

# App Mapping and Navigation

## 9.1. Program Function Description

After starting the programs on the virtual machine and the car, download the Yahboom ROS Robot software on your phone, open the IP address connected to the car, and then you can control the car's movement, mapping, and navigation.

## 9.2, Program startup

### 1, App map code startup process

All commands need to be switched to the terminal under the root user: Password: yahboom

```
su root
```

After SSH connects to the car, enter in the terminal,

```
ros2 launch yahboomcar_nav map_gmapping_app_launch.xml
```

In another terminal, enter,

```
ros2 launch yahboom_app_save_map yahboom_app_save_map.launch.py
```

In another terminal, enter,

```
ros2 run yahboomcar_csi_cam_py yahboomcar_csi_cam
```

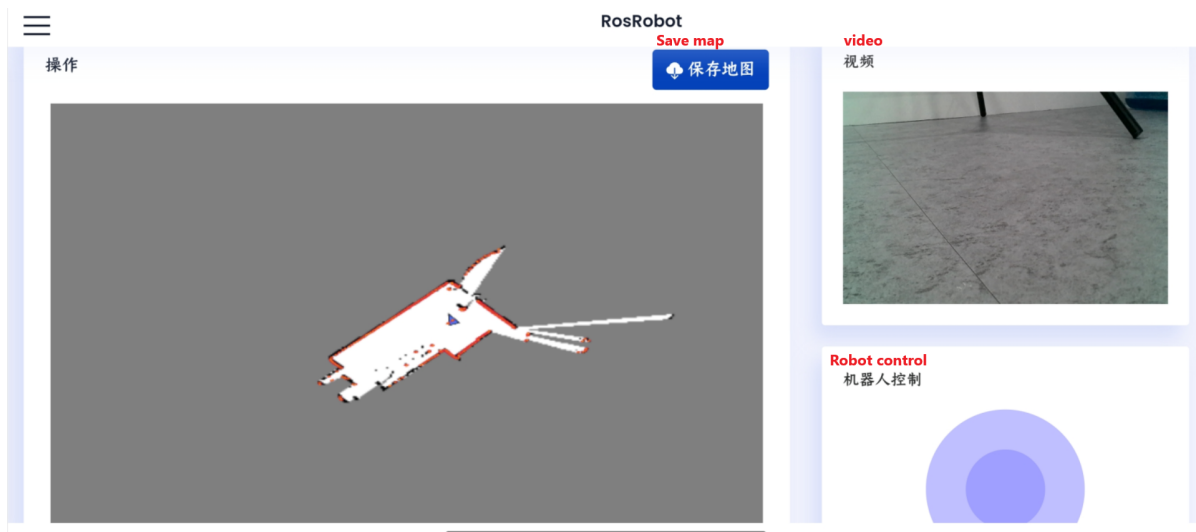
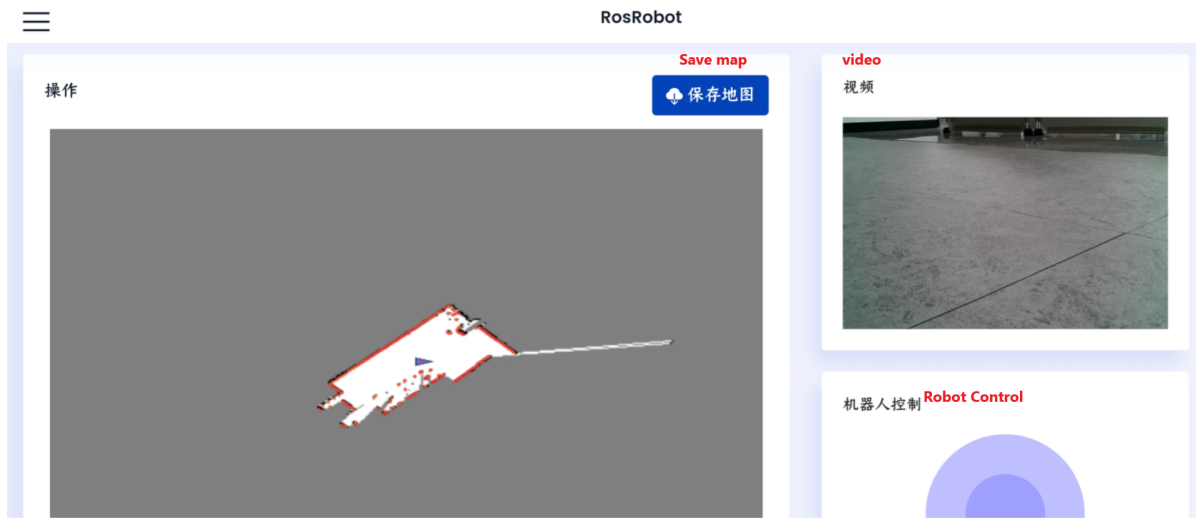
You can start building the map.

### 2. Mobile APP operation (map creation)

- Connect the car and enter the car IP: If the camera has no picture, you can click the connection option multiple times



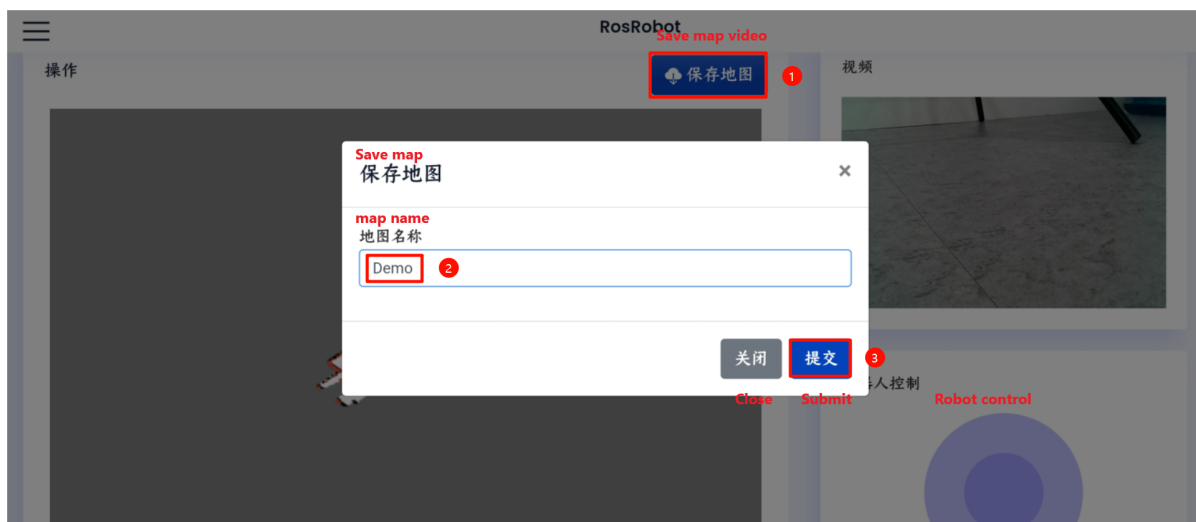
- Control the robot to move, control the area on the right



- Save the map



- Then enter the name to save in the pop-up box and click Submit



After the map is built, click "Save Map". The map save path is,

```
/home/sunrise/yahboomcar_ws/src/yahboomcar_nav/maps
```

### 3. App navigation code startup process

All commands need to be switched to the terminal under the root user: Password: yahboom

Assuming the map name is entered as [Demo], the terminal input

```
ros2 launch yahboomcar_nav navigation_dwb_app_launch.xml
map:=/home/sunrise/yahboomcar_ws/src/yahboomcar_nav/maps/Demo.yaml
```

Replace [Demo] with the name you entered when saving.

Enter in another terminal

```
ros2 run yahboomcar_csi_cam_py yahboomcar_csi_cam
```

### 4. Mobile APP operation (navigation)

- Connect the car and enter the car IP

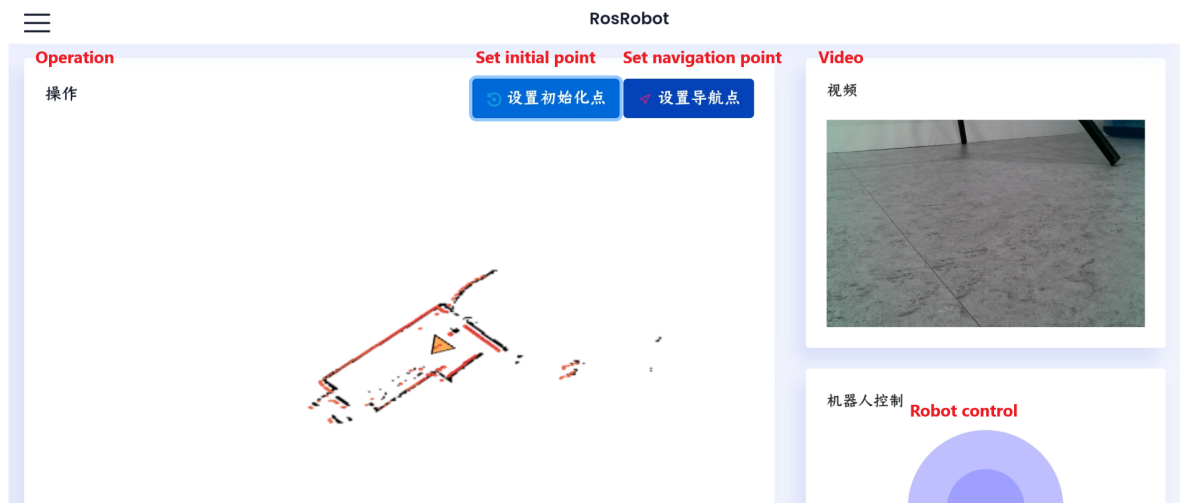


- After the startup is complete, you can see the current position of the car and the laser point cloud. Set the initialization point before navigating. Click the Set Initialization Point button.

If the camera has no picture, you can click the connection option multiple times



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



- Set the target point and click the Set Navigation Point button. Then wait 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.

