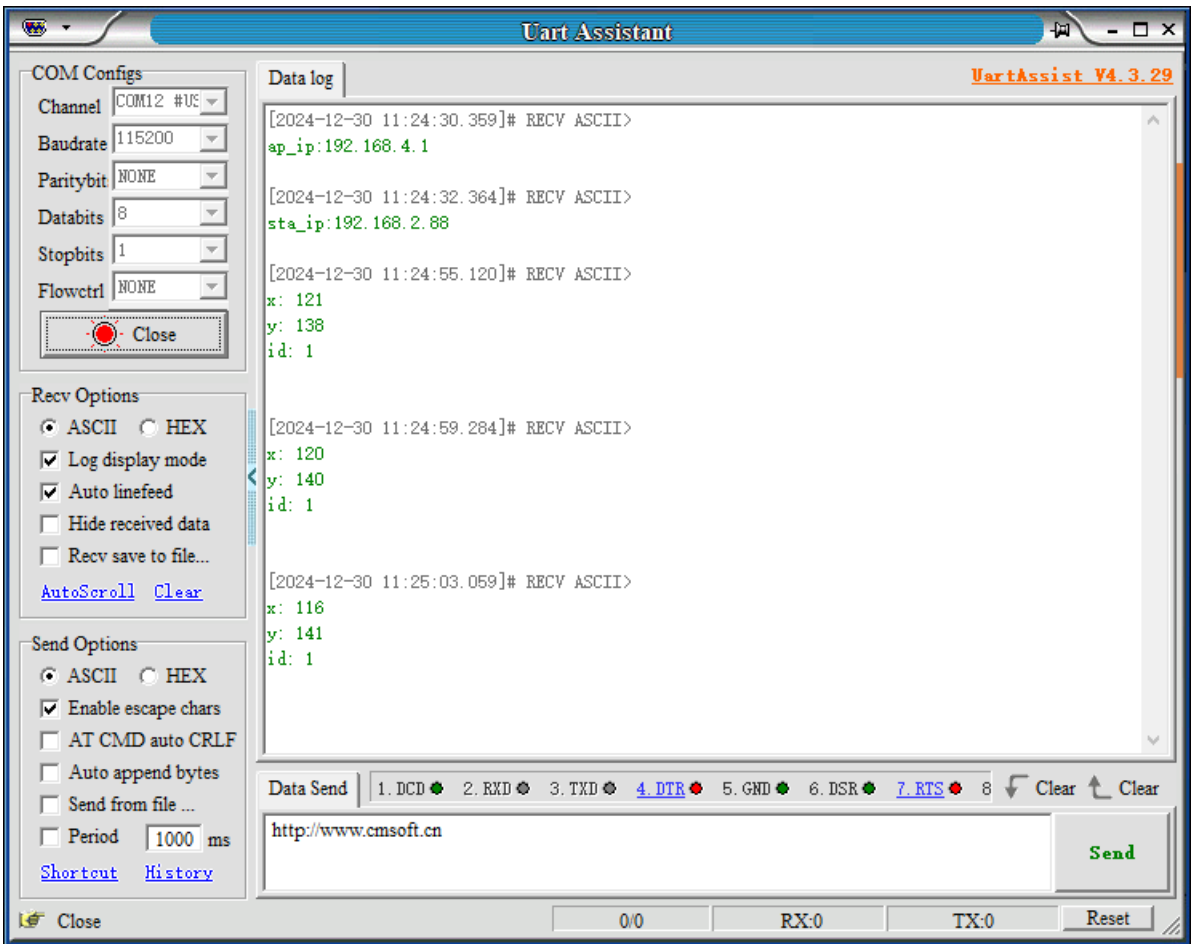
The following picture appears, which means the recording is successful, and the face 1 is recorded



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 out the current center coordinates and the recognized face.

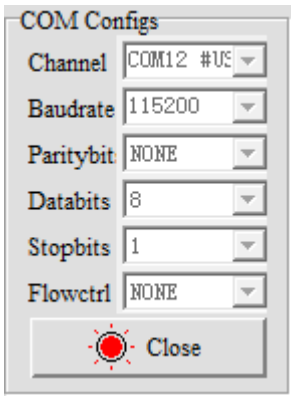


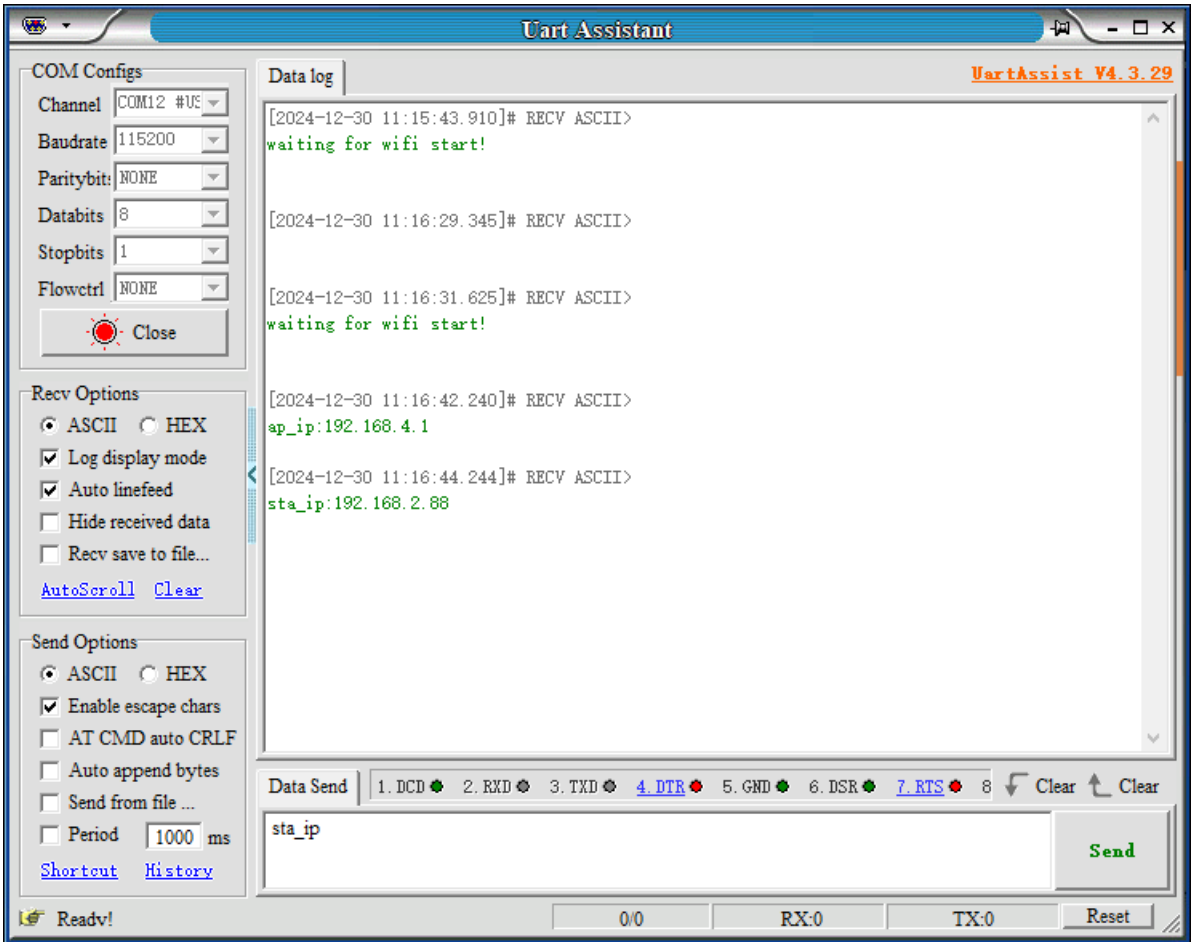
Color detection mode

When switching to face recognition mode,

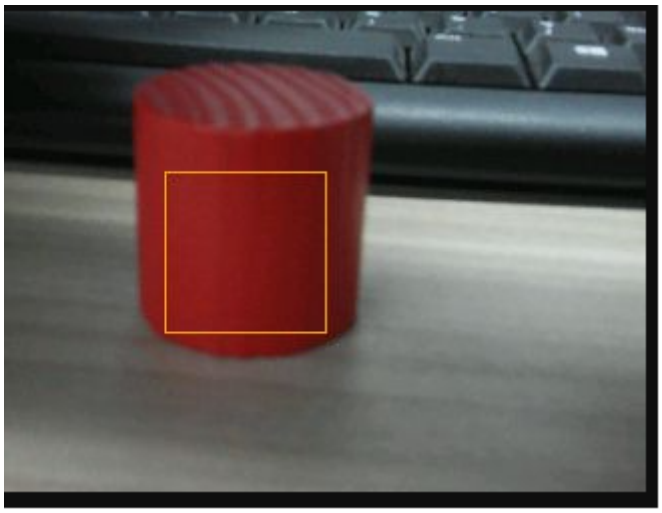
```
0
1  #define AI_set_mode COLOR_AI  //设置AI模式 Setting AI Mode
2
3
```

Compile and download to the STM32 motherboard, open the serial port debugging assistant

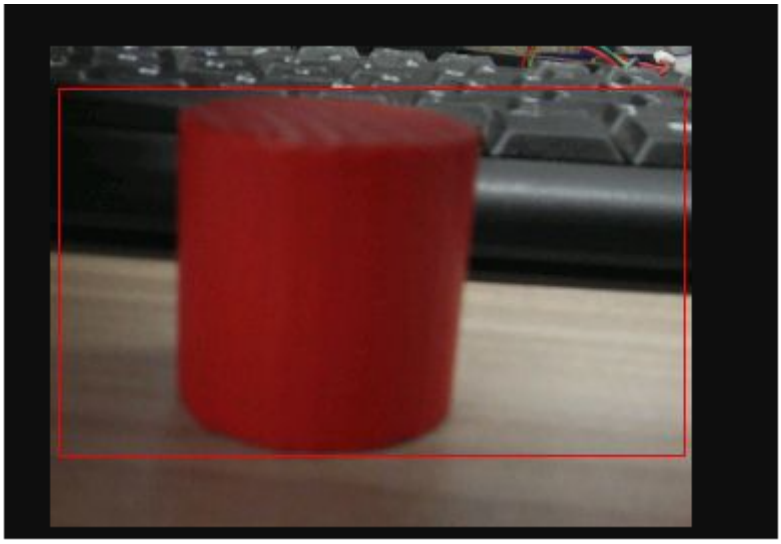




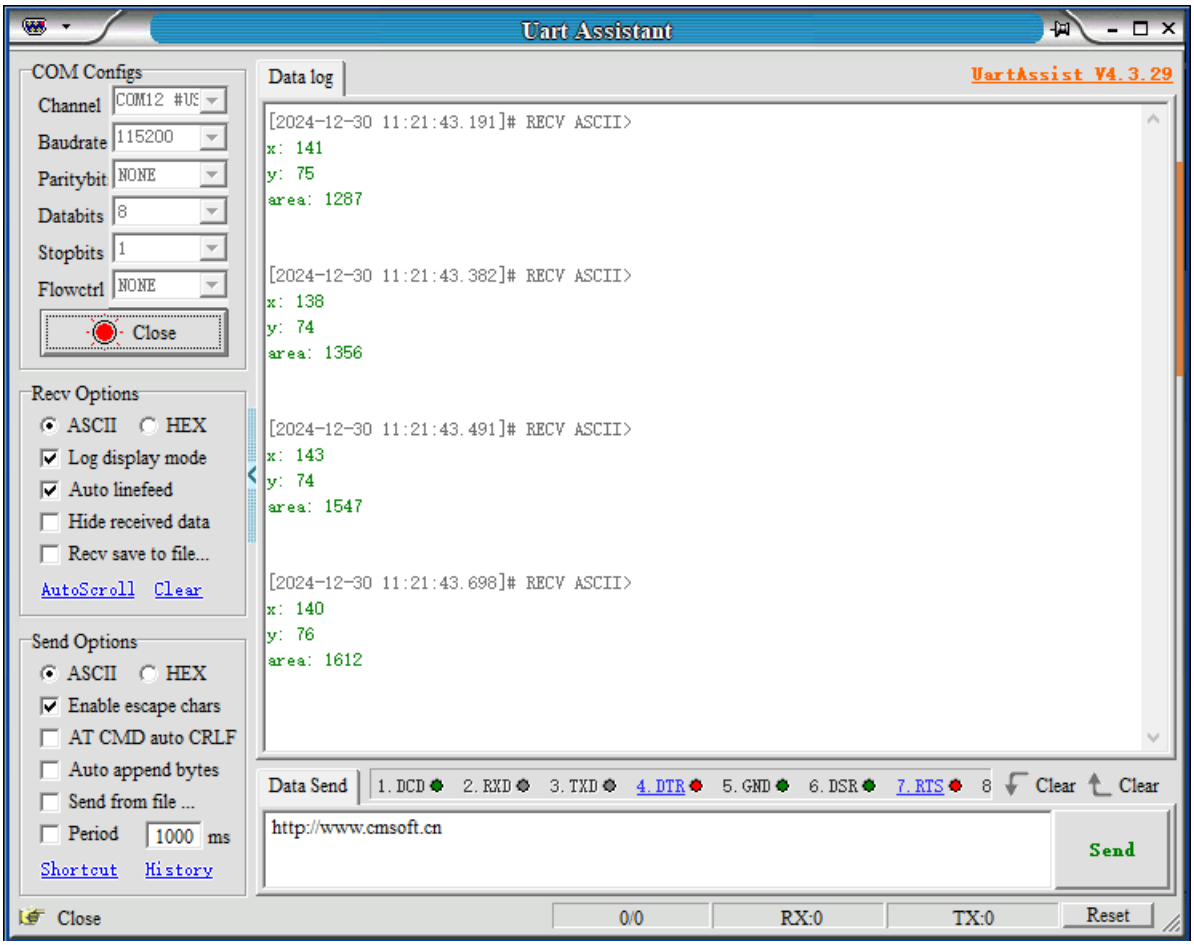
Recognize the color. Press the button and a box will appear. You can use this box to select the color you want to use.



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.

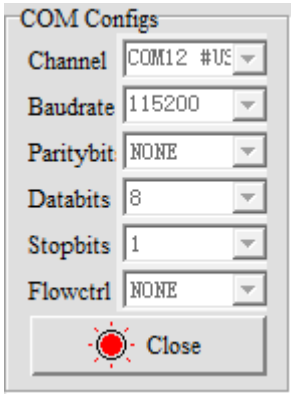


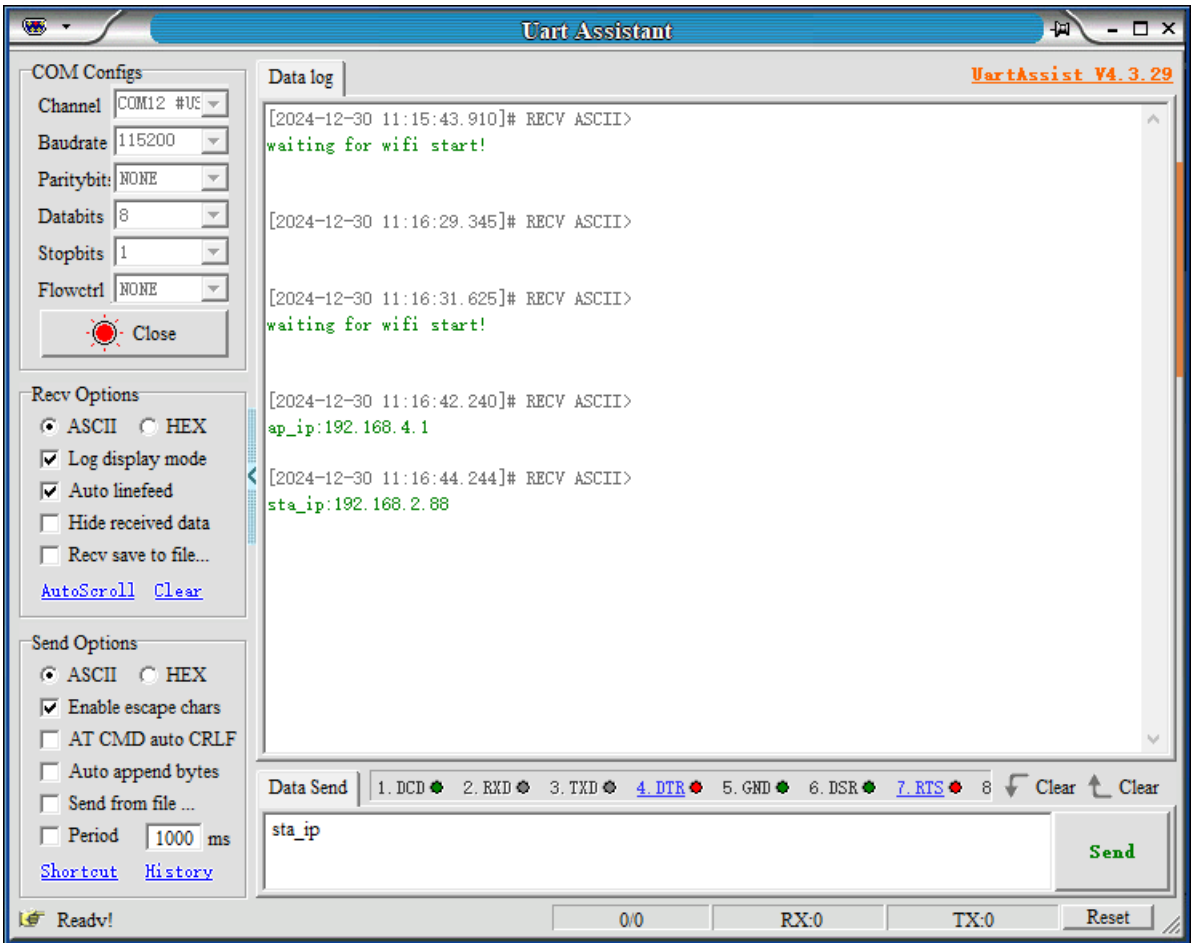
QR code detection

When switching to QR code mode,

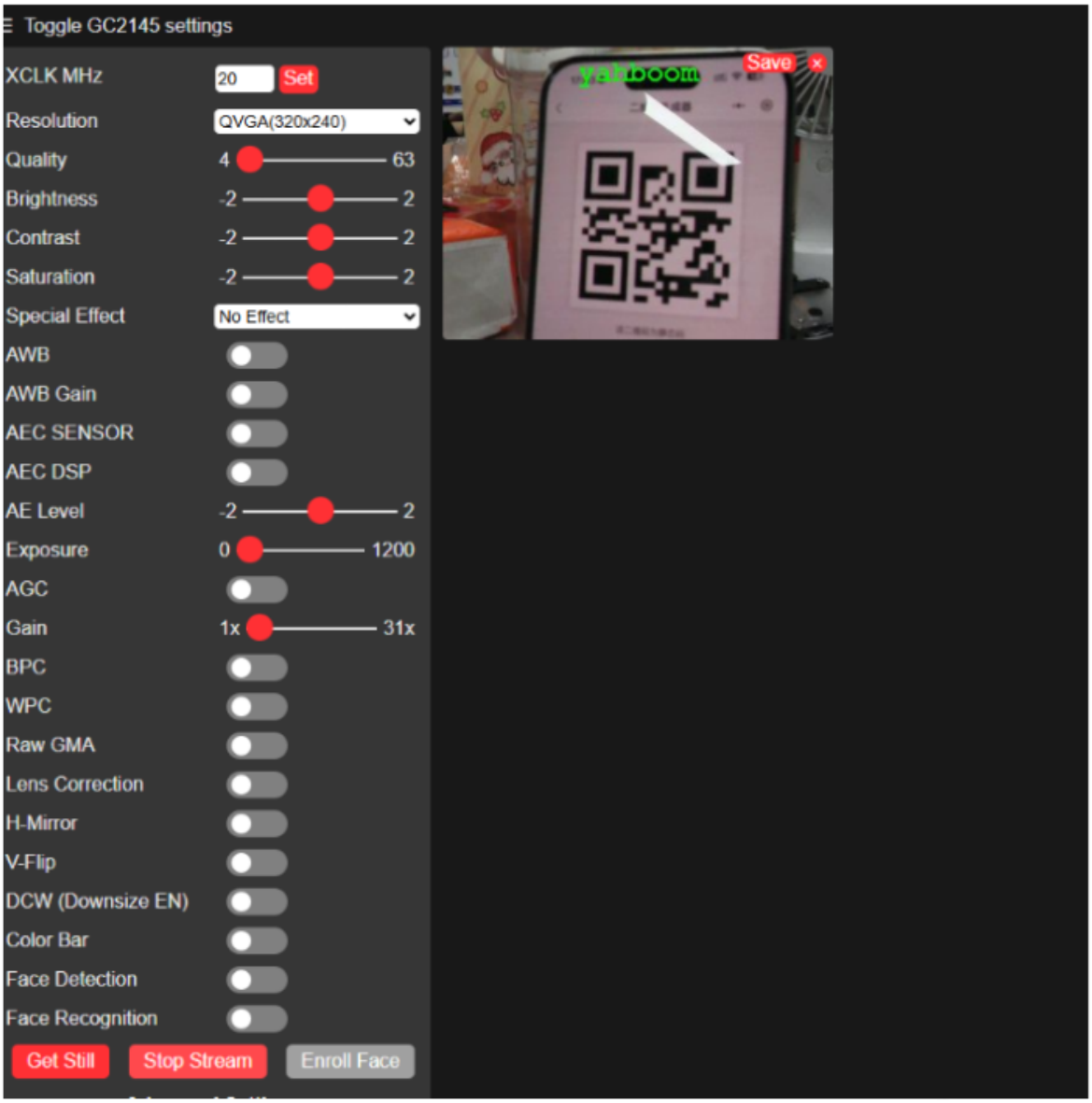
```
#define AI_set_mode QR_AI  //设置AI模式 Setting AI Mode
```

Compile and download to the STM32 motherboard, open the serial port debugging assistant

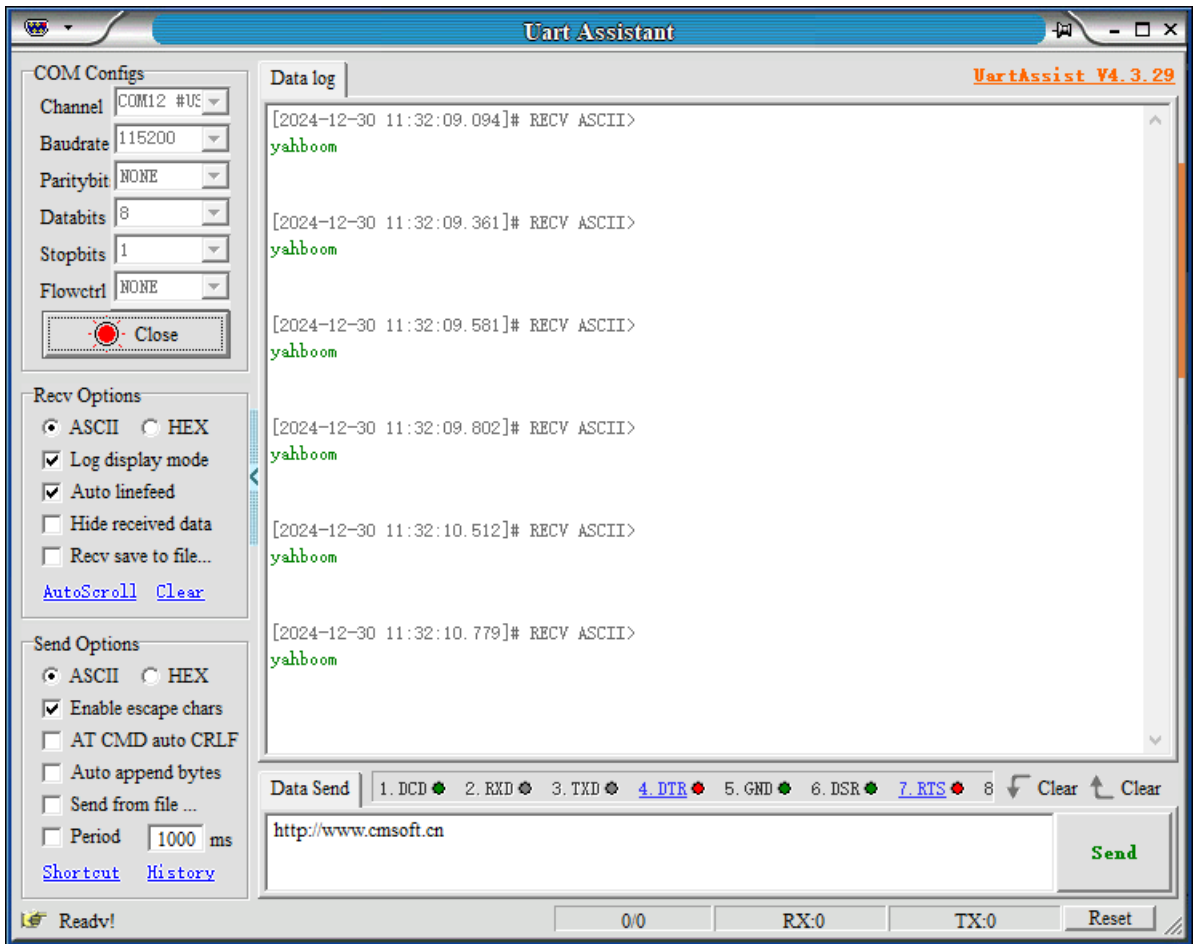




Use the WeChat applet on your mobile phone to search for the QR code generator. A QR code will be generated for the corresponding text and saved to the album. The following is the identification of the QR code.



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


Uart Assistant
COM Configs
Channel
COM12 #US
Baudrate
115200
Paritybit
NONE
Databits
8
Stopbits
1
Flowctrl
NONE
Close
Recv Options
ASCII
HEX
Log display mode
Auto linefeed
Hide received data
Recv save to file...
AutoScroll
Clear
Send Options
ASCII
HEX
Enable escape chars
AT CMD auto CRLF
Auto append bytes
Send from file ...
Period
1000
ms
Shortcut
History
Data log
UartAssist V4.3.29
[2024-12-30 11:32:09.094]# RECV ASCII>
yahboom
[2024-12-30 11:32:09.361]# RECV ASCII>
yahboom
[2024-12-30 11:32:09.581]# RECV ASCII>
yahboom
[2024-12-30 11:32:09.802]# RECV ASCII>
yahboom
[2024-12-30 11:32:10.512]# RECV ASCII>
yahboom
[2024-12-30 11:32:10.779]# RECV ASCII>
yahboom
Data Send
1. DCD
2. RXD
3. TXD
4. DTR
5. GND
6. DSR
7. RTS
8
Clear
Clear
http://www.cmsoft.cn
Send
Readv!
0/0
RX:0
TX:0
Reset