

## 8、APP Mapping and Navigation

### How to download mapping APP

For Android users, open the mobile browser and scan following QR code to download and install Yahboom ROS Robot APP.

For iOS users, please search [Yahboom ROS Robot] on App store, or open camera or browser, scan following QR code to download and install Yahboom ROS Robot APP.



#### 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)

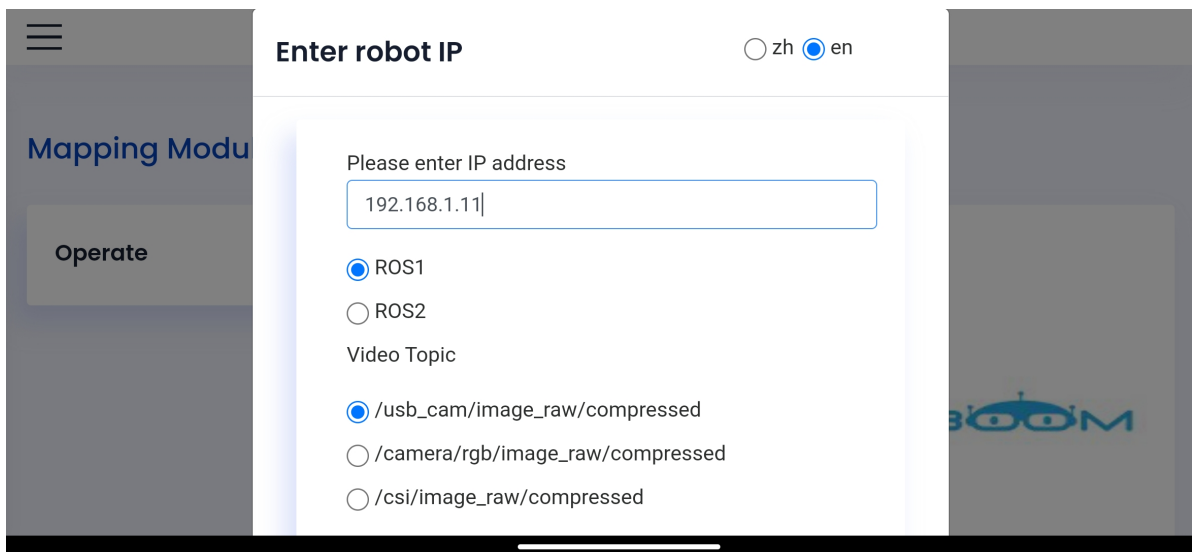
```
source /home/jetson/software/laser_app/devel/setup.bash
roslaunch /home/jetson/software/laser_app/laser_app.launch
```

### 8.1.2、usage

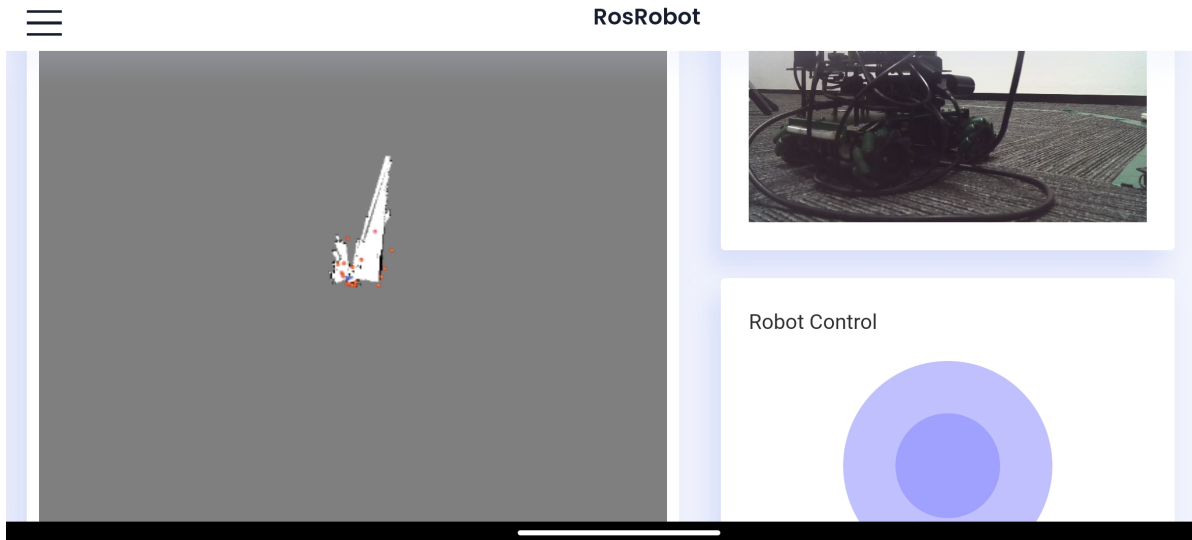
After the robot is started, click APP



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.

The screenshot shows the 'Enter robot IP' screen of the ROS2 Robot app. On the left is a dark sidebar with a menu icon, 'Mapping Modu', and an 'Operate' button. The main area has a title 'Enter robot IP' and language options 'zh' and 'en' (selected). Below is a text input field with '192.168.1.11'. Underneath are radio buttons for 'ROS1' (selected) and 'ROS2'. A 'Video Topic' section follows with three radio buttons: '/usb\_cam/image\_raw/compressed' (selected), '/camera/rgb/image\_raw/compressed', and '/csi/image\_raw/compressed'. A 'BOOM' logo is visible on the right side of the screen.

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 :

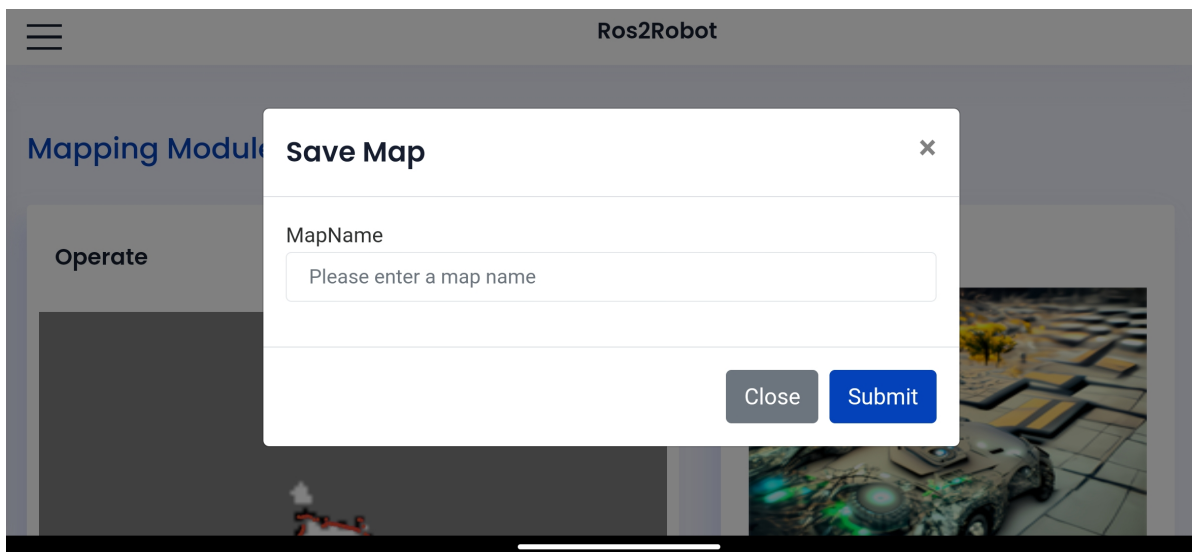


At this time, slide the joystick in the lower right corner. When sliding the joystick, the slower the speed, the better the effect (especially the rotation speed), and control the robot to move until the map is created.

### 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.



## 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].

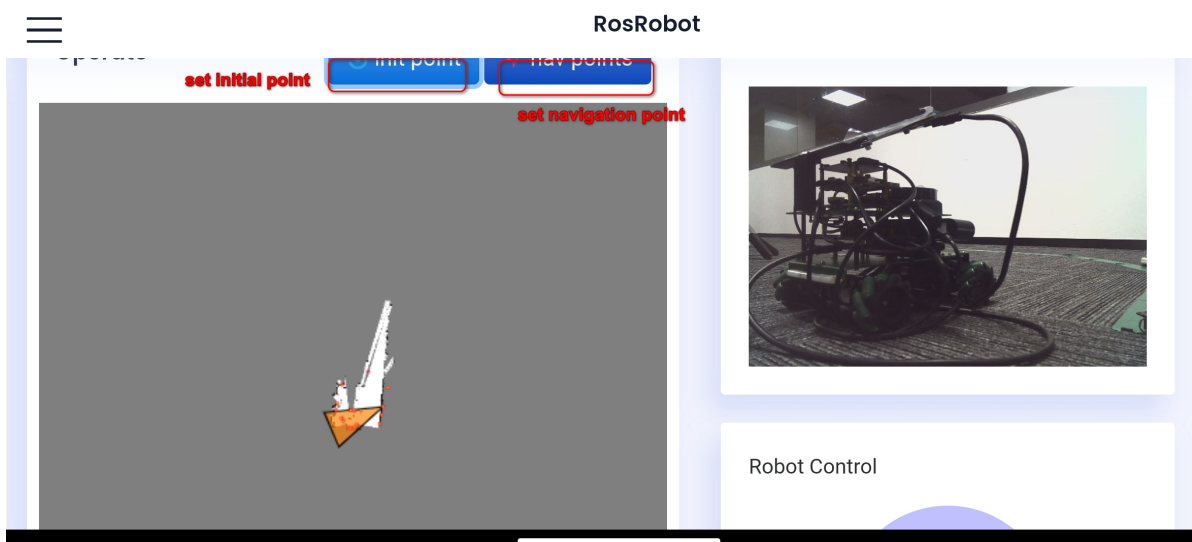
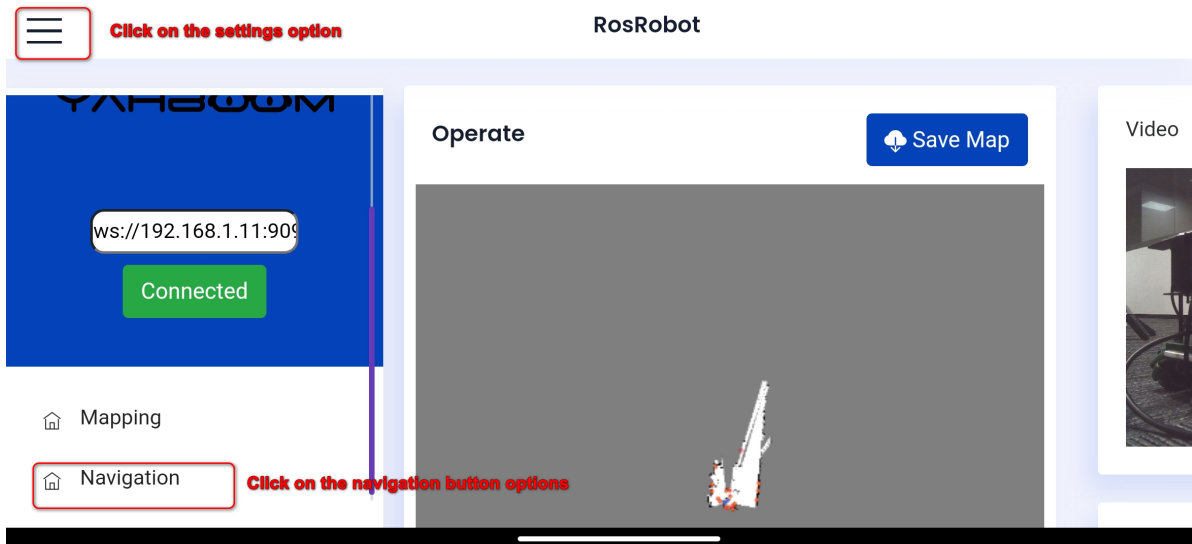
Start the radar data to point cloud node and rosbridge and other nodes (raspberry pie version)

```
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)

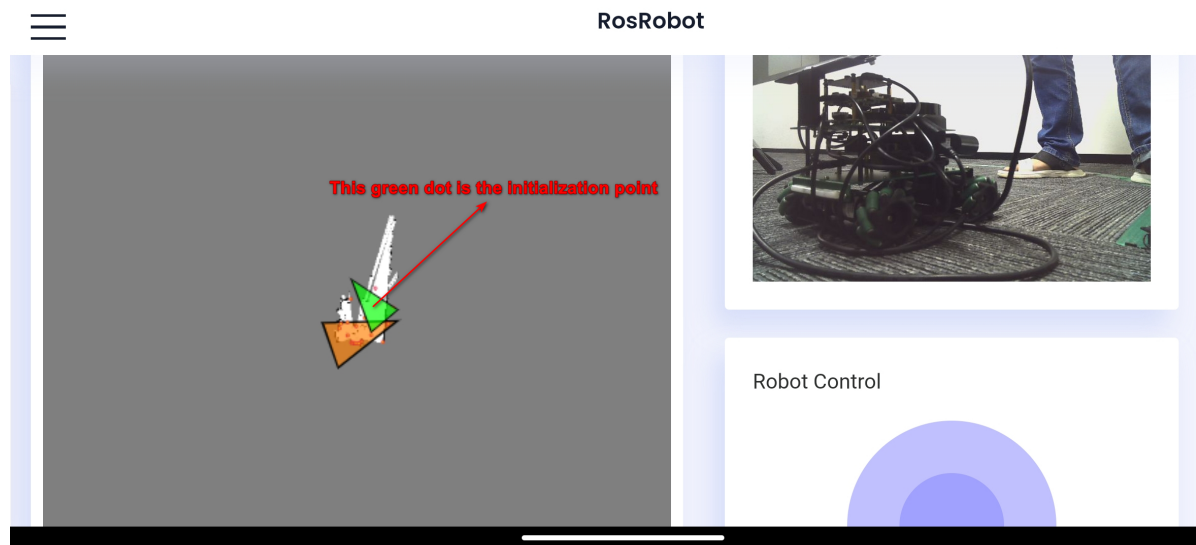
```
source /home/jetson/software/laser_app/devel/setup.bash
roslaunch /home/jetson/software/laser_app/laser_app.launch
```

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.

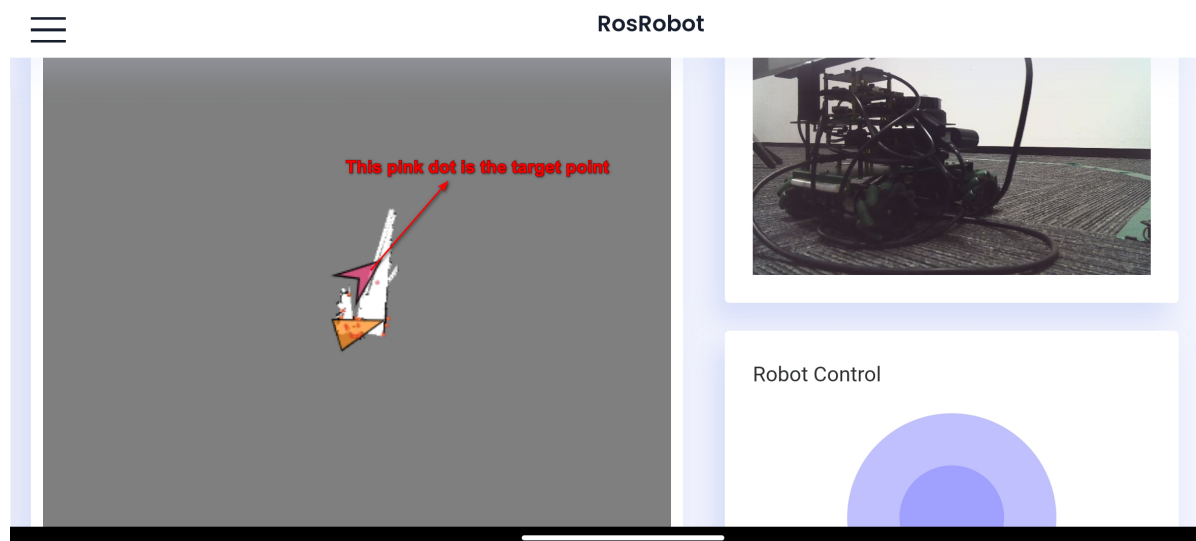


Click Set Initialization Point to enter the interface for setting initialization point.

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.



Click the Set Navigation Point button to enter the navigation interface.



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.