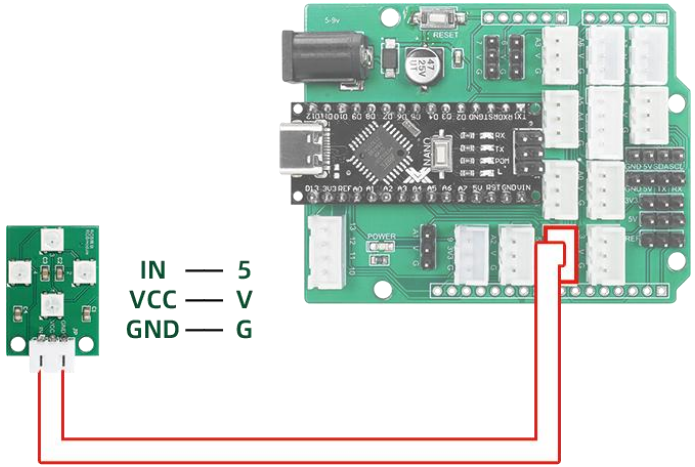
Project 7-WS2812B running water lamp

1. project description

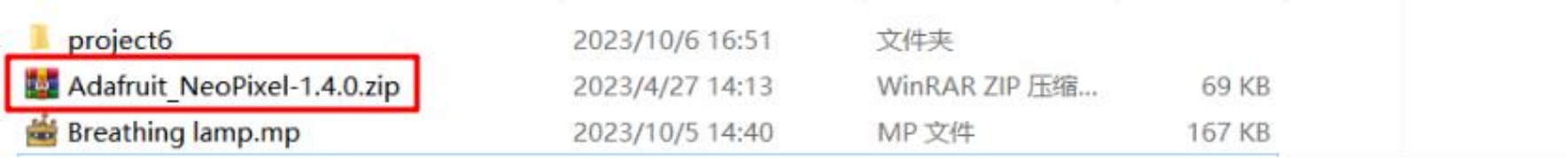
Through this project, you can learn how to use ZY -type-c Nano combined with WS2812B module to make a running water lamp . The function of this program is that 4 RGB lights light up in turn, and each color of red, green, and blue flows 4 times .

2. Project wiring diagram

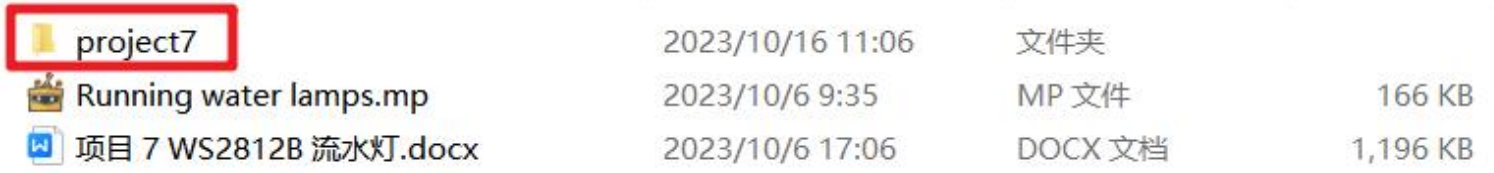


3. Download Arduino code

Adafruit_NeoPixel .zip has been added successfully . If it has not been added, please go back to Project 6 to see how to add the library.



Open the project Arduino code file (path: project 7 WS2812B running water lamp\project7\project7.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:

```
1  #include <Adafruit_NeoPixel.h>  //添加ws2812库          Add the ws2812b library
2  #define NUMPIXELS 4             // 定义ws2812 灯数     Number of ws2812b lamps
3  #define RGB_PIN  5              // 定义ws2812引脚5     ws2812b pin definition 5
```

```
Adafruit_NeoPixel pixels(NUMPIXELS, RGB_PIN, NEO_GRB + NEO_KHZ800);//实例化灯对象   Creating light objects

//Variable definition
int rotate=0;   //亮同种颜色灯的循环次数    Number of cycles to turn on a light of the same color

//Initialization function
void setup ()
{
  pixels.begin(); //初始化库函数    Initialize 2812 library functions
  pixels.show();
  Serial.begin(9600);
  pixels.clear(); //初始清除
}
```

```
void loop()       //主函数    Principal function
{
  if(rotate<=4)
    {
      for (int j=0;j<=3;j++)    //亮红灯    Flashing a red light
      {
        pixels.setPixelColor(j, pixels.Color(150, 0, 0));
        pixels.show();
        delay(100);
        pixels.setPixelColor(j, pixels.Color(0, 0, 0));
        pixels.show();
        delay(10);
      }
      rotate++;                 //红色灯走完4盏灯后加1    Add 1 after the red light has gone 4 lights
    }
```

```
34      if((rotate>=5)&&(rotate<10))//亮绿灯    Flashing a green light
35      {
36        for (int j=0;j<=3;j++)
37        {
38          pixels.setPixelColor(j, pixels.Color(0, 150, 0));
39          pixels.show();
40          delay(100);
41          pixels.setPixelColor(j, pixels.Color(0, 0, 0));
42          pixels.show();
43          delay(10);
44        }
45        rotate++;
46      }
47      if(rotate>=10)              //亮蓝灯    Flashing a blue light
48      {
49        for (int j=0;j<=3;j++)
50        {
51          pixels.setPixelColor(j, pixels.Color(0, 0, 150));
52          pixels.show();
53          delay(100);
54          pixels.setPixelColor(j, pixels.Color(0, 0, 0));
55          pixels.show();
56          delay(10);
57        }
58        rotate++;
59      }
60      if(rotate>=15)rotate=0;   //重置循环参数    Resetting loop parameters
```

4. Download Mind+ graphical code

Open the project Mind+code file (path: project 7 WS2812B running water lamps\Running water lamps.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.

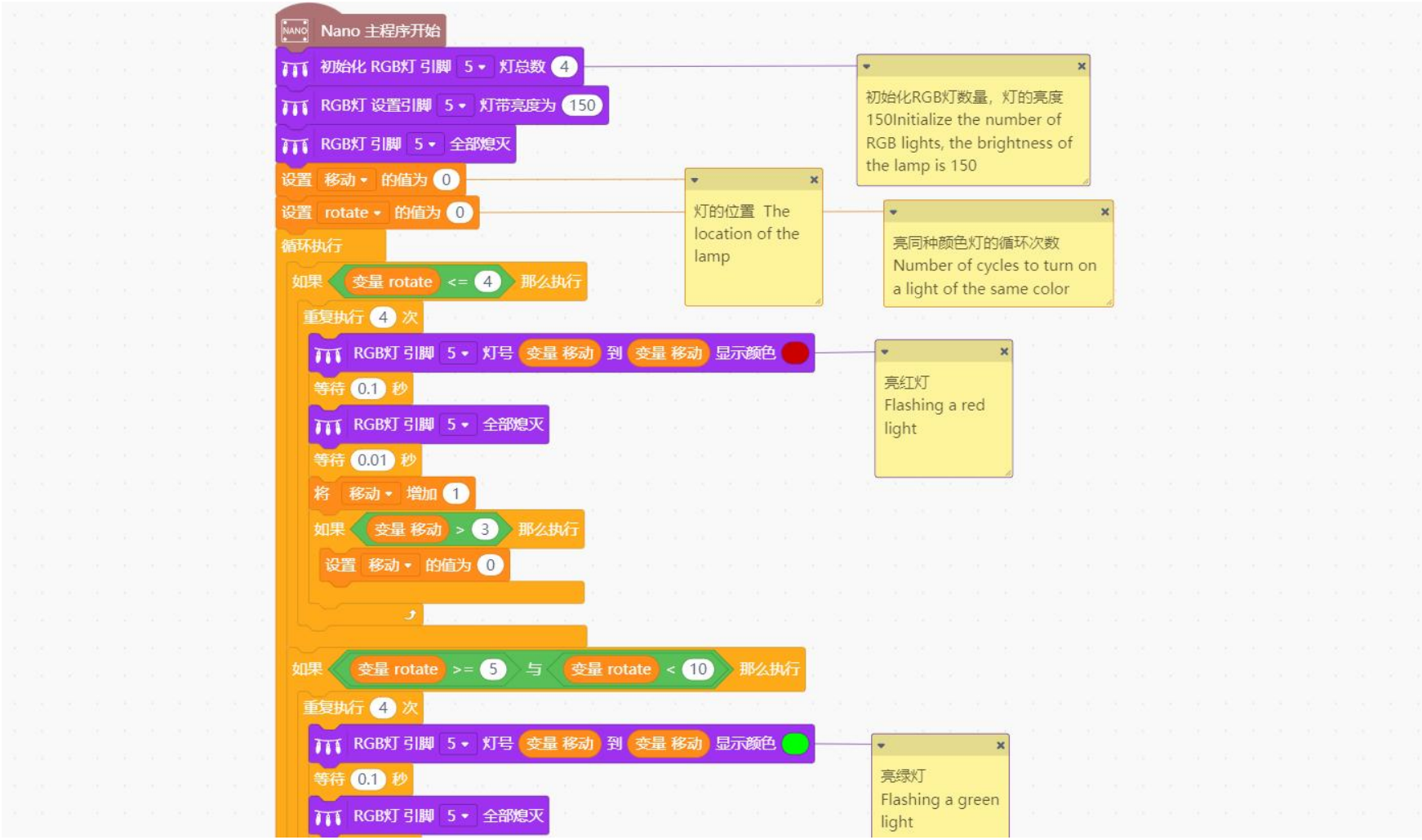
Programming analysis:

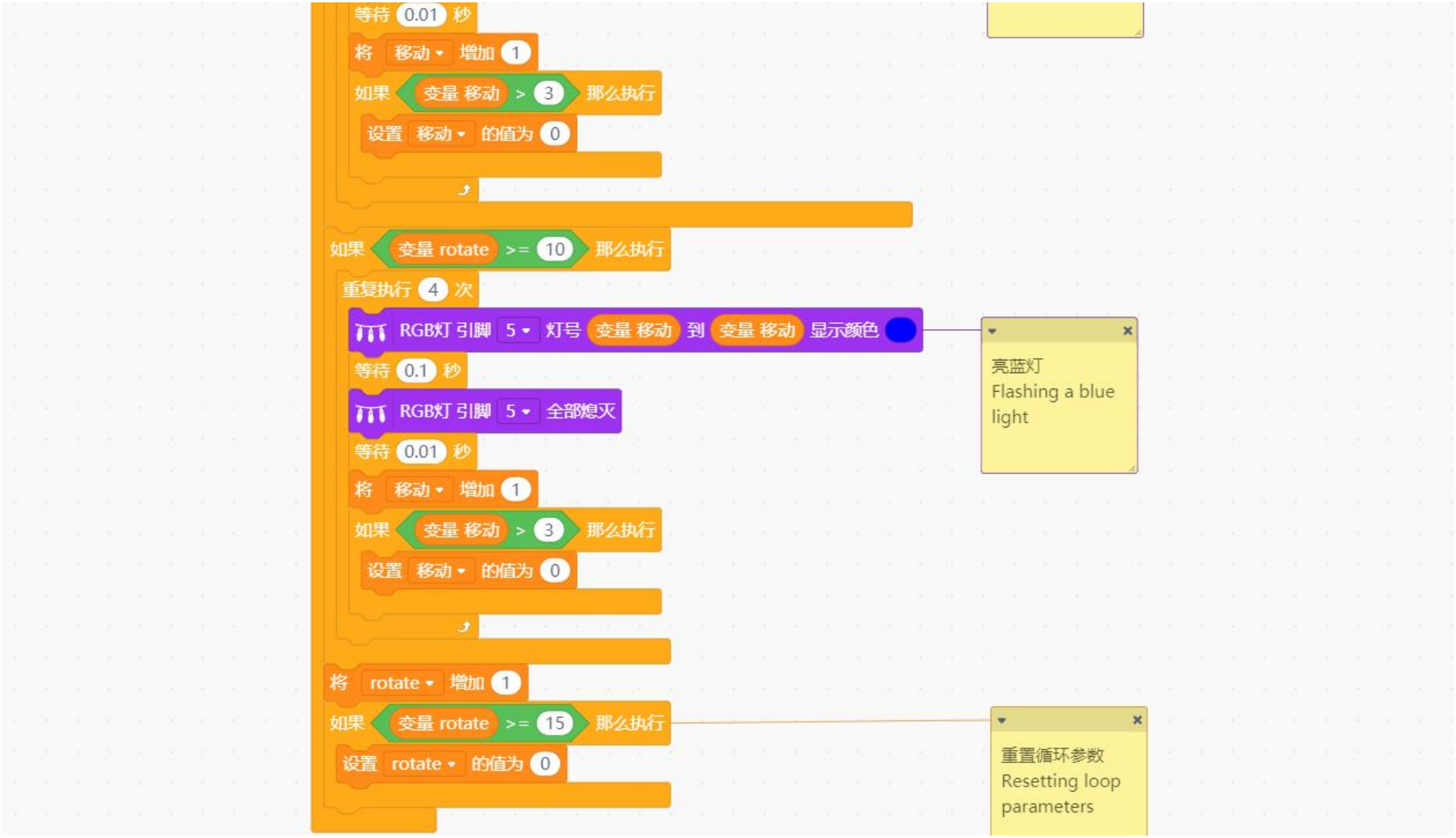
Click "Extend" in the lower left corner, and then select the main control board type as Nano.

Add the WS2812 RGB light library file : click the "Display" type and select the WS2812 RGB light

After the addition is successful, you can see that there are two more categories in the programming block column on the left: Nano and "Display"

Complete code program:




等待 0.01 秒
将 移动 增加 1
如果 变量 移动 > 3 那么执行
设置 移动 的值为 0
如果 变量 rotate >= 10 那么执行
重复执行 4 次
RGB灯 引脚 5 灯号 变量 移动 到 变量 移动 显示颜色
等待 0.1 秒
RGB灯 引脚 5 全部熄灭
等待 0.01 秒
将 移动 增加 1
如果 变量 移动 > 3 那么执行
设置 移动 的值为 0
将 rotate 增加 1
如果 变量 rotate >= 15 那么执行
设置 rotate 的值为 0
亮蓝灯
Flashing a blue light
重置循环参数
Resetting loop parameters