**Waving wings**

1.Learning goals

In this course, we mainly learn how to use the Python programming to realize the Dragon knight waving wings.

2.Building block assembly steps

For the building block construction steps, please refer to the installation manual or building block installation picture of [Assembly course]-[Biped robot].

3.Wiring of motor and servo

The motor wiring is inserted into the M1 interface of the Super:bit expansion board, and the black wire is close to the battery side;
As shown below.
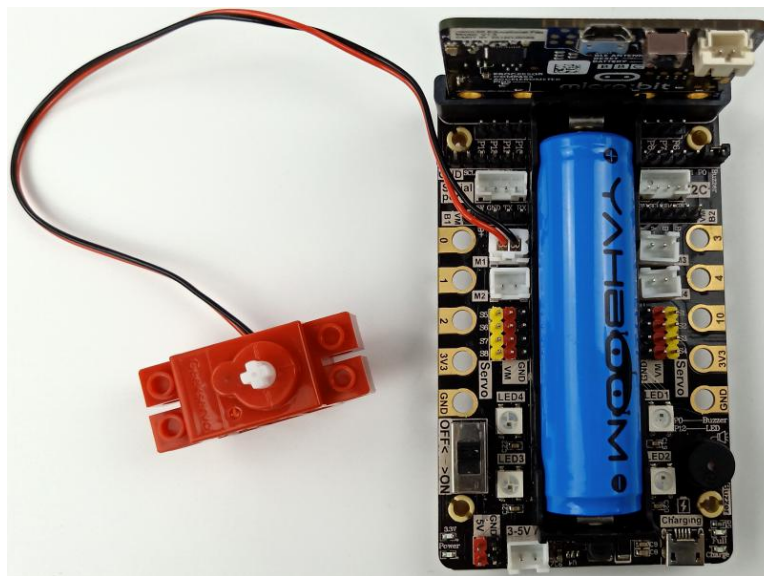
4.Code and analysis

The program for this course, please view .py file.

```python
1  from microbit import *
2  import superbit
3  import microbit
```

First, we need to import the library needed for this lesson from micro:bit, superbit library is dedicated to super:bit expansion board.

```python
5  display.show(Image.HAPPY)
```

display.show(Image.HAPPY): Display the smile pattern on the micro:bit matrix;

```python
7  while True:
8      superbit.motor_control(superbit.M1, 255, 0)
9
```

while True: loop
superbit.motor_control(superbit.M1, -255, 0)：The motor of the M1 interface is

rotate with 255 speed;

5.Writing and download code

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.
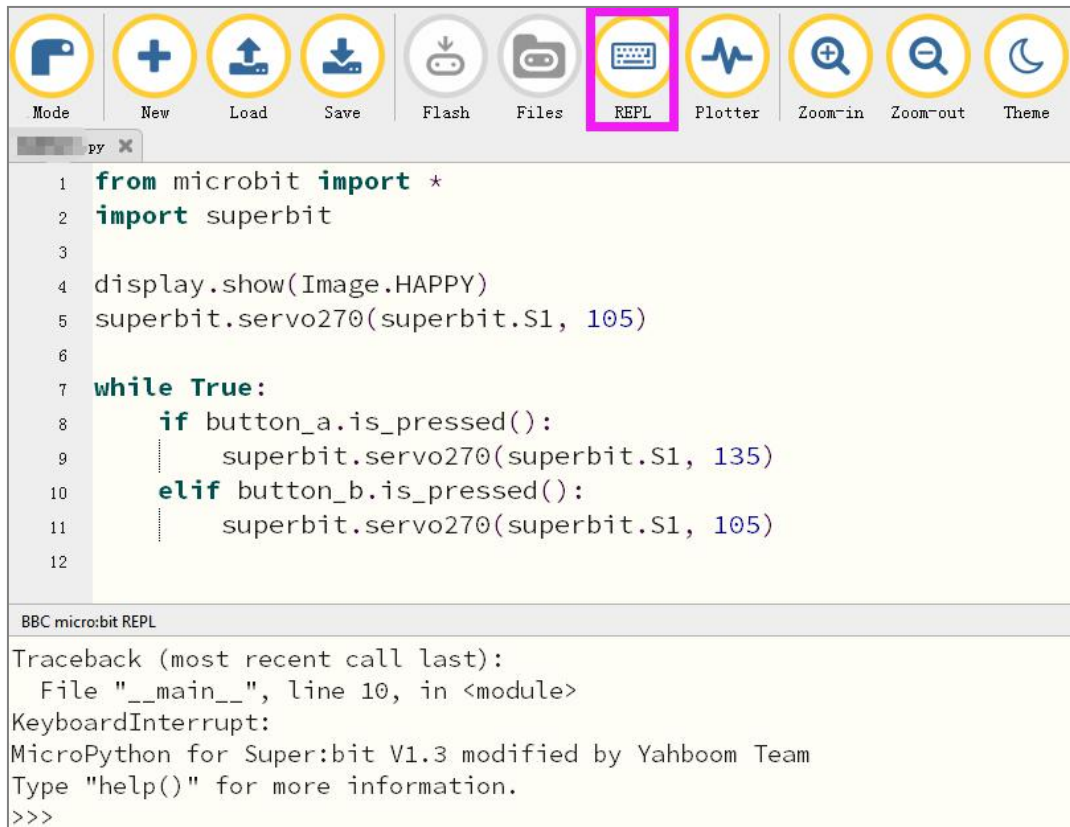
2.You can click the "Check" button to check if our code has an error.

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.
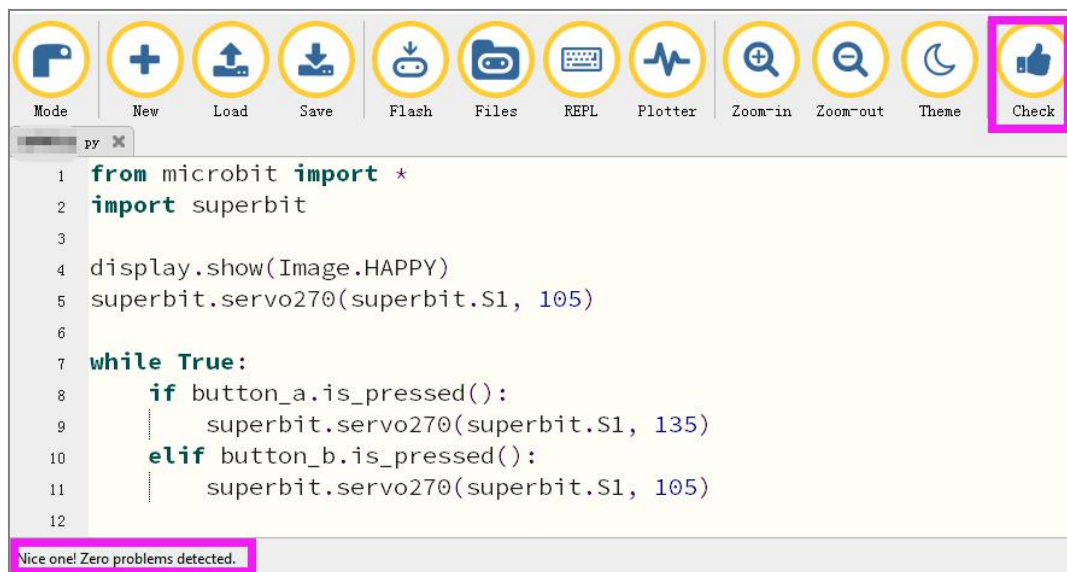

3. Click the 'REPL' button to check whether the Superbit library has been downloaded.

If not, please refer to [Preparation before class] --> [2.4 Python Programming Guide] .

BBC micro:bit REPL

```
Traceback (most recent call last):
  File "__main__", line 10, in <module>
KeyboardInterrupt:
MicroPython for Super:bit V1.3 modified by Yahboom Team
Type "help()" for more information.
>>>
```

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).

Copied code onto micro:bit.
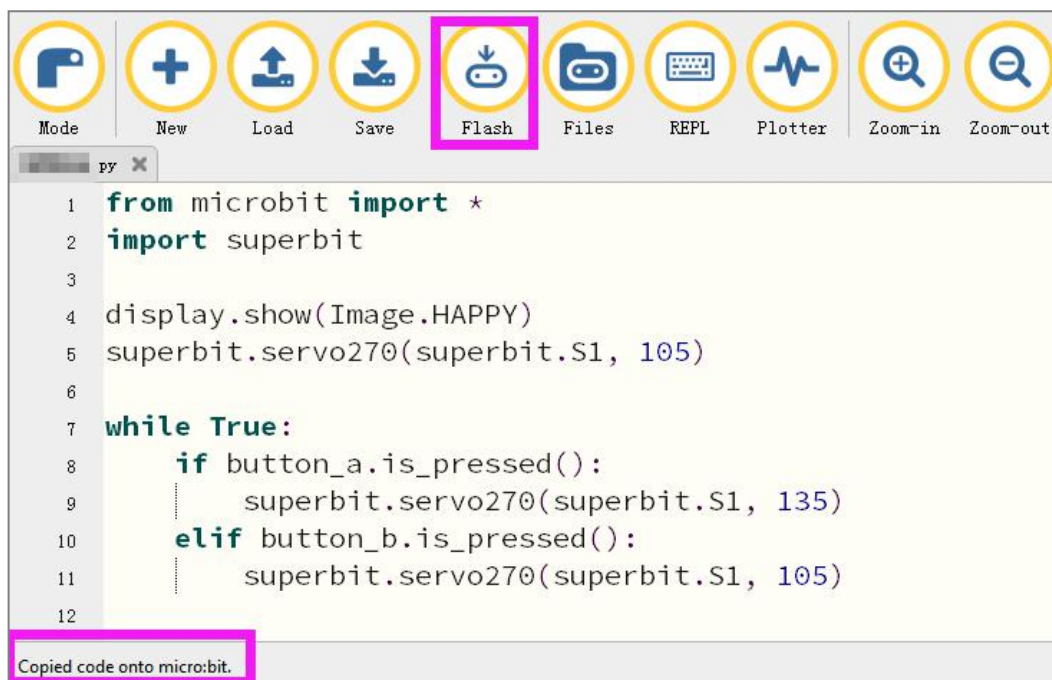
5.If the download failed, please confirm whether the micro:bit is connected to the computer through the micro USB data cable, and confirm whether the Super:bit Python library has been imported.

6.Experimental phenomena

After the program is successfully downloaded. Open the power switch, the smile pattern will be displayed on the micro:bit dot matrix, and the Dragon Knight will start waving wings.

If you need to restart, press the reset button on the back of the micro:bit board.