

Basic course13 --- Ultrasonic

Learning goals:

This lesson we will learn how to use tracking sensor by Python programming.

Code:

```
# -*- coding: utf-8-*# Encoding cookie added by Mu Editor
from microbit import display, Image
import buildingbit

display.show(Image.HAPPY)

while True:
    a = buildingbit.ultrasonic()
    print(a)
```

- 1) First, we need to import Yahboom buildingbit library: **import buildingbit** and others library we need to use.
- 2) **display.show(Image.HAPPY)** make micro:bit display a smile.
- 3) **a = buildingbit.ultrasonic()** Read the ultrasonic data and save it to variable a;
- 4) **print(a)** Print the data a detected by the ultrasonic wave through the serial port.

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, Tab key for indentation, and the last line must be a space.

The image shows the Mu IDE interface. At the top is a toolbar with various icons: Mode, New, Load, Save, Flash, Files, REPL, Plotter, Zoom-in, Zoom-out, Theme, Check, Help, and Quit. Below the toolbar is a status bar showing "Ultrasonic.py" and a close button. The main area is a code editor containing the following Python code:

```
1 # -*- coding: utf-8-*# Encoding cookie added by Mu Editor
2 from microbit import display, Image
3 import buildingbit
4
5 display.show(Image.HAPPY)
6
7
8 while True:
9     a = buildingbit.ultrasonic()
10    print(a)
11
```

2. You need to 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. If there is no cursor or underline, it means that the code is correct, and the bottom left will prompt that the check is OK.

```

Ultrasonic.py
1 # -*- coding: utf-8-*# Encoding cookie added by Mu Editor
2 from microbit import display, Image
3 import buildingbit
4
5 display.show(Image.HAPPY)
6
7
8 while True:
9     a = buildingbit.ultrasonic()
10    print(a)
11

```

Nice one! Zero problems detected.

3. You need to connect the micro data cable to micro:bit and the computer and **download buildingbit library into micro:bit**. Then, click “**REPL**” button to import “Yahboom buildingbit library”. As shown below.

```

红外避障传感器.py
1 # -*- coding: utf-8-*# Encoding cookie added by Mu Editor
2 from microbit import display
3 import buildingbit
4 import music
5
6 display.off()
7 avoid = False
8

```

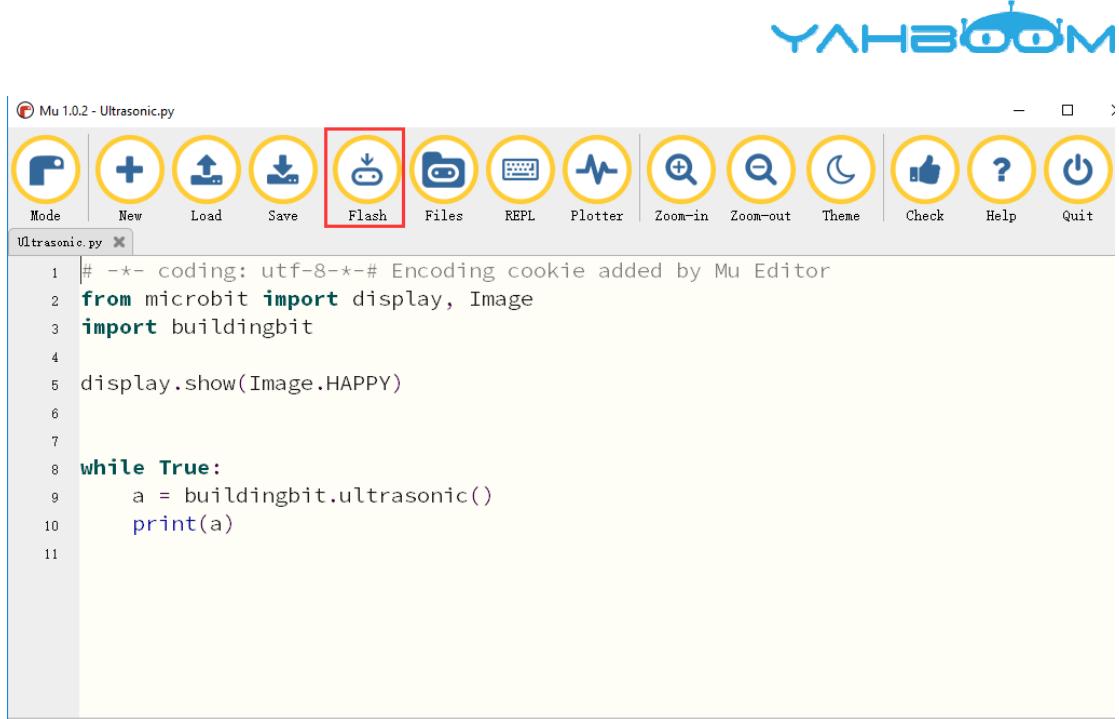
BBC micro:bit REPL

```

File "<main>", line 11, in <module>
KeyboardInterrupt:
MicroPython for Building:bit V1.0 modified by Yahboom Team
Type "help()" for more information.
>>>
MicroPython for Building:bit V1.0 modified by Yahboom Team
Type "help()" for more information.
>>> |

```

4. Click “**Flash**” to download program to micro:bit board.



Experimental phenomena

After download is complete. You can see the smiling face on the LED dot matrix screen. Open the serial port assistant, select the corresponding serial port, set the baud rate to 115200, and click to open the serial port, you can see the ultrasonic data.

