Square track

Learning goals

In this lesson, we mainly learn how to control motor on the Super:bit expansion board and make the OmniBit car walk a square track.

Code

```
from microbit import *
import superbit

display.show(Image.HAPPY)
superbit.motor_control_dual(superbit.M1, superbit.M3, 0, 0, 0)
superbit.motor_control_dual(superbit.M2, superbit.M4, 0, 0, 0)

while True:
    superbit.motor_control_dual(superbit.M1, superbit.M3, -255, -255, 0)
    superbit.motor_control_dual(superbit.M2, superbit.M4, -255, -255, 0)
    sleep(2000)
    superbit.motor_control_dual(superbit.M1, superbit.M3, 255, -255, 0)
    superbit.motor_control_dual(superbit.M2, superbit.M4, -255, 255, 0)
    sleep(2000)
    superbit.motor_control_dual(superbit.M1, superbit.M3, 255, 255, 0)
    superbit.motor_control_dual(superbit.M2, superbit.M4, 255, 255, 0)
    sleep(2000)
    superbit.motor_control_dual(superbit.M1, superbit.M3, -255, 255, 0)
    superbit.motor_control_dual(superbit.M2, superbit.M4, 255, -255, 0)
    sleep(2000)
    superbit.motor_control_dual(superbit.M1, superbit.M3, 0, 0, 0)
    superbit.motor_control_dual(superbit.M2, superbit.M4, 0, 0, 0)
    sleep(2000)

```

display.show (Image.HAPPY): microbit dot matrix display smiley face;
superbit.motor_control_dual (superbit.M1, superbit.M3, 255, 255, 0): Controls the motors of M1 and M3 ports, all of which rotate at the speed of PWM255.
microbit.sleep (1000): Delay 1000 milliseconds.

Initialization settings: Display heart pattern and stop all motors.
Use the function of positive and negative rotation of the motor to make the car achieve the effect of square track, and select the maximum speed of the car (255), make the car to pan left for 1 second, and then pan right for 1 second.

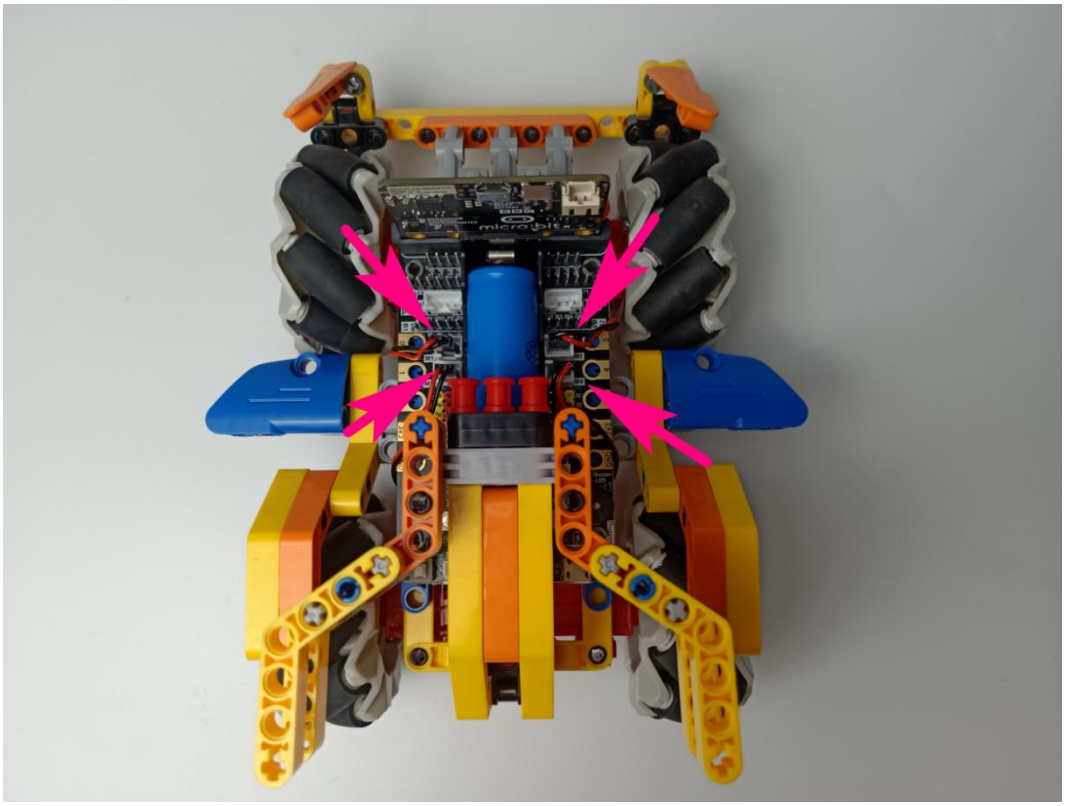
Assembly steps

Please refer to the **1.Omnibit installation steps** in the **1.Assembly steps** folder for building blocks assembly steps.

About wiring

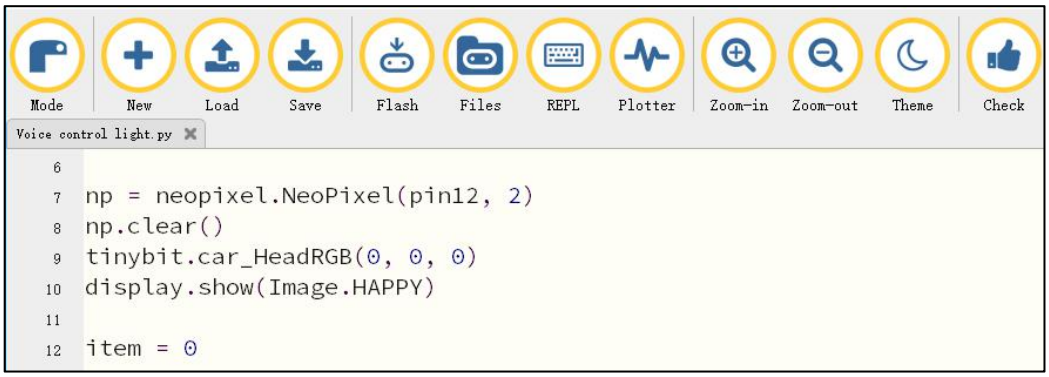
The left front motor is connected to the M1 interface of the Super:bit expansion board. The black line is on the battery side;

The left rear motor is connected to the M2 interface of the Super:bit expansion board, The black line is on the battery side;
The right front motor is connected to the M3 interface of the Super:bit expansion board, The black line is on the battery side;
The right rear motor is connected to the M4 interface of the Super:bit expansion board, The black line is on the battery side.
As shown below.



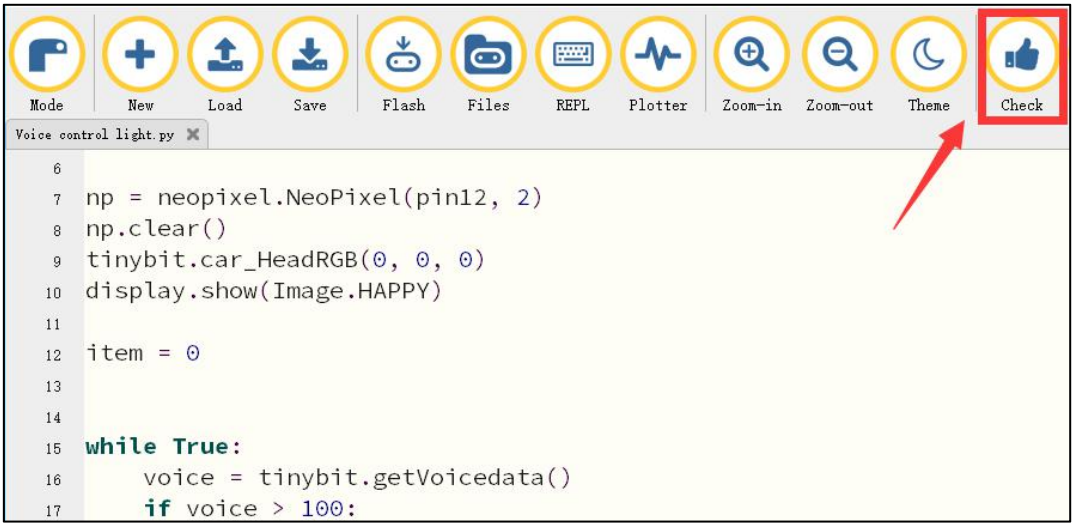
Programming and downloading：

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.

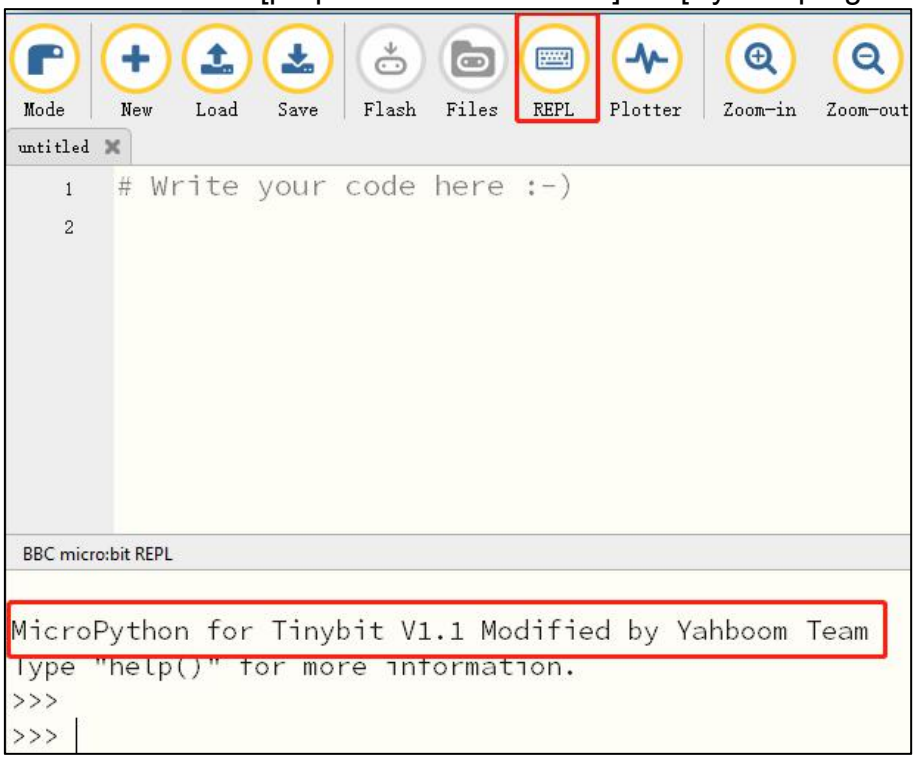


2.You can click the **“Check”** button to check if our code has an error. If a line

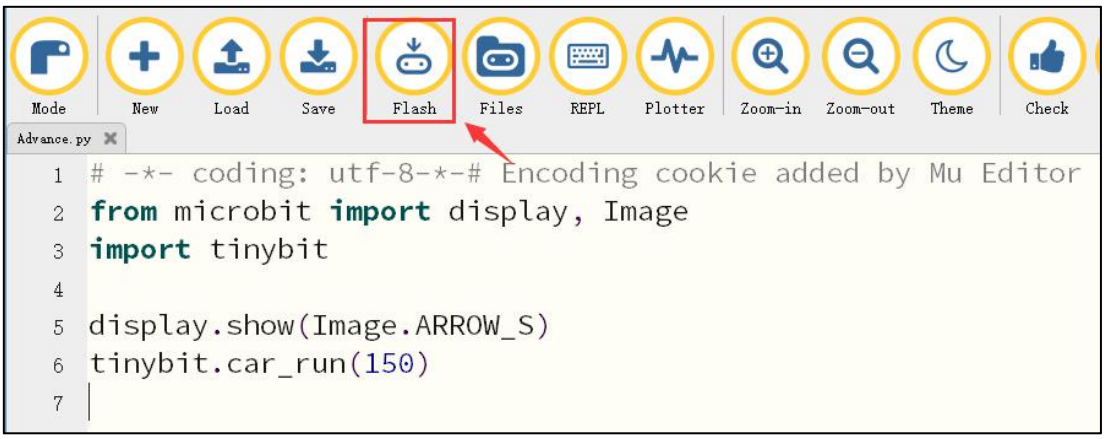
appears with a cursor or an underscore, the program indicating this line is wrong.



3.Click **“REPL”** button,check whether the tinybit library has been downloaded. If not, please refer to the [preparation before class]---> [Python programming]



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



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】---【Python programming】

Experimental phenomena

After the program download is successful, the micro:bit dot matrix will display a smile.
The car will back 1s, move right 1s, advance 1s, move left 1s. Finally, the car will return to the original position and stops for 1 second. And keep the loop in such a state.
Running in the above way, the track of the car is square.
If you need to start over, press the reset button on the back of the micro:bit board.