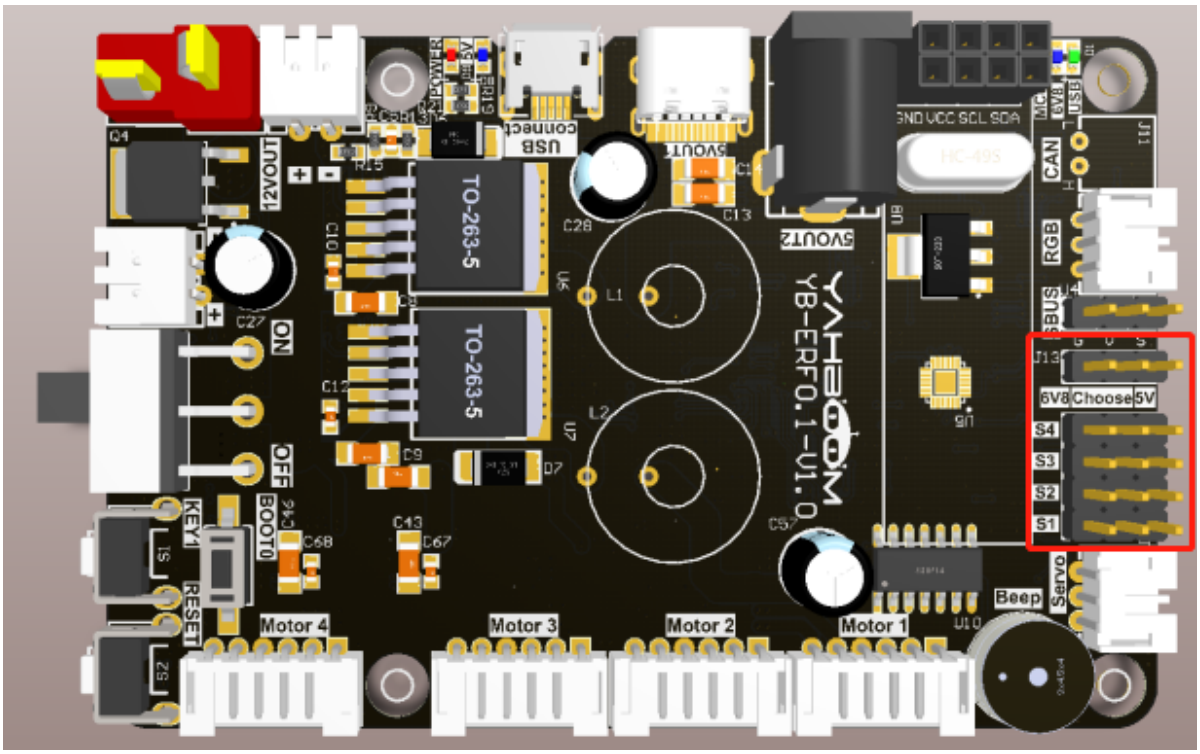
5. Control PWM servo

5.1. Experimental objectives

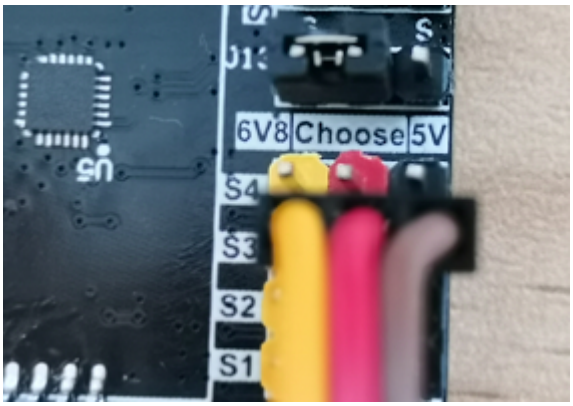
Control the rotation of the PWM servo on the robot.

5.2. Experiment preparation

The position in the red box in the picture below is the interface of the PWM servo, including one servo voltage switching interface and four servo interfaces. The jumper cap can be inserted into the servo voltage switching interface to select 5V or 6.8V voltage. If the jumper cap is not inserted, the PWM servo cannot be controlled. The black interface of the servo interface is GND, the red interface is the positive pole of the 5V power supply, and the yellow interface is the signal.



The servo interface must be inserted according to the color, and cannot be inserted backwards.



Rosmaster_Lib library functions that PWM servo gimbal needs to use:

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

Parameter explanation: servo control, servo_id: corresponding ID number: S1 = 1, S2 = 2, S3 = 3, S4 = 4, angle: corresponding to the angle value of the servo

servo_id=[1, 4]，angle=[0, 180]

Return value: None.

```
set_pwm_servo_all ( angle_s1 ,  angle_s2 ,  angle_s3 ,  angle_s4 )
```

Parameter explanation: control the angle of four PWM channels at the same time, angle_sX=[0, 180]

Return value: None.

5.3. Experimental effect

Refer to 4.3.1 and 4.3.2 Checking ROS expansion board and entering Docker container, then run the program. double-click on the jupyter lab interface to enter /root/yahboomcar_ros2_ws/Rosmaster/Sample.

Double-click and select 5.pwm servo.ipynb, and click the button in 4.3.3 to operate the program step by step.

5.4. Program source code

Go to docker, Reference code path: /root/yahboomcar_ros2_ws/Rosmaster/Sample/5.pwm_servo.ipynb