# 4. Buzzer whistle

## 4.1. Experimental goal

Control the buzzer switch on the expansion board, the whistle time is 100ms, 300ms, 1s, etc.

## 4.2. Experiment preparation

The red box in the picture is the buzzer on the expansion board.
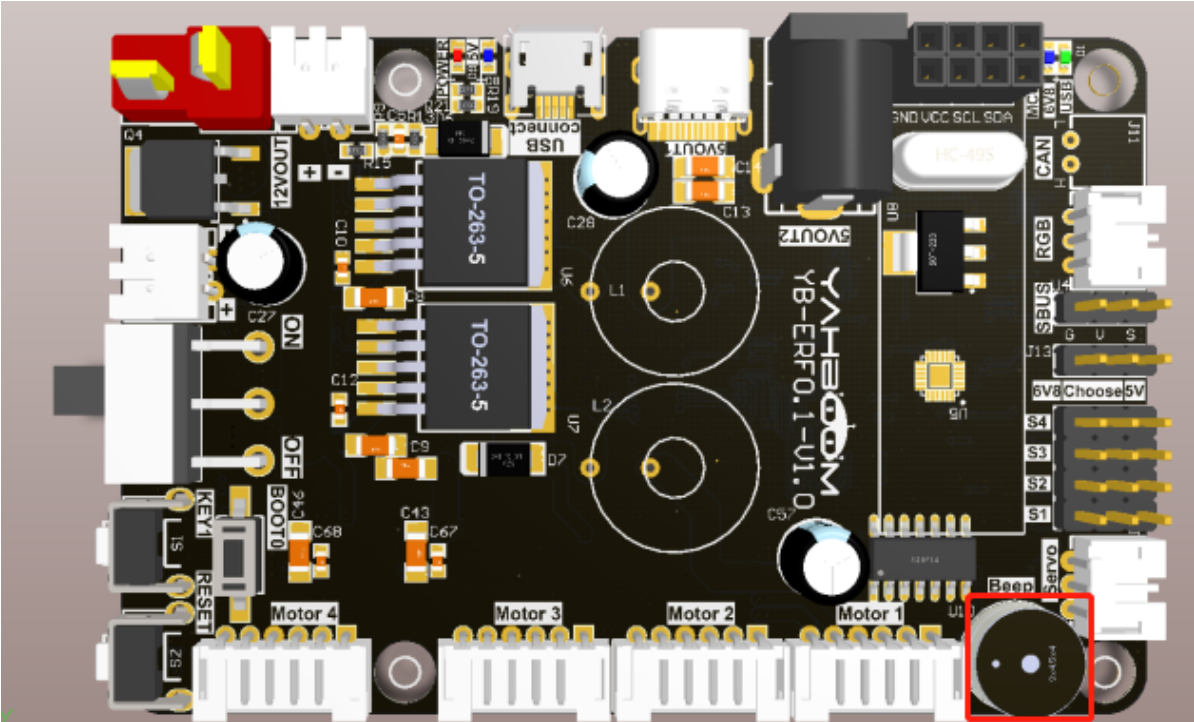


The buzzer on the expansion board is an active buzzer, so it is relatively simple to control, please check the following functions.

Rosmaster_Lib library functions needed to control the buzzer:

```
set_beep ( on_time )
```

Parameter explanation: on_time=0: turn off, on_time=1: keep ringing, on_time>=10: turn off automatically after ringing for xx milliseconds (on_time is a multiple of 10).

Return value: None.

## 4.3. Experimental operation and phenomenon
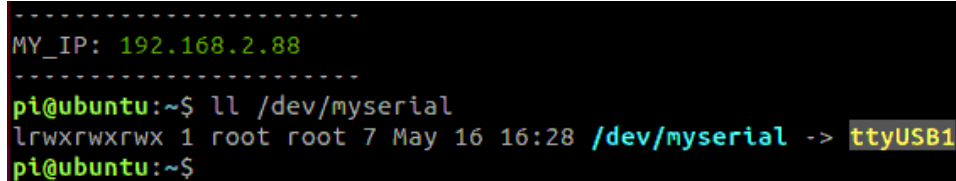
### 4.3.1、Check out ROS expansion board

This operation needs to be started in docker. First, we need to make sure that the system has identified the ROS expansion board and run the terminal

```
ll /dev/myserial
```



The above content indicates that the system has identified the ROS expansion board. The main thing here is that ttyUSB1 is not absolute, it may also be ttyUSB0 or other, as long as it is a ttyUSB device.

### 4.3.2、Enter the Docker container

For more information about Docker, please refer to the [07, Docker] tutorial content, enter the following command on the terminal to run the program in Docker

```
./run_docker.sh
```

Then inside docker terminal, we enter Jupyter lab, terminal input

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

Open it in a windows or ubuntu browser (must be in the same LAN,  192.168.2.88 is the IP address in the docker container)
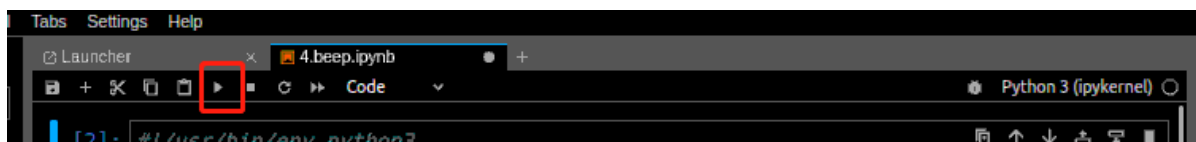
```
Browser input:    http://192.168.2.88:8889/lab
enter password:   yahboom
access:   jupyter lab
```

Notes： that the URL here is modified according to the actual IP printed out by the host terminal
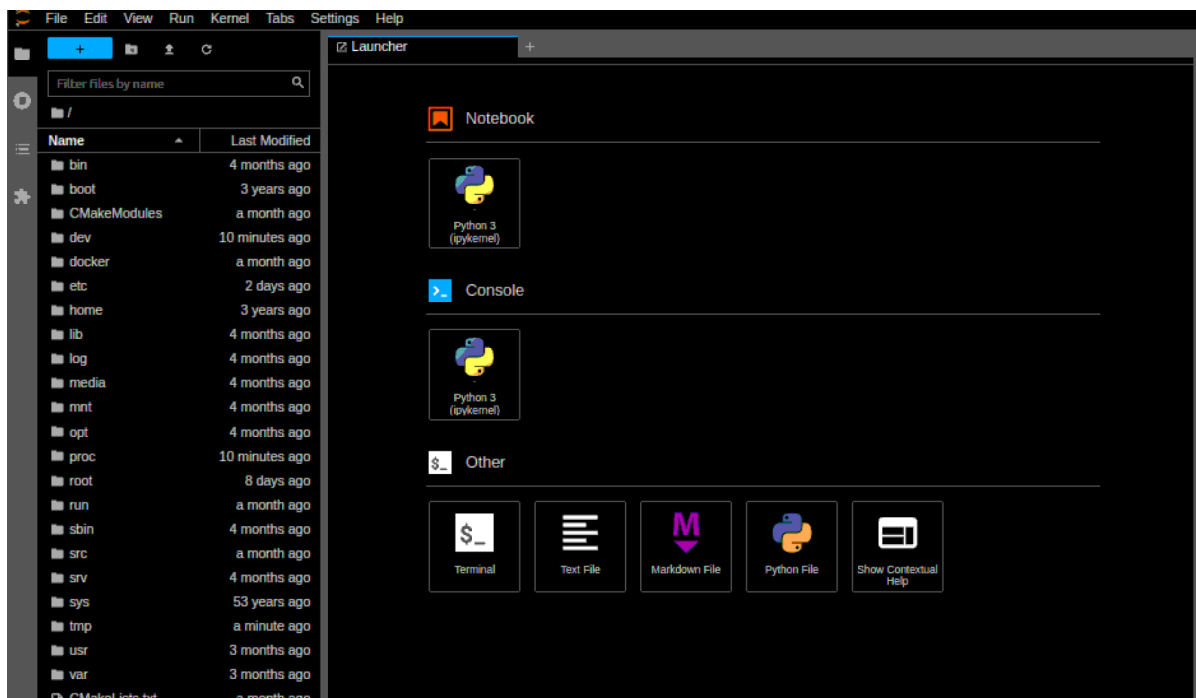
### 4.3.3、run program

In the jupyter lab interface, double-click to enter /root/yahboomcar ros2 ws/Rosmaster/Sample, double-click to run 4.beep.ipynb, and click step by step



run program

## 4.4. Program source code

Go to docker, Reference code path:

/root/yahboomcar_ros2_ws/Rosmaster/Sample/4.beep.ipynb