

## 9. APP navigation

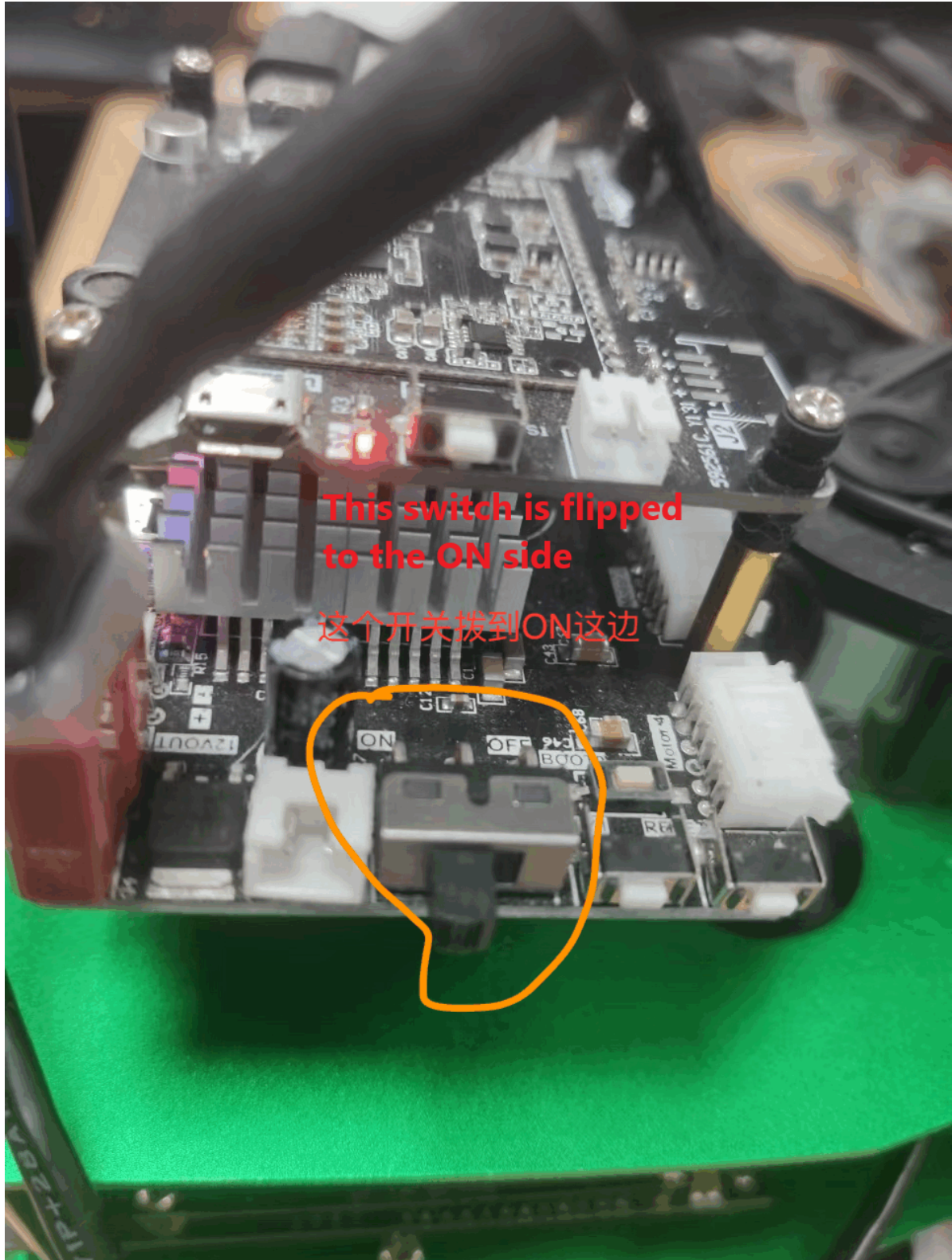
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### Quick access

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#### 1. Rosmaster\_R2 Power Up

Power up the R2 with the switch shown below flipped to the ON direction.

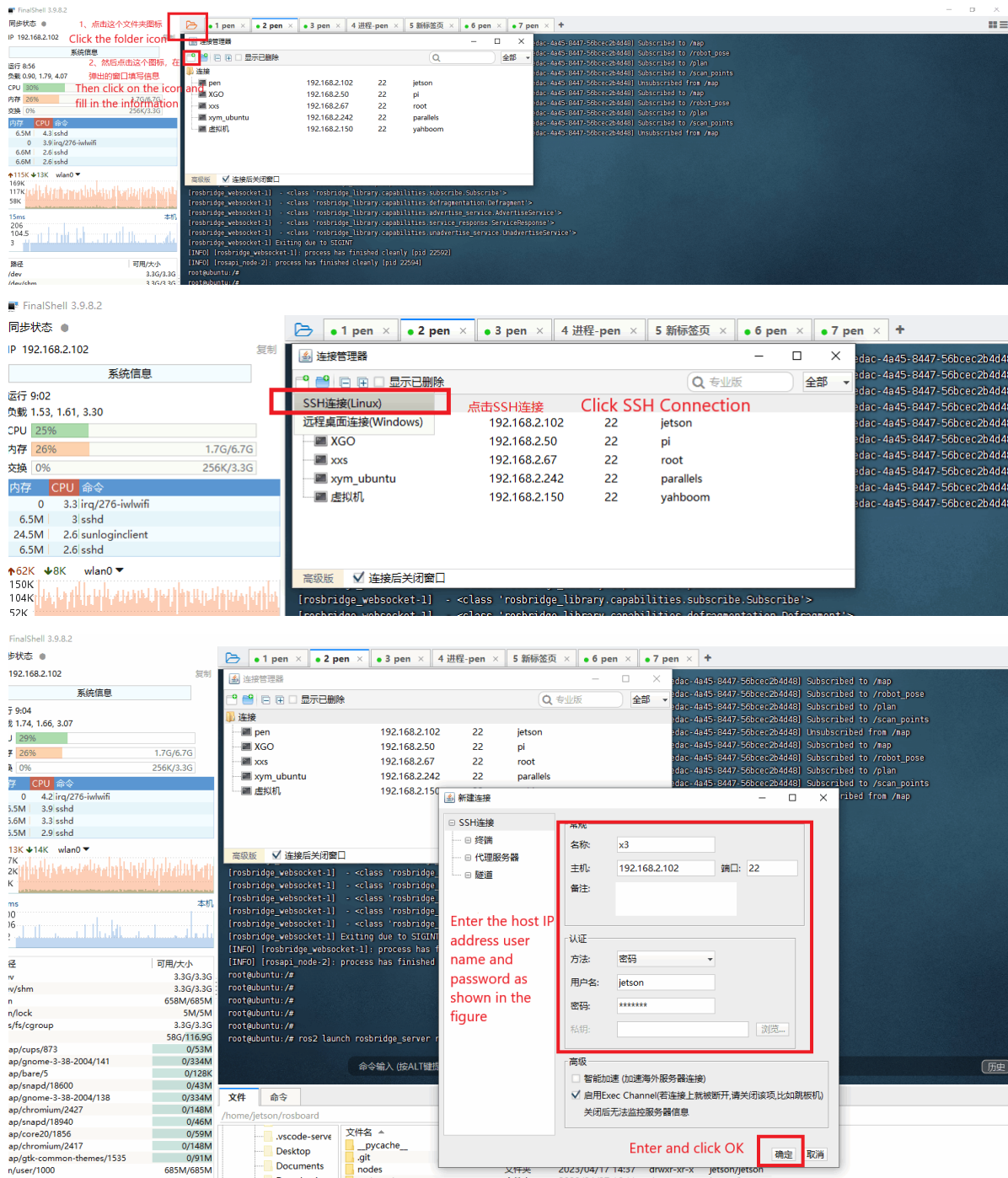


Connecting to the network can be visualized through the touchscreen display that comes with the X3, and connecting to WiFi on the LAN.

## 2. Open the shell and connect to Rosmaster\_R2.

Note: At the time of writing this tutorial, we are using the IP address 192.168.2.102, username is jetson, password is yahboom, and the actual IP address is based on the actual use.

Open a shell utility, in this case FinalShell, and enter your username, password, port and connection name.





The screenshot displays the FinalShell 3.9.8.2 interface. On the left, the 'System Information' panel shows details for host 192.168.2.102, including CPU usage (28%), memory (26%), and disk (0%). The main area is divided into a 'Connection Manager' and a terminal window. The 'Connection Manager' lists several connections, with 'x3' highlighted in red. A red box around the 'x3' connection is accompanied by the text: 'Double-click the newly created connection configuration to open the terminal'. The terminal window shows the command 'jetson@ubuntu:~/rosboard\$' and a list of files and directories in the '/home/jetson' directory.

### 3. Starting ROSBridge and web services

Create a docker environment by entering commands in the terminal.

```
./img/run_docker.sh
```

Then enter the command:

```
docker ps
```

to view the docker environment you just created.

The screenshot shows a terminal window with the output of the 'docker ps' command. The output is a table with columns: CONTAINER ID, IMAGE, COMMAND, CREATED, STATUS, PORTS, and NAMES. The first row is highlighted in red, showing the newly created environment. A red box around the first row is accompanied by the text: 'Depending on the time, you can see that the first one is the newly created environment'. The terminal also shows the command 'docker exec -it 44222fc291e0 bash' and the output of the 'docker ps' command.

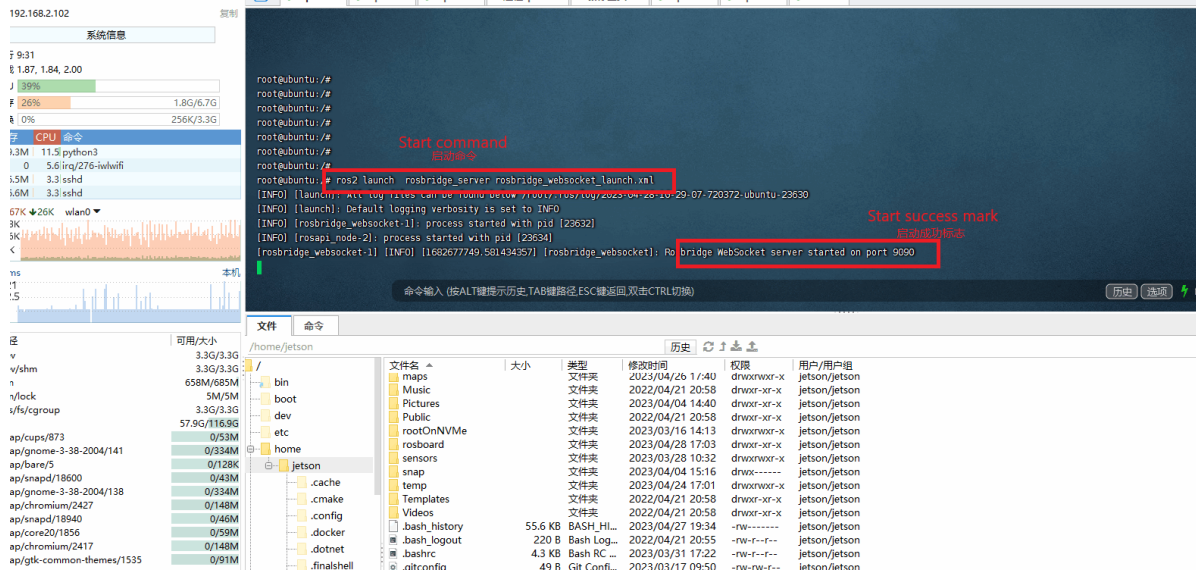
Find the docker environment you just created and find the CONTAINER ID's and enter the command in the terminal:

```
docker exec -it CONTAINER ID bash
```

Note: The CONTAINER ID is the ID of the latest docker environment you just found.

After entering docker, start rosbridge by entering the following command

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



Follow the steps above to reopen a terminal and enter the docker environment. The docker you are entering is freshly created, so you do not need to execute the command `./img/run_docker.sh` command.

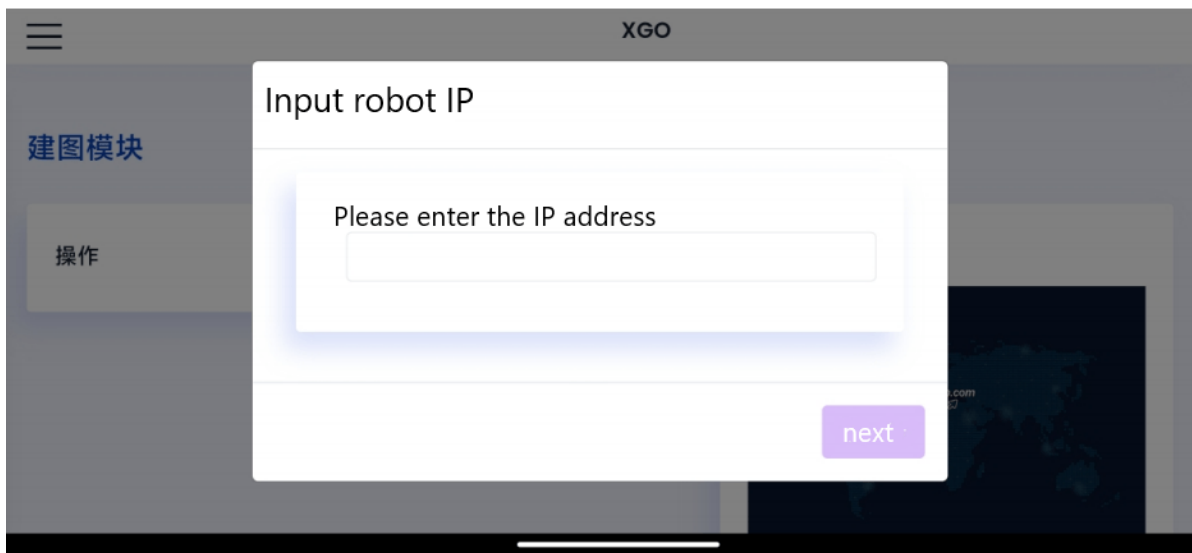
After entering the docker environment, enter the command:

```
cd /root/rosboard
```

```
./img/run
```

## 4. Open APP, start navigation mode

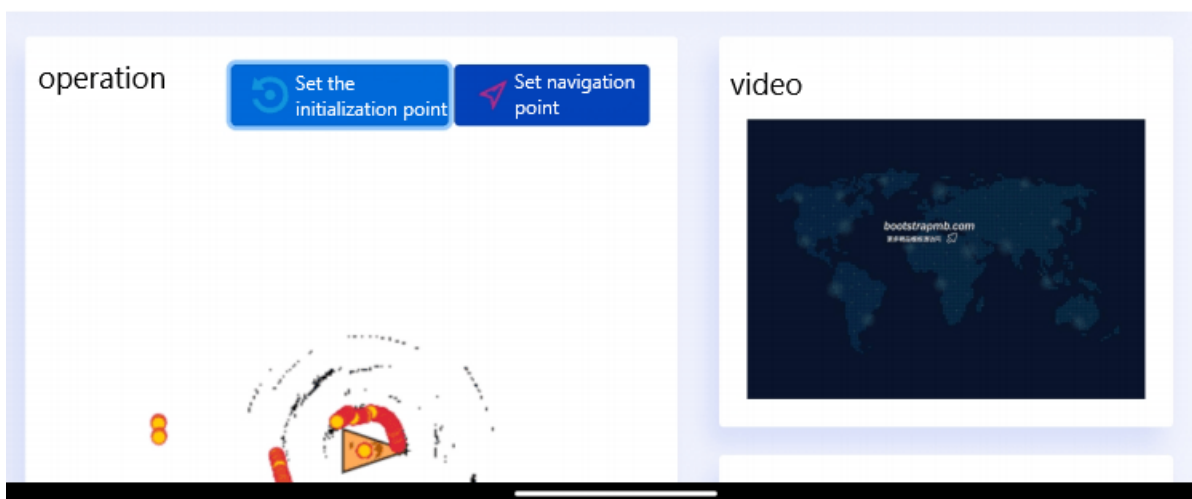
Install the APP on your cell phone and open the APP, the following figure shows the APP opening interface:



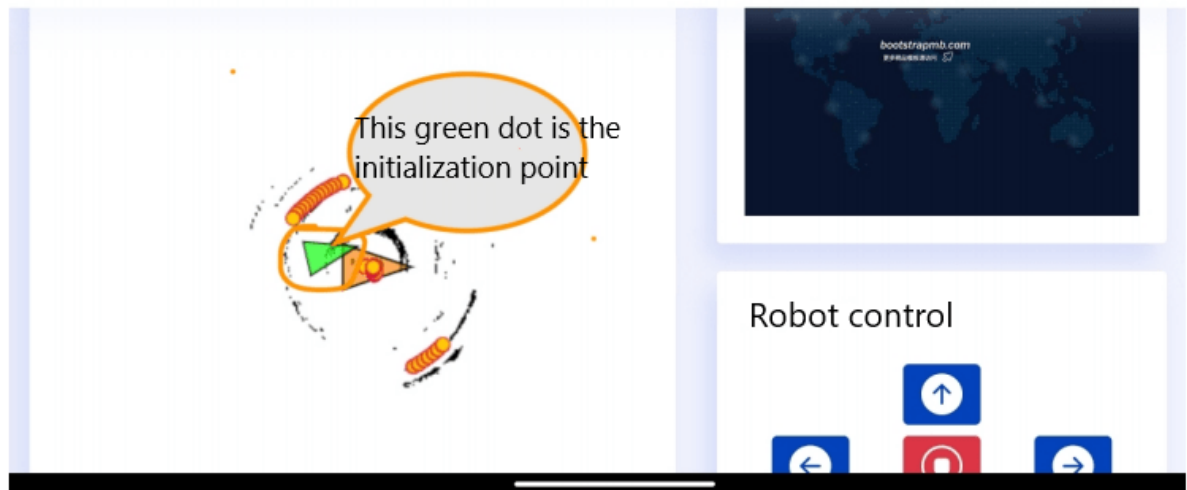
Enter the IP address in the input box, here the IP address is the IP address of the cart, such as 192.168.2.102, this address is the actual IP address of the cart, please enter it according to the actual situation in practice. Click on the Next button after you have finished entering the IP address.



After the startup is complete you can see the current position of the cart, and the laser point cloud. Set the initialization point before navigation. Click the Set Initialization Points button.



Then click on a point on the map and rotate it in the desired direction to set it as the initialization point.



After the initial point is set, the robot position and point cloud will move to the position of the point that was set. Then click the Set Navigation Point button. Then wait for the interface to finish loading, set a target point in the map interface, and wait for the cart to automatically plan a route and run to the target point.

