

Dancing and singing

Learning goals:

In this lesson, we mainly learn how to make spider dancing and singing.

Code:

```
1 from microbit import *
2 import music
3 import superbit
4 import microbit
5
6 display.show(Image.HAPPY)
7
8 while True:
9     music.play('E4:4')
10    superbit.motor_control(superbit.M1, 255, 0)
11    superbit.motor_control(superbit.M3, 255, 0)
12    music.play('E4:4')
13    superbit.motor_control(superbit.M1, 255, 0)
14    superbit.motor_control(superbit.M3, 255, 0)
15    music.play('F4:4')
16    superbit.motor_control(superbit.M1, -255, 0)
17    superbit.motor_control(superbit.M3, -255, 0)
18    music.play('G4:4')
19    superbit.motor_control(superbit.M1, -255, 0)
20    superbit.motor_control(superbit.M3, -255, 0)
21    music.play('G4:4')
22    superbit.motor_control(superbit.M1, 255, 0)
23    superbit.motor_control(superbit.M2, 255, 0)
24    music.play('F4:4')
25    superbit.motor_control(superbit.M1, 255, 0)
26    superbit.motor_control(superbit.M2, 255, 0)
27    music.play('E4:4')
28    superbit.motor_control(superbit.M1, 255, 0)
29    superbit.motor_control(superbit.M2, 255, 0)
30    music.play('D4:4')
31    superbit.motor_control(superbit.M1, 255, 0)
```

```
32 superbit.motor_control(superbit.M2, 255, 0)
33 music.play('C4:4')
34 superbit.motor_control(superbit.M1, -255, 0)
35 superbit.motor_control(superbit.M2, -255, 0)
36 music.play('C4:4')
37 superbit.motor_control(superbit.M1, -255, 0)
38 superbit.motor_control(superbit.M2, -255, 0)
39 music.play('D4:4')
40 superbit.motor_control(superbit.M1, -255, 0)
41 superbit.motor_control(superbit.M2, -255, 0)
42 music.play('E4:4')
43 superbit.motor_control(superbit.M1, -255, 0)
44 superbit.motor_control(superbit.M2, -255, 0)
45 music.play('E4:8')
46 superbit.motor_control(superbit.M1, 255, 0)
47 superbit.motor_control(superbit.M2, 255, 0)
48 music.play('D4:4')
49 superbit.motor_control(superbit.M1, 255, 0)
50 superbit.motor_control(superbit.M2, 255, 0)
51 music.play('D4:4')
52 superbit.motor_control(superbit.M1, 255, 0)
53 superbit.motor_control(superbit.M2, 255, 0)
54 microbit.sleep(500)
55 music.play('E4:4')
56 superbit.motor_control(superbit.M1, -255, 0)
57 superbit.motor_control(superbit.M2, -255, 0)
58 music.play('E4:4')
59 superbit.motor_control(superbit.M1, -255, 0)
60 superbit.motor_control(superbit.M2, -255, 0)
61 music.play('F4:4')
```

```
62     superbit.motor_control(superbit.M1, -255, 0)
63     superbit.motor_control(superbit.M2, -255, 0)
64     music.play('G4:4')
65     superbit.motor_control(superbit.M1, -255, 0)
66     superbit.motor_control(superbit.M2, -255, 0)
67     music.play('G4:4')
68     superbit.motor_control(superbit.M1, 255, 0)
69     superbit.motor_control(superbit.M2, 255, 0)
70     music.play('F4:4')
71     superbit.motor_control(superbit.M1, 255, 0)
72     superbit.motor_control(superbit.M2, 255, 0)
73     music.play('E4:4')
74     superbit.motor_control(superbit.M1, 255, 0)
75     superbit.motor_control(superbit.M2, 255, 0)
76     music.play('D4:4')
77     superbit.motor_control(superbit.M1, 255, 0)
78     superbit.motor_control(superbit.M2, 255, 0)
79     music.play('C4:4')
80     superbit.motor_control(superbit.M1, -255, 0)
81     superbit.motor_control(superbit.M2, -255, 0)
82     music.play('C4:4')
83     superbit.motor_control(superbit.M1, -255, 0)
84     superbit.motor_control(superbit.M2, -255, 0)
85     music.play('D4:4')
86     superbit.motor_control(superbit.M1, -255, 0)
87     superbit.motor_control(superbit.M2, -255, 0)
88     music.play('E4:4')
89     superbit.motor_control(superbit.M1, 255, 0)
90     superbit.motor_control(superbit.M2, 255, 0)

91     music.play('D4:8')
92     superbit.motor_control(superbit.M1, 255, 0)
93     superbit.motor_control(superbit.M2, 255, 0)
94     music.play('C4:4')
95     superbit.motor_control(superbit.M1, -255, 0)
96     superbit.motor_control(superbit.M2, -255, 0)
97     music.play('C4:4')
98     superbit.motor_control(superbit.M1, -255, 0)
99     superbit.motor_control(superbit.M2, -255, 0)
100    microbit.sleep(1000)
101
```

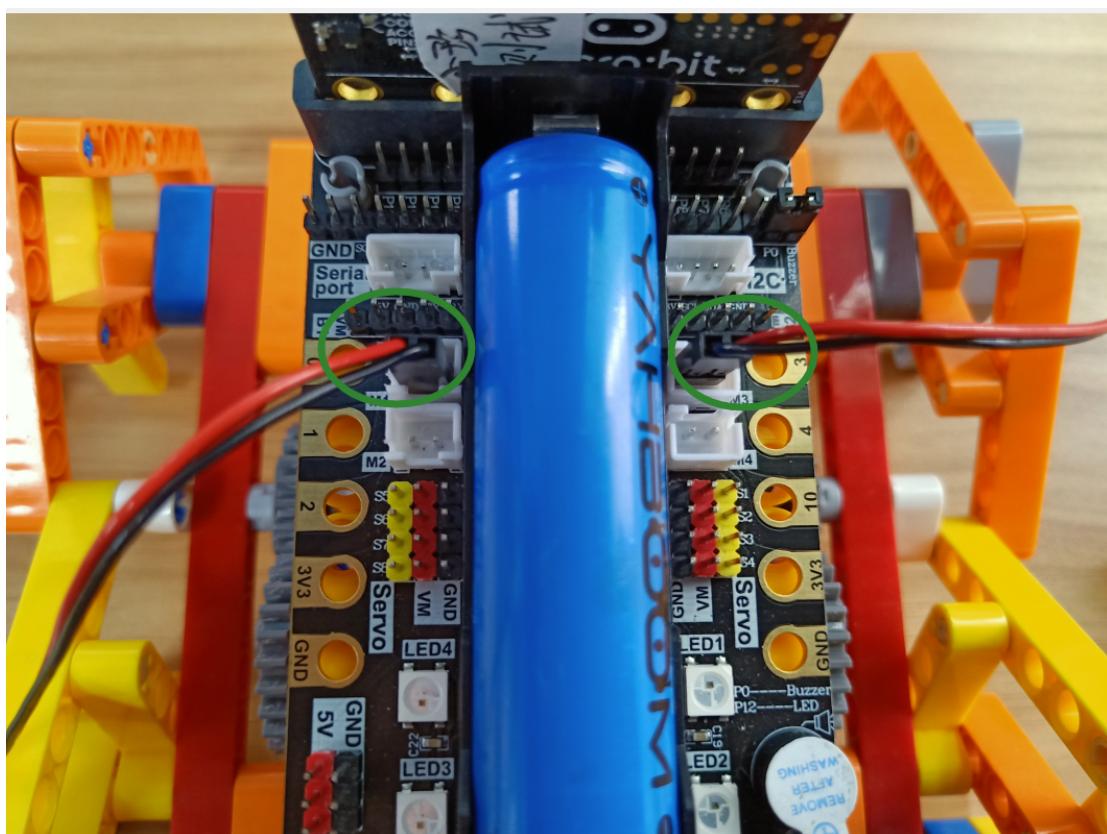
Import the microbit library and the superbit library;

`display.show(Image.HAPPY)`: show smile faces;
`superbit.motor_control(superbit.M1, 255, 0)`: M1 is the interface on the super:bit board, speed is 255;
`music.play('C4:4')`: Refers to the note named 'C' in octave number 4 to be played for a duration of 4.

About wiring:

We need to connect two building block motors to the M1 and M3 interfaces of the Super:bit expansion board.

The black wiring of the motor is near the battery side. As shown below.



Programming and downloading:

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, and the last line must be a space.

```

1 from microbit import *
2 import superbit
3
4 display.show(Image.HEART)
5
6
7 while True:
8     superbit.motor_control(superbit.M1, -255, 0)
9     superbit.motor_control(superbit.M3, -255, 0)
10
11

```

2. You can click the “Check” button to check if our code has an error. If a line appears with a cursor or an underscore, the program indicating this line is wrong.

```

1 from microbit import *
2 import superbit
3
4 display.show(Image.HEART)
5
6
7 while True:
8     superbit.motor_control(superbit.M1, -255, 0)
9     superbit.motor_control(superbit.M3, -255, 0)
10
11

```

Well done! No problems here.

3. Click the 'REPL' button to check whether the super:bit library has been downloaded. If not, please refer to the [1.preparation before class] ---> [2.How to import Yahboom superbit library] import super:bit library tutorial.

Mu 1.0.3 - Spider advance.py

```

1 from microbit import *
2 import superbbit
3
4 display.show(Image.HEART)
5
6
7 while True:
8     superbbit.motor_control(superbit.M1, -255, 0)
9     superbbit.motor_control(superbit.M3, -255, 0)
10

```

BBC micro:bit REPL

```

MicroPython for Super:bit V1.1 modified by Yahboom Team
Type "help()" for more information.
>>>

```

4. After writing the code, please click the 'Flash' button to download the program to the micro:bit board.

Mu 1.0.3 - Spider advance.py

```

1 from microbit import *
2 import superbbit
3
4 display.show(Image.HEART)
5
6
7 while True:
8     superbbit.motor_control(superbit.M1, -255, 0)
9     superbbit.motor_control(superbit.M3, -255, 0)
10
11

```

If the program is wrong or the experimental phenomenon is wrong after downloading, please confirm whether you have downloaded the superbbit library hex file we provided to the micro:bit board.

For the specific method of adding library files, please refer to [【Preparation before class】](#) --- [【How to import Yahboom superbbit library】](#)

5. Experimental phenomena

After program download is complete, micro: bit dot matrix will display a “smile” pattern and play the birthday song in a loop.

The spider advances for 0.5 seconds --> back for 0.5 seconds --> turn left for 1 second --> turn right for 1 second --> spin left for 0.2 seconds --> spin right for 0.2 seconds --> turn left 0.5 seconds --> turn right 0.5 seconds, the color of the RGB light is red-> green-> blue-> violet, and so on.

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