Keyestudio

Project 5: Temperature Measurement

1. Description

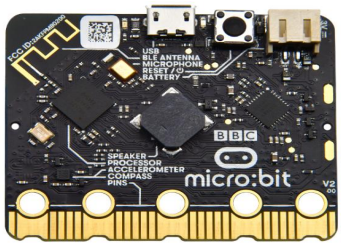
Micro:bit main board doesn’ t come with temperature sensor actually, but detect temperature through built-in temperature of NFR51822 chip.

Thereby, the detected temperature is more close to chip’ s temperature.

In this project, we will use the sensor to test the temperature in the current environment, and display the test results in the display data (equipment), then set the temperature range detected by the sensor in a way that controls the LED dot matrix to display different patterns.

(Temperature Sensor)

2. Components Needed

		
Micro:bit * 1	USB Cable * 1	

3. Test Code

You can upload the code directly from the tutorial (read the "Development Environment Configuration" file if in doubt).

Code1:

```
from microbit import *

while True:

    Temperature = temperature()

    print("Temperature:", Temperature, "C")

    sleep(500)
```

Test Result: After downloading test code 1 to micro:bit board, keep USB connected and click **"REPL" and press the reset button on micro:bit.** Then REPL window will show the ambient temperature value, as shown below:(C stands for temperature unit)

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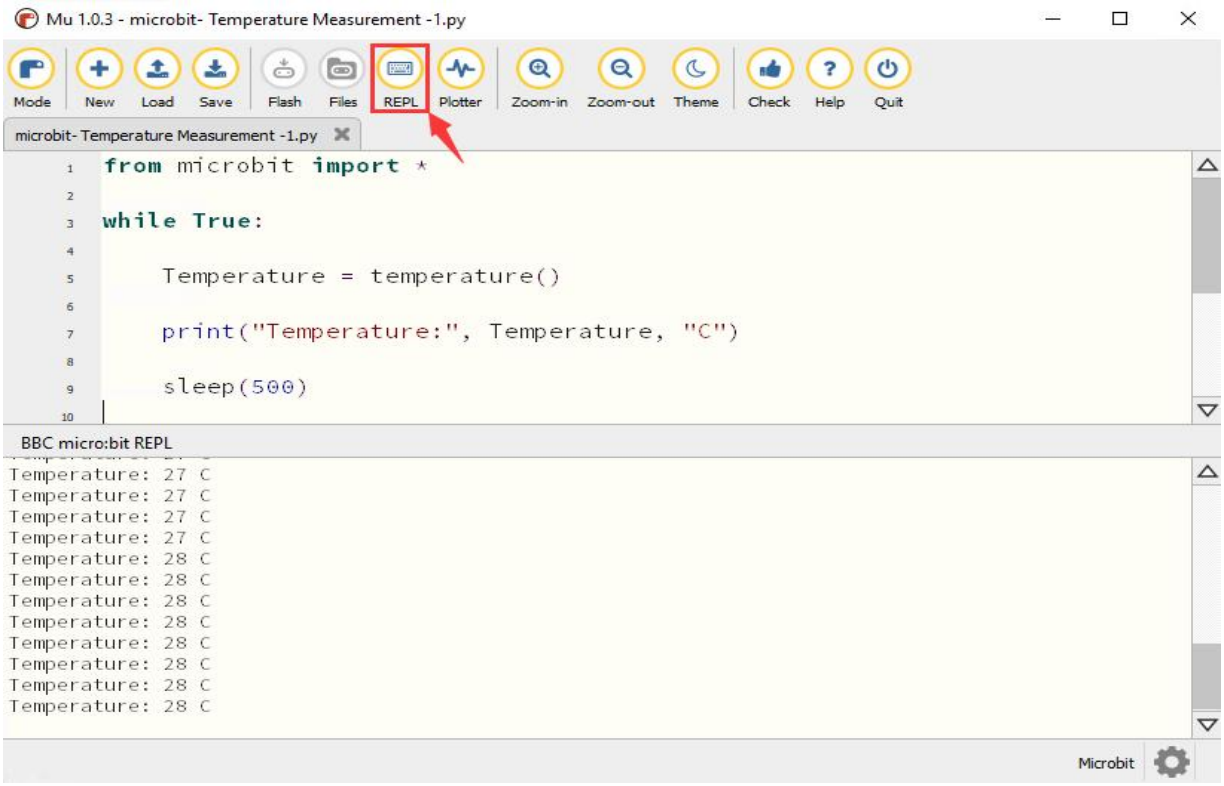

Code2:

```
from microbit import *


while True:


    if temperature() >= 35:
        display.show(Image.HEART)


    else:
        display.show(Image.HEART_SMALL)
```

Test Result：Upload the code 2 plug in micro:bit via USB cable, when the ambient temperature is less than 35℃, 5*5LED will show  . When the temperature is equivalent to or greater than 35℃, the pattern  will appear.

4. Code Explanation

from microbit **import** *	Import the library file of micro:bit
while True:	This is a permanent loop that makes micro:bit execute the code of it.
Temperature = temperature()	Set temperature() to Temperature
print("Temperature:", Temperature, "C")	BBC micro:bit REPL prints temperature value
sleep(500)	Delay in 500ms
if temperature() >= 35: display.show(Image.HEART) **else**: display.show(Image.HEART_SMALL)	If temperature value ≥35℃ micro:bit shows "  " If temperature value<35℃ micro:bit displays "  "