

stm32 development board car and camera

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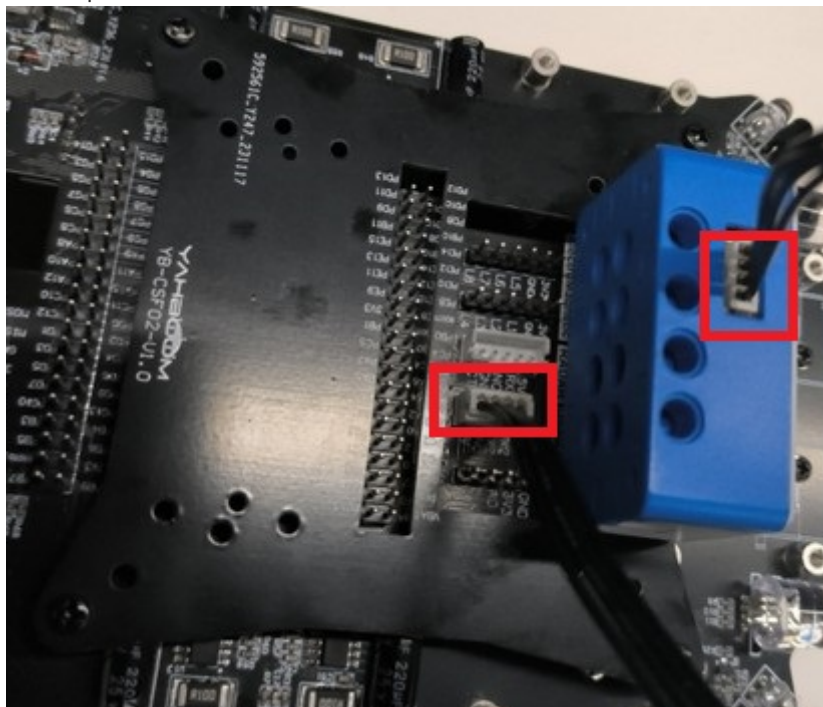
1. Experiment preparation

- STM32 development board car
- wifi camera

2. Wiring diagram

STM32F103	wifi camera
PD5	RX
PD6	TX
GND	GND
5V	5V

as the picture shows:

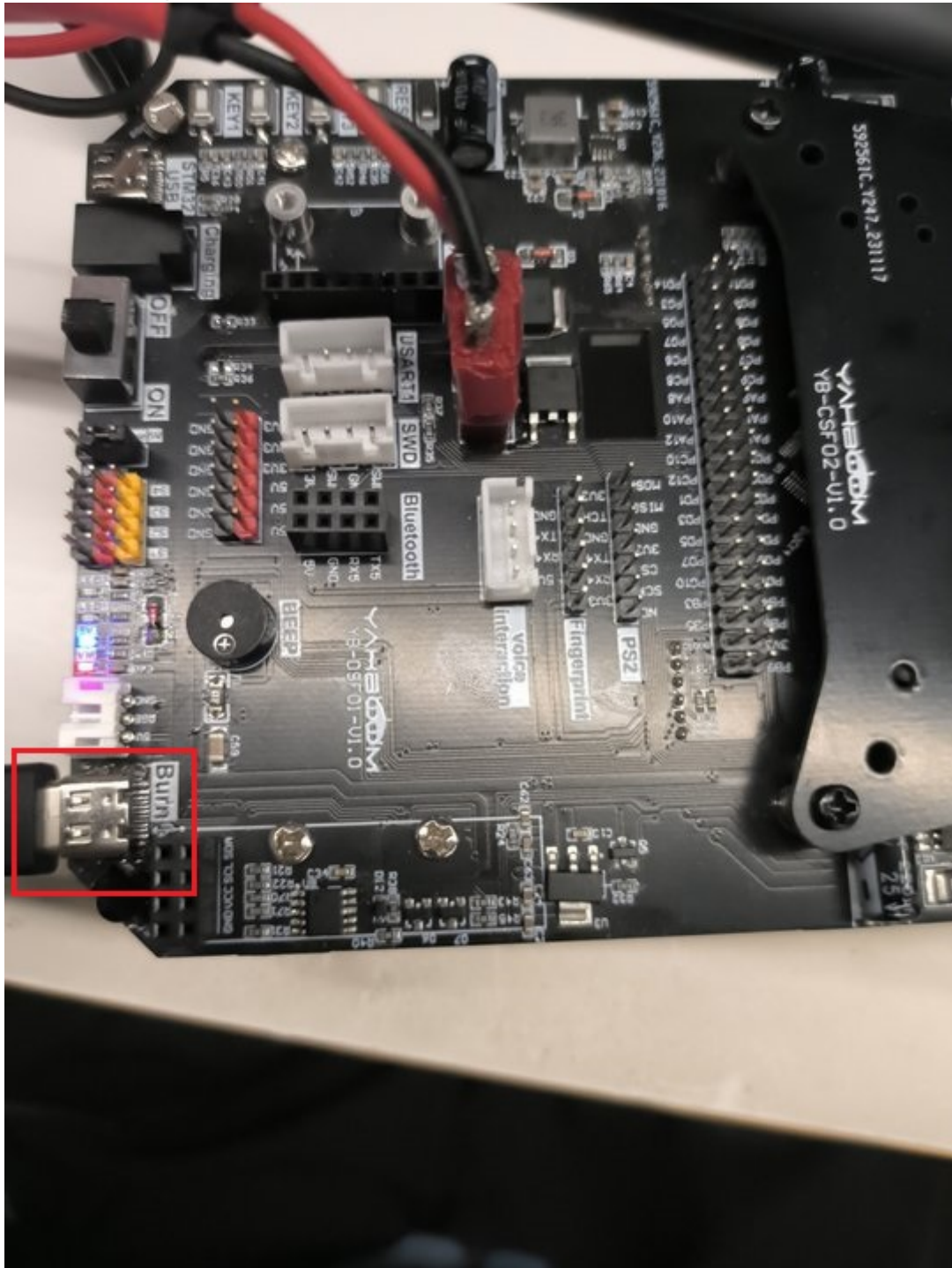


3. Experimental steps and experimental results

Shortcut method: You can directly connect to the wifi opened by esp32. In this experiment, the name is ESP32_WIFI_TEST, and then the ip address camera information of the mobile app is 192.169.4.1 to control the car

1. Check whether the program is running normally

- After downloading the program of this project to the stm32 car, plug in the serial port, as shown in the figure below



- 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.

```
[2024-02-23 15:50:29.643]# RECV ASCII>
waiting for wifi start!
```

- 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)

```
[2024-02-23 15:50:37.359]# RECV ASCII>
YAHBOOM VerSion:1.8.3
[2024-02-23 15:50:38.368]# RECV ASCII>
ap_ip:192.168.4.1

[2024-02-23 15:50:39.361]# RECV ASCII>
ap_ip:192.168.4.1

[2024-02-23 15:50:41.369]# RECV ASCII>
ap_ip:192.168.4.1

[2024-02-23 15:50:43.369]# RECV ASCII>
sta_ip:192.168.2.199


[2024-02-23 15:50:45.369]# RECV ASCII>
sta_ip:192.168.2.199
sta_ip:192.168.2.199
```

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 one mode of AP is turned on and the STA mode is not turned on.

2. Use the app to control the movement of the car. After installing the "ESP32Cam" app, open it.
- On the login page, set according to the IP obtained by the serial port assistant. For example, the IP obtained by the serial port assistant is "192.168.2.50", then the configuration is as

follows



YahboomCam


Input camera IP: 192.168.2.50

☐ Camera horizontal rotation

☐ Camera vertical rotation

Login

- Then click to log in directly
- (Optional) If you want to connect to the hotspot of the wifi camera, the IP address must be set to 192.168.4.1, as shown in the picture



YahboomCam

Input camera IP: 192.168.4.1

☐ Camera horizontal rotation

☐ Camera vertical rotation

Login

- When the IP address is configured correctly and successfully connected, you can control the car through the app console page.

Horizontal screen

CONSOLE

Log out

☐

Camera horizontal rotation

Small car

U

L

S

R

D

LT

RT



☐

Camera vertical rotation

Servo motor

CU

CL

CR

CD

Note: Every time you restart the app, you need to click the exit button in the upper right corner, then exit and reconfigure the IP address information before logging in.

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 (standard library)/bsp_wifi.c (HAL library) 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