Chameleon

1. Learning target

1.1 In this course, we will learn how to use pins of the Raspberry Pi Pico board.

1.2 How to use RGB light halo and color recognition module make a chameleon.

2. Preparation

Raspberry Pi Pico board *1

Pico sensor expansion board *1

PC *1

USB data cable *1

RGB light halo module *1

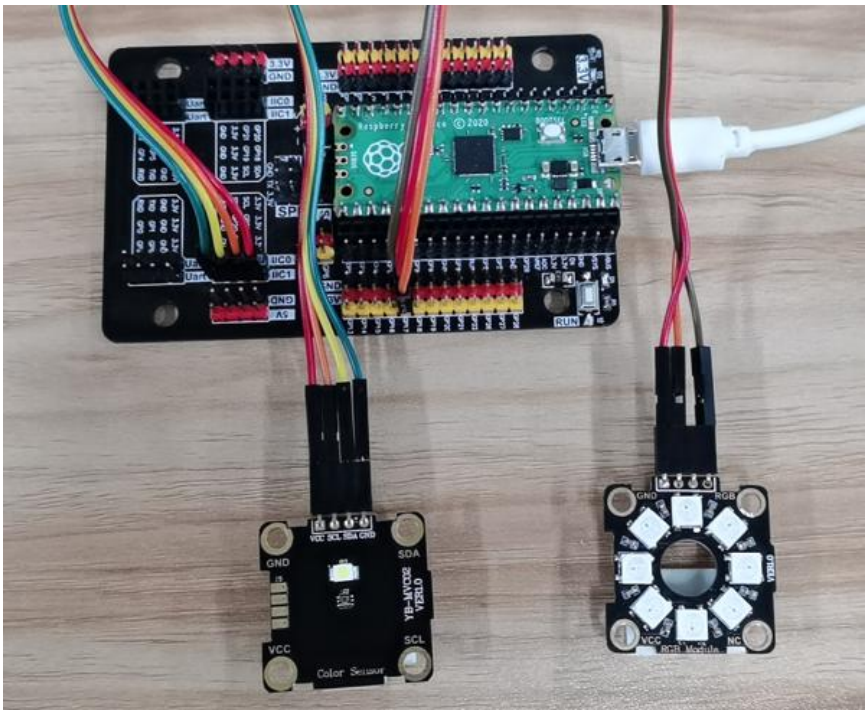
Color recognition module *1

Female-to-male DuPont line *7

3. About wiring

RGB light halo module	Pico sensor expansion board
RGB	GP17
VCC	3.3V
GND	GND

Color recognition module	Pico sensor expansion board
Trig	GP14
Echo	GP13
VCC	5V
GND	GND



4. About code

Thonny programming

About how to using ThonnyIDE, please check the tutorials in【2.Development environment】.

```
import ws2812b
import utime
from machine import Pin, I2C
from color import color

# i2c=I2C(0, scl=Pin(21),sda=Pin(20), freq=100000)
i2c=I2C(1, scl=Pin(19),sda=Pin(18), freq=100000)

# Initialize the color recognition sensor
Color = color(i2c)

ring_pin = 17
numpix     = 8
strip = ws2812b.ws2812b(numpix, 0, ring_pin)


strip.fill(0,0,0)
strip.show()

utime.sleep(.1)

while True:
    Colors = Color.GetColor() #Get the data of the color recognition sensor
    r = Colors[0]
    g = Colors[1]
    b = Colors[2]
    strip.fill(r, g, b)          #Set color
    strip.show()
    utime.sleep(0.2)
```

Before running this program, you need to load ws2812 and color library, please check the specific steps in【2.Development environment】.

5. Phenomenon

Click the green run button  of Thonny IDE to start running the program. Click the red stop button  to stop the program. When the program is running, place the red, green, and blue paper in front of the color recognition module (about 1 cm) and the color recognition module will display the same color through the RGB light halo module.