3.6 OLED display

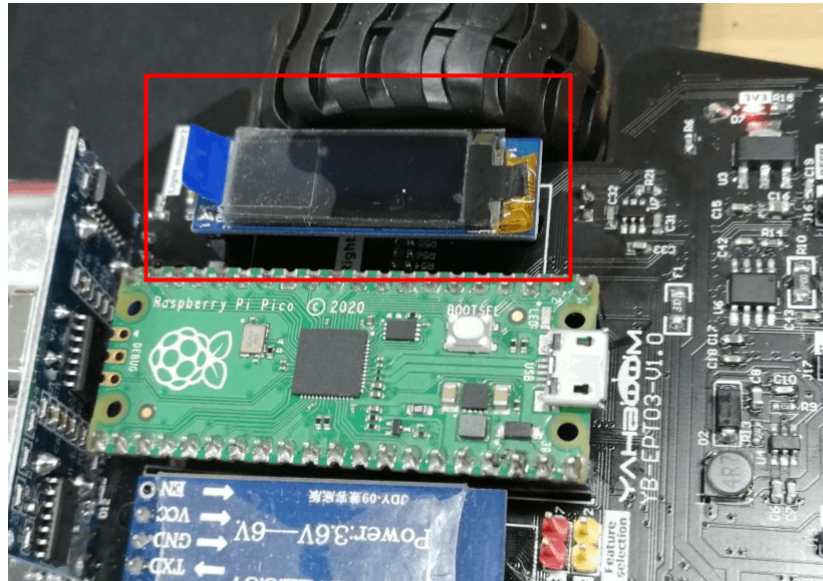**1. Learning Objectives**

In this course, we will learn how to drive OLED display.

2. About Hardware

We need to use OLED display on Pico robot.

Note: OLED display must be plugged in before running the routine in this section, otherwise the program will report an error.

OLED display is a display made of organic self-light emitting diodes. Due to the self-luminous organic electroluminescent diodes, no backlight, high contrast ratio, thin thickness, wide viewing angle, fast response speed, wide operating temperature range, simple structure and process are excellent characteristics. The 0.91-inch OLED screen we use uses IIC communication, which saves IO pins and simplifies the control method.

3. About code

Code path: Code -> 1.Basic course -> 6.OLED display.py

```python
from machine import Pin, I2C
from pico_car import SSD1306_I2C
import time
# set IIC pin
i2c=I2C(1, scl=Pin(15),sda=Pin(14), freq=100000)
# initialization oled
oled = SSD1306_I2C (128, 32, i2c)
# oled show hello at 0,0
oled.text ('Hello', 0, 0)
oled.show()
oled.fill (0)
time.sleep(1)
# oled showing the World at 0.10
oled.text ('World', 0, 10)
oled.show()
oled.fill (0)
```

```
    time.sleep(1)
    # oled show spot at 100.30
    oled.pixel (100, 30, 1)
    oled.show()
    oled.fill (0)
    time.sleep(1)
```

from pico_car import SSD1306_I2C

Use SSD1306_I2C of pico_car, which is our packaged OLED library.

import time

The "time" library. This library handles everything time related, from measuring it to inserting delays into programs. The unit is seconds.

from machine import Pin, I2C

The machine library contains all the instructions that MicroPython needs to communicate with Pico and other MicroPython-compatible devices, extending the language of physical computing. Only the Pin and I2C libraries are used here.

i2c=I2C(1, scl=Pin(15),sda=Pin(14), freq=100000)

Set the IIC 1 pin to SCL 15, SDA 14, and the frequency to 100000.

oled = SSD1306_I2C (128, 32, i2c)

Initialize the size of the OLED to 128*32, and pass in the IIC parameters set earlier.

oled.text ('Hello', 0, 0)

Set the OLED to display 'Hello' at position 0,0.

oled.show ()

Display the set OLED content.

oled.fill (0)

Clear the settings and prepare for the next display.

oled.pixel (100, 30, 1)

Set the OLED to light up the pixel at coordinates 100, 30, if oled.pixel(100, 30, 0), turn off the pixel at coordinates 100, 30.

4. Experimental Phenomenon

After the code is downloaded, we can see that the OLED displays 'Hello' first, then displays 'World' in the lower line, and then displays a point at coordinates 100,30.