

Control Stepper motor

Learning goals

In this lesson, we mainly learn how to control stepper motor by micro:bit and Super:bit expansion board.

Code:

```
1 from microbit import *
2 import microbit
3 import superbit
4
5 display.show(Image.HEART)
6
7
8 while True:
9     superbit.stepper_control(superbit.B1, 90)
10    microbit.sleep(1000)
11    superbit.stepper_control(superbit.B2, 90)
12    microbit.sleep(1000)
13    superbit.stepper_control(superbit.B1, 360)
14    superbit.stepper_control(superbit.B2, 360)
15    microbit.sleep(1000)
16    microbit.sleep(1000)
17
```

Import the micro:bit library and super:bit library.

`import microbit, import superbit` Import micro:bit library, import super:bit library

`display.show(Image.HAPPY)`: display heart.

`superbit.stepper_control(superbit.B1, 90)`: Rotate the 270 ° servo on S1 port to 0 °

`microbit.sleep(1000)`: delay 1000ms

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.

The screenshot shows the Yahboom Microbit Editor interface. At the top, there's a toolbar with various icons: Mode, New, Load, Save, Flash, Files, REPL, Plotter, Zoom-in, Zoom-out, Theme, and Check. Below the toolbar is a code editor window titled "microbit-superbit_270servo_one.py". The code is as follows:

```

1 from microbit import *
2 import microbit
3 import superbit
4
5 display.show(Image.HEART)
6 superbit.servo270(superbit.S1, 0)
7 microbit.sleep(1000)
8
9 while True:
10     superbit.servo270(superbit.S1, 0)
11     microbit.sleep(1000)
12     superbit.servo270(superbit.S1, 90)
13     microbit.sleep(1000)
14     superbit.servo270(superbit.S1, 180)
15     microbit.sleep(1000)
16     superbit.servo270(superbit.S1, 270)
17     microbit.sleep(1000)
18     superbit.servo270(superbit.S1, 180)
19     microbit.sleep(1000)
20     superbit.servo270(superbit.S1, 90)
21     microbit.sleep(1000)

```

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.

The screenshot shows the Yahboom Microbit Editor interface. The toolbar and code editor are identical to the previous one. At the bottom of the code editor, there is a message box with the text "Hurrah! Checker turned up no problems." A red box highlights the "Check" button in the toolbar.

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

The screenshot shows the Yahboom micro:bit software interface. At the top, there is a toolbar with various icons: Mode, New, Load, Save, Flash, Files, REPL (which is highlighted with a red box), Plotter, Zoom-in, Zoom-out, and Theme. Below the toolbar, a code editor window displays the file "microbit-superbit_270servo_one.py" containing the following Python code:

```

1 from microbit import *
2 import microbit
3 import superbit
4
5 display.show(Image.HEART)
6 superbit.servo270(superbit.S1, 0)
7 microbit.sleep(1000)

```

Below the code editor is a BBC micro:bit REPL window with the following text:

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.

The screenshot shows the Yahboom micro:bit software interface. The toolbar at the top is identical to the previous one, but the "Flash" icon is highlighted with a red box. Below the toolbar, the code editor window shows the same Python code as before. The REPL window below it now contains the following text:

```

1 from microbit import *
2 import microbit
3 import superbit
4
5 display.show(Image.HEART)
6 superbit.servo270(superbit.S1, 0)
7 microbit.sleep(1000)
8
9 while True:
10     superbit.servo270(superbit.S1, 0)
11     microbit.sleep(1000)
12     superbit.servo270(superbit.S1, 90)
13     microbit.sleep(1000)

```

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

For the specific method of adding library files, please refer to 【1.Preparation before class】---【How to import Yahboom superbit library】

6. After the program is downloaded successfully, the micro:bit dot matrix will display heart and control the rotation of the stepper motor.

First, individually control the B1 stepping motor to rotate 1/4 turn(90 °)



counterclockwise, time interval for 1 second, and individually control the B2 stepping motor to rotate 1/4 turn(90 °) clockwise, time interval for 1 second,

Then, controlling B1 rotate 360 ° counterclockwise and B2 rotate 360 ° clockwise, time interval for 1 second. Controlling B1and B2 to stop at an interval of 1 second, and keep looping like this status.

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