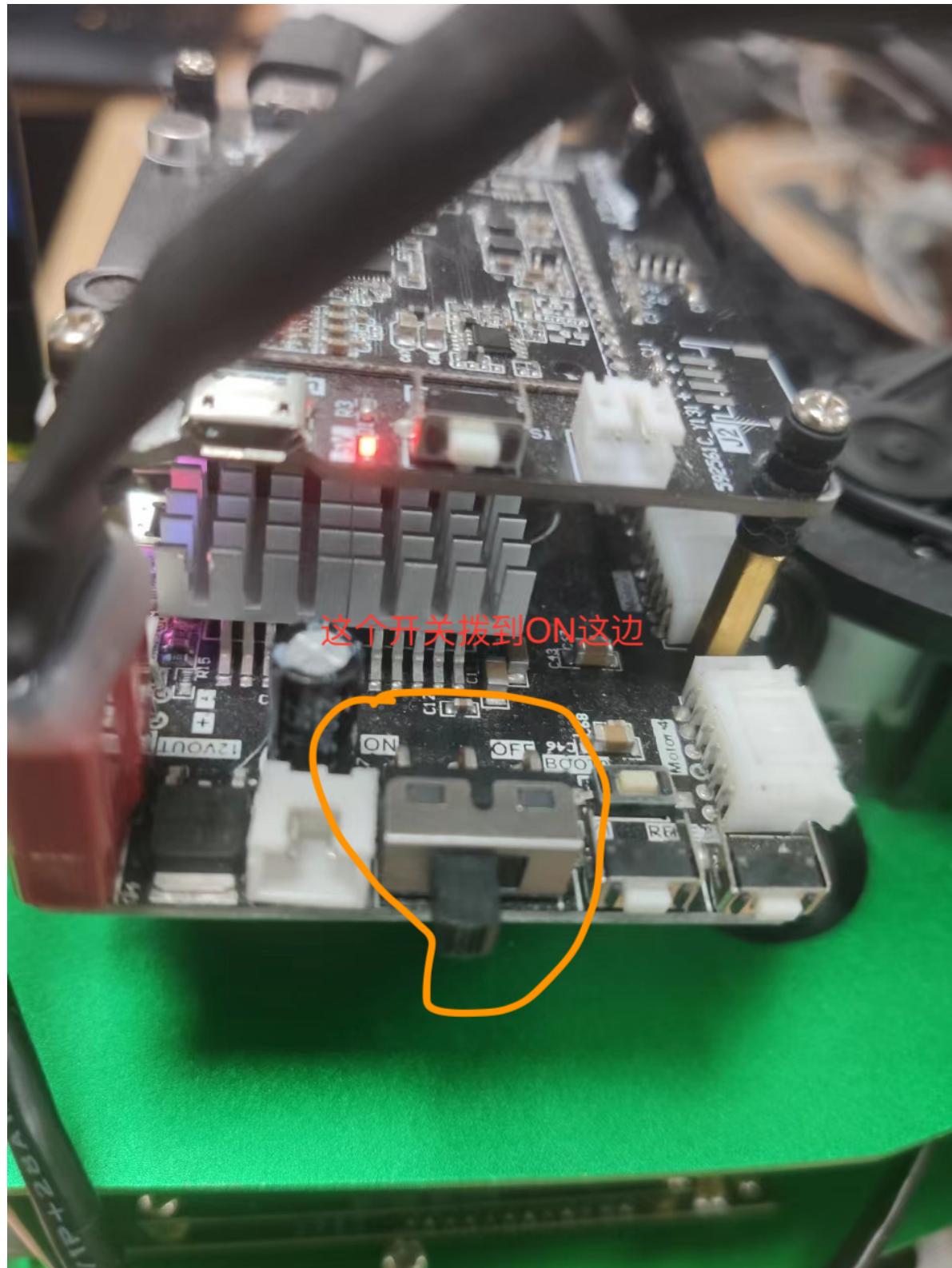


Rosmaster_R2 Navigation using APP

Quick use

1. Power on Rosmaster_R2

Turn on the power of R2, turn the switch as shown in the figure below to the ON direction.

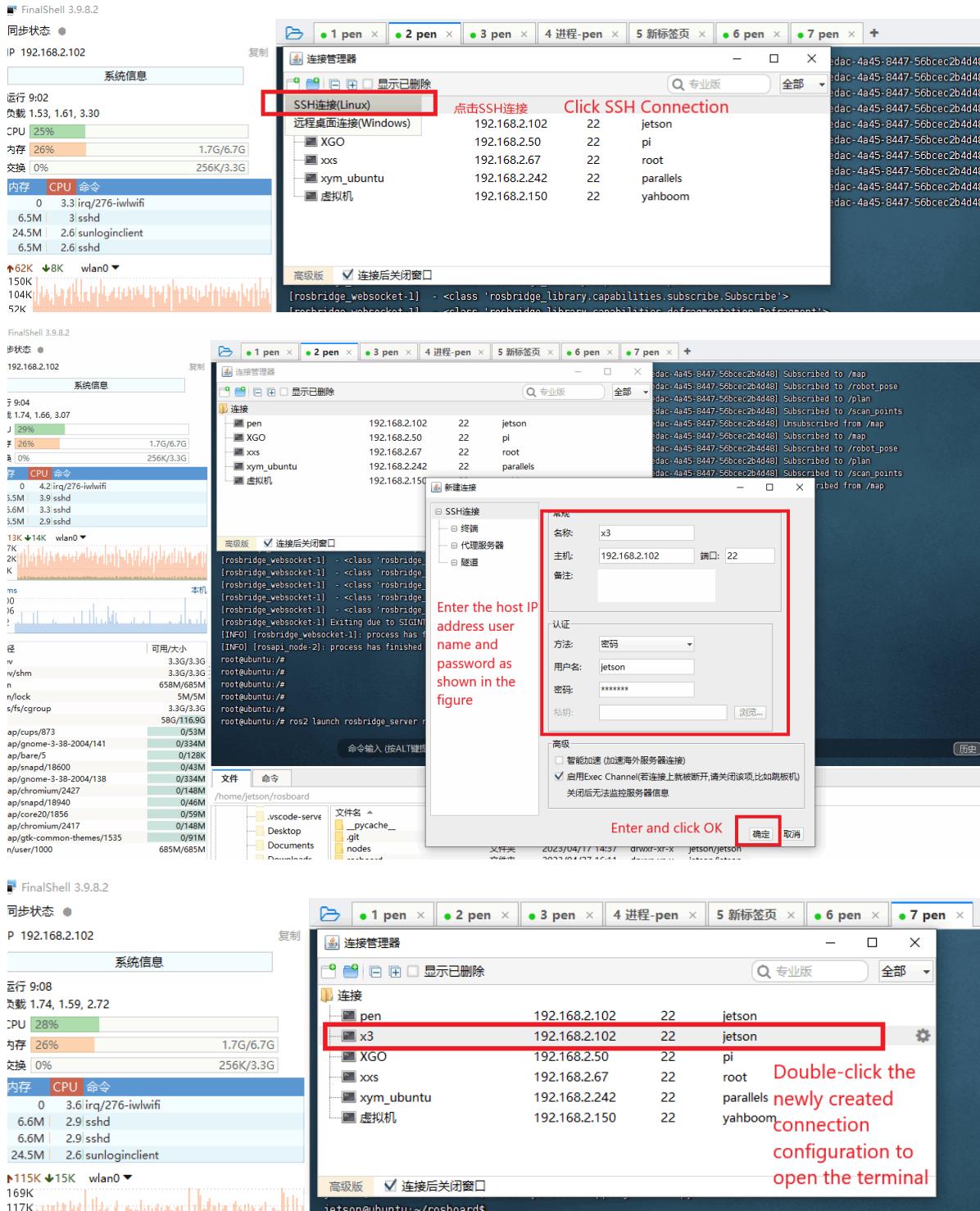


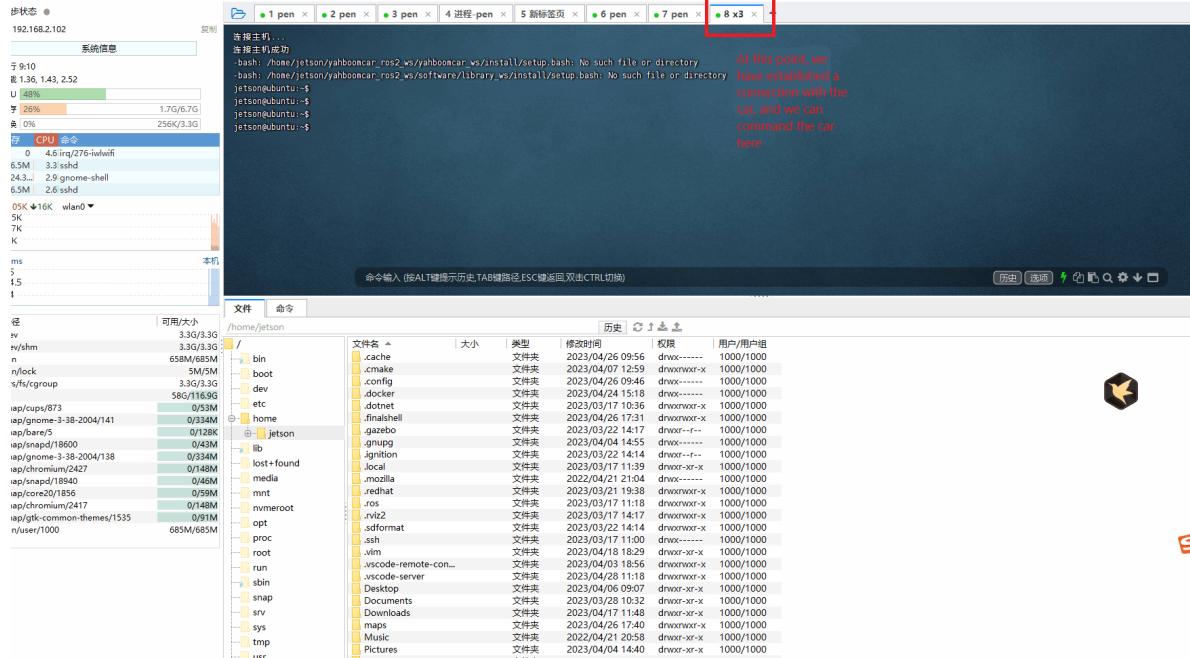
Connecting to the network can be operated visually through R2's built-in touch screen and connected to WiFi in the LAN.

2. Open a shell and connect to Rosmaster_R2

Note: The IP address used when writing this tutorial: 192.168.2.102 User name: jetson Password: yahboom The actual IP address shall prevail when used in actual use. **The picture below takes logging into the X3 car as an example.**

Open the shell tool. The shell tool I use here is FinalShell. Enter username, password, port, connection name and other information.





3. Start ROSBridge and related node services

Enter the command in the terminal to create a docker environment.

```
./run_docker.sh
```

Then enter the command:

```
docker ps
```

Check out the docker environment you just created.



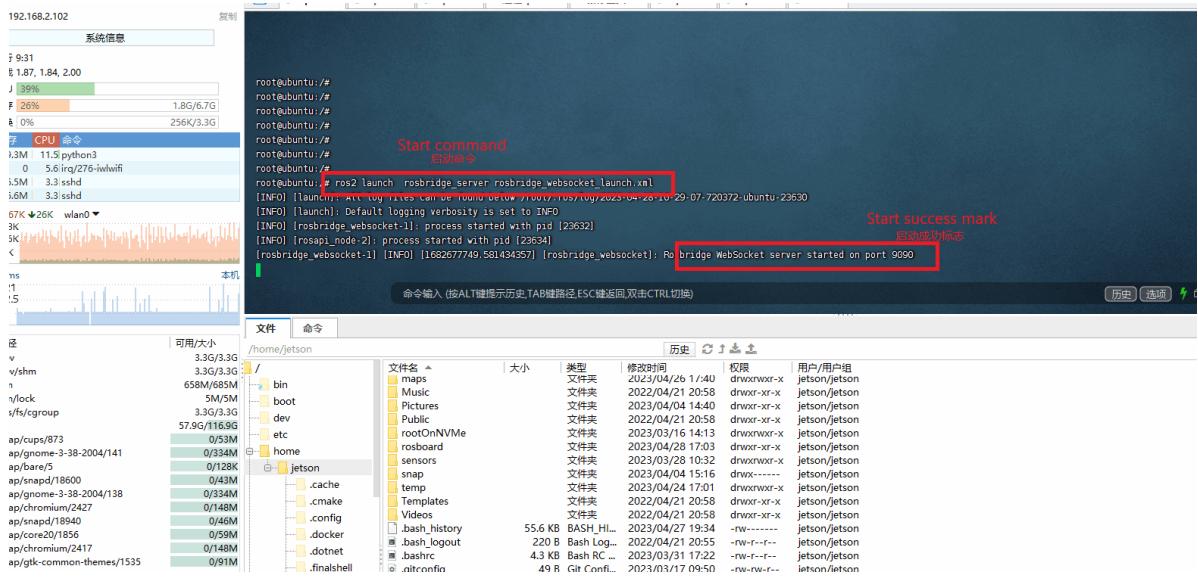
Find the docker environment you just created, find the CONTAINER ID, and enter the command in the terminal:

```
docker exec -it CONTAINER_ID bash
```

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

After entering docker, enter the following command to start rosbridge

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



Follow the above steps, reopen a terminal, and enter the docker environment. The docker you enter is just newly created, and there is no need to execute the ./run_docker.sh command.

Enter the docker environment and enter the command:

```
cd ~/yahboomcar_ros2_ws/yahboomcar_ws
```

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

launch navigation

```
ros2 launch yahboomcar_nav navigation_dwa_launch.py
```

The map file directory for navigation startup is

/root/yahboomcar_ros2_ws/yahboomcar_ws/src/yahboomcar_nav/maps/yahboomcar.yaml

Re-open a terminal and enter docker, enter the following command

```
cd ~/yahboomcar_ros2_ws/yahboomcar_ws
```

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

Start publishing robot location node

```
ros2 launch robot_pose_publisher_ros2 robot_pose_publisher_launch.py
```

```
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws# ros2 launch robot_pose_publisher_ros2 robot_pose_publisher_launch.py
[INFO] [launch]: All log files can be found below /root/.ros/log/2023-06-05-09-56-03-330596-Ubuntu-1943
[INFO] [launch]: Default logging verbosity is set to INFO
/root/yahboomcar_ros2_ws/yahboomcar_ws/install/robot_pose_publisher_ros2/share/robot_pose_publisher_ros2/launch/robot_pose_publisher_
' instead
  Node(
  /root/yahboomcar_ros2_ws/yahboomcar_ws/install/robot_pose_publisher_ros2/share/robot_pose_publisher_ros2/launch/robot_pose_publisher_
    Node(
```

Note: If the point cloud information is not displayed after full startup, wait for the mapping module to start and then restart the robot position node.

Re-open a terminal and enter docker, enter the following command

```
cd ~/yahboomcar_ros2_ws/yahboomcar_ws
```

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

Start the node that publishes laser data transfer points.

```
ros2 run laserscan_to_point_publisher laserscan_to_point_publisher
```

```
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws#
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws# source install/setup.bash
root@ubuntu:~/yahboomcar_ros2_ws/yahboomcar_ws# ros2 run laserscan_to_point_publisher laserscan_to_point_publisher
^CTraceback (most recent call last):
```

命令输入 (按ALT键提示历史,TAB键路径,ESC键返回,双击CTRL切换)

Re-open a terminal and enter docker, enter the following command

```
cd ~/yahboomcar_ros2_ws/yahboomcar_ws
```

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

Start chassis and radar nodes

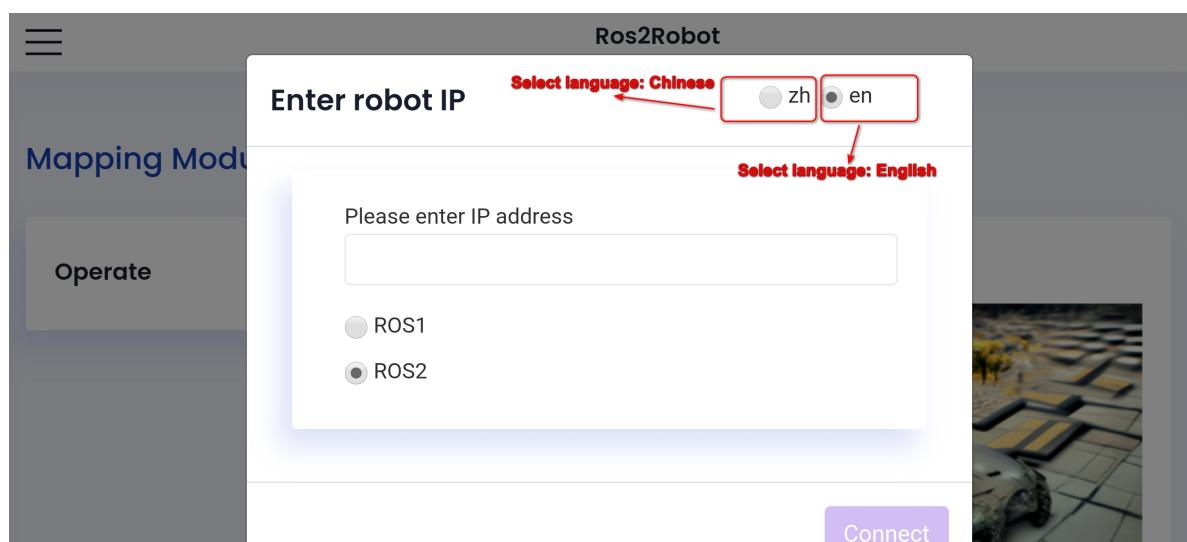
```
ros2 launch yahboomcar_nav laser_bringup_launch.py
```

Open another terminal and start the camera

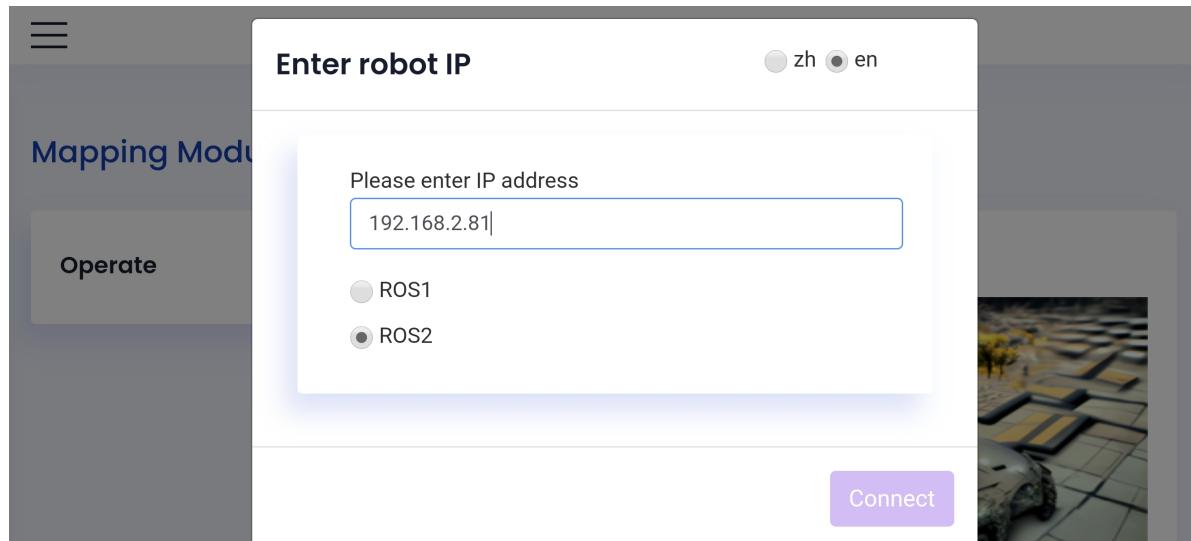
```
ros2 launch usb_cam demo_launch.py
```

4. Open the APP and start navigation mode

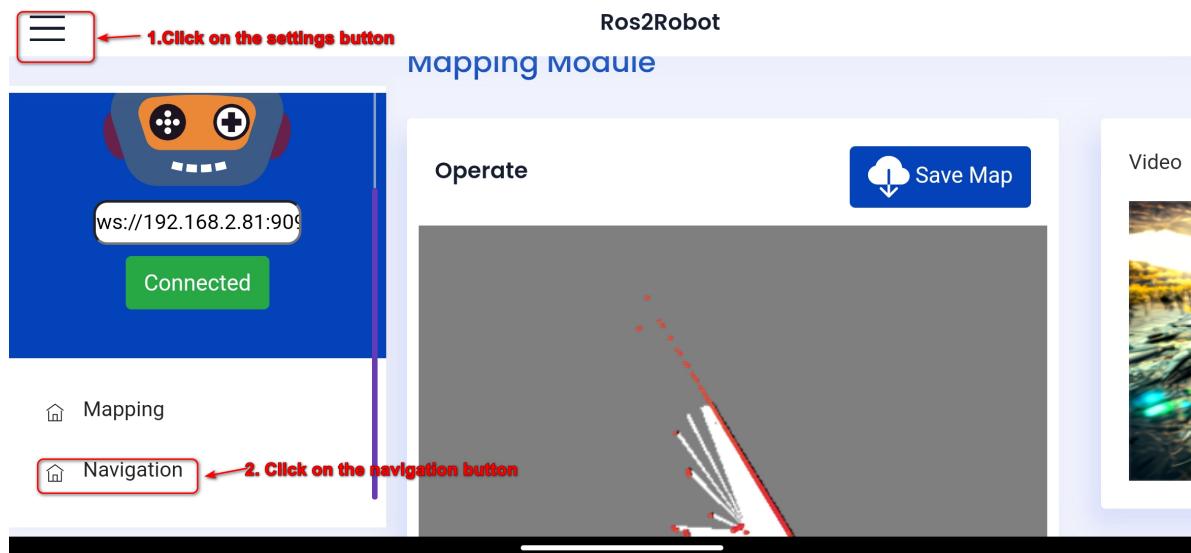
Install the app on your phone and open it. The following figure shows the APP opening interface:



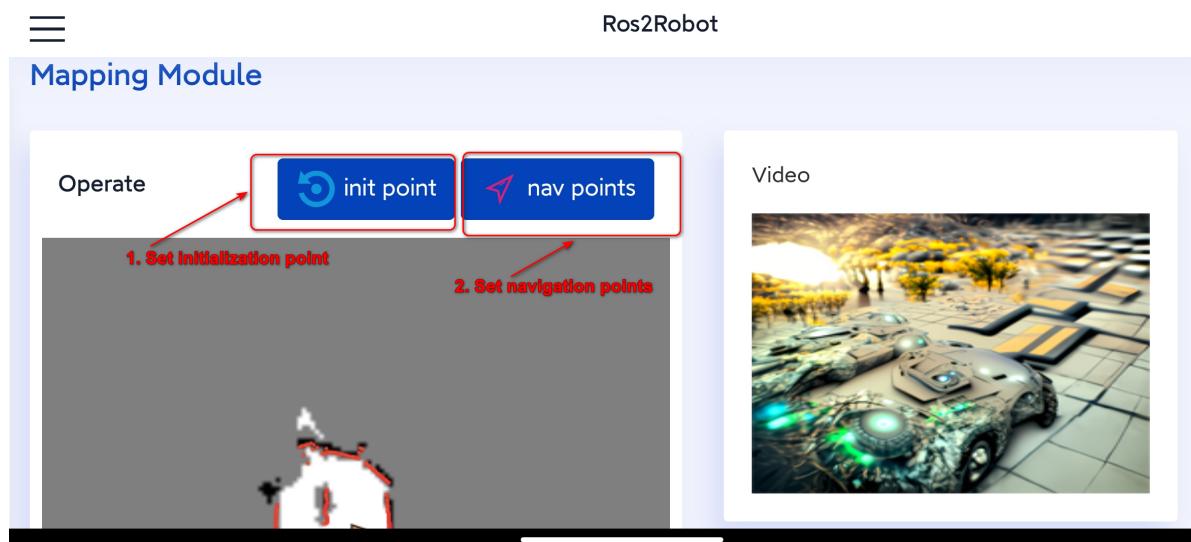
Enter the IP address in the input box. The IP address here is the IP address of the car, such as 192.168.2.81. This address is the actual IP address of the car. Please enter it according to the actual situation during operation. After completing the input, click the Next button.



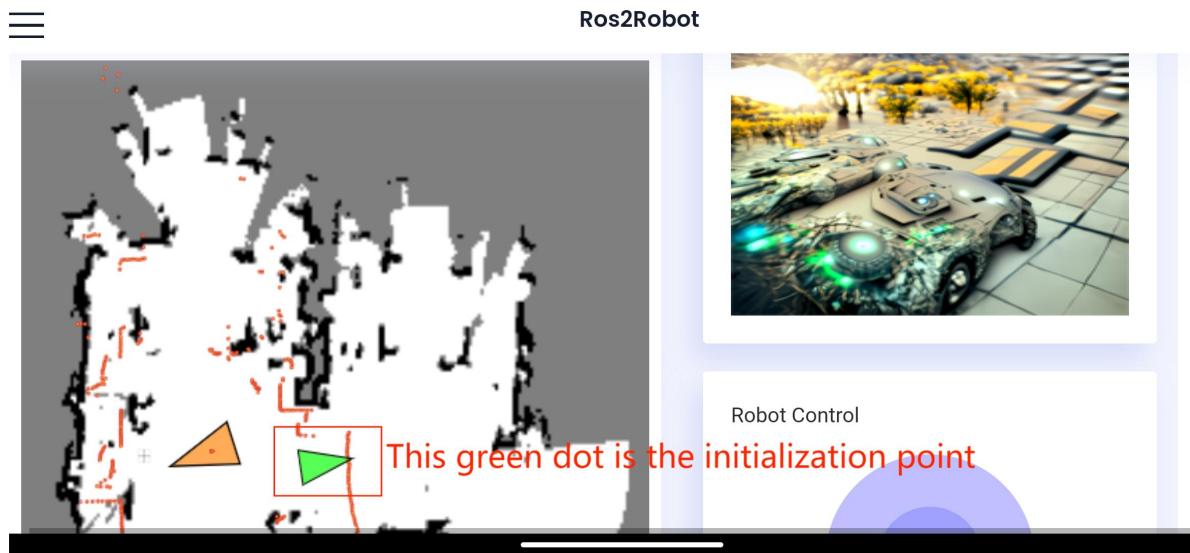
Click on the settings button (three horizontal lines) in the upper left corner to pop up an option and select navigation mode.



After startup, you can see the current position of the X3 car and the laser point cloud. Set the initialization point before navigation. Click the Set Initialization Point 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 setting is completed, the robot position and point cloud will move to the position of the set point. Then click on the Set Navigation Point button. After waiting for the interface to load, set a target point on the map interface, wait for the car to automatically plan the route, and run to the target point.

