

4. Buzzer sounding

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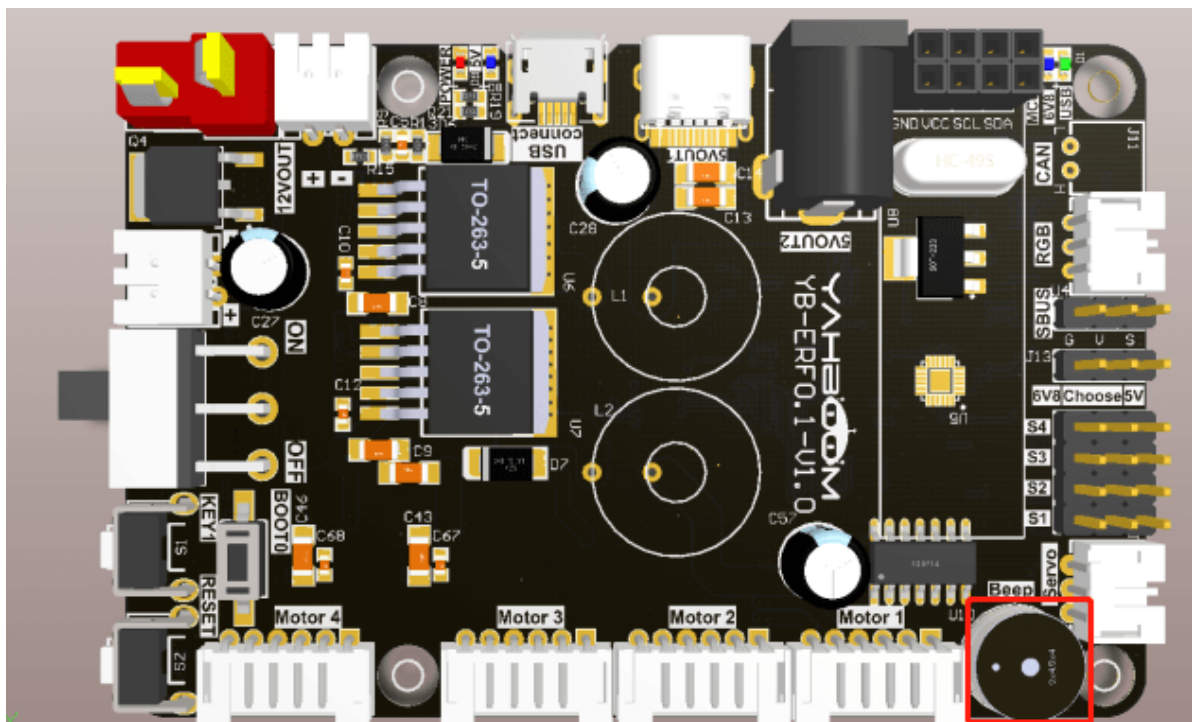
4.4. Program source code

4.1. Experimental Objectives

To control the buzzer switch on the expansion board with a beep time of 100 ms, 300 ms, 1 sec, etc.

4.2. Experiment Preparation

The red box in the picture shows 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: off, on_time=1: ring all the time, on_time>=10: ring for xx milliseconds and then turn off automatically (on_time is a multiple of 10).

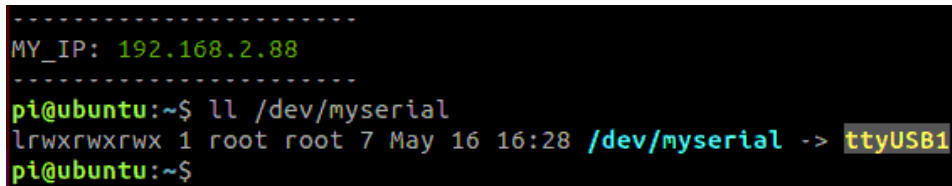
Return value: none.

4.3. Experimental operations and phenomena

4.3.1. Checking ROS expansion boards

The operation needs to enter into the docker to start, first need to make sure that the system has recognized the ROS expansion board, the terminal to run.

```
ll /dev/myserial
```



```
-----  
MY_IP: 192.168.2.88  
-----  
pi@ubuntu:~$ ll /dev/myserial  
lrwxrwxrwx 1 root root 7 May 16 16:28 /dev/myserial -> ttyUSB1  
pi@ubuntu:~$
```

The appearance of the above indicates that the system has recognized the ROS expansion board. The main point to note here is that ttyUSB1 is not absolute, it could be ttyUSB0 or other, as long as it is a ttyUSB device.

4.3.2. Enter the Docker container.

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

```
./run_docker.sh
```

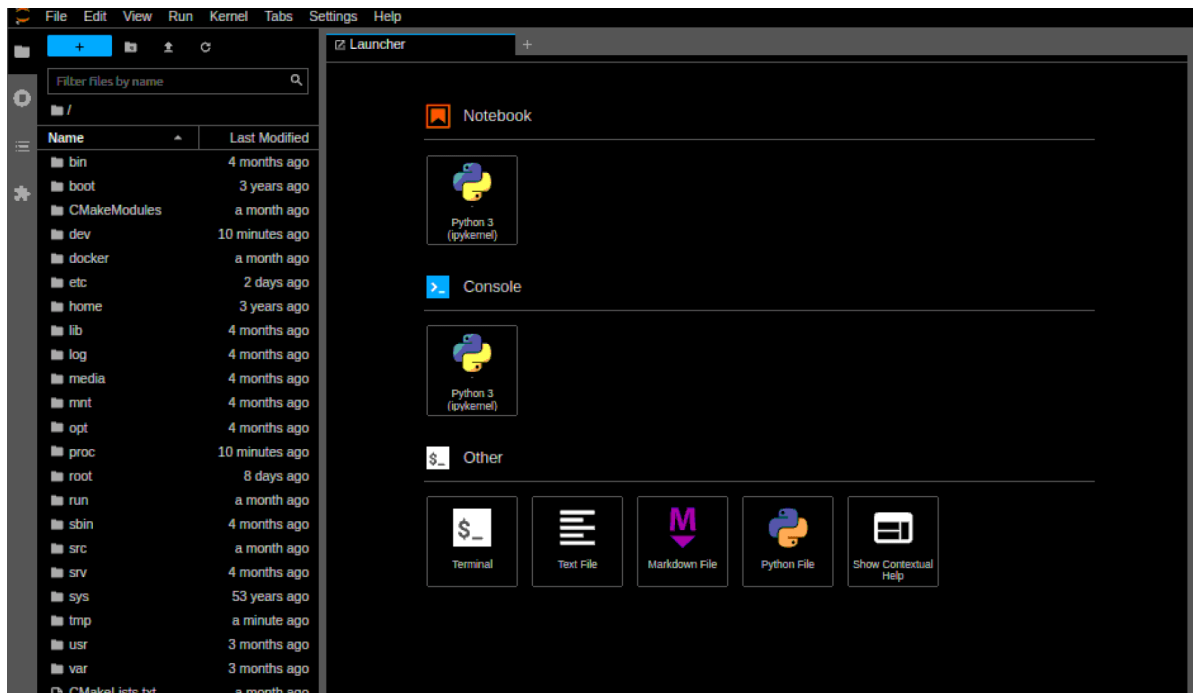
Then in the docker terminal, we go to Jupyter lab, and in the terminal we type.

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

Open it in a windows or ubuntu browser (must be on the same LAN, 192.168.2.88 is the IP address inside the docker container).

```
Browser input.http://192.168.2.88:8889/lab  
Enter the password: yahboom to access jupyter lab
```

Note that the URL here is modified according to the actual host terminal printout IP.



4.3.3. Run the program

In the jupyter lab interface, double-click into `/root/yahboomcar_ros2_ws/Rosmaster/Sample`, double-click to run `4.beep.ipynb`, and step-by-step click on the



Run the program.

4.4. Program source code

Go to docker and refer to the code path:

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