Control PWM servo

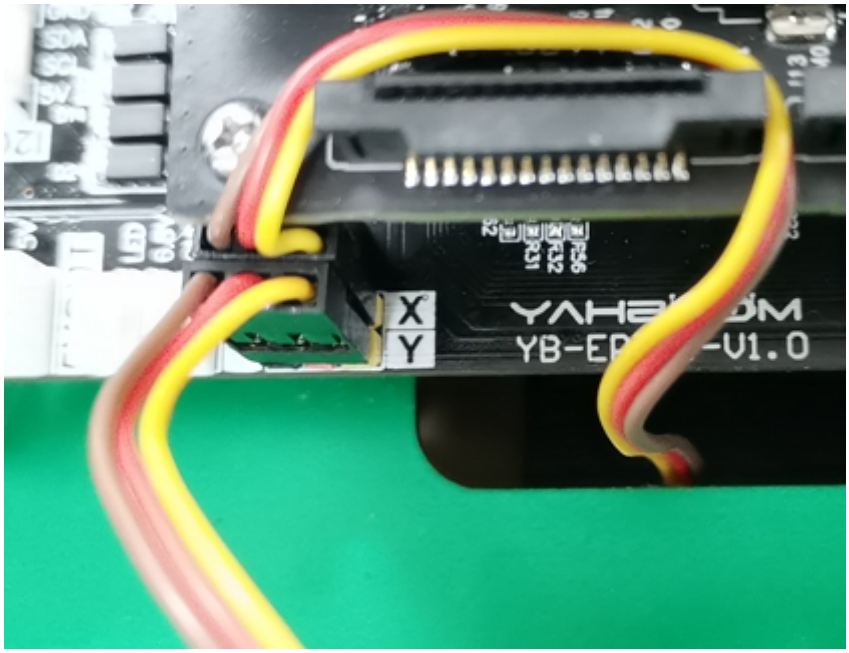
1. Experimental goals

Control the PWM servo platform on Transbot SE to rotate up, down, left, right and back.

2. Experiment preparation

The position in the red box in the picture below is the interface of the servo gimbal. There are two servo interfaces in total. The black interface is GND, the red interface is the positive pole of the 5V power supply, and the yellow interface is the signal, marked X and Y respectively. Two servo interfaces.

The servos that control the left and right are plugged into the X interface, and the servos that control the up and down are plugged into the Y interface. The servo interface must be plugged in according to the color and cannot be plugged in reverse.



Transbot_Lib library function needed for PWM servo gimbal:

```
set_pwm_servo(servo_id, angle)
```

Parameter explanation: servo control, servo_id: corresponding ID number: X = 1, Y = 2, angle: corresponding servo angle value

servo_id=[1, 2]，angle=[0, 180]

Return value: None.

3. Experimental results

3.1jetson motherboard/Raspberry Pi 4B

Please view the course video.

3.2 Raspberry Pi 5

Enter docker

Note: If you have a terminal that automatically starts docker, you can directly enter the docker terminal to run the command, and there is no need to manually start docker

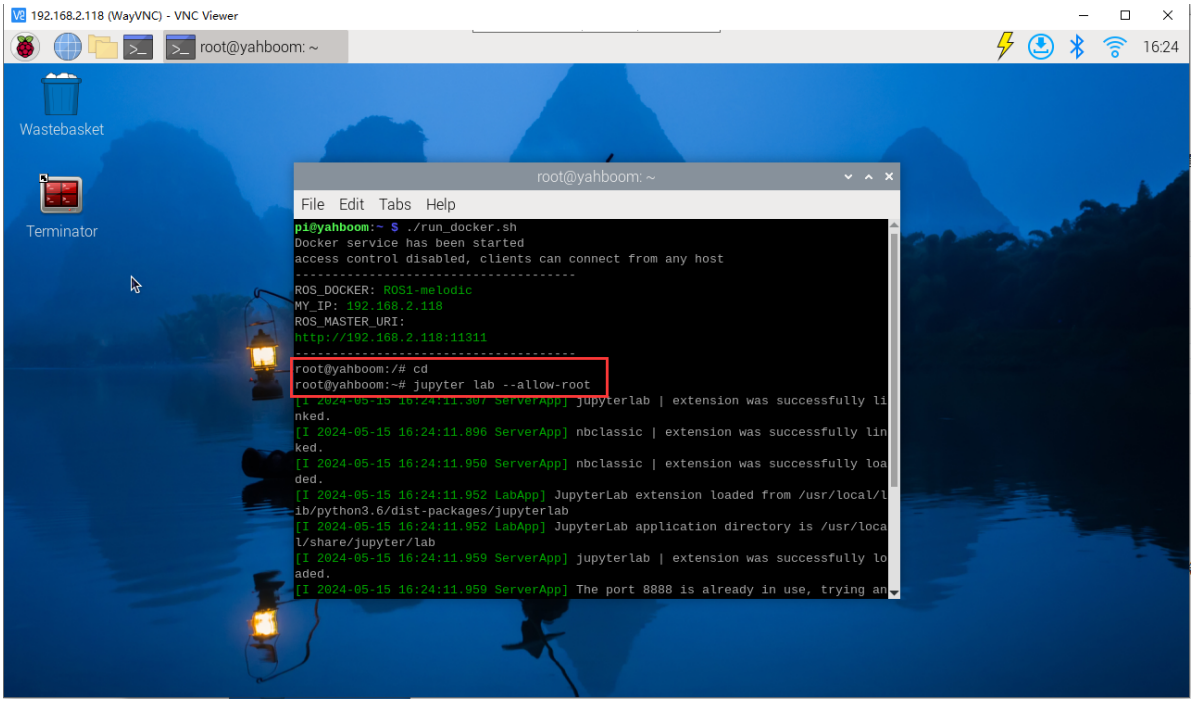
Start docker manually

```
./run_docker.sh
```

Run jupyter lab program

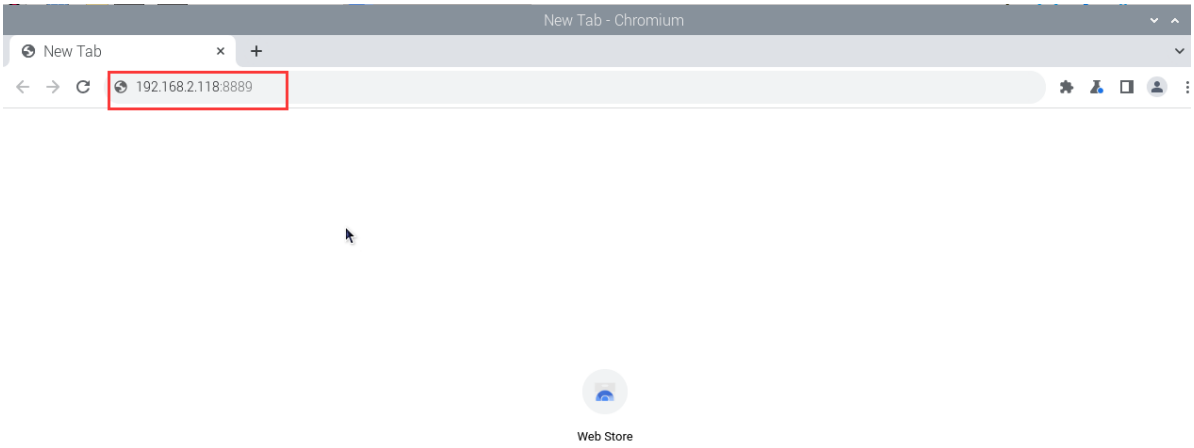
```
cd
```

```
jupyter lab --allow-root
```

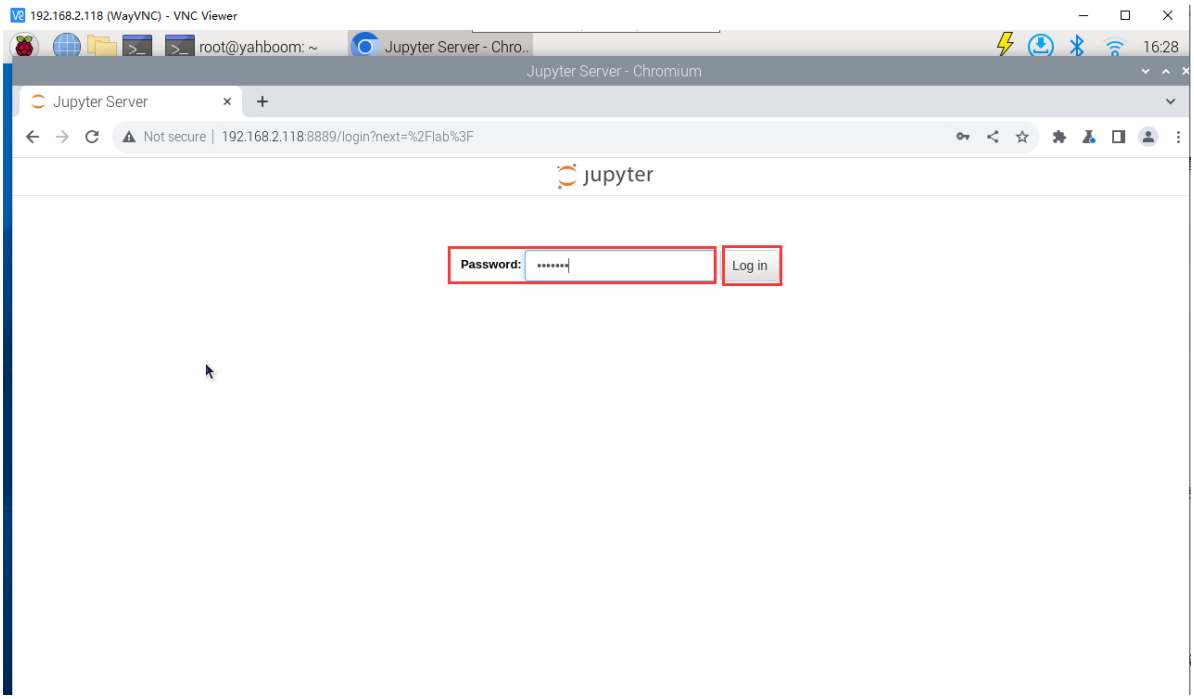


Taking the current IP address 192.168.2.118 as an example, open the browser of Raspberry Pi 5 or enter in the browser of your computer

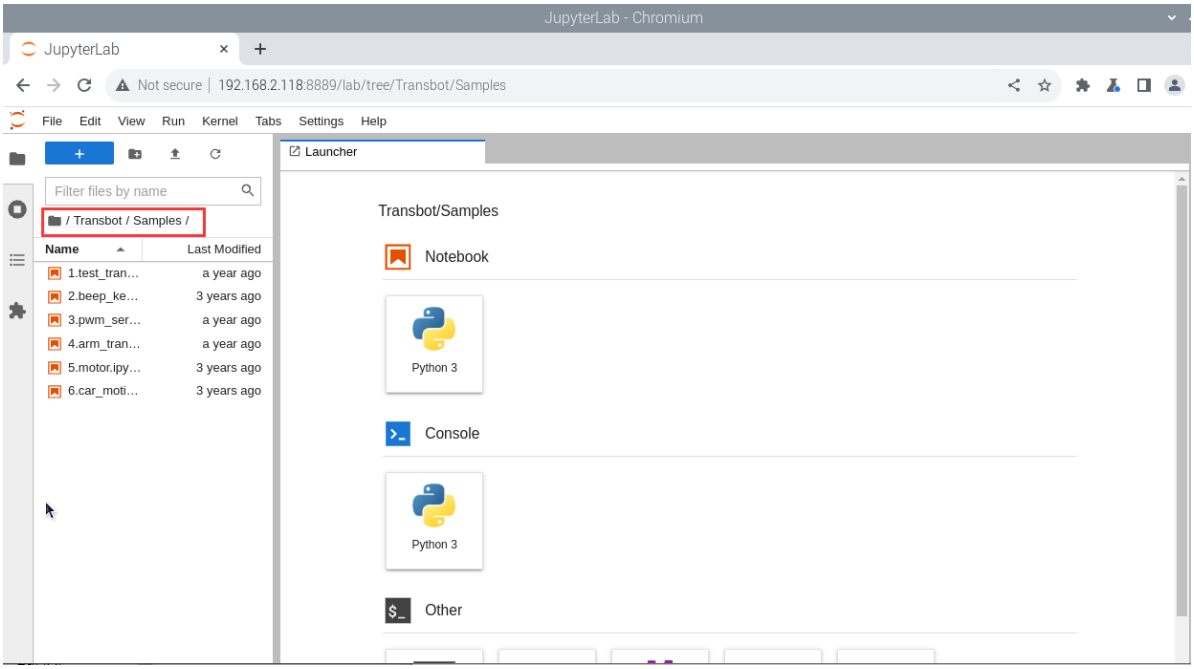
```
192.168.2.118:8889
```



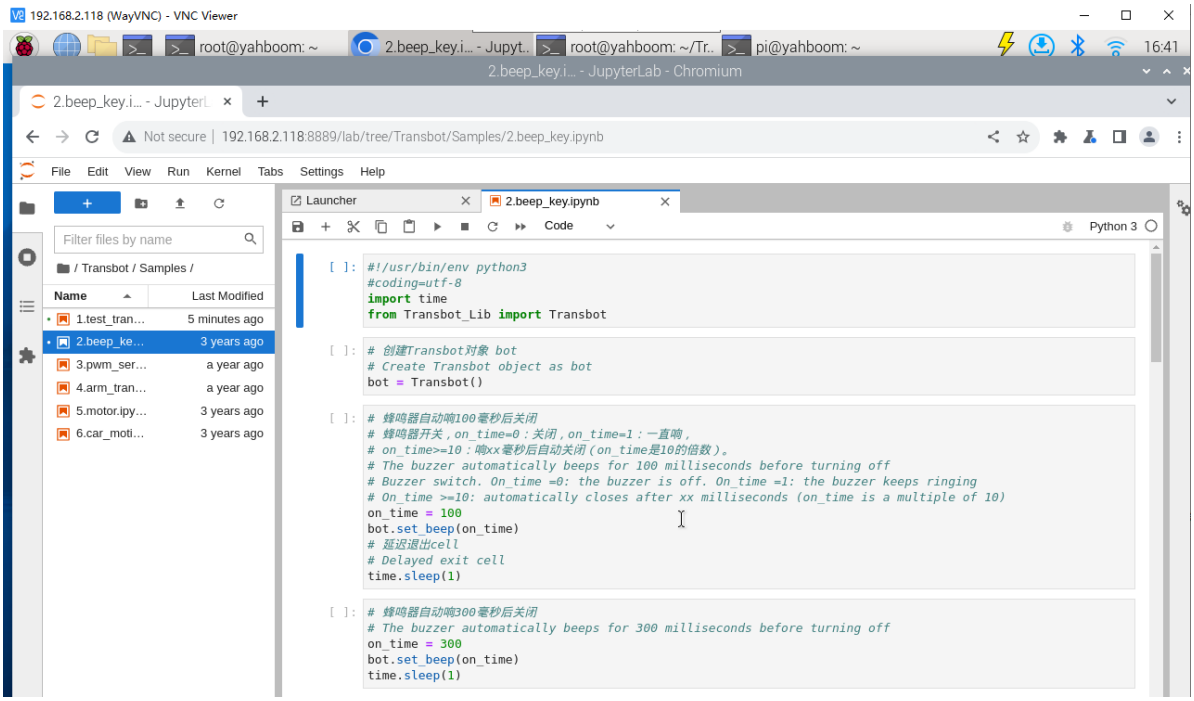
Enter the jupyter lab login interface after pressing Enter, enter the password yahboom, and then click login



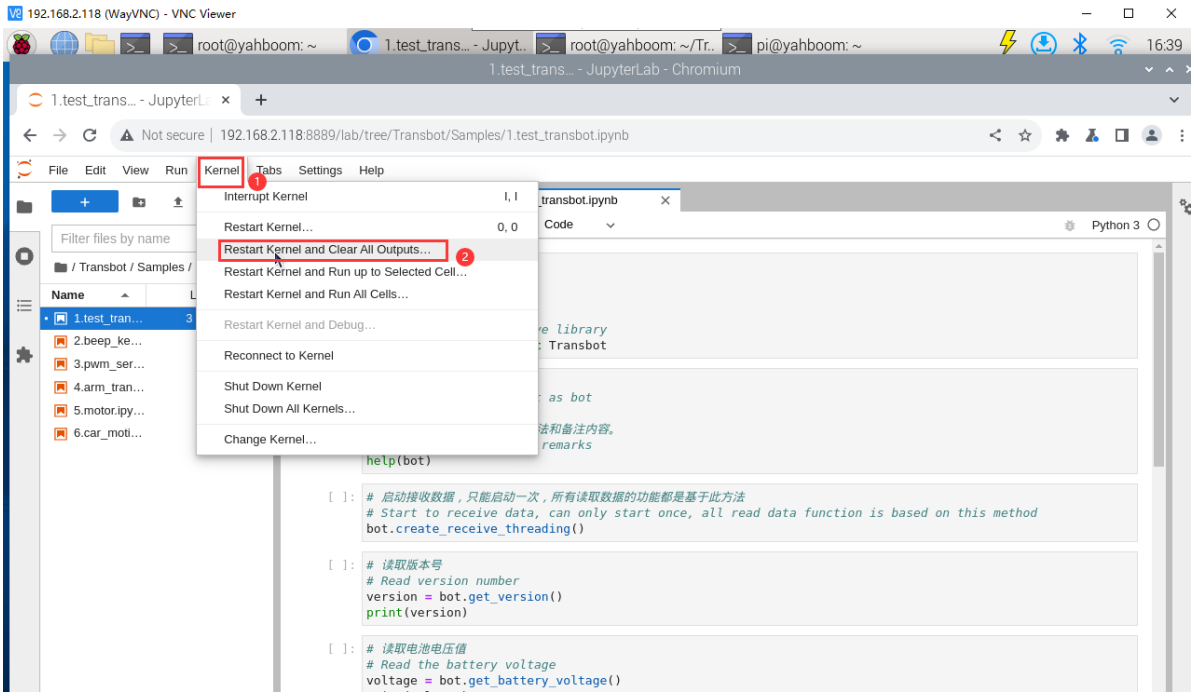
Enter the Transbot/Samples directory



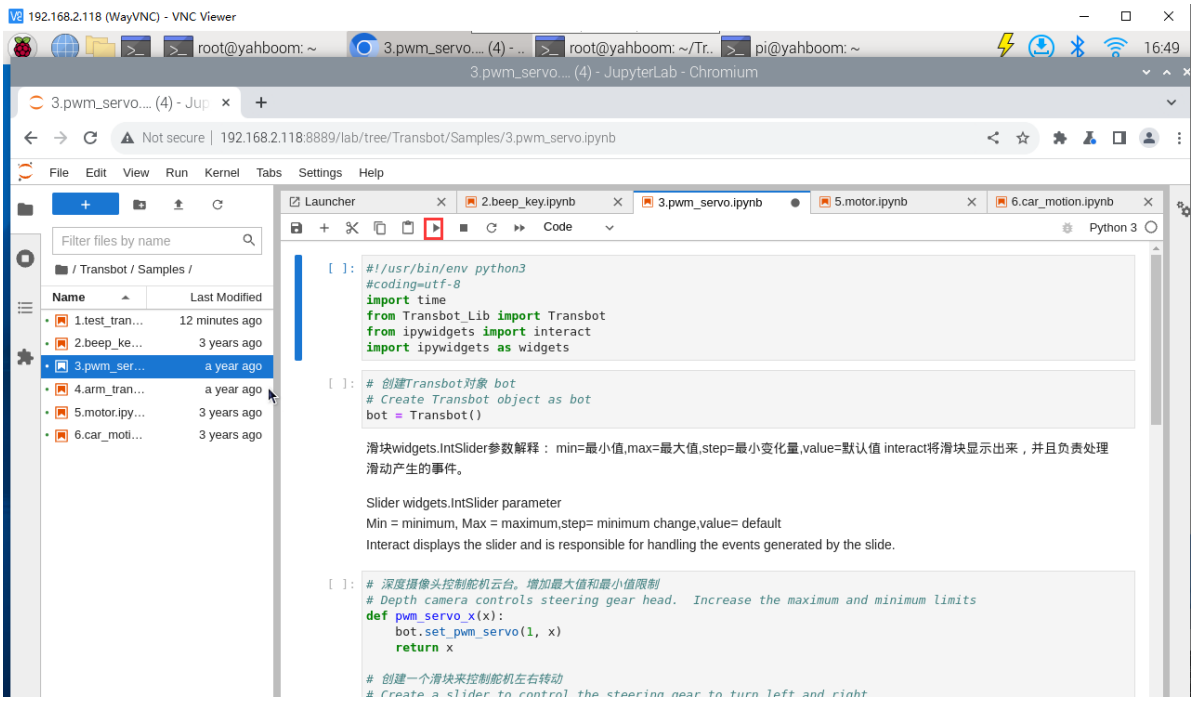
Double-click the code you want to run



Restart the kernel and clear all output before running



Click on the first code block, then click the run button to start running one by one



1.4. Program source code

4. Program source code

Turn on the power of the Transbot SE robot, and open Jetson Nano or the browser of the remote computer to enter the Jupyter lab editor.

Reference code path: Transbot/Samples/3.pwm_servo.ipynb