

ROS2 entity robot dog mapping

Quick use

1. Power up the robot dog

Press the power switch on the side of the robot dog and wait for the robot dog to finish starting up. And connect the WiFi of the robot dog to the same LAN environment as your computer.

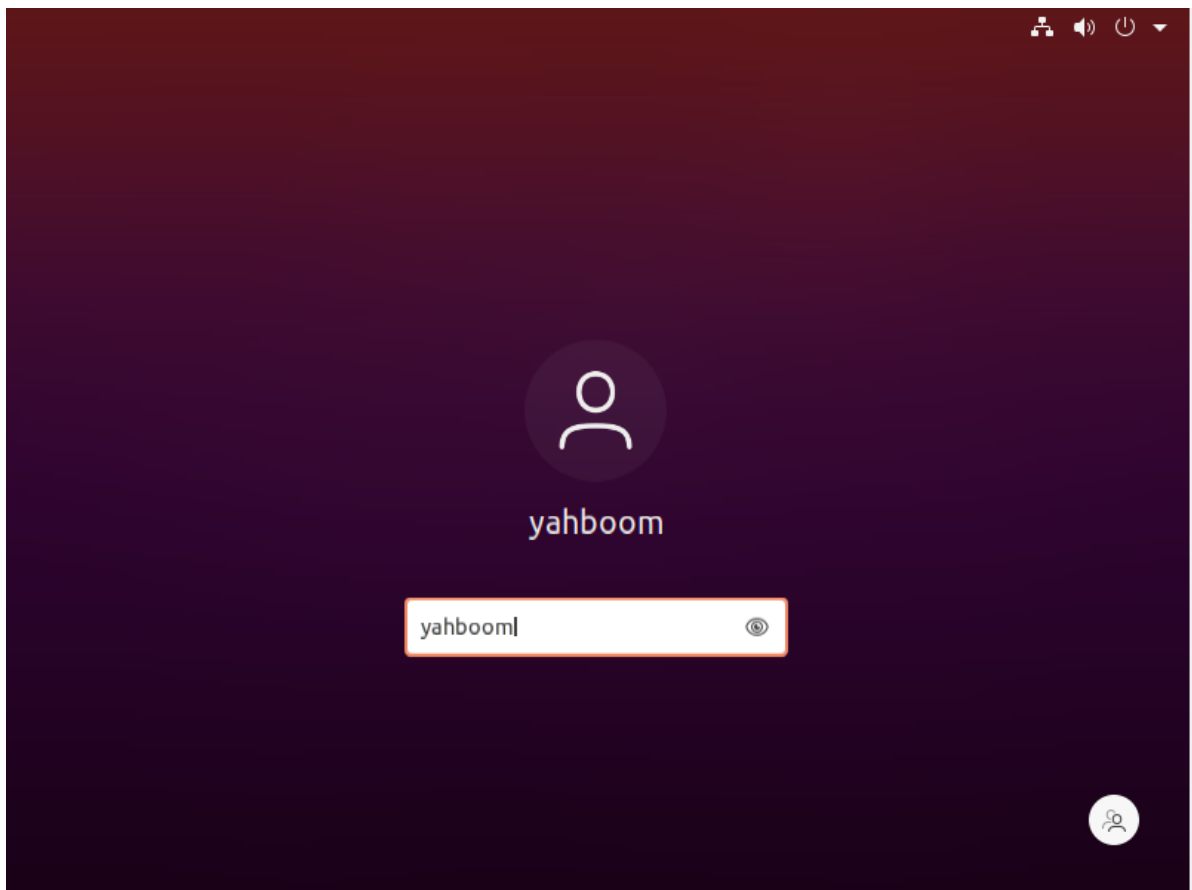


After the robot dog startup is complete, the lidar, imu, and robot dog joint status nodes have been automatically started.

2. Open the virtual machine

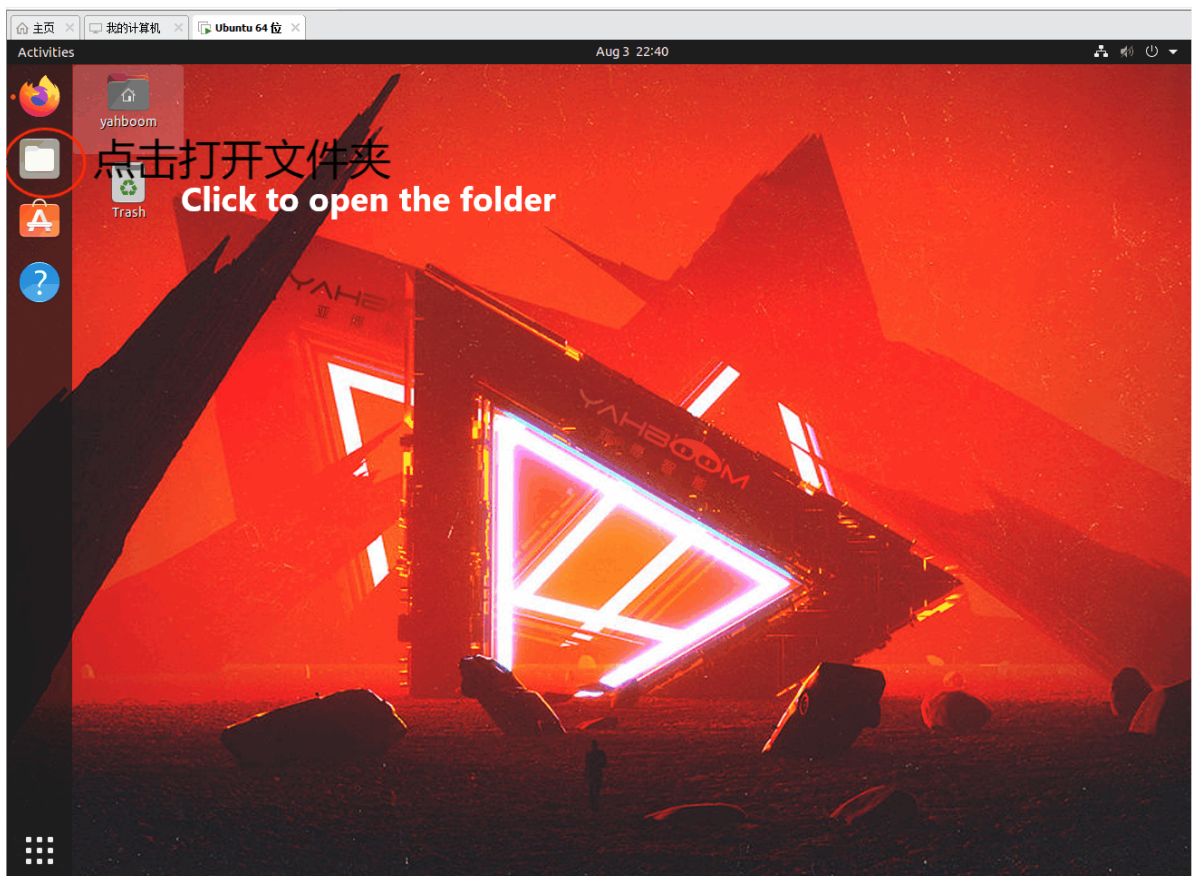
Note: Here the default virtual machine has been installed.

Open the virtual machine, enter the password: yahboom and then press the Enter key to enter the system desktop.

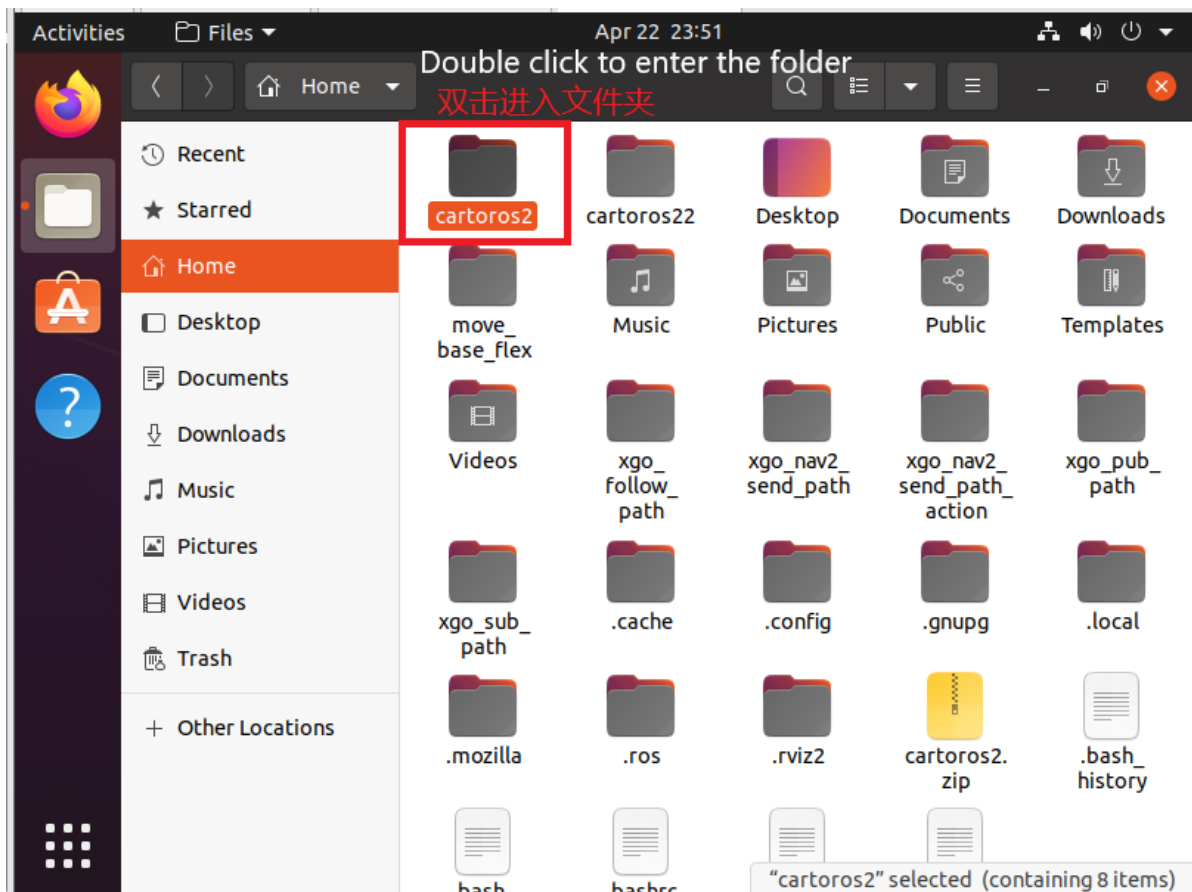


3. Start the Mechanical Dog build node

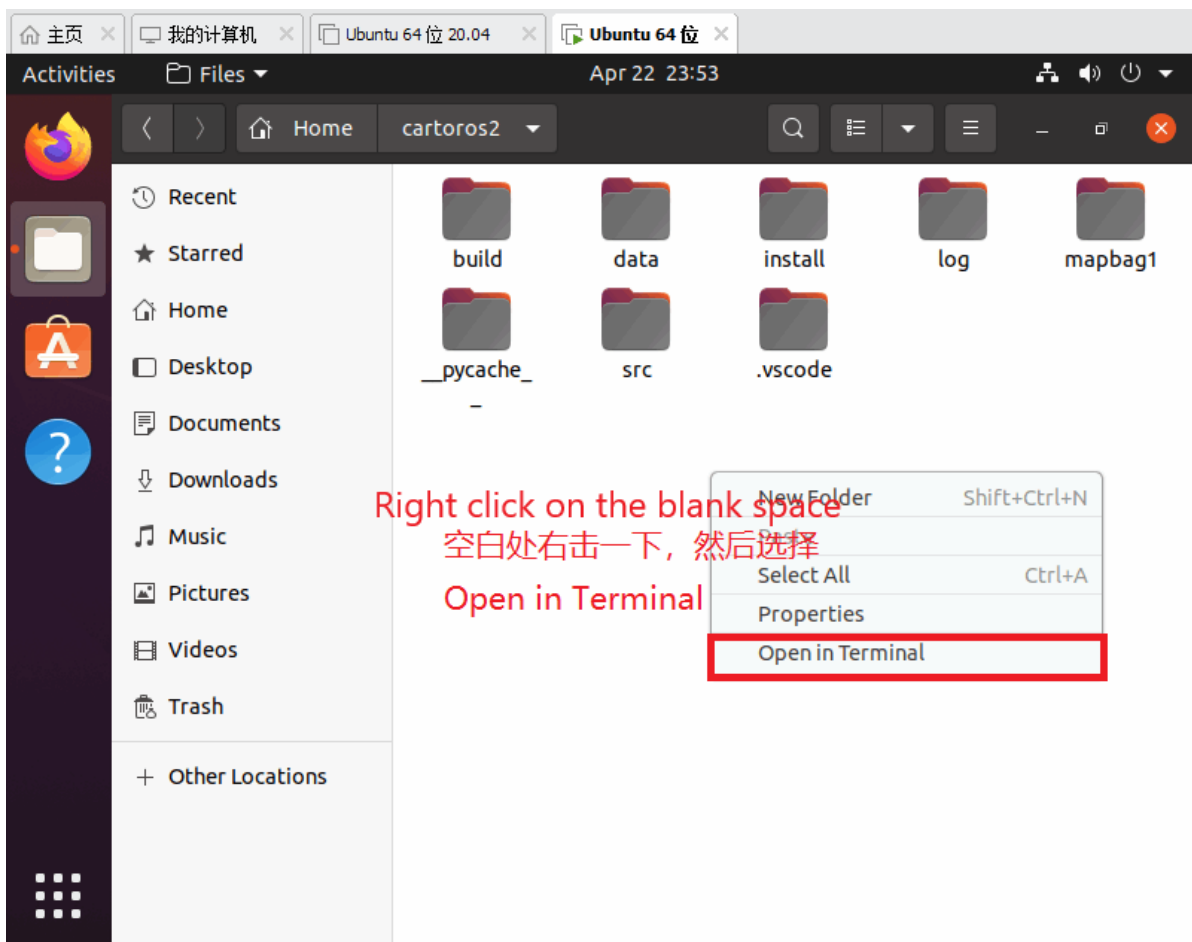
Go to the desktop system and open the folder.



Then double click on the cartoros2 folder



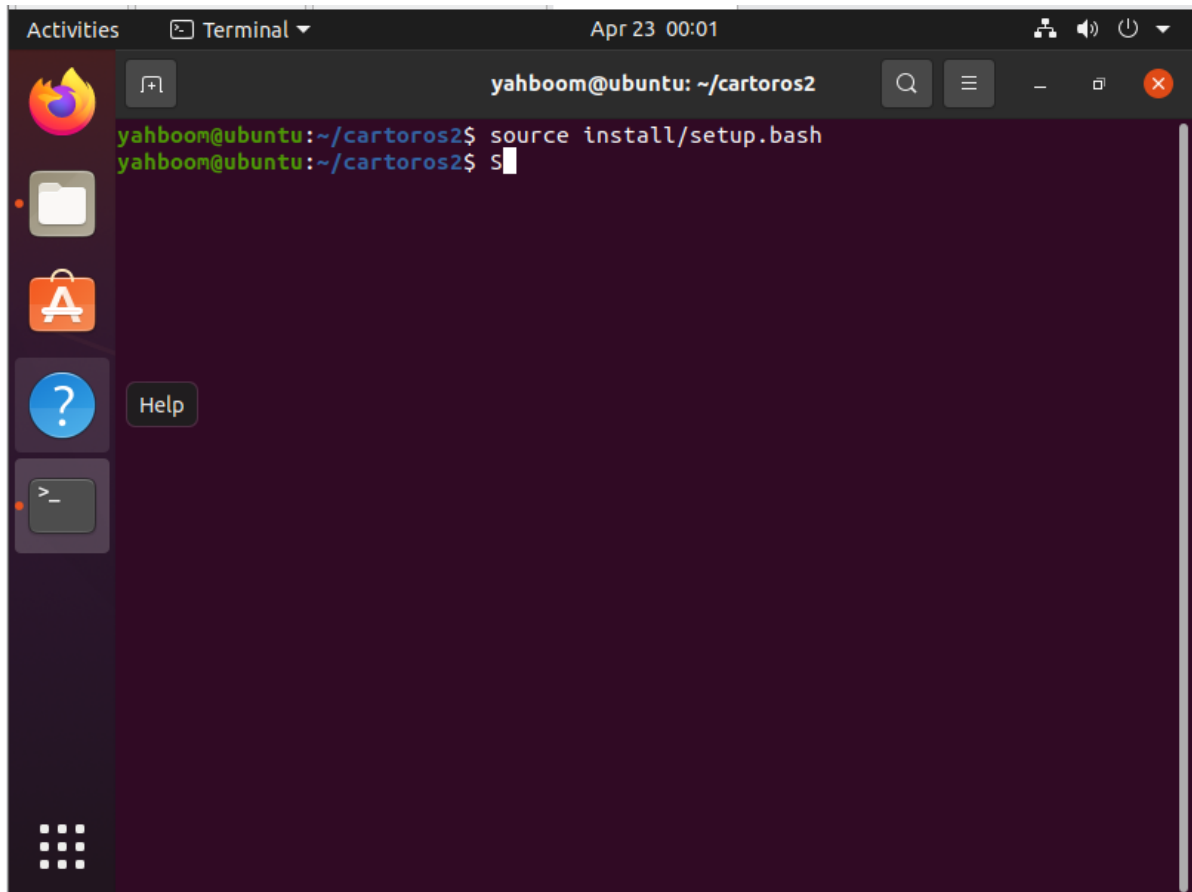
Then right-click in a blank space in the folder and select Open in Terminal



Then activate the environment by typing the following command in the terminal

```
source install/setup.bash
```

Press the Enter key when you have finished typing.

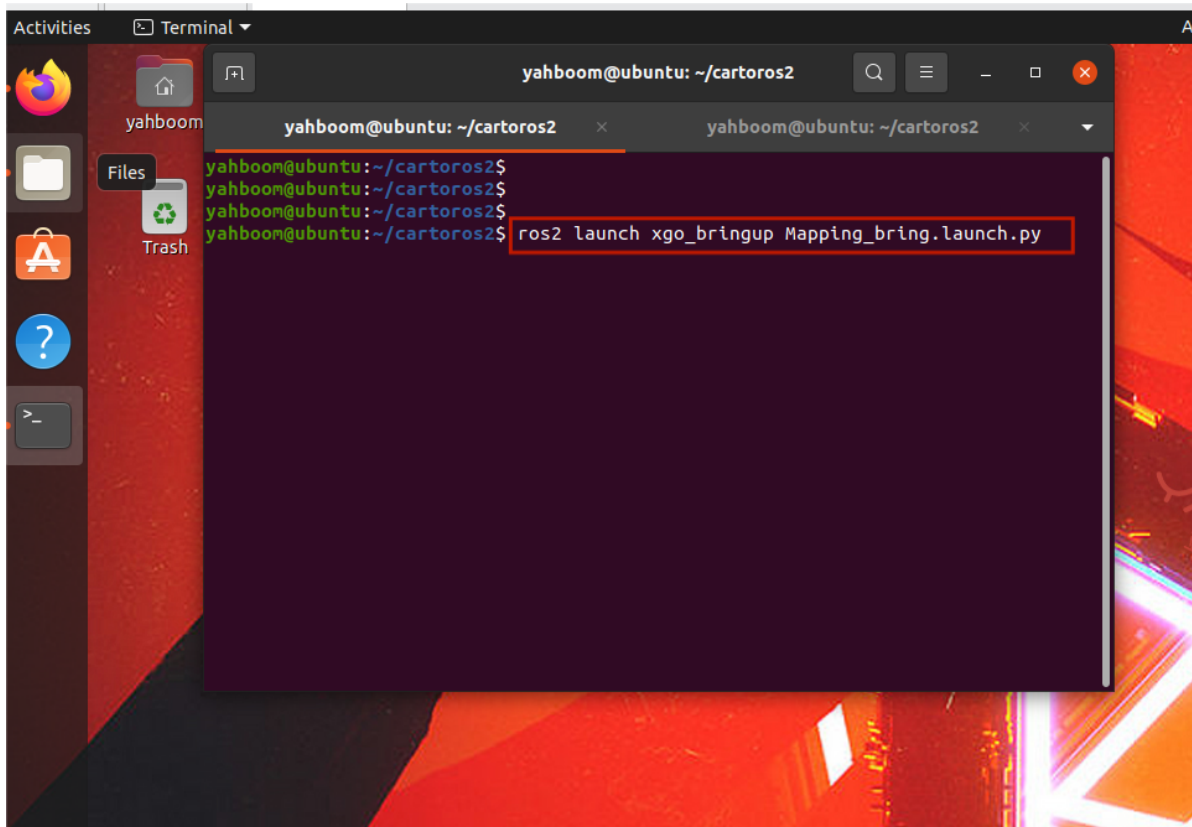


A terminal window titled 'Terminal' with the date 'Apr 23 00:01'. The window shows the user 'yahboom@ubuntu' in the directory '~/cartoros2'. The user has entered the command 'source install/setup.bash' and the prompt has changed to 'yahboom@ubuntu:~/cartoros2\$'. The user has then entered 'S' followed by a space and a cursor, waiting for the next prompt.

```
yahboom@ubuntu:~/cartoros2$ source install/setup.bash
yahboom@ubuntu:~/cartoros2$ S
```

Then enter the command

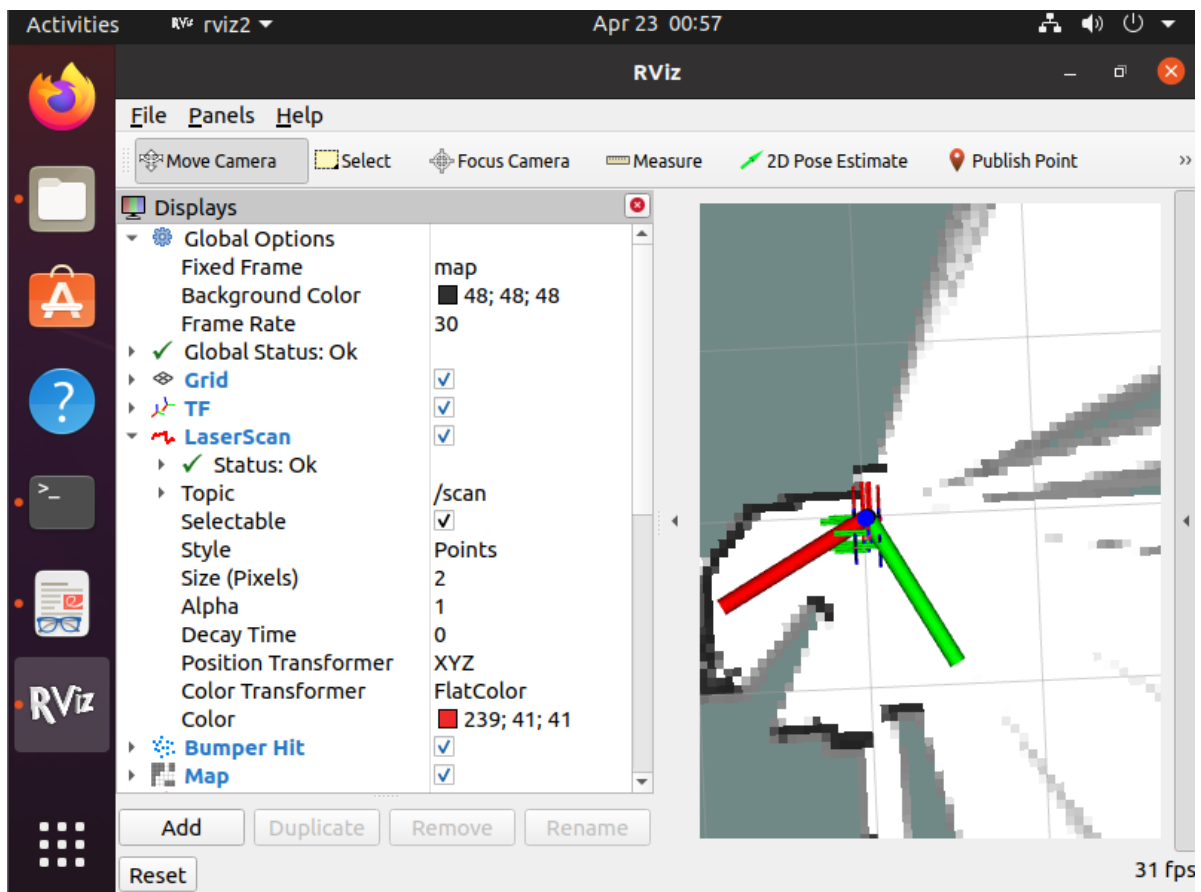
```
ros2 launch yahboom_bringup Mapping_bring.launch.py
```



A terminal window titled 'Terminal' with the date 'Apr 23 00:01'. The window shows the user 'yahboom@ubuntu' in the directory '~/cartoros2'. The user has entered the command 'ros2 launch yahboom_bringup Mapping_bring.launch.py' and the prompt has changed to 'yahboom@ubuntu:~/cartoros2\$'. The user has then entered 'ros2 launch xgo_bringup Mapping_bring.launch.py' and the prompt has changed to 'yahboom@ubuntu:~/cartoros2\$'.

```
yahboom@ubuntu:~/cartoros2$ ros2 launch yahboom_bringup Mapping_bring.launch.py
yahboom@ubuntu:~/cartoros2$
yahboom@ubuntu:~/cartoros2$
yahboom@ubuntu:~/cartoros2$ ros2 launch xgo_bringup Mapping_bring.launch.py
yahboom@ubuntu:~/cartoros2$
```

Then press enter you can and you can build the diagram.

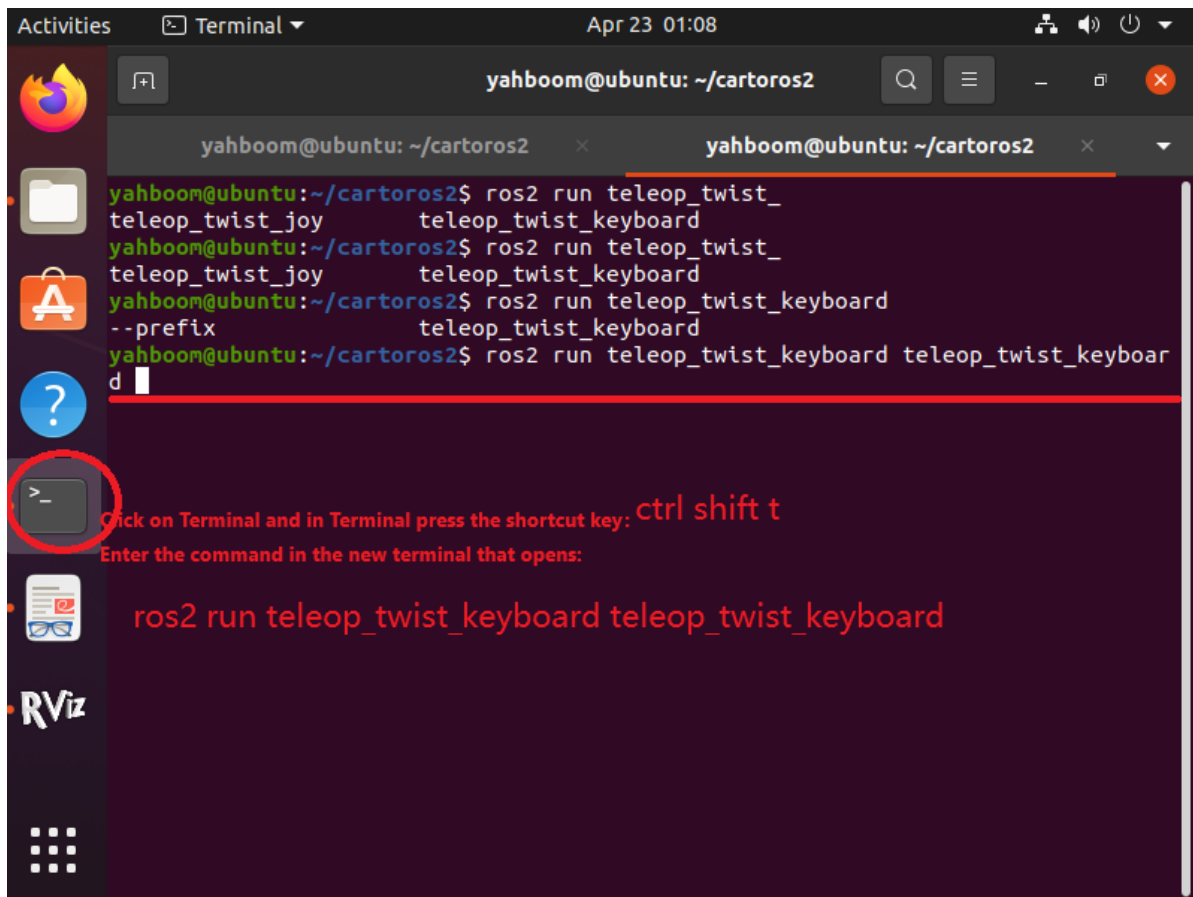


4. Control the robot dog to walk and build a diagram

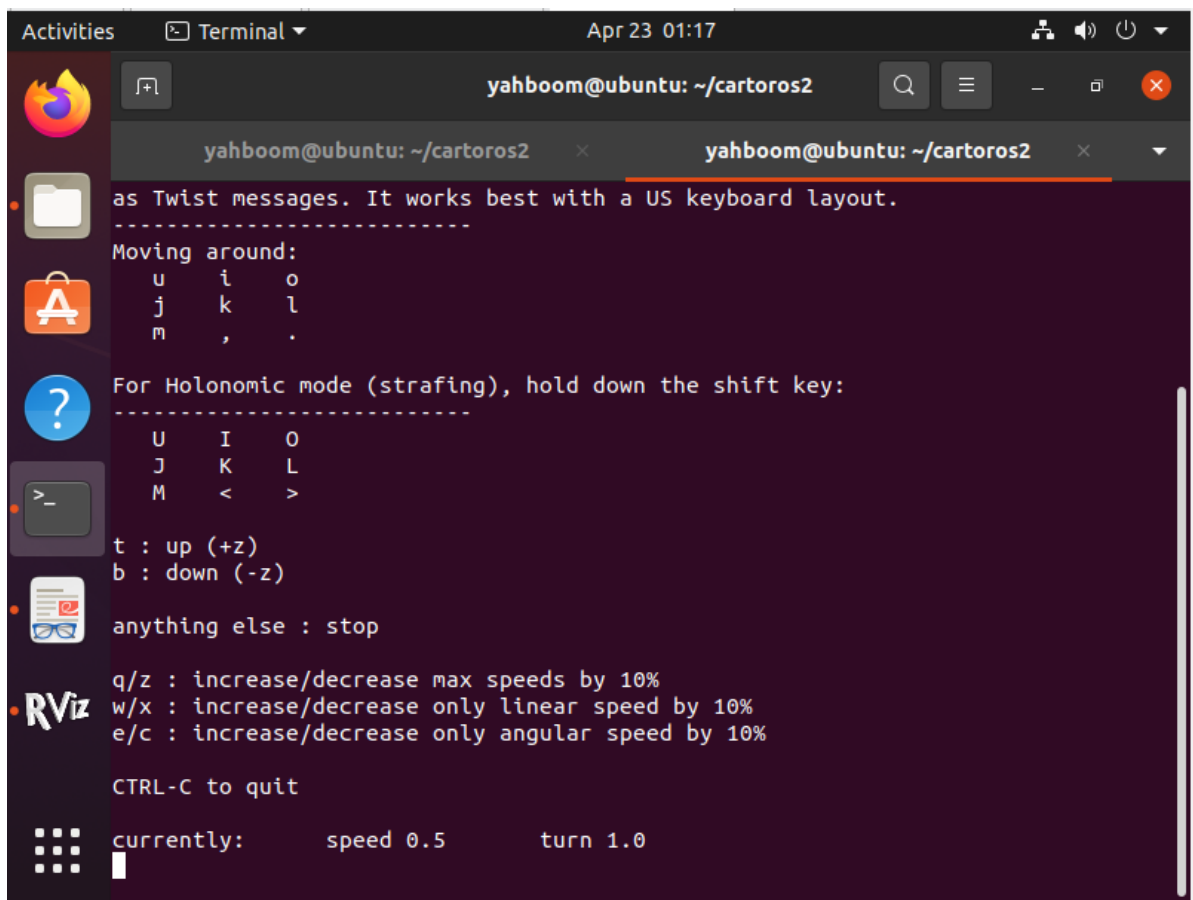
Click on the terminal and press the shortcut key: ctrl + shift + t

Enter the command in the terminal:

```
ros2 run teleop_twist_keyboard teleop_twist_keyboard
```

Pressing the Enter key will allow you to control the robot dog movement by pressing the keyboard keys in the terminal. Where I is forward, K is pause and < is backward.



5. Save the map

Once the map has been scanned, we reopen a terminal window by pressing the shortcut Ctrl shift t in the terminal and enter the following command

Activate the environment by typing the following command

```
source install/setup.bash
```

Then stop building the diagram by entering the following command.

```
ros2 service call /finish_trajectory cartographer_ros_msgs/srv/FinishTrajectory "{trajectory_id: 0}"
```

Then save the pbstream file by entering the following command again

```
ros2 service call /write_state cartographer_ros_msgs/srv/WriteState "{filename: '/home/yahboom/cartoros2/data/maps/mymap.pbstream'}"
```

The path to the parameter filename is the path where the pbstream file of the map is saved.

Finally, enter the following command to convert the pbstream file to a pgm file.

```
ros2 run cartographer_ros pbstream_to_ros_map_node -  
map_filestem=/home/yahboom/cartoros2/data/maps/mymap -  
pbstream_filename=/home/yahboom/cartoros2/data/maps/mymap.pbstream -  
resolution=0.05
```

