

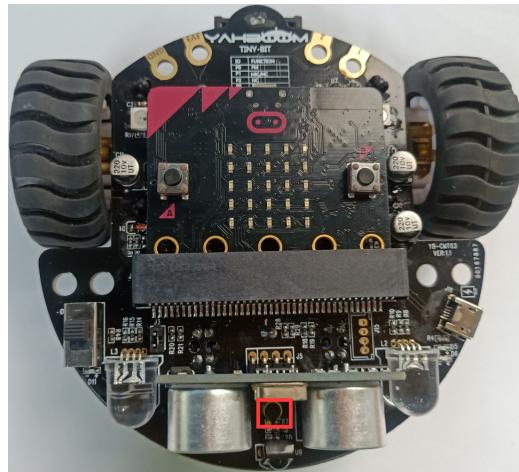
6.Sound sensor

Learning goal:

This lesson learns how to use the sound sensor on the Tiny-bit car.

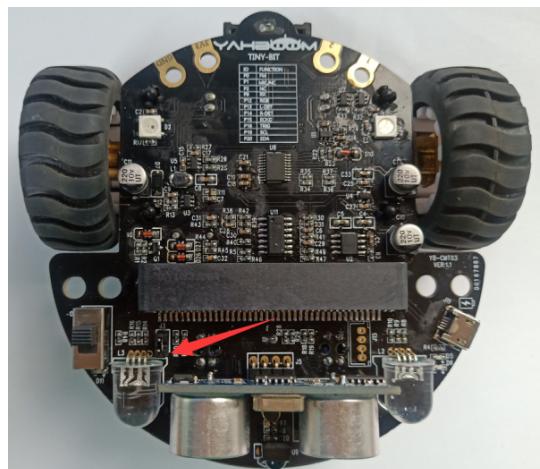
Preparation:

- 1.The position of the sound sensor module in the robot



!!! Note:

In this experiment, we need to install the jumper cap in the position shown below.



- 2.The micro:bit pins connected to the sound sensor.

From the hardware interface manual, we can know that the sound sensor is directly driven by the micro:bit P1 pin.

Category	Function	Number	Drive	The number of Drive pin	The number of connected to the controller	micro:bit
Buzzer	Buzzer	FM			MIC	P0
Voice sensor	Voice sensor					P1
LED light	Water light	LED-RGB				
Tracking sensor	Left tracking	L-DET			LED-RGB	P12
	Right tracking	R-DET			L-DET	P13
Ultrasonic module	Echo pin	ECHO			R-DET	P14
	Trigger pin	TRIG			ECHO	P15
Infrared receiver	Infrared remote control	RX			TRIG	P16
I2C interface	I2C interface	SCL			RX	P8
		SDA			SCL	P19
					SDA	P20
Motor	Left motor Forward	L-INA	STM32	PC6/TIM1_OH1		
	Left motor Reverse	L-INB		PC7/TIM1_OH2		
	Right motor Forward	R-INA		PC3/TIM1_OH3		
	Right motor Reverse	R-INB		PC4/TIM1_OH4		
RGB Searching light	Red	LED-R		PC5/TIM2_OH1	SCL, SDA	
	Green	LED-G		PD3/TIM2_OH2		P19, P20
	Blue	LED-B		PD2/TIM2_OH3		

Code:

```
from microbit import *

horn = Image("00090:"
             "90990:"
             "99990:"
             "90990:"
             "00090")

calibration_Val = pin1.read_analog()
sleep(500)

while True:
    Voice_Val = pin1.read_analog()
    if Voice_Val > calibration_Val + 50:
        # Detected changes in the external environment of the
        # current environment,
        # this parameter can be changed by yourself
        display.show(horn)
        sleep(200)
    else:
        display.show(Image.HAPPY)
```

Programming and downloading:

1. You should open the Mu software, and enter the code in the edit window, , as shown in Figure 6-1.

Note! All English and symbols should be entered in English, and the last line must be a space.

```

1 # Shenzhen Yahboom Technology Co., Ltd.
2 # modified from Dolphin
3 # Tiny-bit 2109,07,23
4
5 from microbit import *
6
7 horn = Image("00090:"
8             "90990:"
9             "99990:"
10            "90990:"
11            "00090")
12
13 calibration_Val = pin1.read_analog()
14 sleep(500)
15
16 while True:
17     Voice_Val = pin1.read_analog()
18     if Voice_Val > calibration_Val + 50:
19         # Detected changes in the external environment of the
20         # current environment,
21         # this parameter can be changed by yourself
22         display.show(horn)
23         sleep(200)
24     else:
25         display.show(Image.HAPPY)
26

```

Figure 6-1

2. As shown in Figure 6-2, 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.

```

1 # Shenzhen Yahboom Technology Co., Ltd.
2 # modified from Dolphin
3 # Tiny-bit 2109,07,23
4
5 from microbit import *
6
7 horn = Image("00090:"
8             "90990:"
9             "99990:"
10            "90990:"
11            "00090")
12
13 calibration_Val = pin1.read_analog()
14 sleep(500)
15
16 while True:
17     Voice_Val = pin1.read_analog()
18     if Voice_Val > calibration_Val + 50:
19         # Detected changes in the external environment of the
20         # current environment,
21         # this parameter can be changed by yourself
22         display.show(horn)
23         sleep(200)
24     else:
25         display.show(Image.HAPPY)
26

```

Figure 6-2

3. You need to connect the micro data cable to micro:bit and the computer, then click the Flash button to download the program to micro:bit as shown in Figure 6-3.

```

耳听八方.py x
1 # Shenzhen Yahboom Technology Co., Ltd.
2 # modified from Dolphin
3 # Tiny-bit 2109,07,23
4
5 from microbit import *
6
7 horn = Image("00090: "
8             "90990: "
9             "99990: "
10            "90990: "
11            "00090")
12
13 calibration_Val = pin1.read_analog()
14 sleep(500)
15
16 while True:
17     Voice_Val = pin1.read_analog()
18     if Voice_Val > calibration_Val + 50:
19         # Detected changes in the external environment of the
20         # current environment,
21         # this parameter can be changed by yourself
22         display.show(horn)
23         sleep(200)
24     else:
25         display.show(Image.HAPPY)
26

```

Figure 6-3

4. After downloading the program, we can see a heart pattern displayed on the micro:bit dot matrix. When we shoot the table, the micro:bit dot matrix will display a horn pattern.

