

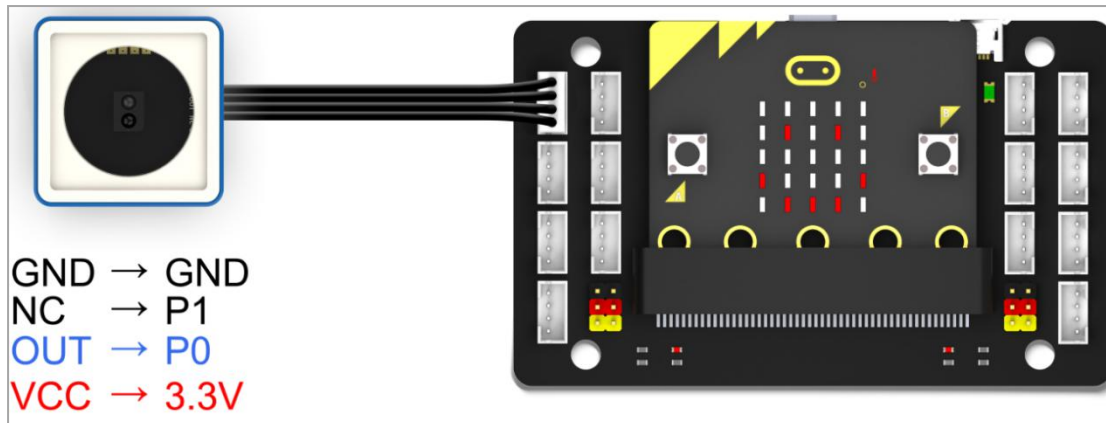
## Obstacle detection

### 1. Learning target

In this course, we will learn how to use Micro:bit and infrared detection sensor module to achieve obstacle detection function.

### 2. Preparation

Connect the module to Micro:bit board by expansion board, as shown below.



### 3. About code

```
# -*- coding: utf-8 -*- # Encoding cookie added by Mu Editor
from microbit import *
import WOM_Sensor_Kit

while True:
    # Parameter definition: WOM_ir (pin), return 0 if there is an obstacle,
    # return 1 if there is no obstacle
    if (WOM_Sensor_Kit.WOM_ir(pin0)) == 0:
        display.show(1)
    else:
        display.show(0)
```

- 1) **from microbit import \*** means to import all library files from the microbit library. This statement is required for every program when using the microbit.
- 2) **import WOM\_Sensor\_Kit** means to import the library of the magic block world. This library must be imported when using the related functions of the magic block world.
- 3) **while True:** means is that infinite loop.
- 4) **if (WOM\_Sensor\_Kit.WOM\_ir(pin0)) == 0:** Determine whether the infrared sensor has detected an obstacle.
- 5) **display.show(1)** Micro:bit dot matrix display 1.

6) `display.show(0)` Micro:bit dot matrix display 0.

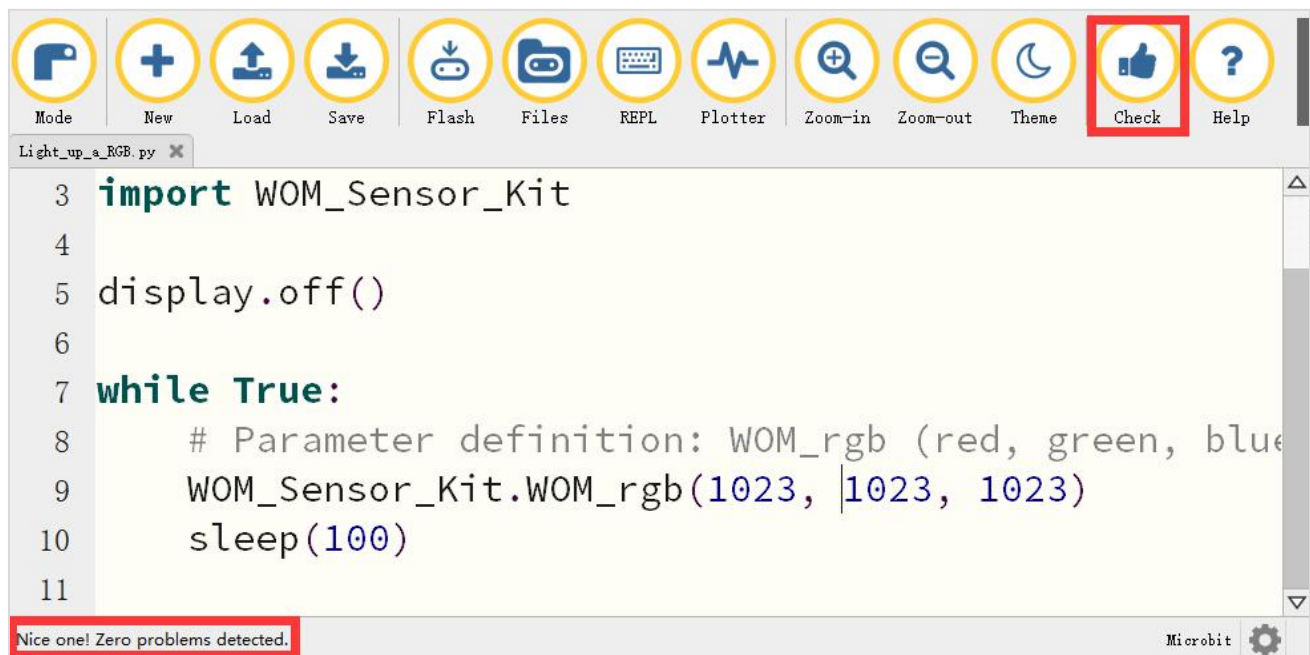
#### 4. Writing and download code

4.1 You should open the Mu software, and enter the code in the edit window, , as shown below.

**Note! All English and symbols should be entered in English, use the Tab key (tab key) to indent and the last line must be a space.**

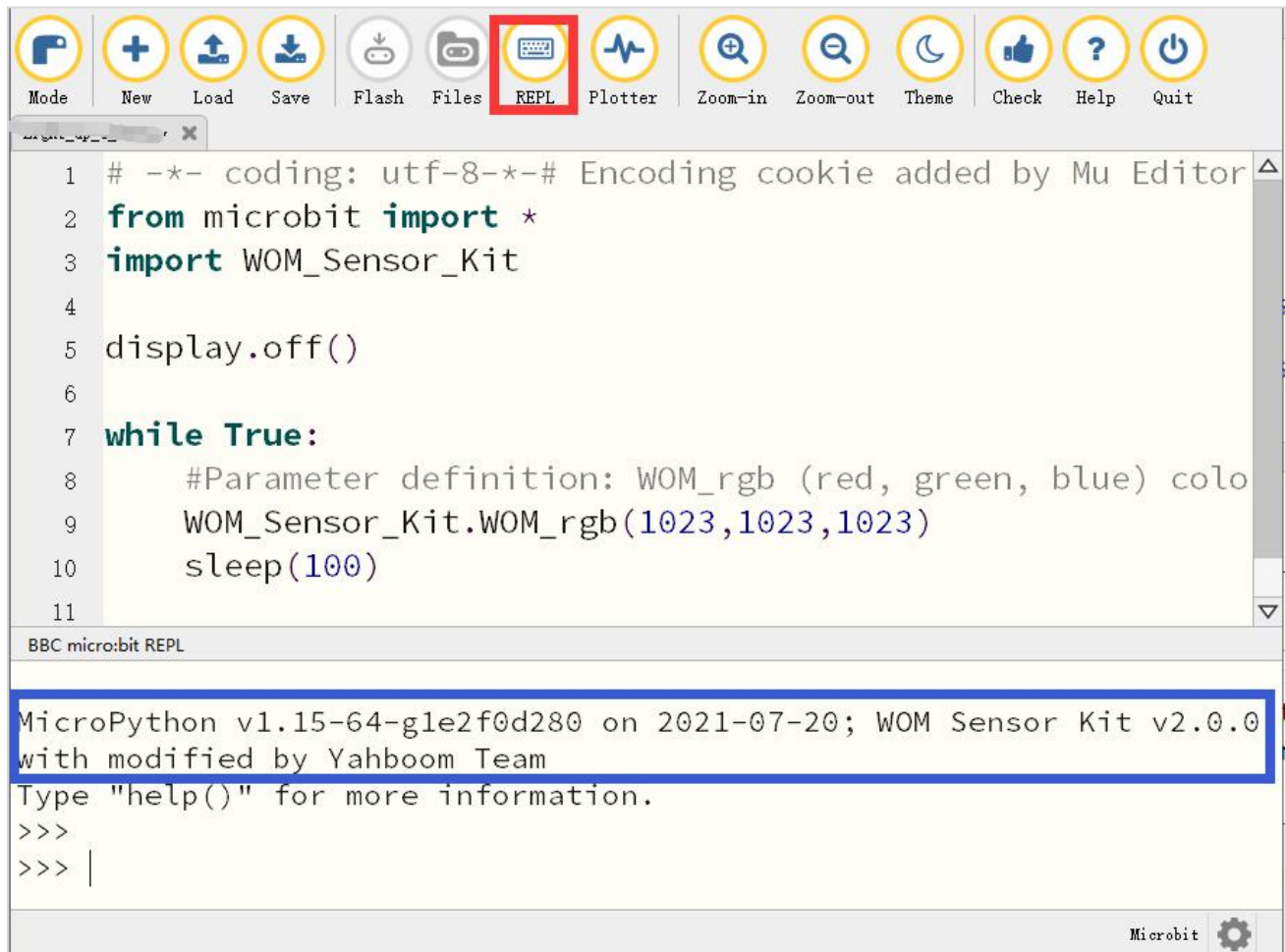
4.2 You can click the “Check” button to check if our code has an error.

If a cursor or underline appears on a line, it indicates a syntax error, please check and modify. If there is no error in the program, the bottom left of the interface will prompt that there is no problem in detection.

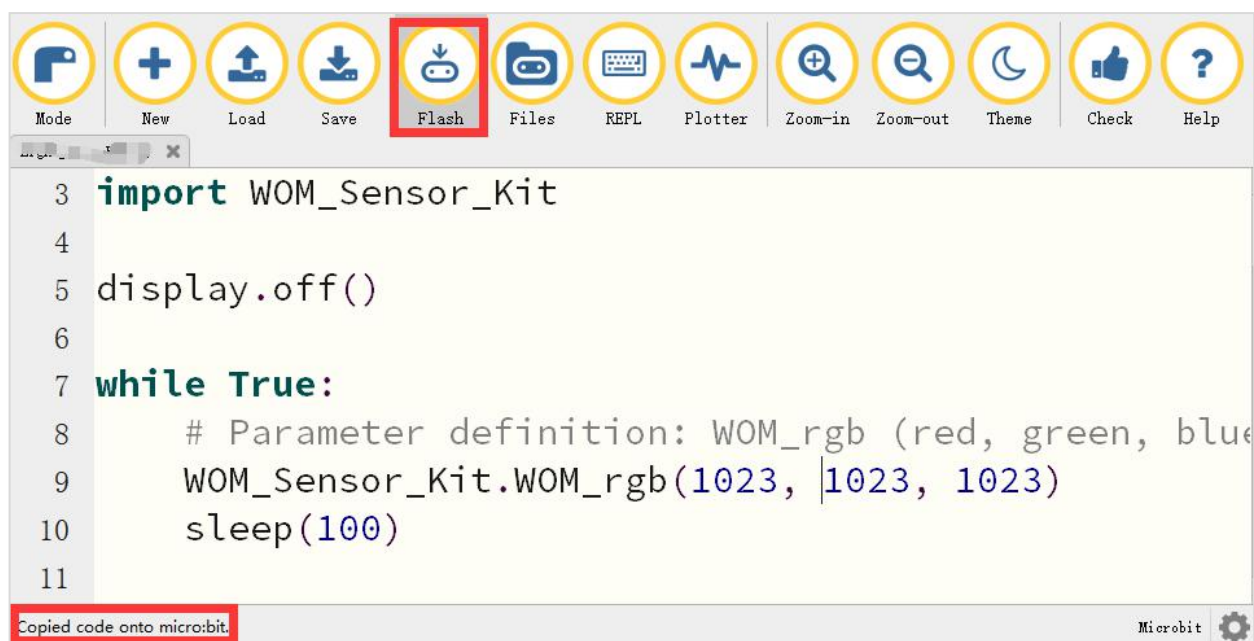


4.3 Click the ‘REPL’ button to check whether the WOM\_Sensor\_Kit Python library has been downloaded.

If not, please refer to [Preparation before class] --> [Python Programming Guide] .



4.4 After the program is written, use a micro USB cable to connect the computer and the micro:bit board. Please click the 'Flash' button to download the program to the micro:bit motherboard (You need to click the 'REPL' button again to close the function of importing library files before you download the program).



4.5 If the download failed, please confirm whether the micro:bit is connected to the computer through the micro USB data cable, and confirm whether the **WOM\_Sensor\_Kit Python library** has been imported.

### **6.Experimental phenomena**

After the program is downloaded successfully. When an obstacle is detected, Micro:bit dot matrix will display 1; otherwise, it will display 0.