

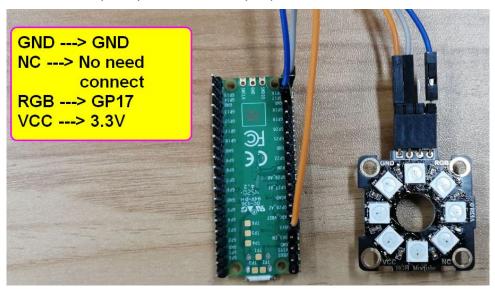
### Marquee

## 1. Learning target

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

## 2. Preparation

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



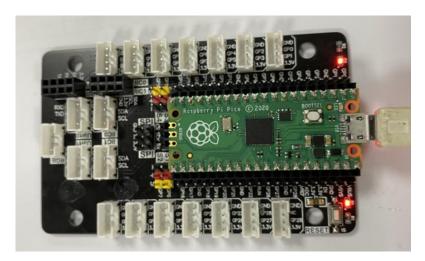
#### 3. About code

```
Marquee_Random.py
    import time
    from ws2812b import ws2812b
  2
  4 num leds = 8 # Number of NeoPixels
  5 # Pin where NeoPixels are connected
  6 pixels = ws2812b(num leds, 0,17)
  7
  8 pixels.fill(10,10,10)
 9
    pixels.show()
 10
 11 while True:
         for i in range(num leds):
 12
 13
             for j in range(num leds):
 14
                  #pixel num, red, green, blue
                  pixels.set_pixel(j,abs(i+j)\frac{10}{10},abs(i-(j+3))\frac{10}{10},abs(i-(j+6))\frac{10}{10}
 15
 16
             pixels.show()
             time.sleep(0.05)
 17
```

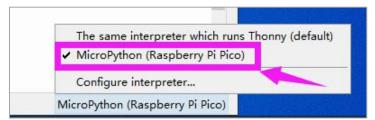
# 4. Import library file

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.

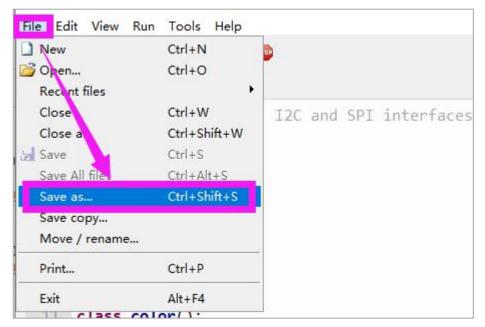


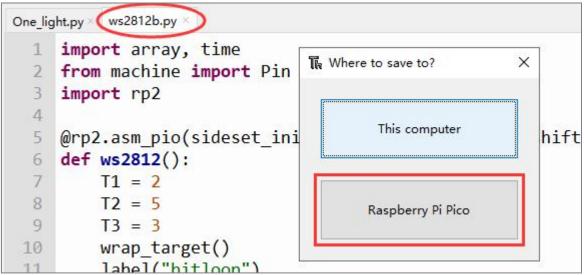
4.3 Open the gesture.py in library folder by Thonny software.

```
File Edit View Run Tools Help
gesture.py ×
     # MicroPython driver, I2C and SPI interfaces
     import time
  4
     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],
              [0x4A,0x1E],
  16
              [0x4C, 0x20],
  17
  18
              [0x51,0x10],
  19
              [0x5E, 0x10],
  20
              [0x60,0x27],
Shell
```

4.4 Save as this .py library file into Pico.

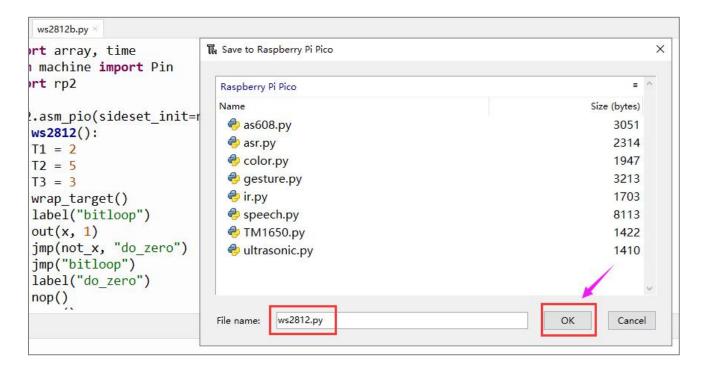






4.5 Enter the same file name as the library file. Then, click "OK".





## 5. Compiling and downloading code

5.1 We can open the One\_light.py file by Thonny software.

```
File Edit View Run Tools Help
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
 Marquee_Random.py ×
      import time
      from ws2812b import ws2812b
   3
   4 num leds = 8 # Number of NeoPixels
   5 # Pin where NeoPixels are connected
   6 pixels = ws2812b(num leds, 0,17)
   8
     pixels.fill(10,10,10)
   9
      pixels.show()
  10
  11 while True:
  12
          for i in range(num leds):
              for j in range(num leds):
  13
                   #pixel num, red, green, blue
  14
  15
                   pixels.set_pixel(j,abs(i+j)\%10,abs(i-(j+3))\%10,abs(i-(j+6))\%10)
  16
              pixels.show()
              time.sleep(0.05)
  17
 Shell ×
```

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

<sup>&</sup>quot;%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 "heln()" for more information.

>>> "Run -c $EDITOR CONTENT"
>>>
```

## 6. Phenomenon

After the program is run successfully. All the lights on the module display various colors in cycles to achieve the marquee effect.