6. Colour tracking

Quick use

1. DOGZILLA POWER UP

First of all, we switch on the switch power of the robot dog and start the robot dog


按下开关
Press the switch.

After startup, we can view the IP address on the robot dog's small screen.

2. Open shell to connect to DOGZILLA

Then use the ssh terminal to connect to robot dog.

Note: At the time of writing this tutorial, the IP address used is 192.168.2.102 and the username is pi and the password is yahboom, so the actual IP address will prevail.
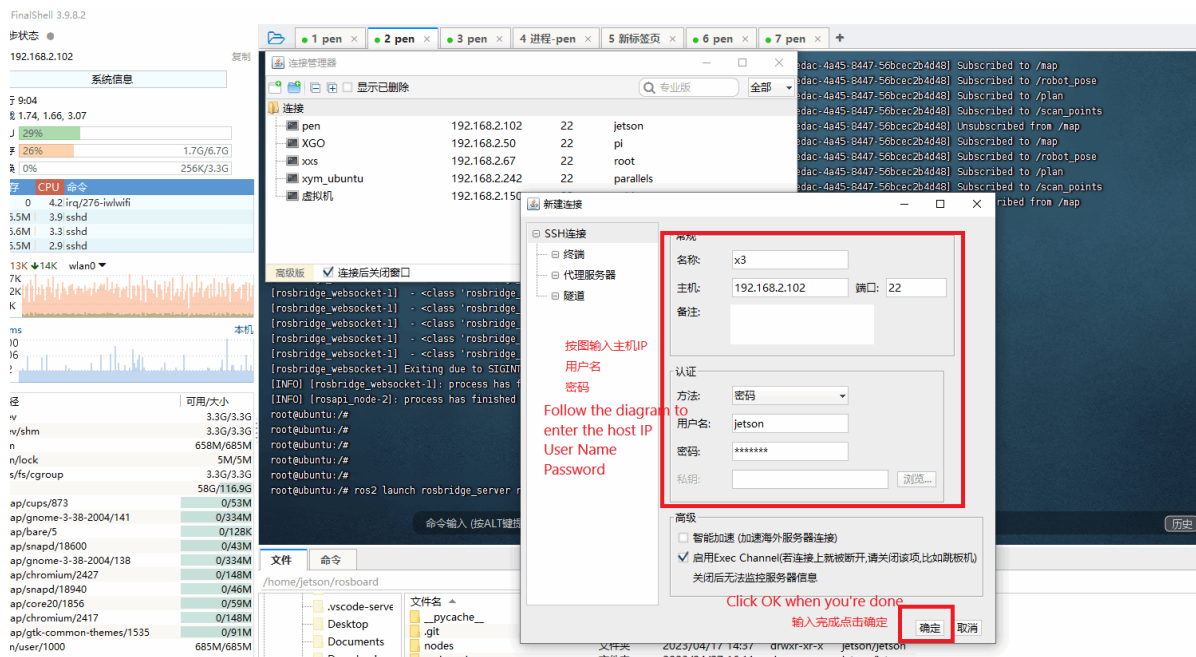
Open the shell utility, here I use FinalShell, enter the username, password, port, connection name and other information.
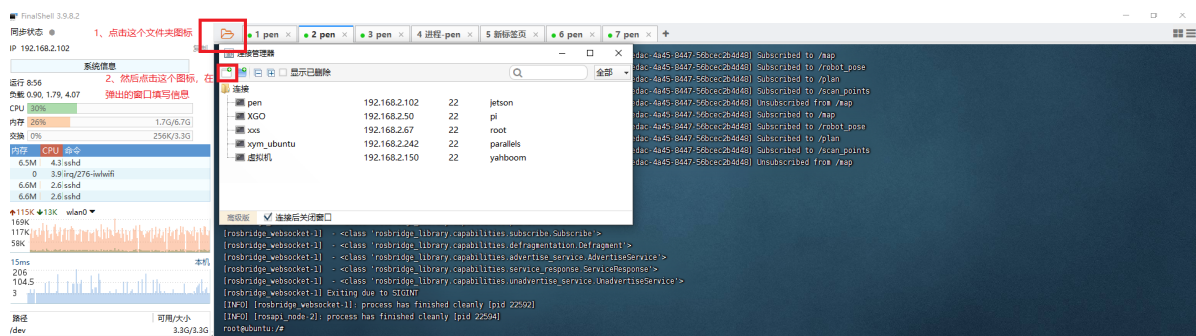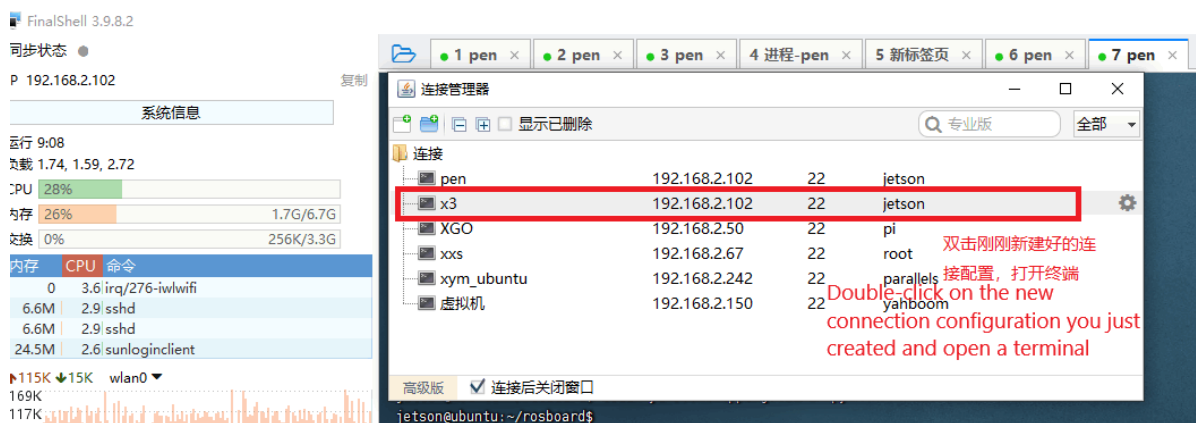
Select ssh connection to create a new ssh connection
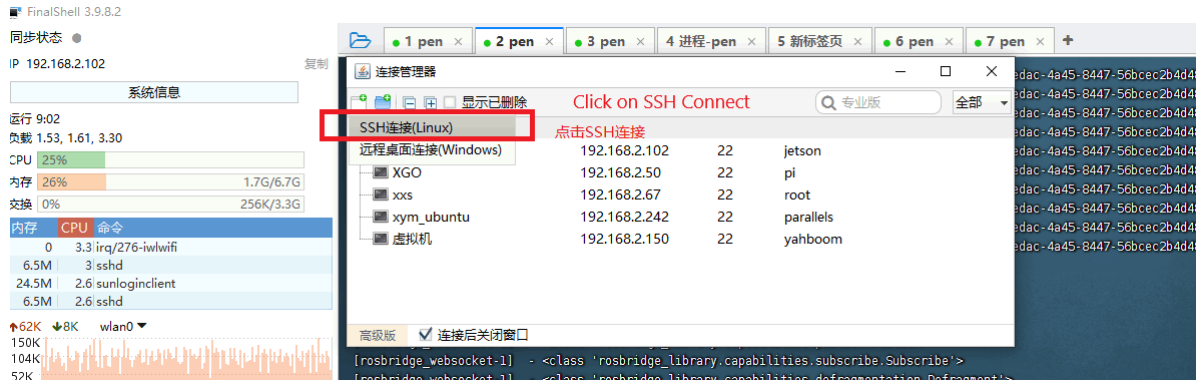
Here username fill in pi, password fill in yahboom, ip address fill in the real robot dog's IP address.

Here select the new ssh connection you just created.

3. Starting the DOGZILLA chassis

Start the chassis task by entering the command in the terminal.

```
sudo systemctl restart XgoStart.service
```

```
pi@yahboom:~$
pi@yahboom:~$
pi@yahboom:~$
pi@yahboom:~$
pi@yahboom:~$ sudo systemctl restart XgoStart.service
```

4. Start the image publishing node

Enter the following command in the terminal

```
cd cartographer_ws2/
```
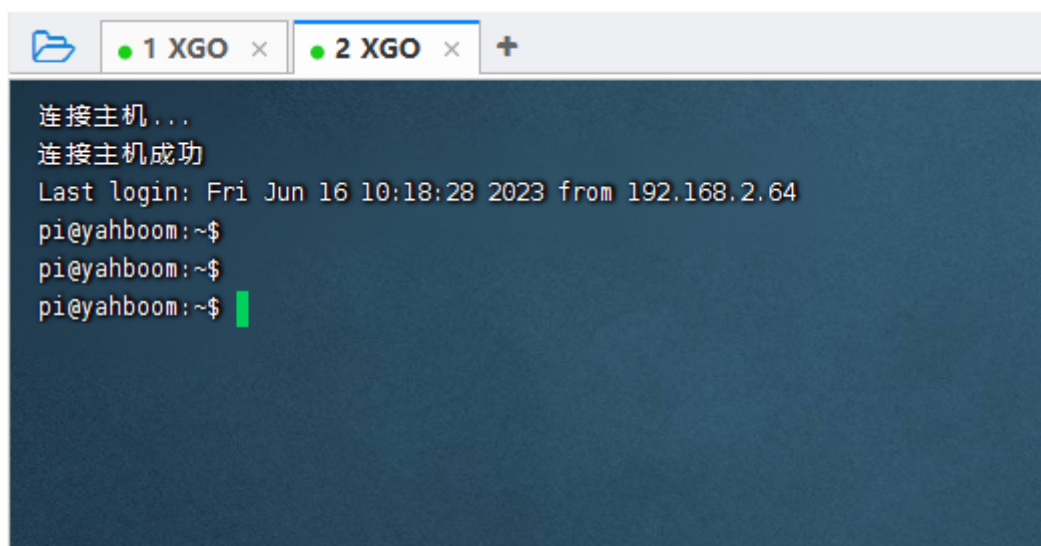
```
source install/setup.bash
```

```
pi@yahboom:~$ cd cartographer_ws2/
pi@yahboom:~/cartographer_ws2$
pi@yahboom:~/cartographer_ws2$
pi@yahboom:~/cartographer_ws2$ source install/setup.bash
pi@yahboom:~/cartographer_ws2$
```

Then enter the following command

```
ros2 run yahboom_image_publisher_c yahboom_image_publish_c
```

```
pi@yahboom:~/cartographer_ws2$ source install/setup.bash
pi@yahboom:~/cartographer_ws2$
pi@yahboom:~/cartographer_ws2$
pi@yahboom:~/cartographer_ws2$
pi@yahboom:~/cartographer_ws2$ ros2 run xgo_image_publisher_c xgo_image_publish_c
[ WARN:0] global ../modules/videoio/src/cap_gstreamer.cpp (1758) handleMessage OpenCV | GStreamer warning: Embedded video playback halted; mod
[ WARN:0] global ../modules/videoio/src/cap_gstreamer.cpp (888) open OpenCV | GStreamer warning: unable to start pipeline
[ WARN:0] global ../modules/videoio/src/cap_gstreamer.cpp (480) isPipelinePlaying OpenCV | GStreamer warning: GStreamer: pipeline have not bee
```

Restart a terminal that starts the same way as item 2.

```
● 1 XGO ×    ● 2 XGO ×    +

连接主机...
连接主机成功
Last login: Fri Jun 16 10:18:28 2023 from 192.168.2.64
pi@yahboom:~$
pi@yahboom:~$
pi@yahboom:~$
```

Enter the following command in a new terminal

```
cd cartographer_ws2/
```

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

```
ros2 run yahboom_color_tracking yahboom_color_tracking
```

```
pi@yahboom:~$
pi@yahboom:~$ cd cartographer_ws2/
pi@yahboom:~/cartographer_ws2$ source install/setup.bash
pi@yahboom:~/cartographer_ws2$ ros2 run xgo_color_tracking xgo_color_tracking
ddddddddddddddddddddl
```
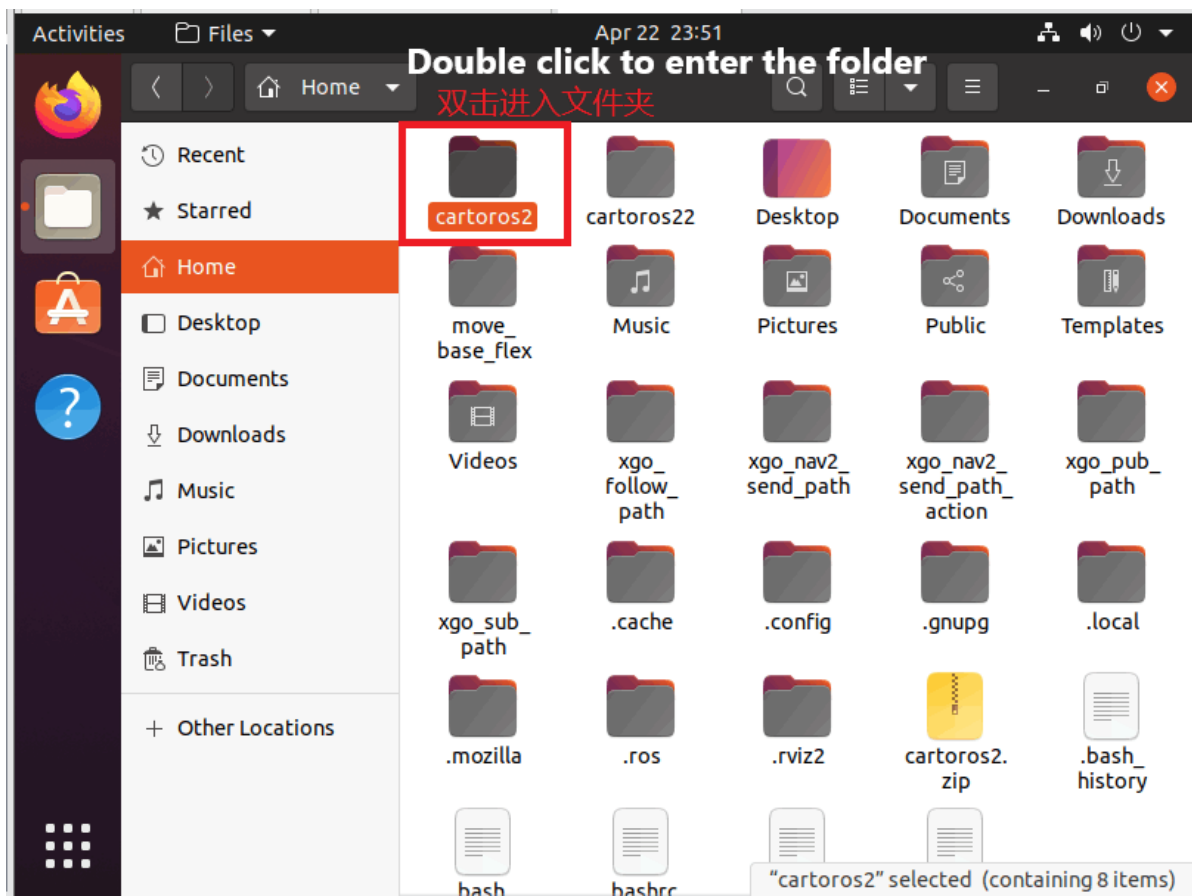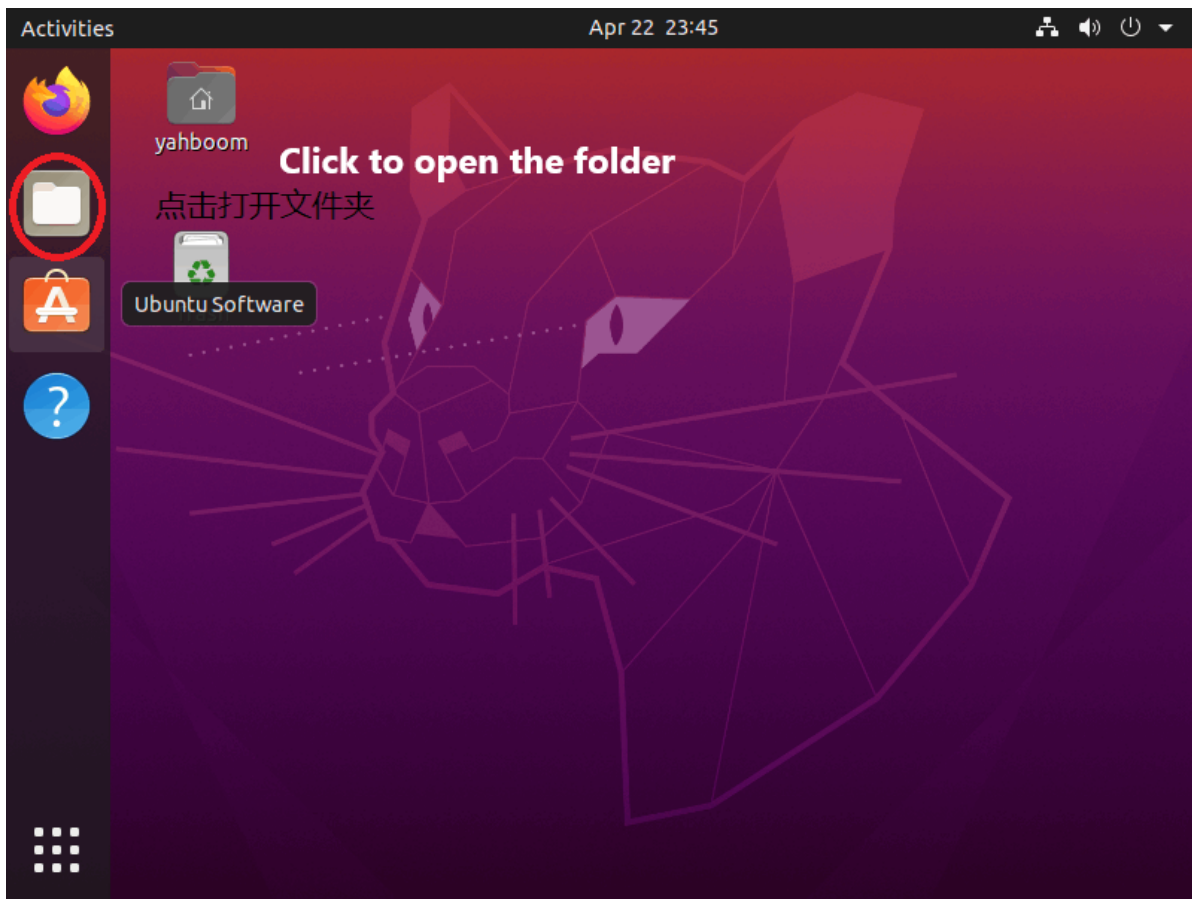
5. Setting the recognition colours through the web interface

Open the virtual machine and enter the username yahboom, password yahboom.
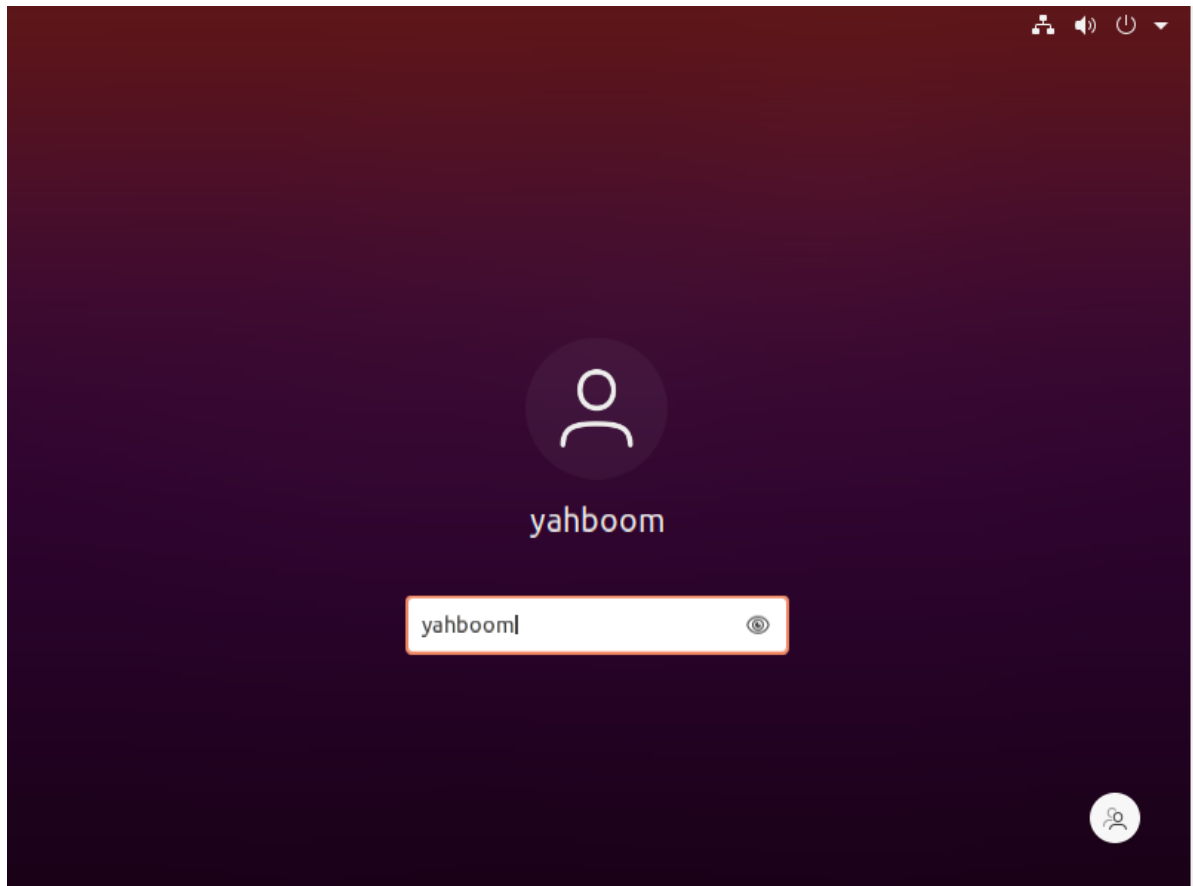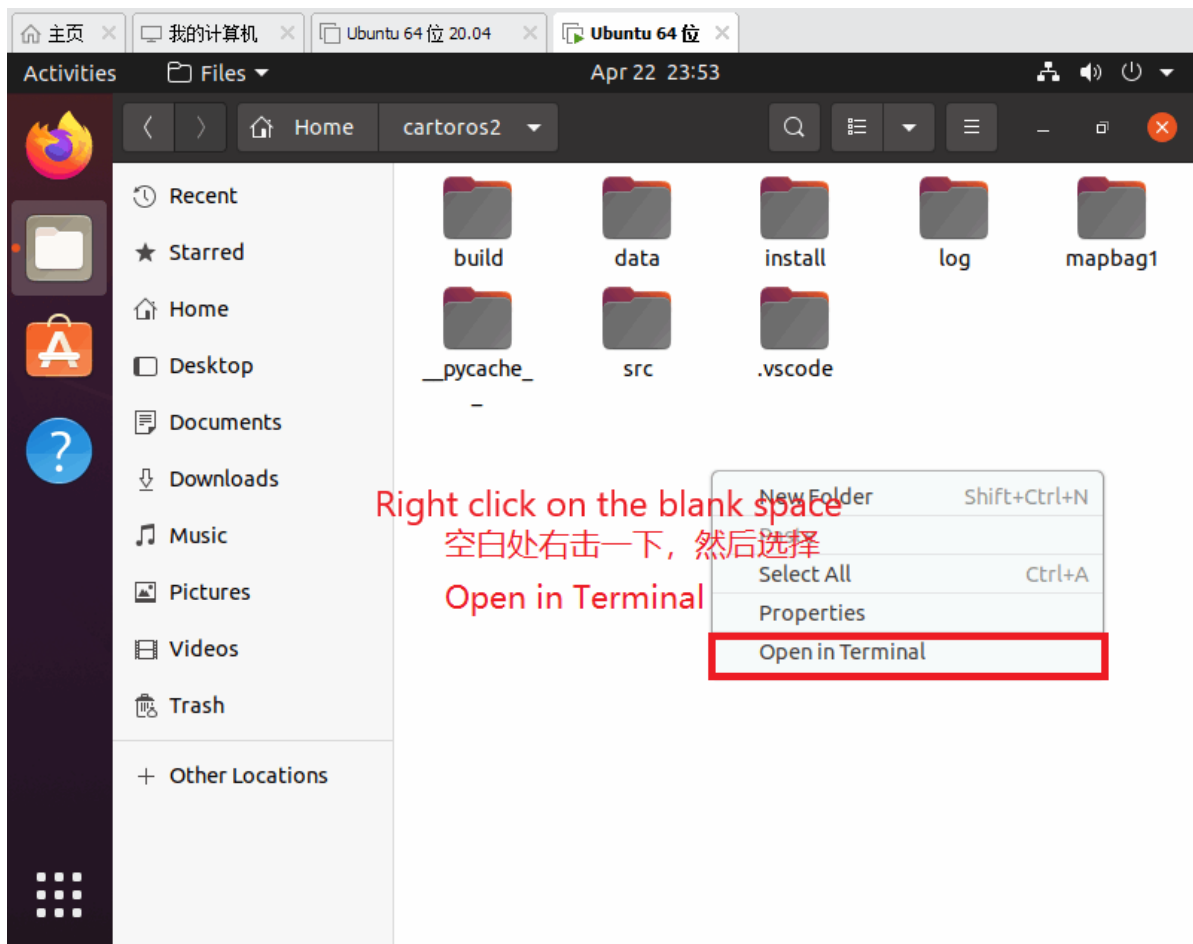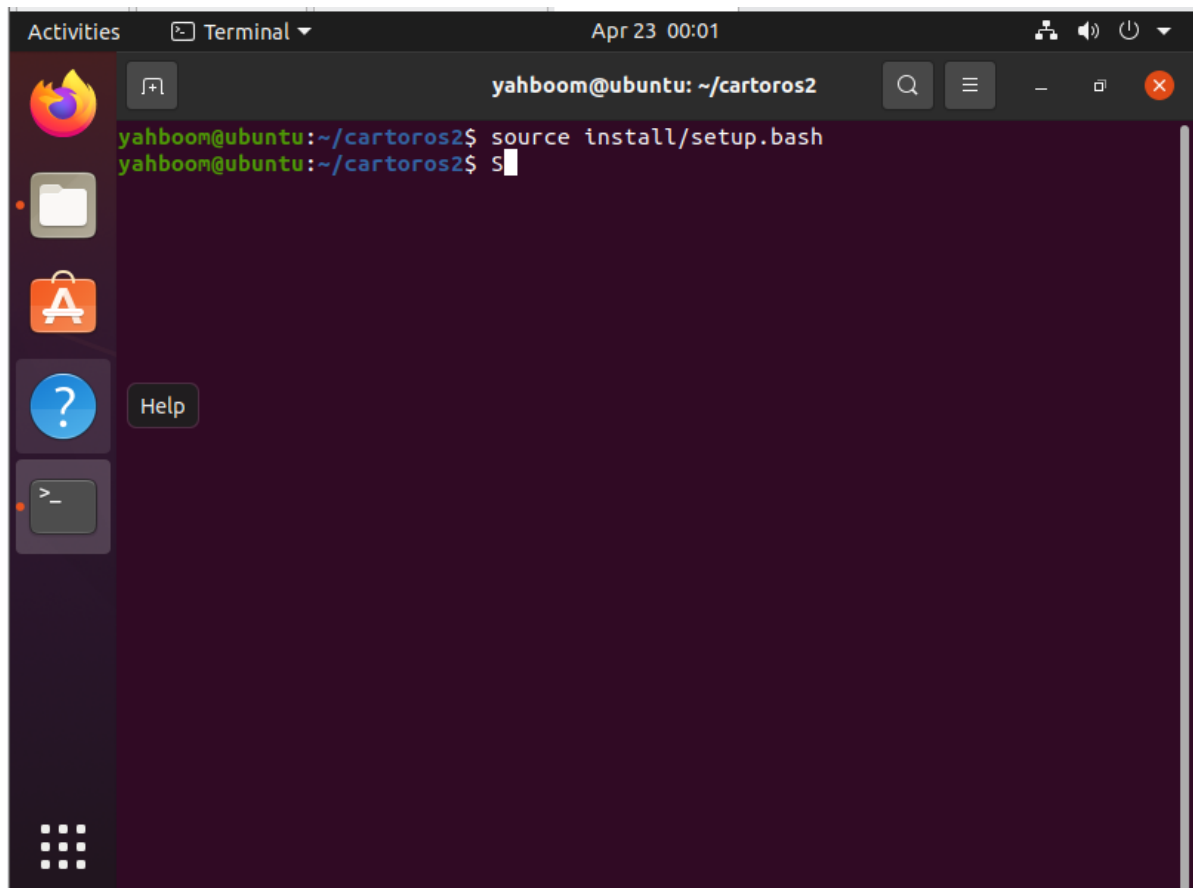

Click on the folder to open the cartoros2 folder.

Open a terminal under the folder
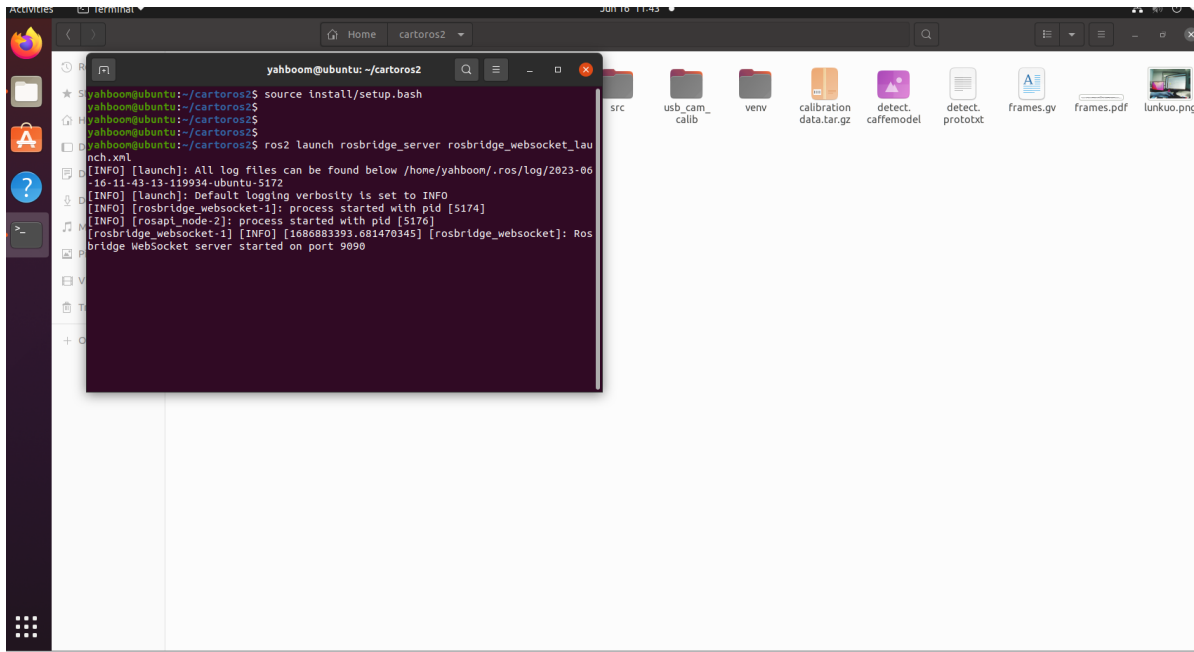
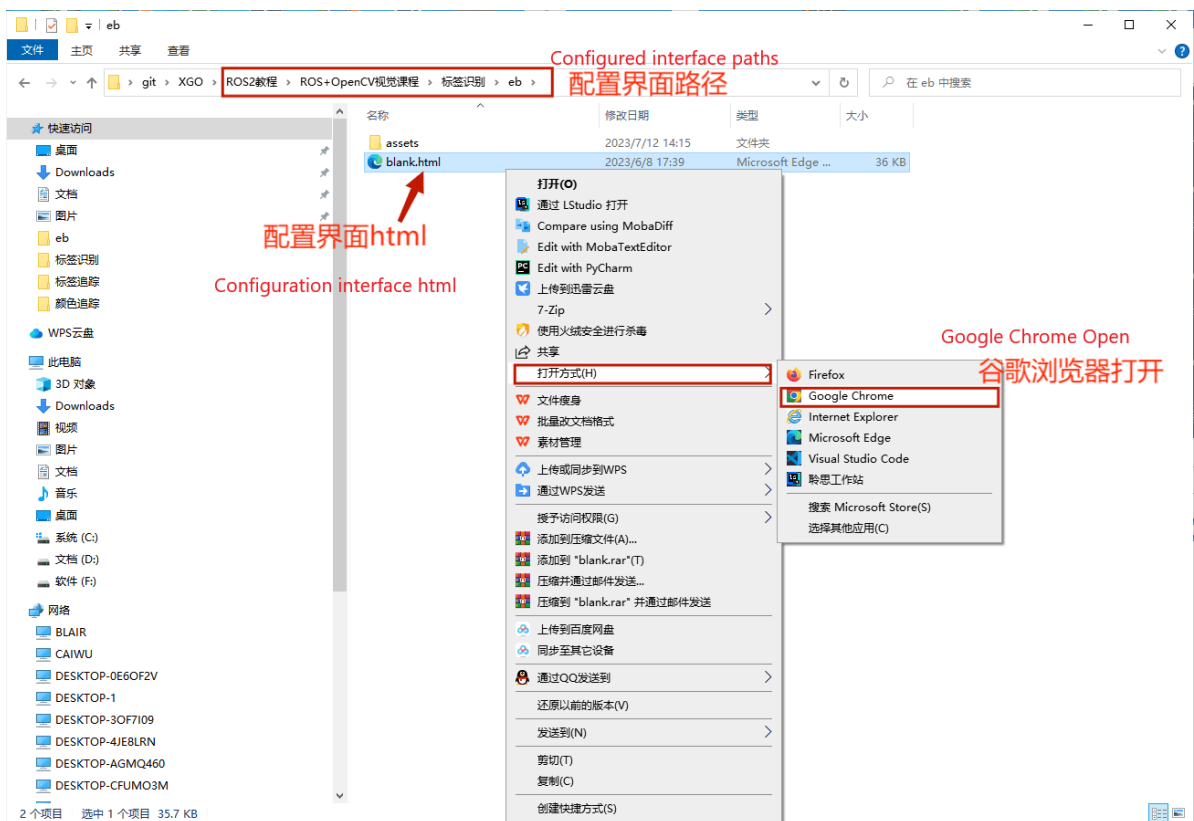Then enter the following command

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


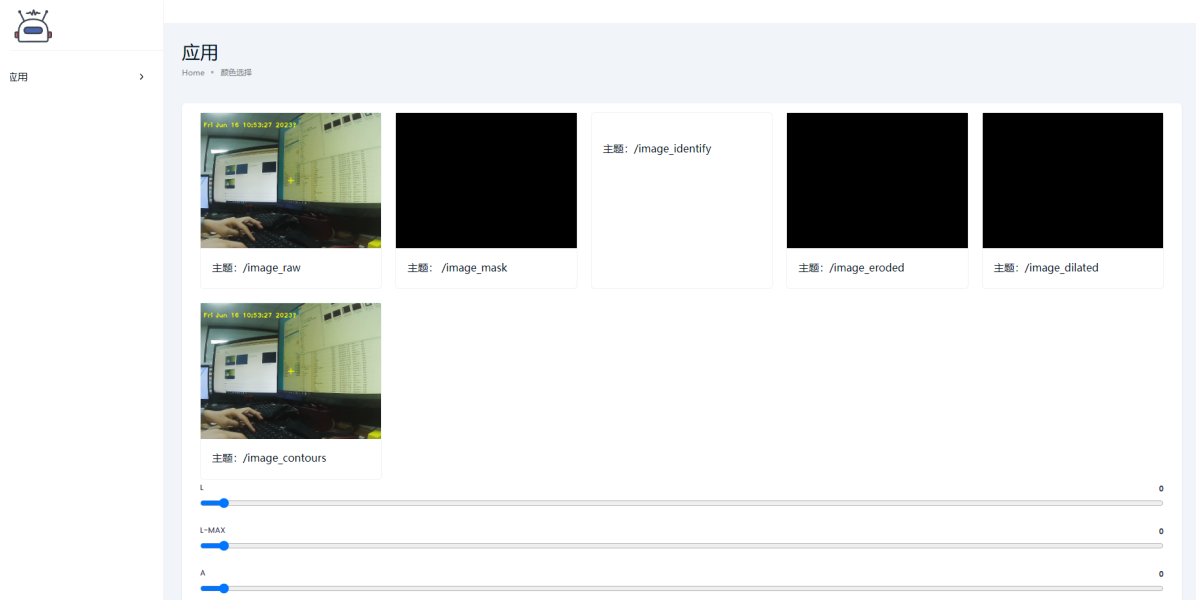Then start rosbridge and enter the following command

```
ros2 launch rosbridge_server rosbridge_websocket_launch.xml
```


Find the blank.html file in the eb folder in the more directory of the tutorial and open it with Google Chrome.

As shown in the figure below, you can see the pictures transferred by the camera.

We then set the LAB value of the colour via the slider bar.

```
yellow: {"l":96, "a": 55, "b":188, "l_max": 252 , "a_max": 141, "b_max": 255}
```

```
red: {"l":0, "a": 155, "b":21, "l_max": 255 , "a_max": 255, "b_max": 255}
```
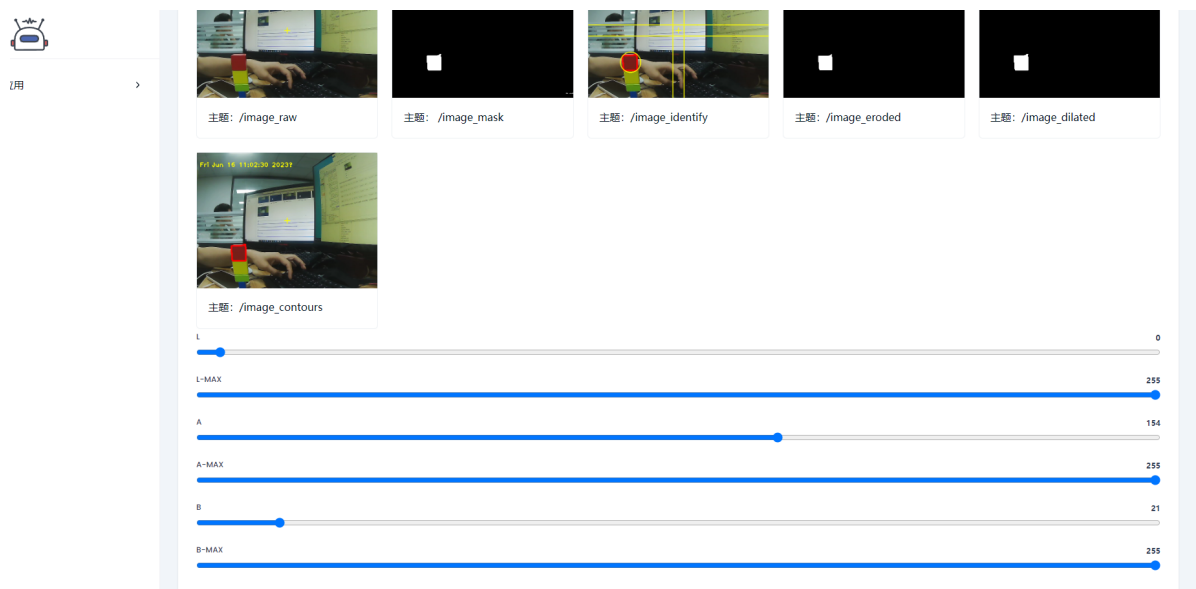
```
green: {"l":26, "a": 7, "b":170, "l_max": 143 , "a_max": 110, "b_max": 255}
```
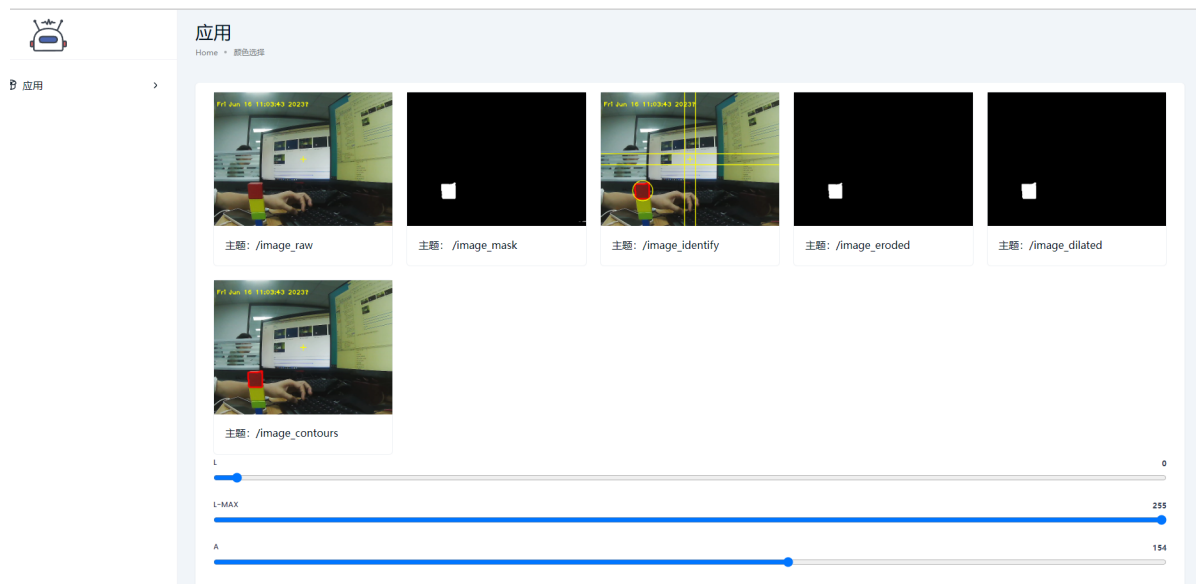
```
blue: {"l":0, "a": 0, "b":0, "l_max": 255 , "a_max": 255, "b_max": 102}
```

Above are the LAB values for several colours, we can choose one to set. For example, let's set the colour red, as shown below, and move the slider bar.

In the figure we can see that the red square is recognised.

应用
Home · 颜色选择

主题：/image_raw   主题：/image_mask   主题：/image_identify   主题：/image_eroded   主题：/image_dilated

主题：/image_contours

L   0
L-MAX   255
A   154

The robot dog will then adjust its stance so that the red block is near the centre of the screen.

应用
Home · 颜色选择

主题：/image_raw   主题：/image_mask   主题：/image_identify   主题：/image_eroded   主题：/image_dilated

主题：/image_contours

L   0
L-MAX   255
A   154
A-MAX   255