stm32 configure camera

1. Experiment preparation

- STM32F103 series microcontroller
- wifi camera

2. Wiring diagram

STM32F103	wifi camera
PA2	RX
PA3	TX
GND	GND
5V	5V
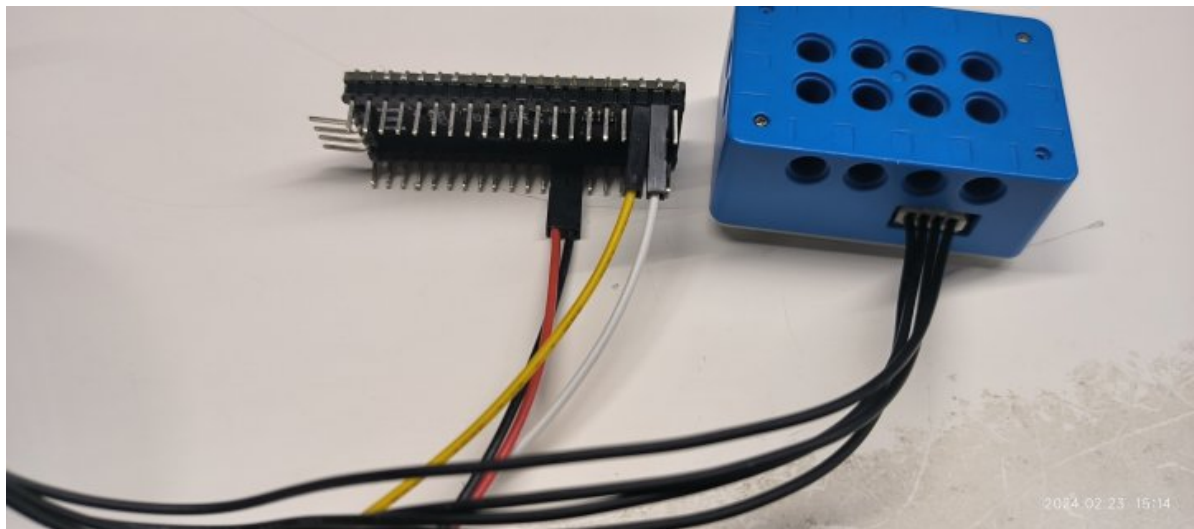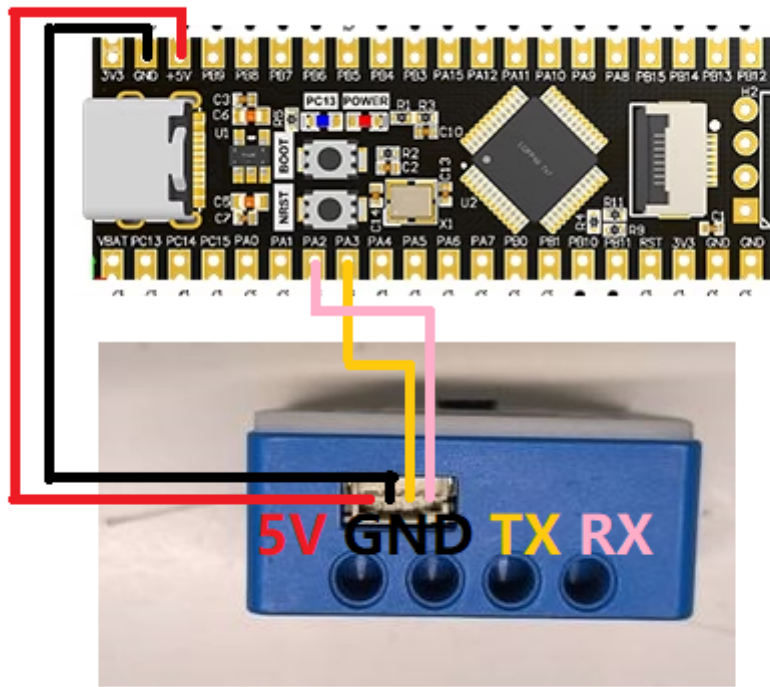
stm32 can also be connected to the computer, and you can use the ttl module. The stm32 used in this tutorial directly encapsulates the ttl module, and you can connect it to the computer through the USB interface

Connection between STM32 and ttl module

STM32F103	ttl module
PA9	RX
PA10	TX
GND	GND
5V	5V

3. Experimental steps and experimental results

1. Check whether the program is running normally

- Download the program of this project to the stm32 board
- Open the serial port assistant on the computer, open the computer and detect the stm32 serial port, as shown below

- After pressing the reset button of stm32, the serial port assistant will print out the corresponding information.

- Wait for about 30 seconds and the corresponding wifi information will be printed.
  If the AP+STA mode is turned on, then the IP addresses of the AP+STA will have the correct IP address (this source code is in this mode)

**If only one mode is enabled, then sta_ip:null or ap_ip:null**
When sta_ip:null occurs, you need to check whether the connected wifi name and password are correct. If correct, whether only the AP mode is turned on and the STA mode is not turned on.

2. Transparent transmission of data based on IP connection

- First open the **NetAssist.exe** software on your computer and make sure the computer and camera are on the same network segment.
- Then connect according to the obtained IP address. For example, the obtained sta_ip is: "192.168.2.199"/ap_ip is: "192.168.4.1"
- Then there are 2 ways
    1. Connect the computer to the camera's spontaneous wifi, and then connect through the ip 192.168.4.1. The port number is **8888** and cannot be changed.

2. The computer is connected directly through the IP address 192.168.2.199. The port number is **8888** and cannot be changed. The following figure is a diagram of a successful connection.
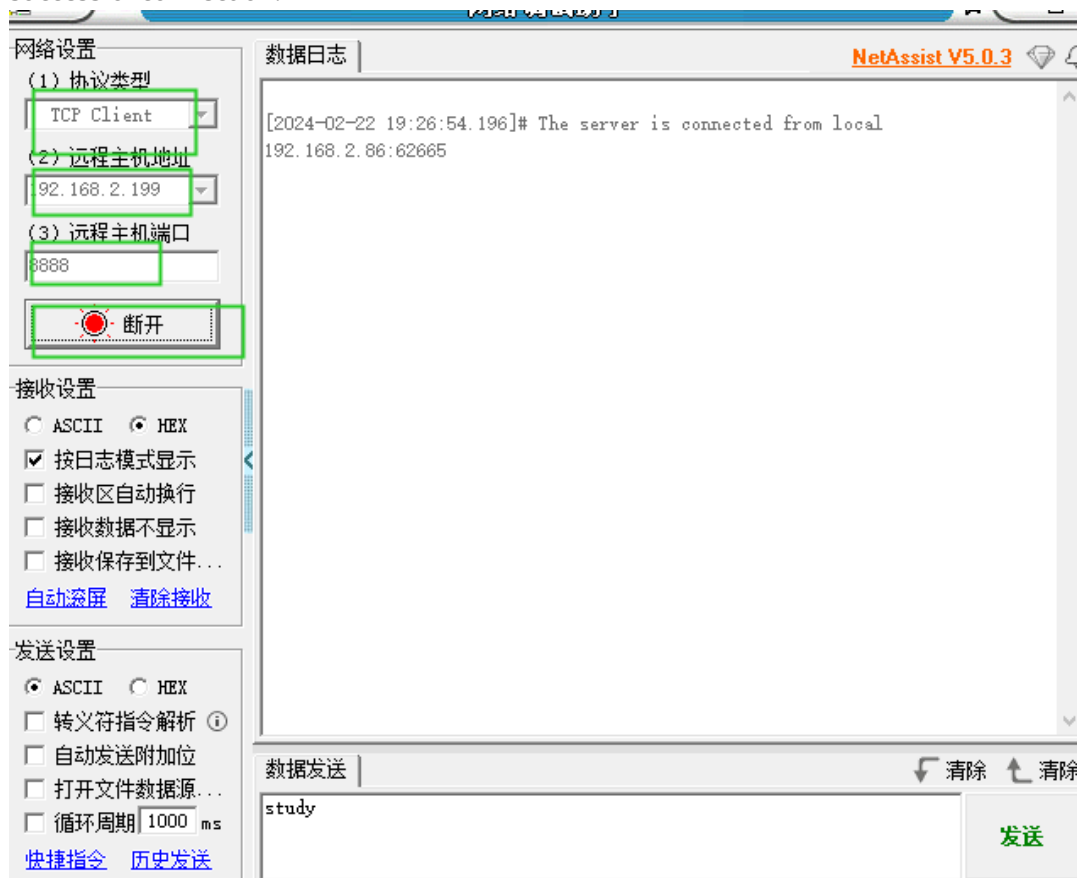
- Then by sending information, the terminal of the serial port assistant will also print relevant information
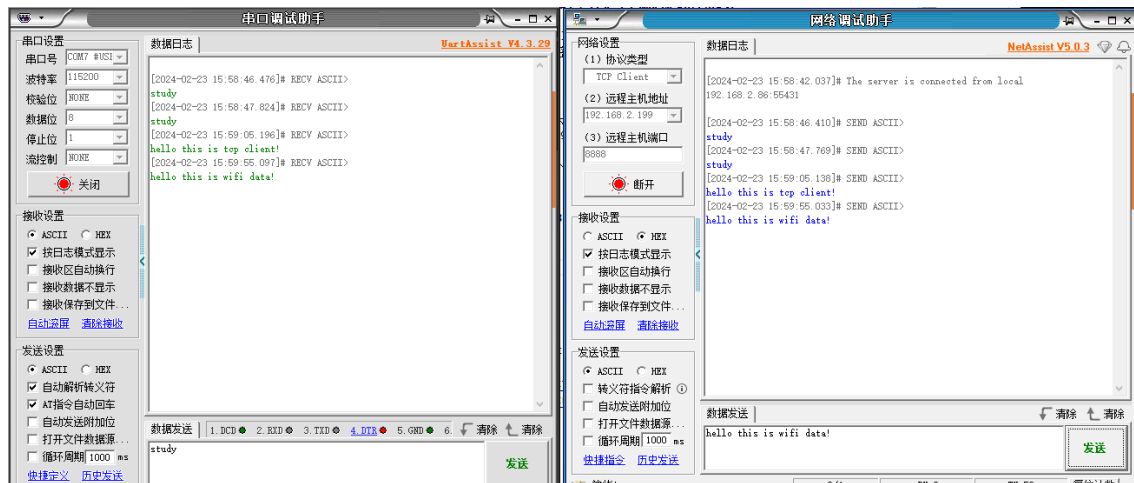
3. Watch the camera picture

- Open the browser on your computer or mobile phone

- Then watch the video through the obtained IP address. For example, the obtained sta_ip is: "192.168.2.199"/ap_ip is: "192.168.4.1"

- Then you can watch the live camera footage in 2 ways

   1. Connect the computer to the camera's spontaneous wifi, and then enter **http://192.168.4.1:81/stream** through the browser to access the camera screen
   2. Directly enter **http://192.168.2.199:81/stream** on your computer to access the camera screen.
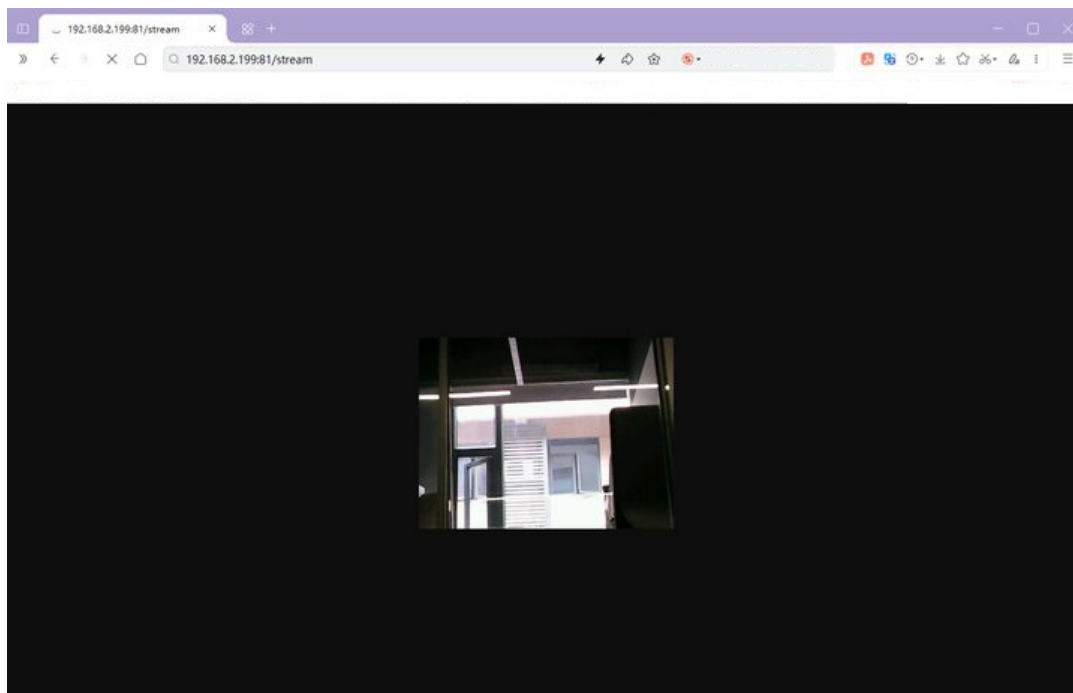
Introduction to the main program source code of wifi configuration

```
#define STA_WIFI_SSID "Yahboom2"
#define STA_WIFI_PD "yahboom"


#define AP_WIFI_SSID "ESP32_WIFI_TEST"
#define AP_WIFI_PD ""
```

The above constants are defined in the esp32_wifi.c source code of this project

- STA_WIFI_SSID: The name of the wifi to be connected, change it according to your own situation
- STA_WIFI_PD: The wifi password to be connected, change it according to your own situation
- AP_WIFI_SSID: The wifi name of the wifi camera's spontaneous hotspot, change it according to your own situation
- AP_WIFI_PD: The wifi password of the wifi camera's spontaneous hotspot, change it according to your own situation

If you want to change the wifi mode, this tutorial defaults to dual mode coexistence, that is, STA+AP mode
Select the mode under the file esp32_wifi.h

```
#define MODE_AP 0
#define MODE_STA 0
#define MODE_AP_STA 1
```

0: represents canceling this mode 1: represents selecting this mode
You can only choose one mode, not at the same time, otherwise the IP address will not be queried