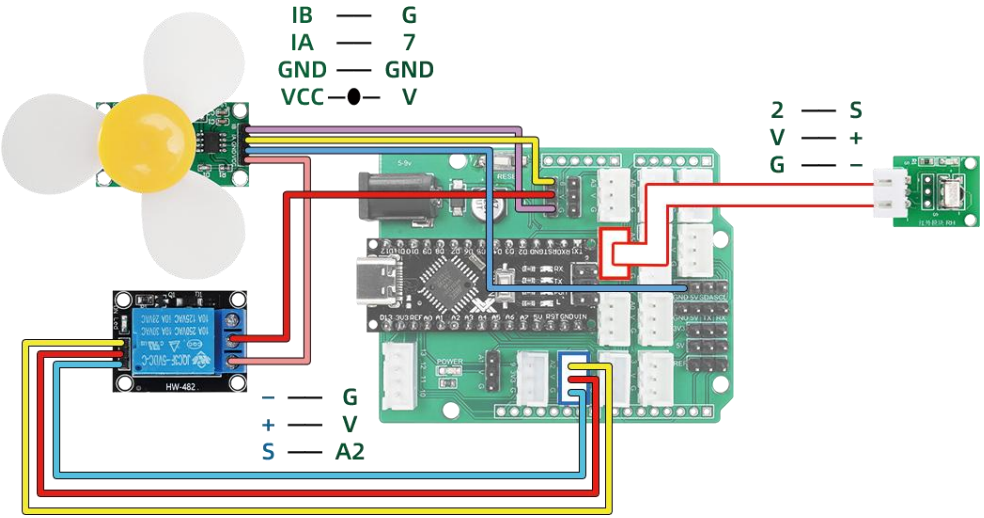
Project 17-Infrared Control Relay

1. project description

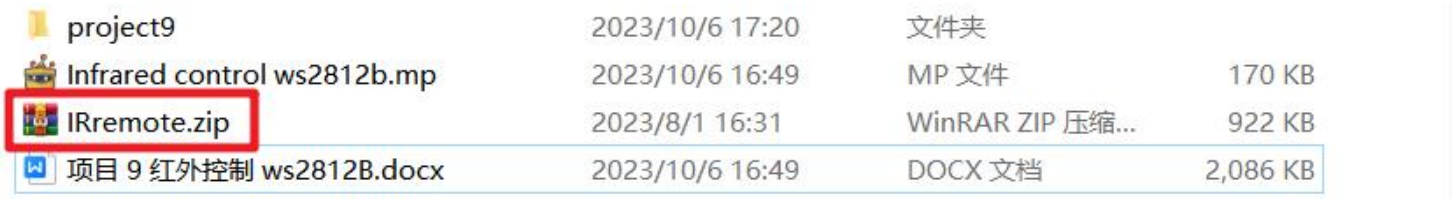
Through this project, you will learn how to control a relay to drive a small DC motor using an infrared remote control through ZY- Nano .

2. Project wiring diagram

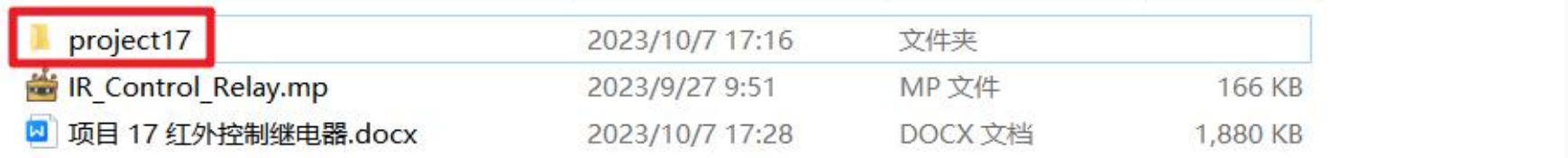


3. Download Arduino code

Confirm that the infrared remote control library file IRremote.zip has been added successfully. If it has not been added, please go back to item 9 to see how to add the library.



Open the project Arduino code file (path: project 17 infrared control relay\project17\project17.ino)



Connect the main control board to the computer using USB, select the board type as Nano, select the newly displayed COM number, click "Download" to start compiling and downloading the program to the main control board.

Code analysis:

(Focus on understanding the relay part code, note that pin A2 is equal to 16 in the code)

```
#include <IRremote.h> //添加红外接收器库

#define ON  0XFFE21D  //按钮3对应红外编码保存到“ON”   Remote control button 1 value
#define OFF 0XFF22DD  //按钮4对应红外编码保存到“OFF”  Remote control button 2 value

#define RelayPin 16   //定义继电器信号引脚16(A2)  Relay control signal
#define FanPinA 7     //定义风扇电机引脚7   Motor Signal A as pin7
#define receiver 2    //定义红外接收器引脚2   Define pin 2 of the infrared receiver

IRrecv irrecv(receiver);    //创建` irrecv `实例     create instance of 'irrecv'

decode_results results;     //创建` decode_results `实例     create instance of 'decode_results'
```

```
void setup()
{
    Serial.begin(9600);
    irrecv.enableIRIn();            //启动红外接收器     Start the receiver

    pinMode(FanPinA, OUTPUT);       //设置电机引脚为输出    Set the motor pin to the output
    pinMode(RelayPin, OUTPUT);      //设置继电器信号引脚为输出    Set the relay signal pin a
    digitalWrite(RelayPin, LOW);    //初始设置继电器低电平、电机引脚为高电平    The relay pi
    digitalWrite(FanPinA, LOW);    //风扇电机信号引脚7写入低电平   Fan motor pin 7 write low
}
```

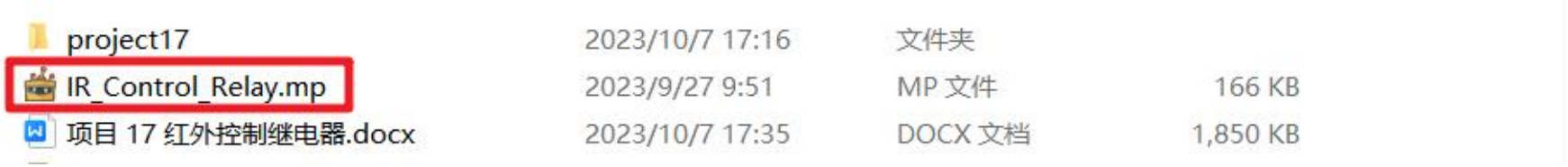
```
void loop()
{
  if (irrecv.decode(&results)){
      Serial.print("value = ");
      Serial.println(results.value, HEX);
      if (results.value == ON )       //打开继电器    Turn on relay
      {
          digitalWrite(RelayPin, HIGH);
          digitalWrite(FanPinA, HIGH);
      }
      else if (results.value == OFF ) //关闭继电器    Shut off relay
      {
          digitalWrite(RelayPin, LOW);
          digitalWrite(FanPinA, LOW);
      }
      irrecv.resume(); //接收下一个红外编码值    Receive the next value
  }
}
```

When pressing button "3" on the infrared remote control, open the relay to turn on the fan motor;

When pressing button "4" on the infrared remote control, the relay is turned off and the fan motor is disconnected;

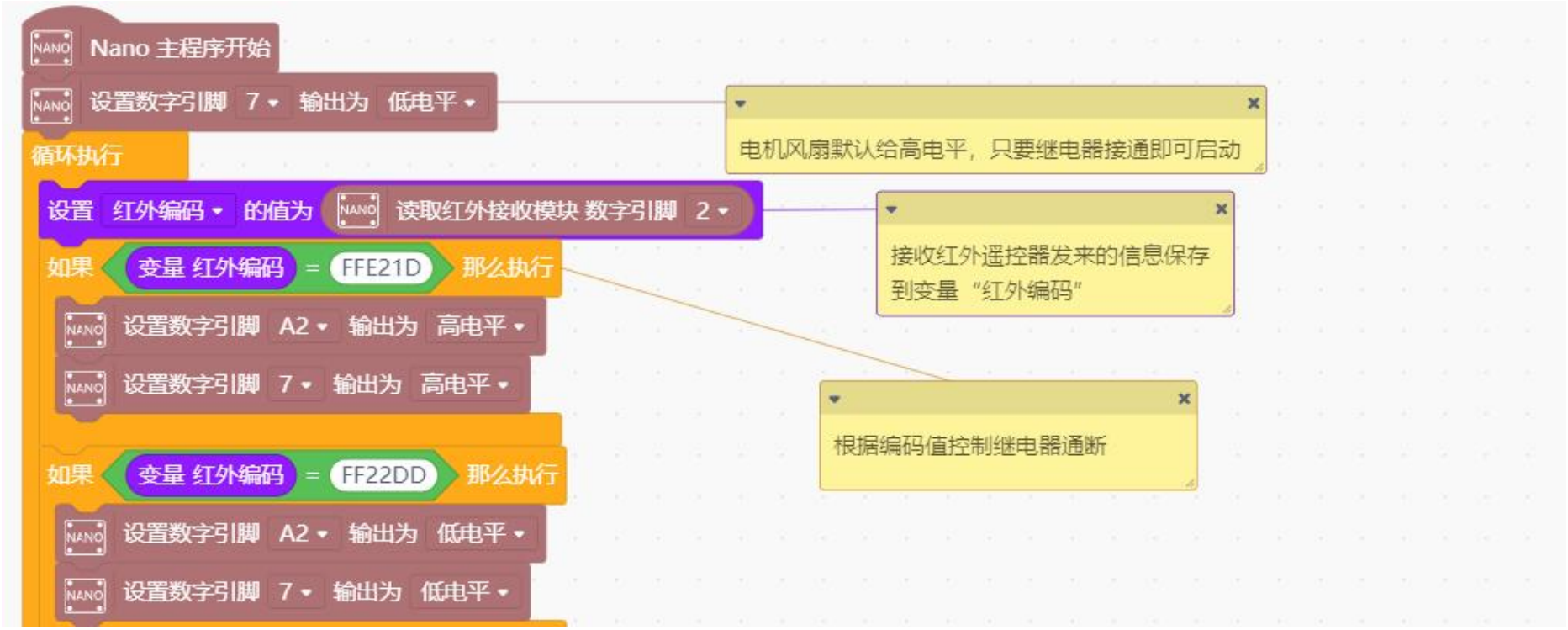
4. Download Mind+ graphical code

Open the project Mind+code file (path: Project 17 Infrared Control Relay\IR_Control_Relay.mp)



Connect the main control board to the computer with a USB cable and select the newly appeared CH340 serial port COM number. Click "Upload to Device" to complete the code upload.

Programming analysis: (For the infrared coding value corresponding to the button, please see the comparison table of item 9)


Nano 主程序开始
设置数字引脚 7 输出为 低电平
循环执行
设置 红外编码 的值为 读取红外接收模块 数字引脚 2
如果 变量 红外编码 = FFE21D 那么执行
设置数字引脚 A2 输出为 高电平
设置数字引脚 7 输出为 高电平
如果 变量 红外编码 = FF22DD 那么执行
设置数字引脚 A2 输出为 低电平
设置数字引脚 7 输出为 低电平
电机风扇默认给高电平，只要继电器接通即可启动
接收红外遥控器发来的信息保存到变量“红外编码”
根据编码值控制继电器通断