8、 APP Mapping and Navigation

8.1.1、 start up

Note: When building a map, the slower the speed, the better the effect (note that if the rotation speed is slower), the effect will be poor if the speed is too fast.

Start the driver command, this section takes **[# mono + laser + Transbot]** as an example. 【**# laser + Transbot**】 The camera screen cannot be set.

```
roslaunch transbot_nav usbcam_bringup.launch    # mono + laser + Transbot
roslaunch transbot_nav astra_bringup.launch     # Astra + Transbot
roslaunch transbot_nav laser_bringup.launch     # laser + Transbot
roslaunch transbot_nav transbot_bringup.launch  # Astra + laser + Transbot
```

Start the mapping function (robot side)

```
roslaunch transbot_nav transbot_map.launch map_type:=gmapping
```

Start the radar data to point cloud node and rosbridge and other nodes (raspberry pie version)

```
source /home/pi/software/laser_app/devel/setup.bash
roslaunch /home/pi/software/laser_app/laser_app.launch
```

Start the radar data to point cloud node and rosbridge and other nodes (Jetson nano version)

```
source /home/jetson/software/laser_app/devel/setup.bash
roslaunch /home/jetson/software/laser_app/laser_app.launch
```

8.1.2、 usage

After the robot is started, click APP

To ensure that the mobile phone and the robot are in the same LAN, enter the robot **[IP]** in the input box, select ROS1 by default, select 【en】 as the default language, and click **[Connect]** to log in.
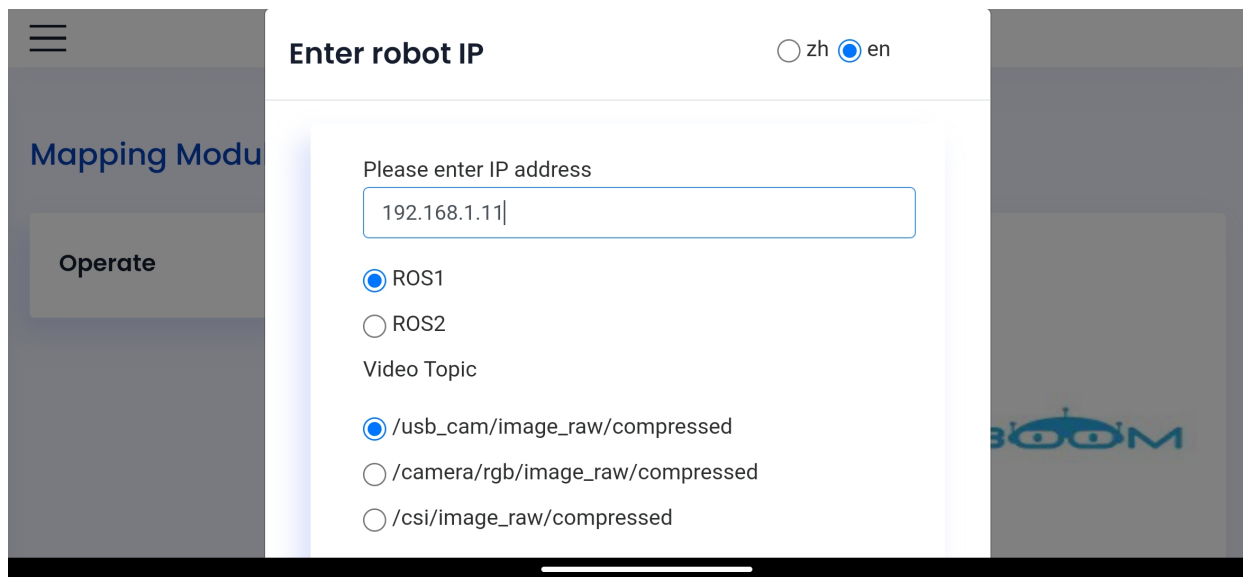
Enter the ip displayed on the oled of the car, and the radar scanning map will appear after the connection is successful, as shown in the figure below：
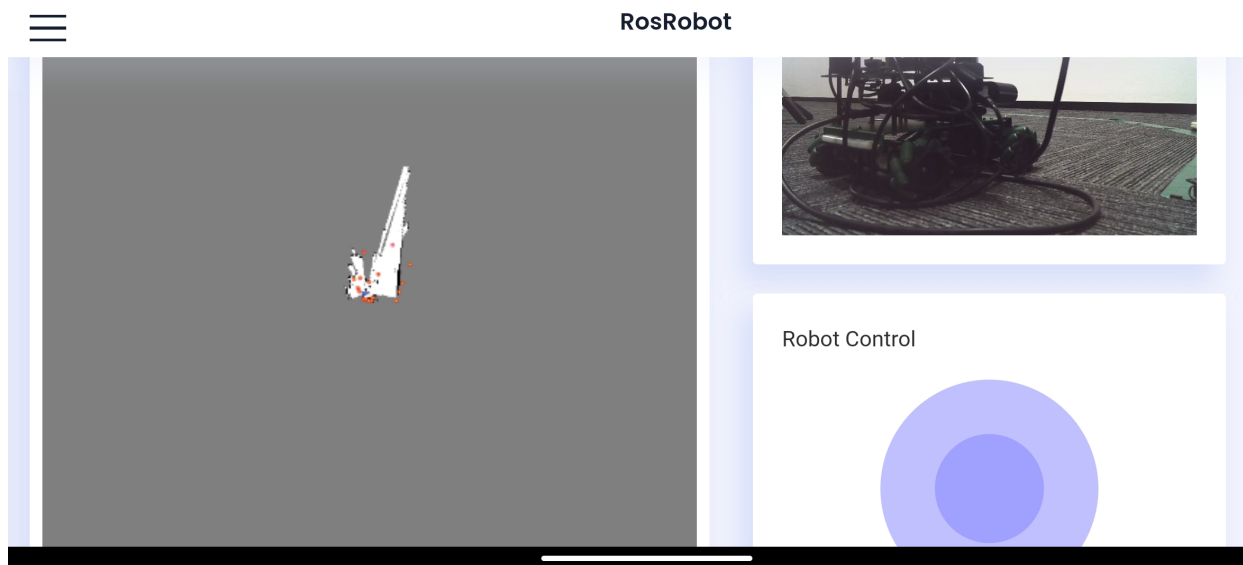

At this time, slide the joystick in the lower right corner. When sliding the joystick, the slower the speed, the better the effect (especially the rotation speed), and control the robot to move until the map is created.

8.1.3、save map

When the map is created, click the Save Map button

Click on the top of the input box, enter the name **[house]** to save the map, and click **[Submit]** (**English only, no symbols**), and save the map.

Save Map ✕

MapName

Please enter a map name

Close Submit

Mapping Module

Operate
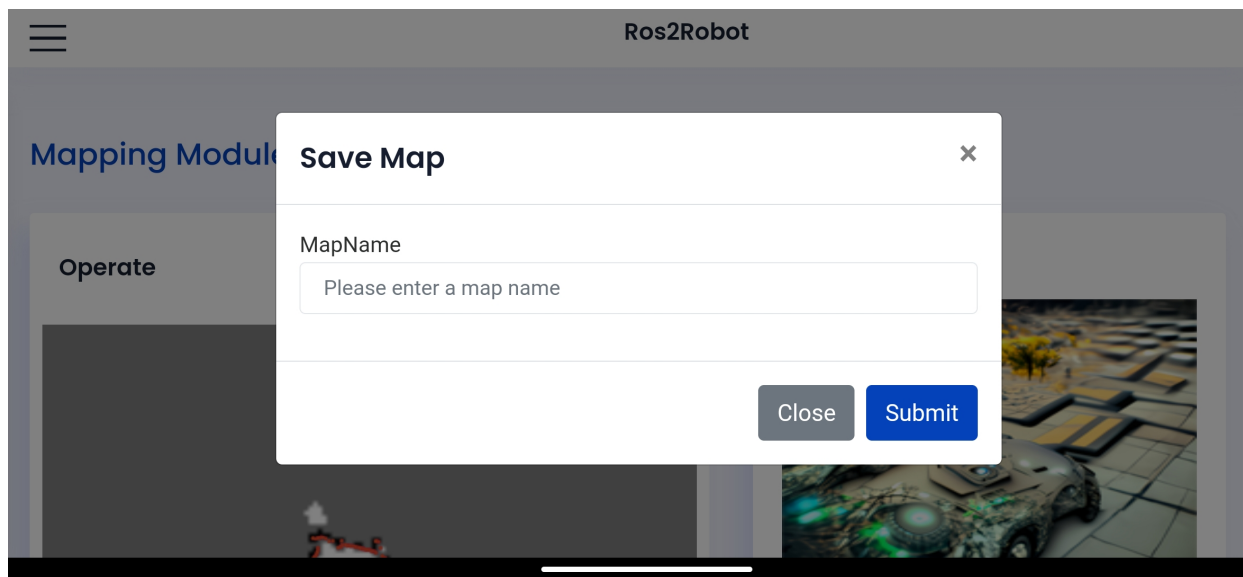
8.2、navigation obstacle avoidance

Note: [R2] of the remote controller has the function of canceling the navigation target point！！！ When navigating [Full] Do not use the joystick control！！！

8.2.1、start up（jetson nano）

Start the driver and start it as required. This section takes **[# mono + laser + Transbot]** as an example.【**# laser + Transbot**】The camera screen cannot be set.

```
roslaunch transbot_nav usbcam_bringup.launch      # mono + laser + Transbot
roslaunch transbot_nav astra_bringup.launch       # Astra + Transbot
roslaunch transbot_nav laser_bringup.launch       # laser + Transbot
roslaunch transbot_nav transbot_bringup.launch    # Astra + laser + Transbot
```

Start navigation obstacle avoidance function (robot side)

```
roslaunch transbot_nav transbot_navigation.launch map:=house
```

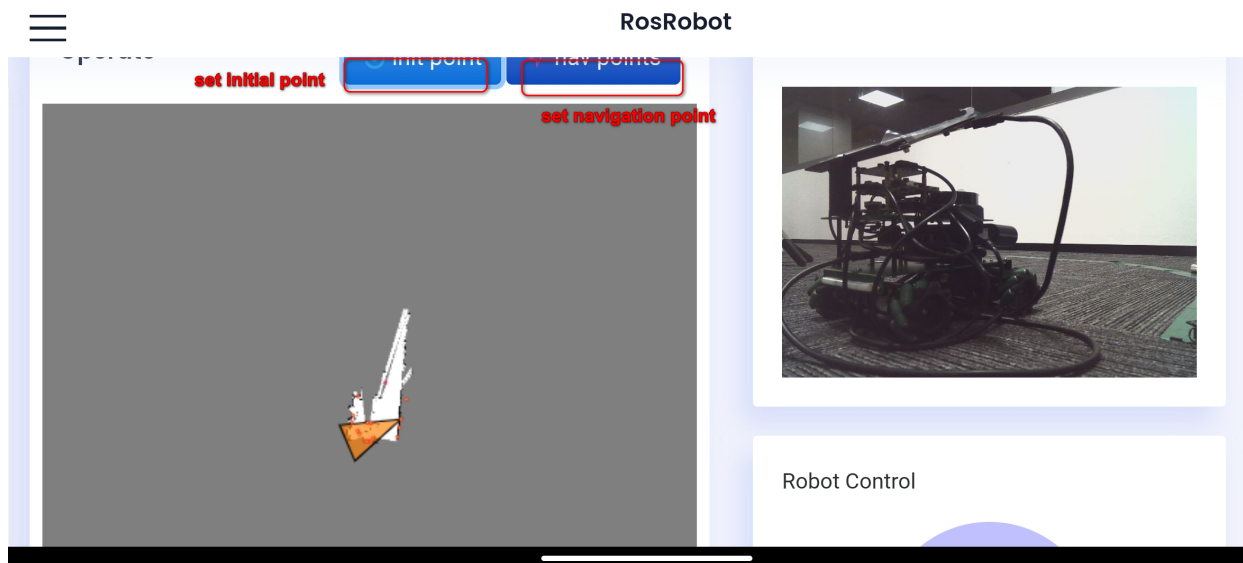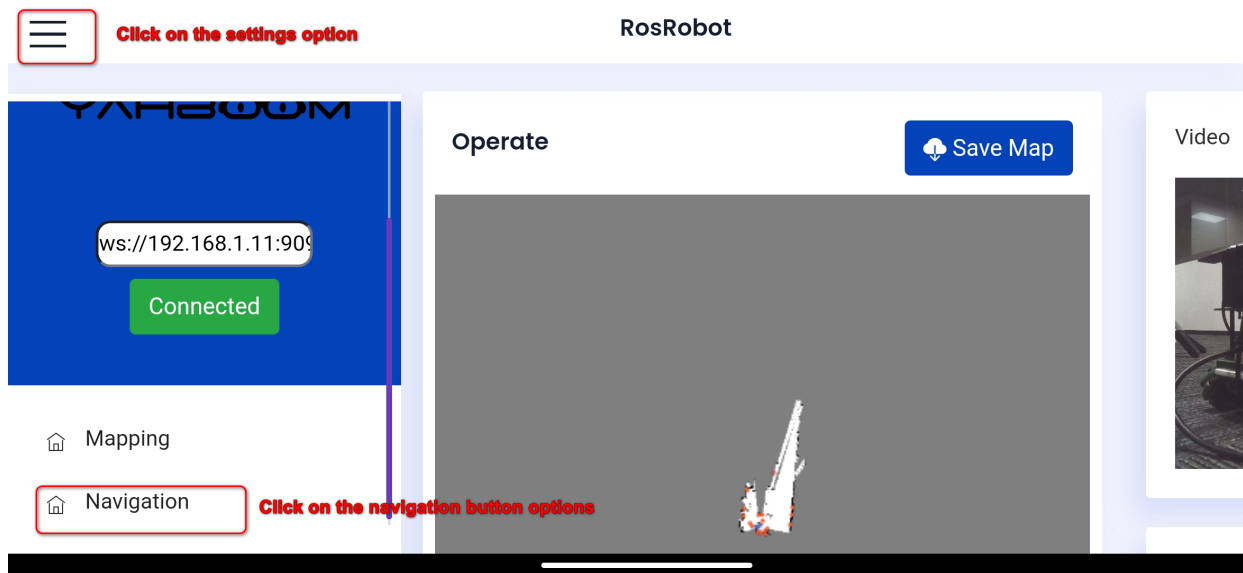- map：Map name, load the map file named [house].

Start the radar data to point cloud node and rosbridge and other nodes (raspberry pie version)

```
source /home/pi/software/laser_app/devel/setup.bash
roslaunch /home/pi/software/laser_app/laser_app.launch
```

Start the radar data to point cloud node and rosbridge and other nodes (Jetson nano version)

```
source /home/jetson/software/laser_app/devel/setup.bash
roslaunch /home/jetson/software/laser_app/laser_app.launch
```

The login method is the same as above. After login, you will directly enter the map building interface. At this time, you need to click the Settings button to open the menu bar and drop down to select the navigation. Click the navigation button to enter the navigation interface.

Click on the settings option

Operate

Save Map

Video

ws://192.168.1.11:909

Connected

Mapping

Navigation

Click on the navigation button options

set initial point

init point

nav points

*set navigation point*

Video

Robot Control

Click Set Initialization Point to enter the interface for setting initialization point.

Because the origin of the robot is not consistent with the current location of the robot when it is building the map, the scanned points do not coincide with the map. At this time, we need to set the initial pose of the robot. First, click the Set Initialization Point button, select the approximate position of the robot on the map, and keep sliding to the approximate pose of the robot without releasing it. Make the scanned points coincide with the map as much as possible.

This green dot is the initialization point
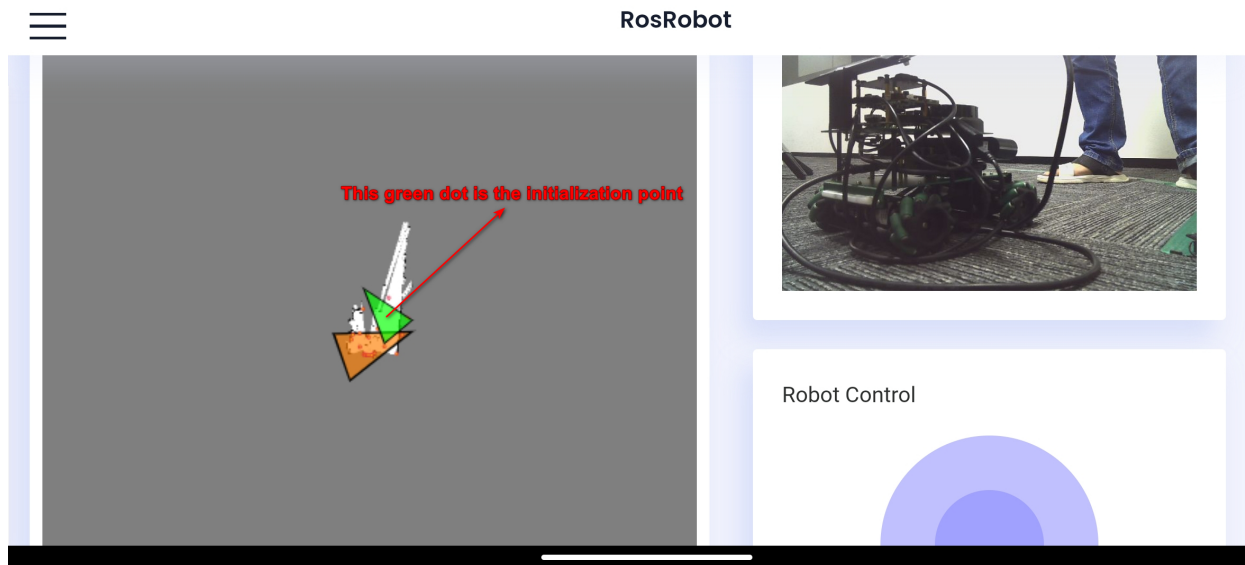
Click the Set Navigation Point button to enter the navigation interface.

This pink dot is the target point

Robot Control
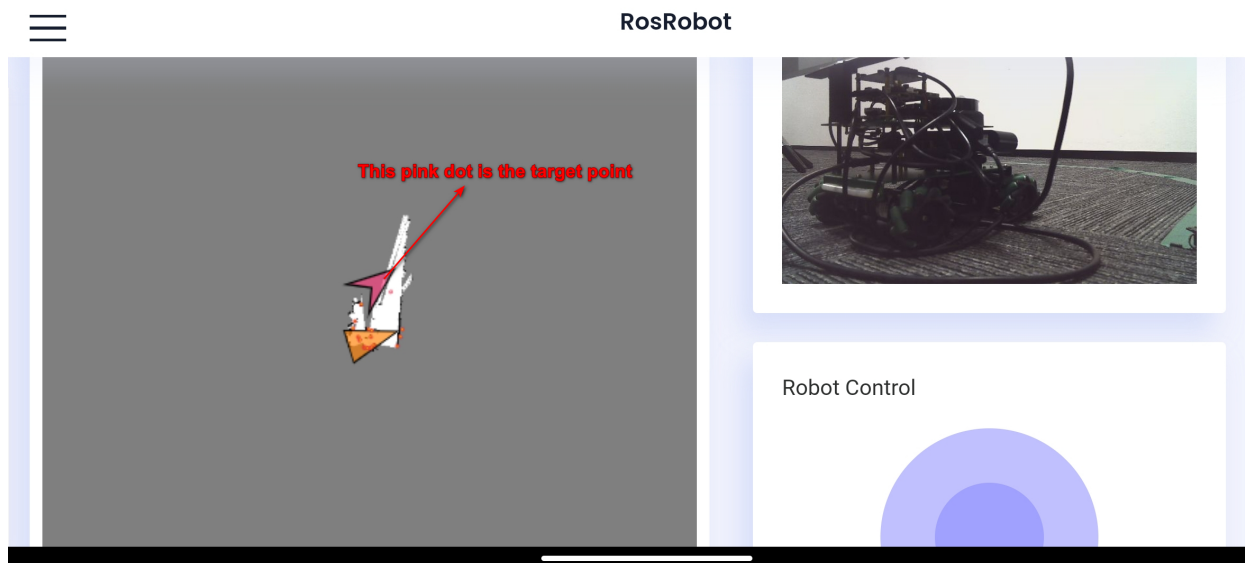
Select the target position of the robot on the map, do not let go, and continue to slide to the posture to be maintained by the robot. After releasing, the robot drives to the target posture.