Color recognition

Color recognition

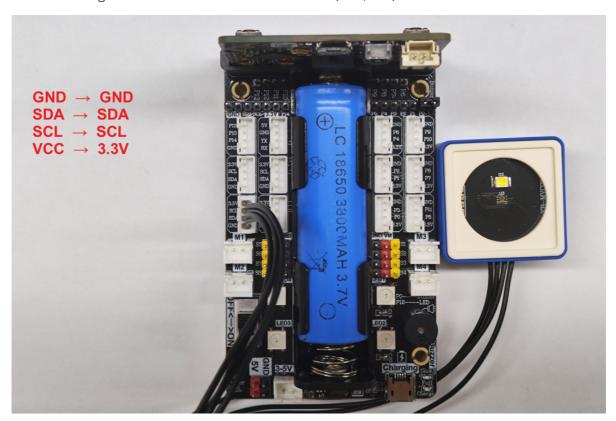
- 1. Learning objectives
- 2. Sensor wiring
- 3. Code analysis
- 4. Write and download the program
- 5. Experimental phenomenon

1. Learning objectives

In this course, we mainly learn how to implement color recognition through python programming.

2. Sensor wiring

The color recognition module is connected to the I2C (SDA, SCL) interface.



3. Code analysis

For the program of this course, please see the **Color-recognition.py** file.

```
from microbit import *
import WOM_Sensor_Kit
```

First, import the library needed for this lesson from microbit: WOM_Sensor_Kit library is used for sensors.

```
while True:
display.show('R')
sleep(500)
display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_red))
sleep(100)
display.show('G')
sleep(500)
display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_green))
sleep(100)
display.show('B')
sleep(500)
display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_blue))
sleep(100)
```

The letters <code>'R'</code>, <code>'G'</code>, and <code>'B'</code> are displayed in a loop, and the color sensor values of the red, green, and blue channels are read respectively, and the scrolling is displayed on the screen.

4. Write and download the program

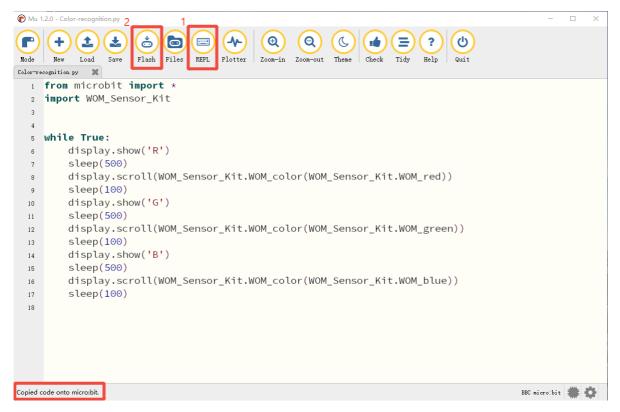
- 1. Open the Mu software and enter the code in the editing window. **Note! All English and** symbols should be entered in English, use the Tab key for indentation, and the last line ends with a blank program.
- 2. Click the thumb 'Check' button to check if there are any errors in our code. If a cursor or underline appears in a line, it means a syntax error. Please check and modify it. If there is no error, the lower left corner will prompt that there is no problem with the detection.

```
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                                                                          ?
          Load Save
                    Flash Files REPL Plotter Zoom-in Zoom-out Theme
Color-recognition.py
  1 from microbit import *
  import WOM_Sensor_Kit
  5 while True:
        display.show('R')
         sleep(500)
        display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_red))
        sleep(100)
        display.show('G')
  10
  11
         sleep(500)
        display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_green))
  12
  13
        display.show('B')
  14
         sleep(500)
  15
         display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_blue))
  16
  17
  18
Hurrah! Checker turned up no problems.
                                                                                           BBC micro:bit 👛 🐞
```

3. Click the 'REPL' button to check whether the Superbit library has been downloaded. If not, please refer to [Preparation before class] --> [2.4 Python Programming Guide].

```
Mu 1.2.0 - Color-recognition.py
            1
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                     Flash Files
                                    Plotter
Color-recognition.py
     from microbit import *
     import WOM_Sensor_Kit
    while True:
  5
         display.show('R')
         sleep(500)
         display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_red))
         sleep(100)
  9
         display.show('G')
  10
  11
         sleep(500)
         display.scroll(WOM_Sensor_Kit.WOM_color(WOM_Sensor_Kit.WOM_green))
  12
  13
         sleep(100)
         display.show('B')
  14
  15
         sleep(500)
BBC micro:bit REPL
MicroPython v1.15-64-g1e2f0d280 on 2025-06-26; SuperbitV2 and Sensor v3.0.0 with modified by Yahboom Team
Type "help()" for more information.
>>>
                                                                                            BBC micro:bit 🏙 🧔
```

4. After the program is written, connect the computer and microbit mainboard with a microUSB data cable, click the 'Flash' button to download the program to the micro:bit mainboard. (You need to click the 'REPL' button again to turn off the import library file function before you can download the program normally).



5. If the download fails, please confirm whether the microbit is connected to the computer normally via the microUSB data cable and the Superbit Python library has been imported.

5. Experimental phenomenon

After the program runs successfully, the dot matrix displays R, red value, G, green value, B, blue value.