

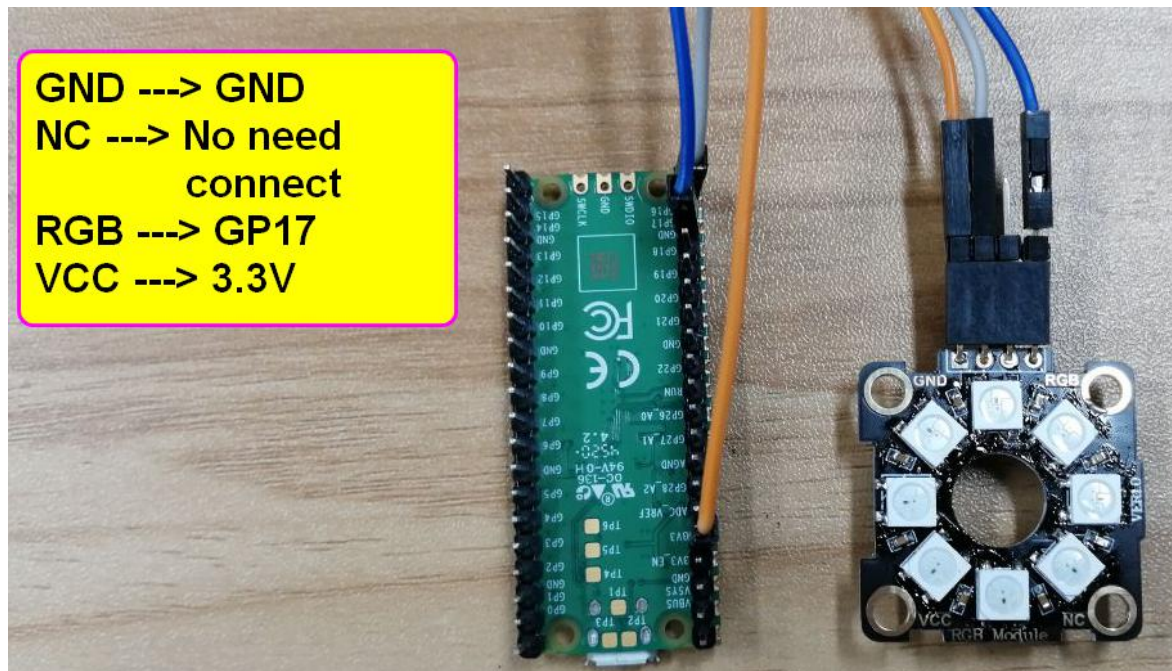
## Light up a RGB

### 1. Learning target

In this course, we will learn how to use Raspberry Pi Pico and RGB light module to achieve light up a RGB.

### 2. Preparation

Connect the module to Raspberry Pi Pico board by expansion board, as shown below.

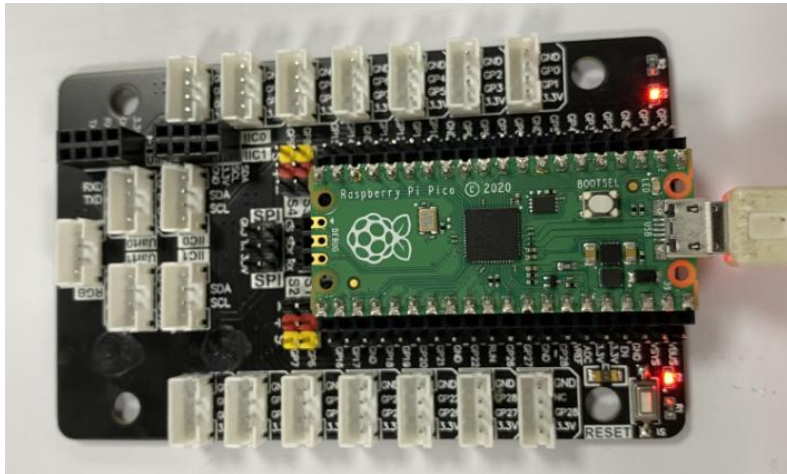


### 3. About code

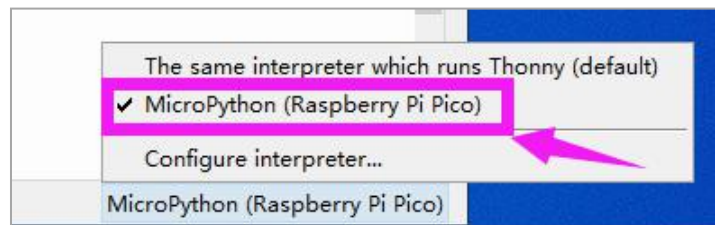
```
File Edit View Run Tools Help
One_light.py x
1 import time
2 import ws2812b
3 import random
4
5 numpix = 8 # Number of NeoPixels
6 # Pin where NeoPixels are connected
7 strip = ws2812b.WS2812B(numpix, 17)
8
9 strip.fill(0,0,0)
10
11 while True:
12     strip.show()
13     pix = 0
14     #pixel_num, red, green, blue
15     strip.set_pixel(pix, 255, 0, 0)
16     time.sleep(0.005)
```

#### 4. Import library file

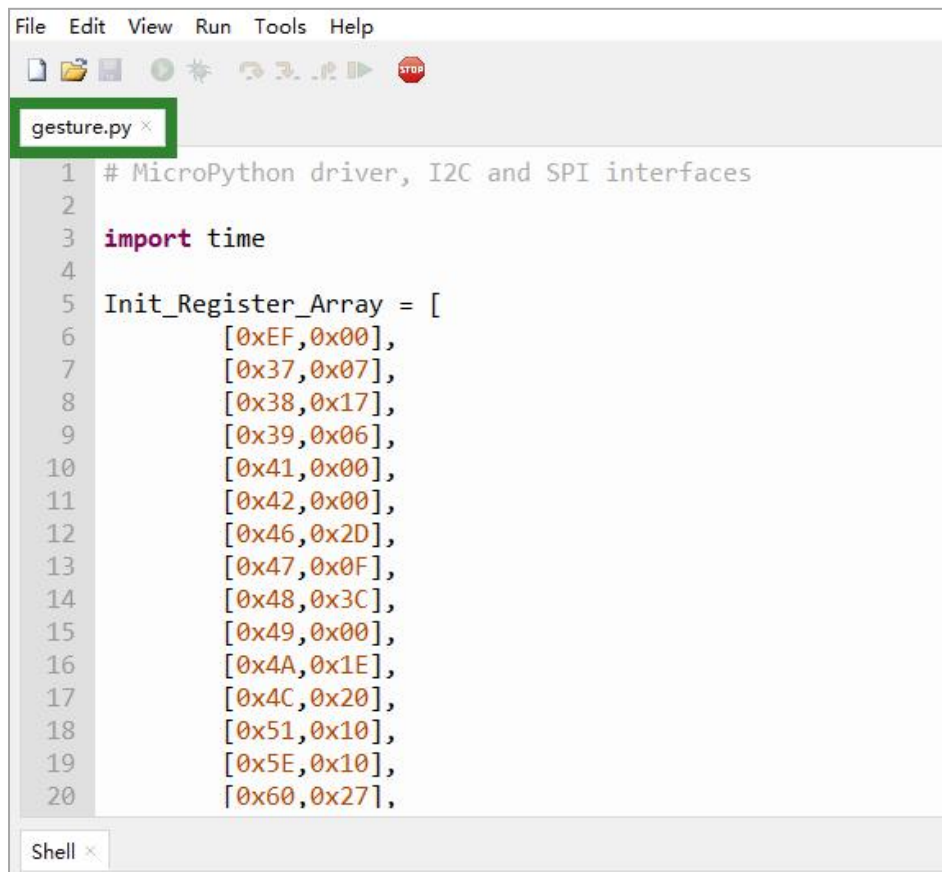
4.1 Connect Pico to your computer, as shown below.



4.2 Open the Thonny software, click the lower right corner to connect the Pico board.



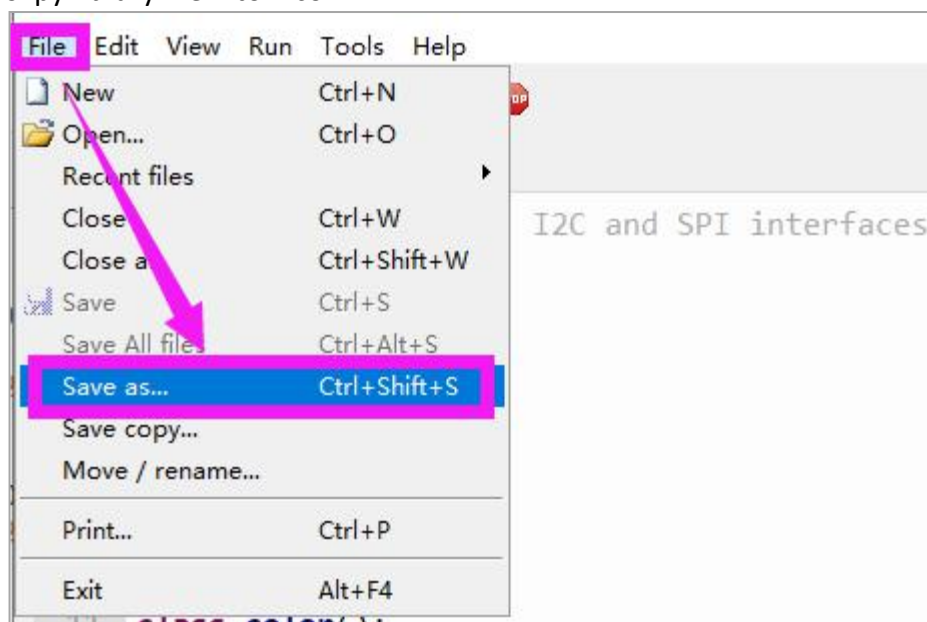
4.3 Open the gesture.py in library folder by Thonny software.

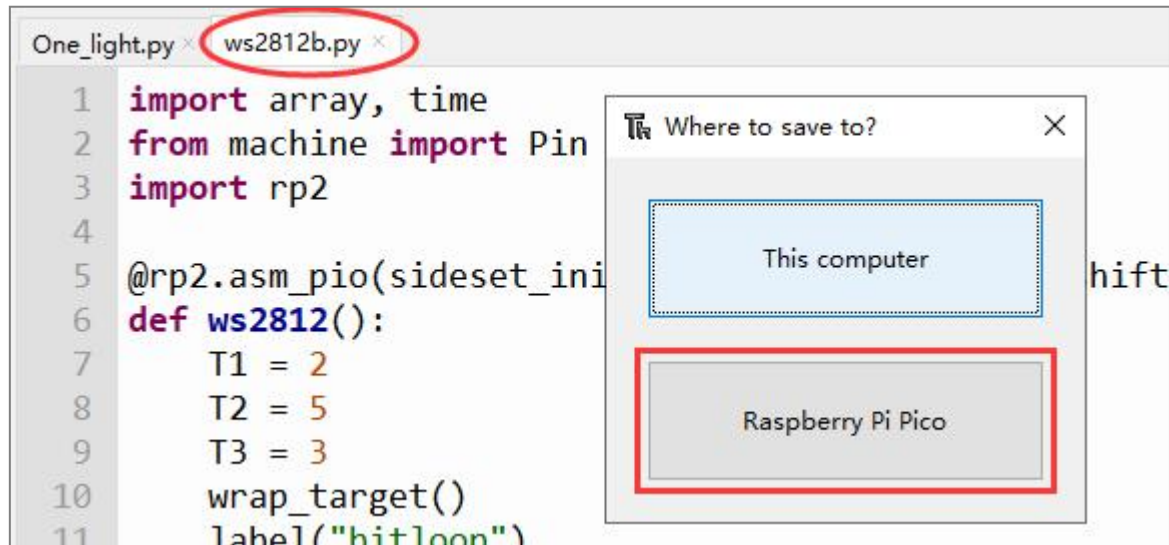


The screenshot shows a code editor window with a menu bar (File, Edit, View, Run, Tools, Help) and a toolbar. The file 'gesture.py' is open. The code is as follows:

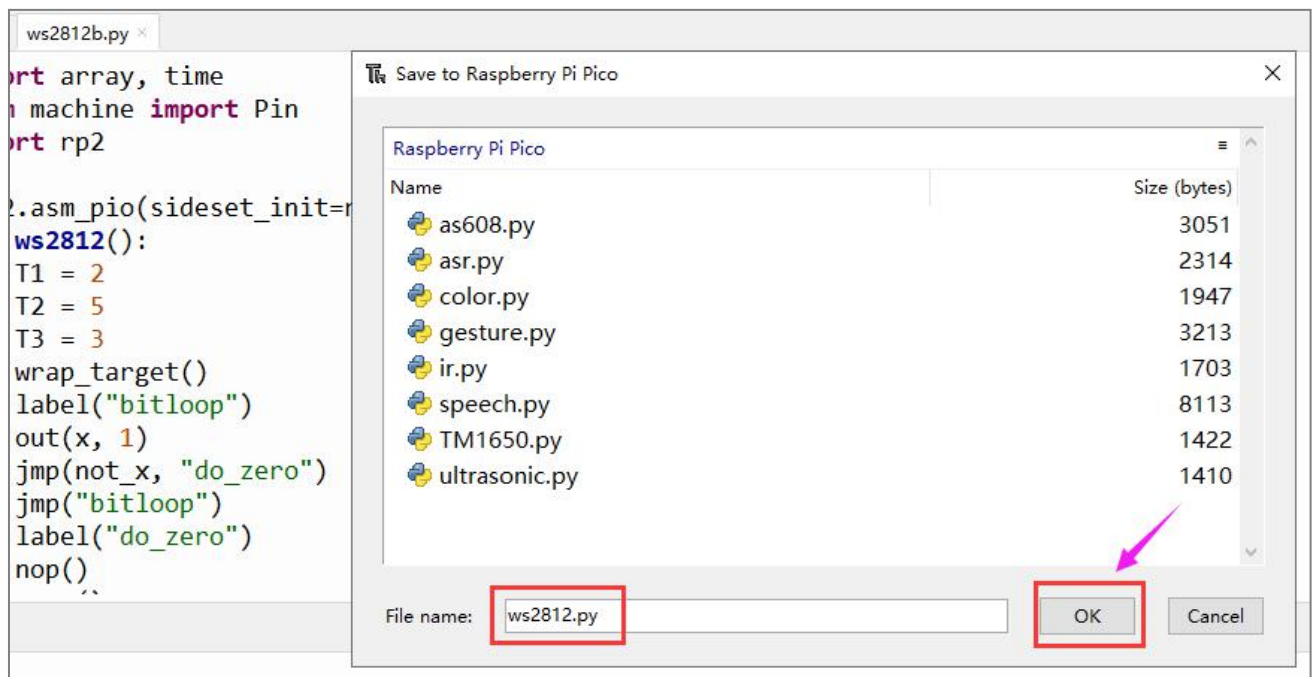
```
1 # MicroPython driver, I2C and SPI interfaces
2
3 import time
4
5 Init_Register_Array = [
6     [0xEF, 0x00],
7     [0x37, 0x07],
8     [0x38, 0x17],
9     [0x39, 0x06],
10    [0x41, 0x00],
11    [0x42, 0x00],
12    [0x46, 0x2D],
13    [0x47, 0x0F],
14    [0x48, 0x3C],
15    [0x49, 0x00],
16    [0x4A, 0x1E],
17    [0x4C, 0x20],
18    [0x51, 0x10],
19    [0x5E, 0x10],
20    [0x60, 0x27],
```

4.4 Save as this .py library file into Pico.



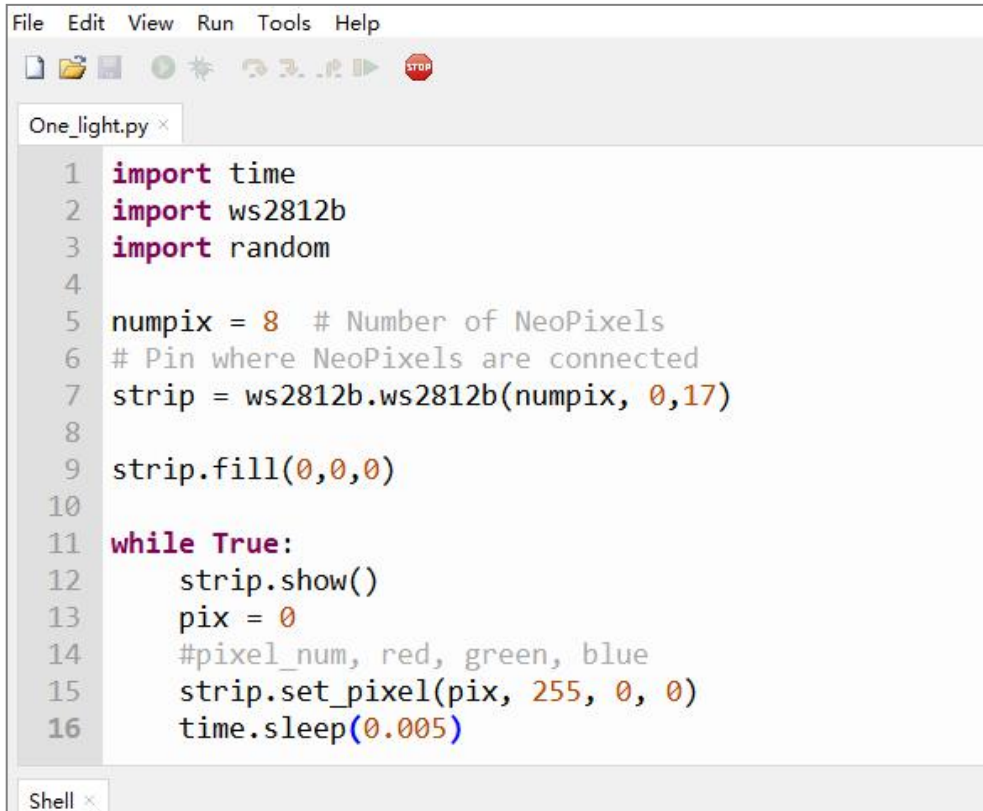


4.5 Enter the same file name as the library file. Then, click "OK".



## 5. Compiling and downloading code

5.1 We can open the `One_light.py` file by Thonny software.



```
File Edit View Run Tools Help
One_light.py x
1 import time
2 import ws2812b
3 import random
4
5 numpix = 8 # Number of NeoPixels
6 # Pin where NeoPixels are connected
7 strip = ws2812b.ws2812b(numpix, 0,17)
8
9 strip.fill(0,0,0)
10
11 while True:
12     strip.show()
13     pix = 0
14     #pixel_num, red, green, blue
15     strip.set_pixel(pix, 255, 0, 0)
16     time.sleep(0.005)
Shell x
```

5.2 In Thonny menu bar, we need to click run button to run this program.

"%Run -c \$EDITOR\_CONTENT" will be displayed. As shown below.



```
MicroPython v1.13-290-g556ae7914 on 2021-01-21; Raspberry Pi Pico with RP2040
Type "help()" for more information.
>>> %Run -c $EDITOR_CONTENT
>>>
```

## 6. Phenomenon

After the program is run successfully. The first light on the module become red.