PS2 handle remote control

This tutorial is a comprehensive experiment with multiple peripherals. You can learn about a single peripheral before doing the experiment.

1、software-hardware

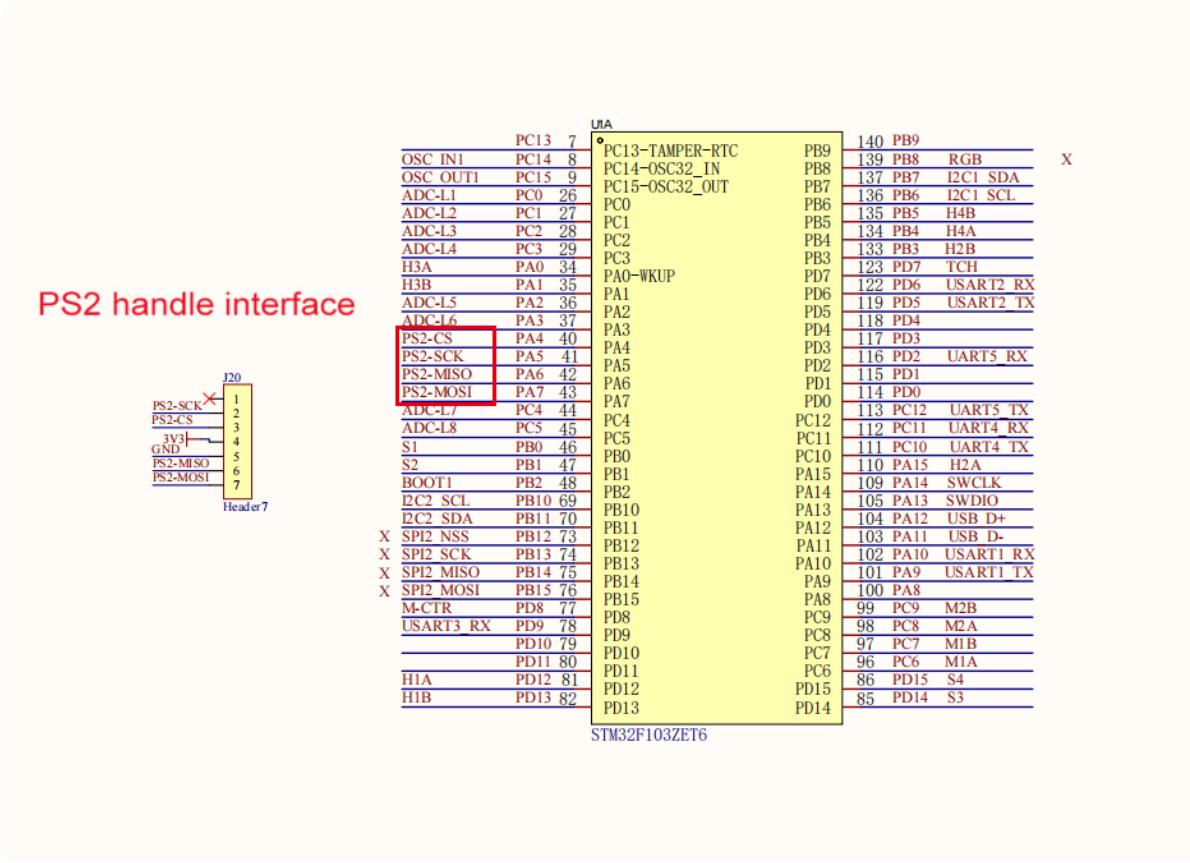
- **STM32F103CubeIDE**
- **STM32 robot expansion board**

  Handle receiver: External
- **Type-C cable or ST-Link**

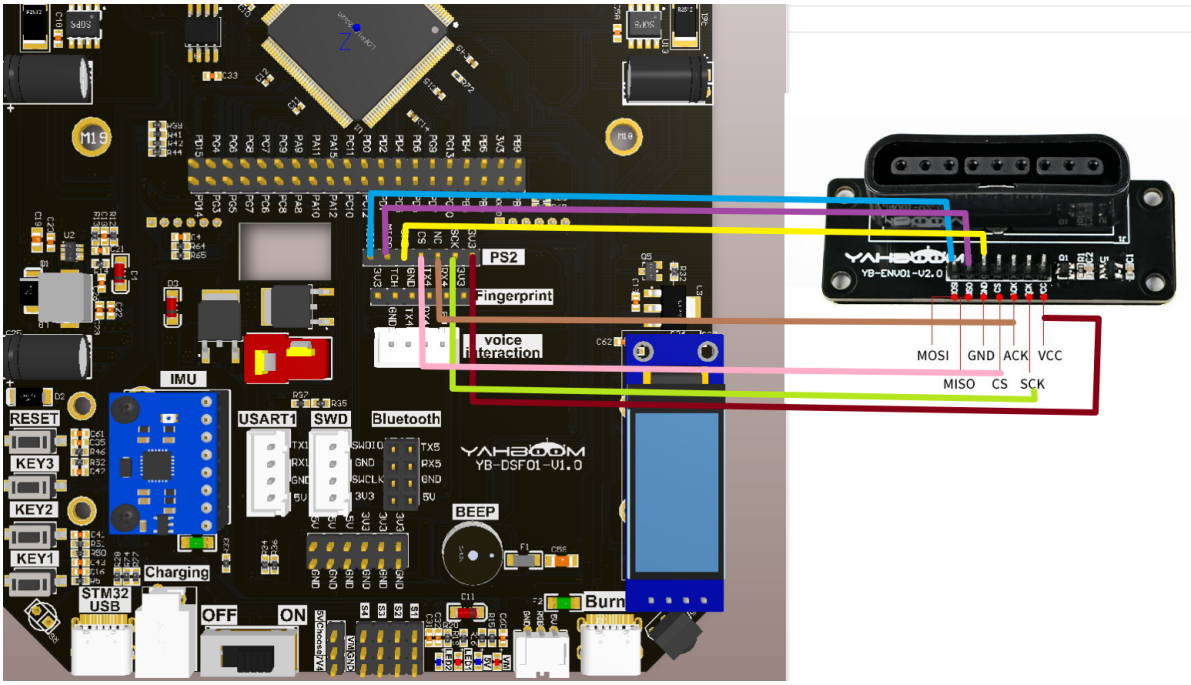
  Download or simulate the program of the development board

2、Brief principle

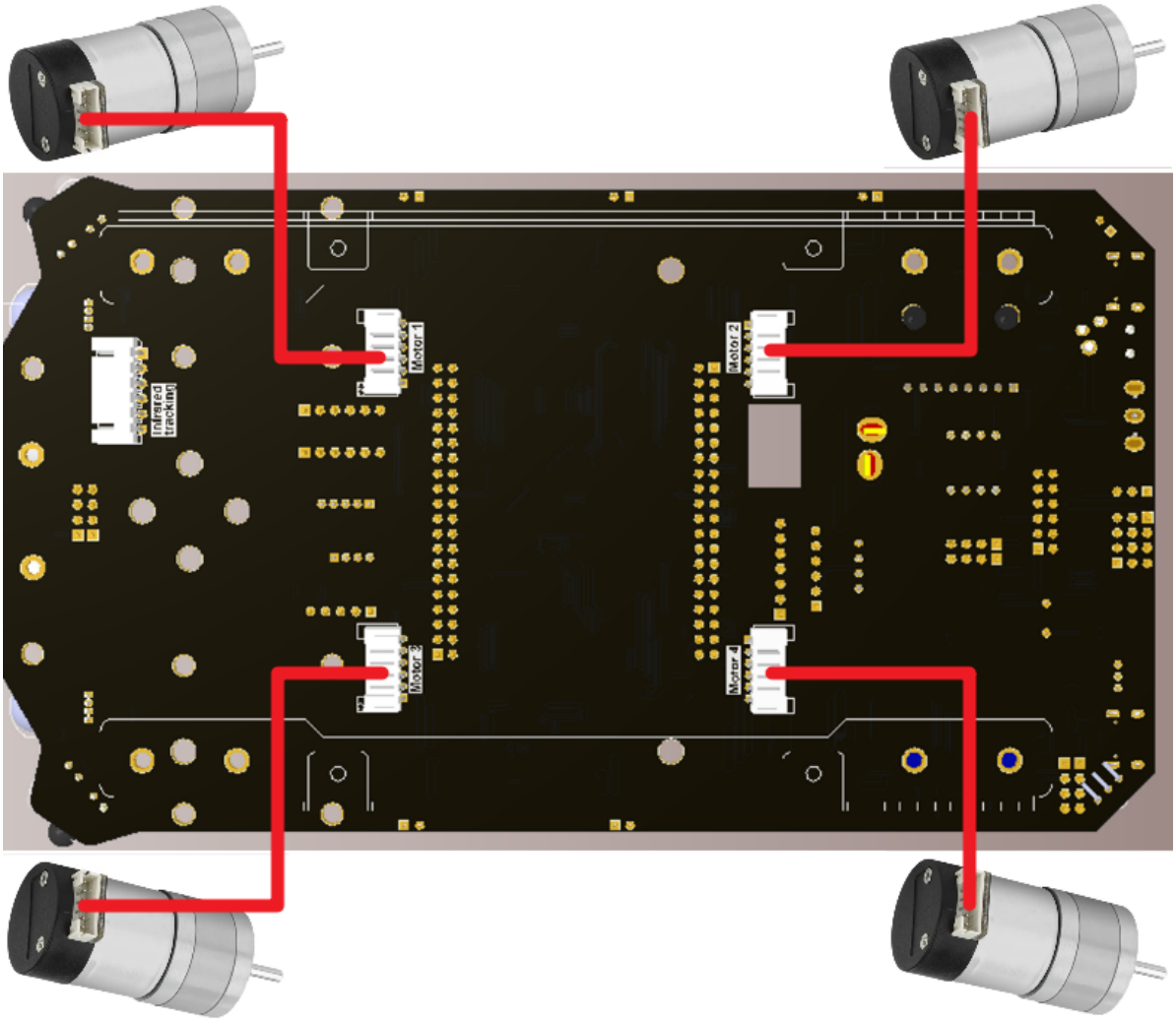
2.1、Hardware schematic diagram



2.2、Physical connection diagram



Motor wiring:



2.3、Principle of control

- **Principle of control**

module	feature
PS2 handle receiver	Communication with the single chip microcomputer

Key value rule：

Key nameKey value	
L1	11
L2	9
R1	12
R2	10
Arrow keys (up, down, left and right)	5/7/8/6
Function key （X/A/Y/B）	16/15/13/14
Select key	1
Start key	4

Note: The above key values are from the project code

PS2 handle is composed of a handle and a receiver. The handle is mainly responsible for sending key information. The receiver is connected to the microcontroller for receiving the information from the handle and passing it to the microcontroller. The microcontroller can also send commands to the handle through the receiver to configure the sending mode of the handle.

3、Main Function

> **function：PS2_ShortPoll**

Function prototypes	void PS2_ShortPoll(void)
Functional Description	Handle configuration initialization

Function prototypes	void PS2_ShortPoll(void)
Input parameters	None
Return value	None

function：PS2_EnterConfing

Function prototypes	void PS2_EnterConfing(void)
Functional Description	Go to Configuration
Input parameters	None
Return value	None

function：PS2_SetInit

Function prototypes	void PS2_SetInit(void)
Functional Description	Handle configuration initialization
Input parameters	None
Return value	None

function：PS2_Cmd

Function prototypes	void PS2_Cmd(uint8_t CMD)
Functional Description	Handle configuration initialization
Input parameters	CMD instruction
Return value	None

function：PS2_TurnOnAnalogMode

Function prototypes	void PS2_TurnOnAnalogMode(void)
Functional Description	Sending mode Settings
Input parameters	None
Return value	None

function：PS2_ExitConfing

Function prototypes	void PS2_ExitConfing(void)
Functional Description	Finish and save the configuration
Input parameters	None

Function prototypes	void PS2_ExitConfing(void)
Return value	None

> function：User_PS2_Control

Function prototypes	void User_PS2_Control(void)
Functional Description	ps2 controls the car
Input parameters	None
Return value	None

```
For low-level drivers, see Chapter 3: Advanced Timer Tutorial and Chapter 4:
Motor Control Tutorial.
For the application layer, you can read the source code in the project files
yourself
```

4、Experimental phenomenon

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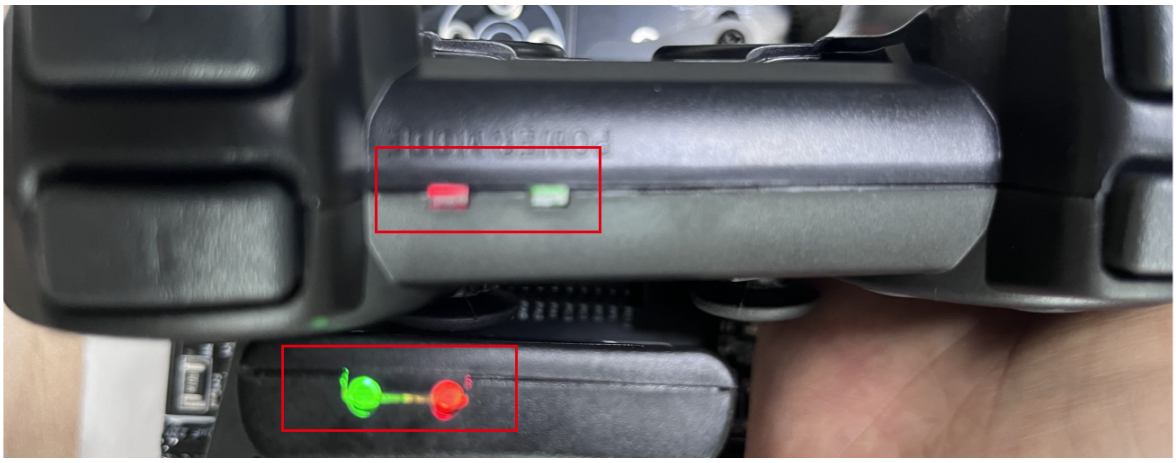
Program download can refer to [2, development environment construction and use:
program download and simulation]
```

After downloading the program successfully, connect the handle receiver to the expansion board.

Turn on the switch on the handle, and then we need to pair the handle receiver with the handle.

The pairing indicator is shown below: The handle receiver and the handle indicator are the traffic light is always on, if it is not, you can long press the "Mode" button on the handle to switch the handle mode to red and green mode.



See the demo video for details：