# Mapping APP User Manual

**1 Scope of Application**

**This document serves as the operating instructions for the CPJRobot Mapping Software's mobile client application. Personnel involved in map creation operations should carefully read and follow these instructions for actual map creating. For first-time map creation, please follow the steps below:**
**Note: This software currently only supports Android mobile devices. APP logo is as follows:**
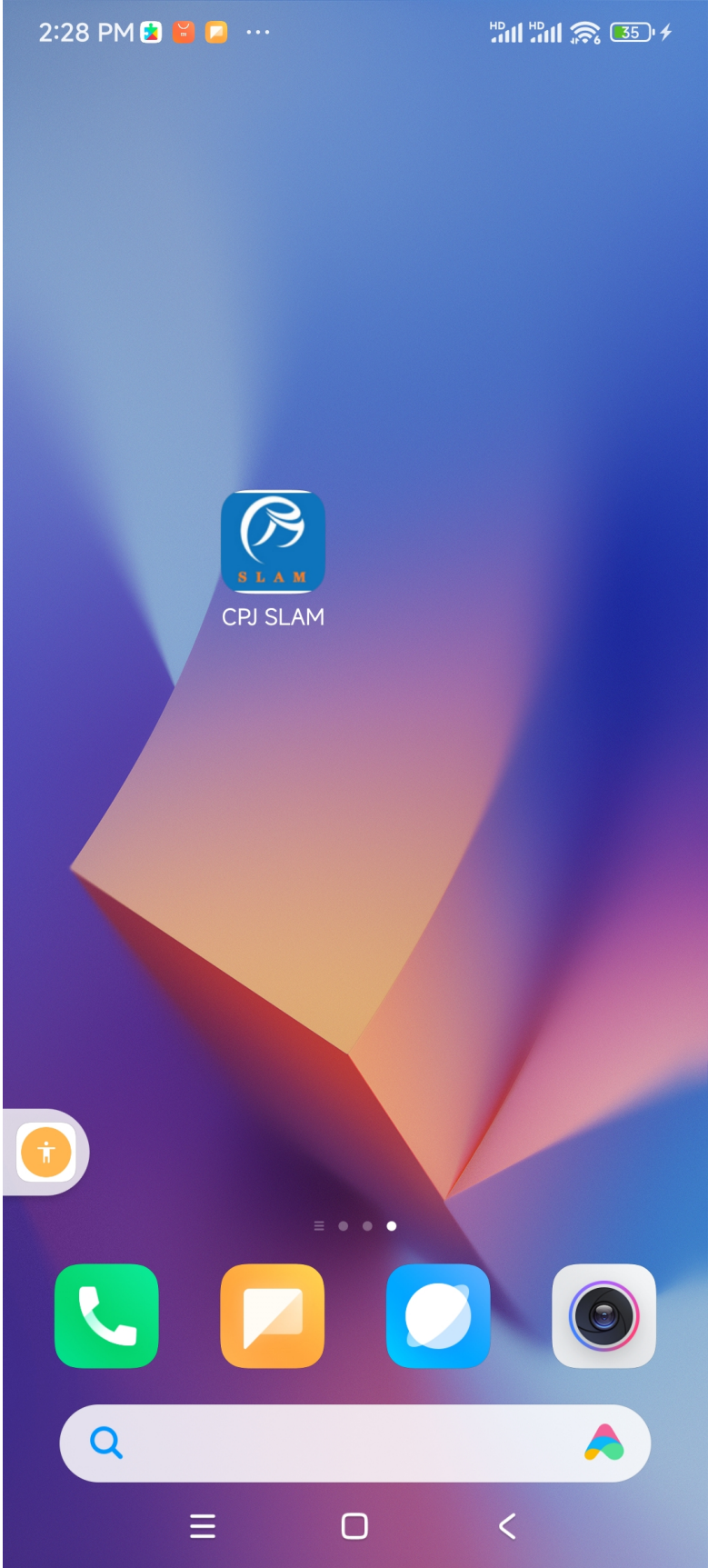
## 2 Network Connection

After PPBot is powered on, the mobile device can connect to it through the network, thereby enabling the corresponding operations. On the mobile device, you need to select the access point starting with "CPJ_PPBOT" in the WLAN settings to establish the connection.

2:03 PM

WLAN

WLAN

Network acceleration

**CPJ_PPBOT_001** 5G
Connected to device. Can't provide internet.

SAVED NETWORKS

TP-LINK_CPJ 5G
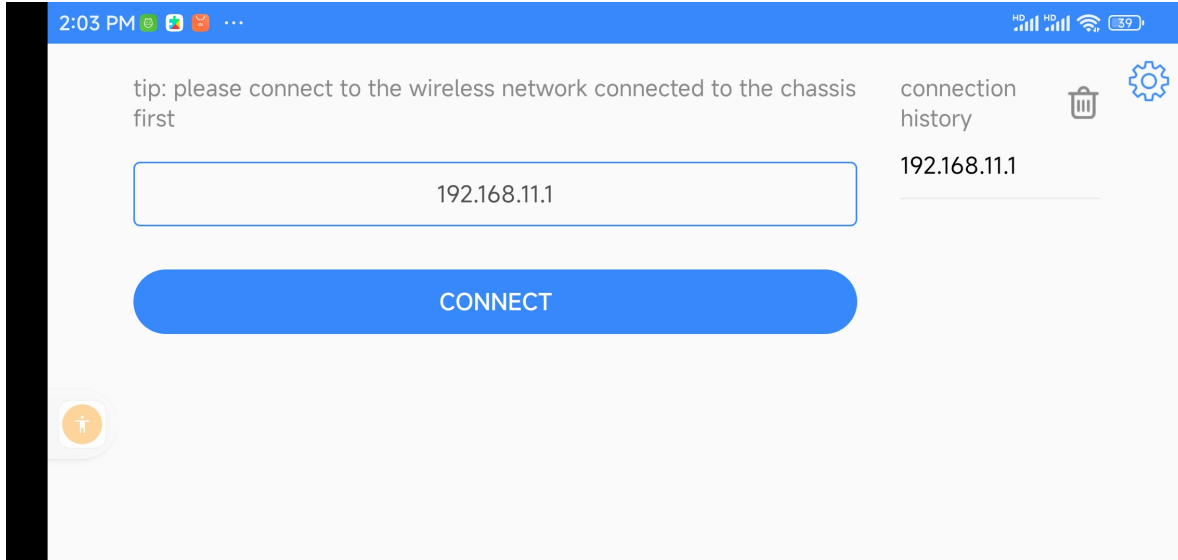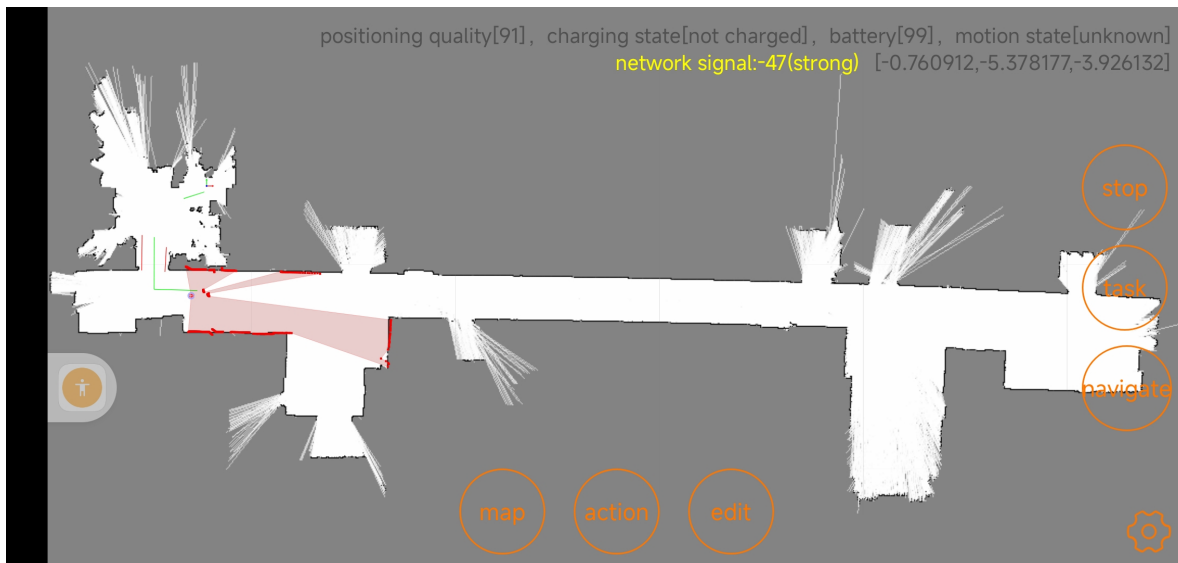
Available networks

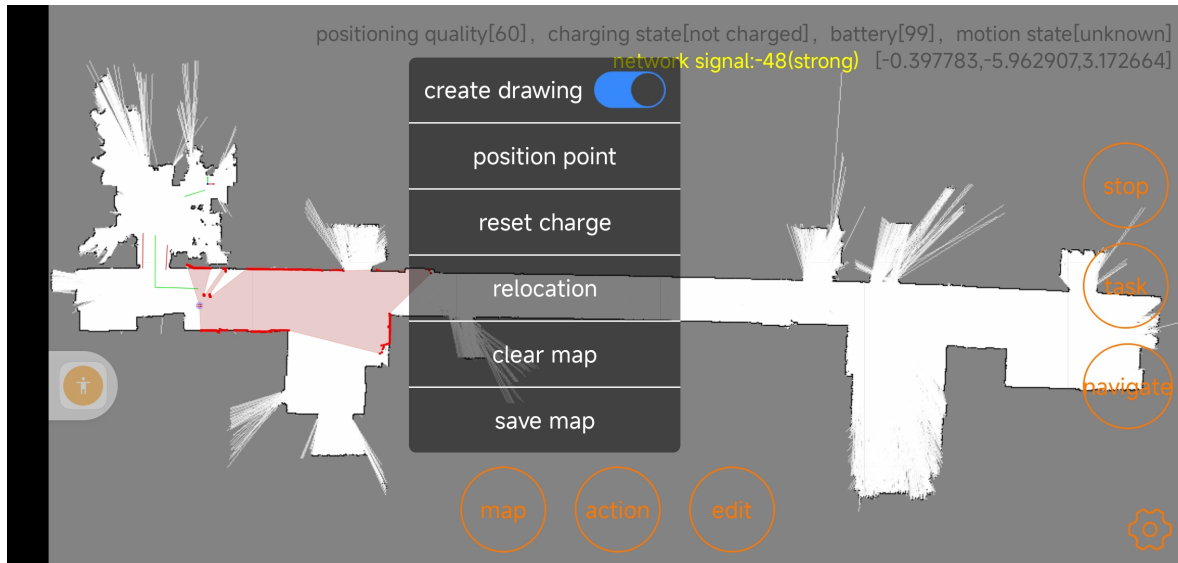vivo X50

CMCC-qPae

siduan

llinks 2.4G/5G

**After completing the WLAN settings, open the mapping software and enter the IP address of PPBot. The default IP is 192.168.11.1. Click the "Connect" button.**



**When the connection is successful, you will enter the following interface.**



**3 Map Creation**

Follow these steps for map creation:
1) As shown in the above image, toggle on "create drawing".

2)  Control PPBot's movement to scan the areas that need mapping. The scanned areas will appear white, while the unscanned areas keep gray. If you control PPBot using the directional keys, it does not have obstacle avoidance capabilities, so be cautious of obstacles to avoid collisions. If you click a specific location on the map area, PPBot will navigate and walk to that position, during which it can actively avoid obstacles. However, it cannot effectively avoid objects lower than the radar and ultrasonic scanning range.
3) After the map is complete, toggle "create drawing" off, and the map will no longer be updated.
4 Map Editing
4.1 Virtual Walls
After completing the map, you can create virtual walls for certain areas on the map. This feature allows PPBot to avoid these designated areas during navigation.
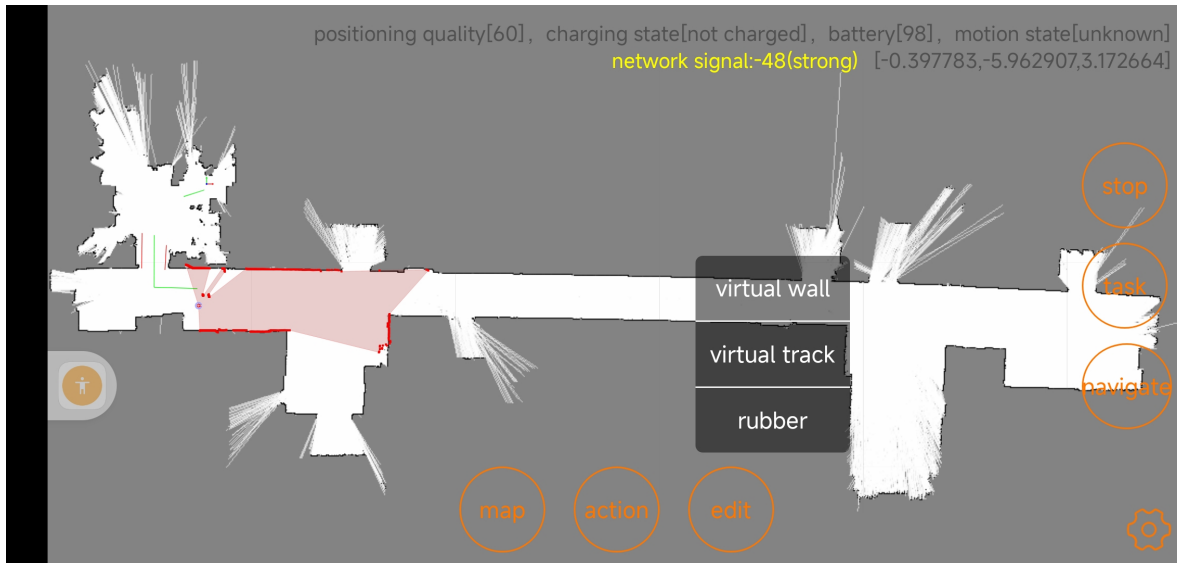
## 1) Creating Virtual Walls

Click "edit" → "virtual wall" → "add," then click on the desired location on the interface. After the first click, a red dot will appear, indicating the starting point. As shown in the image, click on the map area again to set the end point, and a virtual wall will be formed.
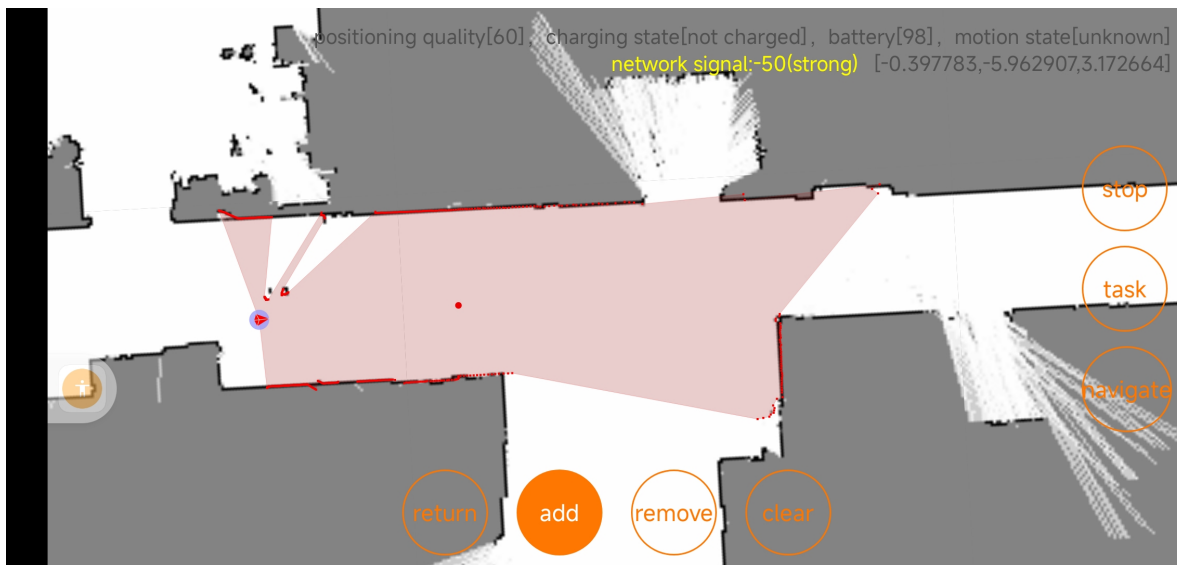
**The red line represents the virtual wall.**
**2) Removing Virtual Walls**

**Click "Remove," then click on the virtual wall you want to remove on the map area. Click "clear" to remove all virtual walls.**



**4.2 Virtual Tracks**
**You can draw virtual tracks on the map. This feature allows PPBot to navigate along these tracks (you need to select "Track Priority" in the configuration).**
**1) Creating Virtual Tracks.**

- **Between any two points on the map:**

**Click "edit" → "virtual track" → "add," then click on the desired location on the interface. After the first click, a green dot will appear, indicating the starting point. As shown in the image, click on the map area again to set the end point, and a virtual track will be formed.**
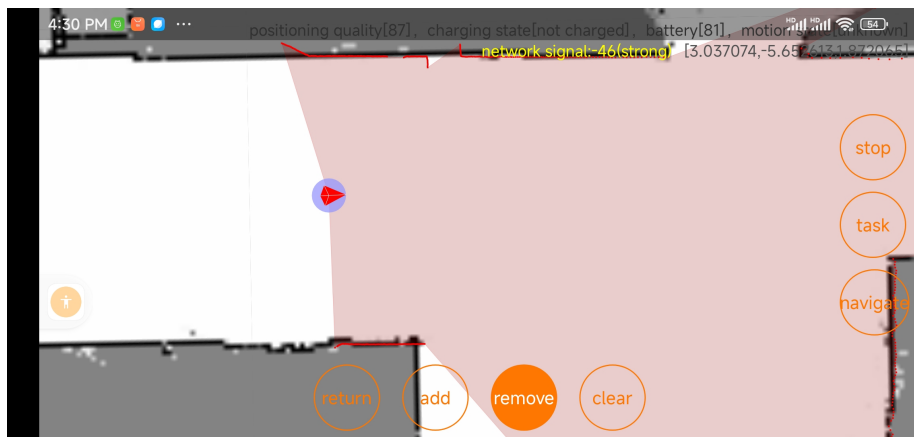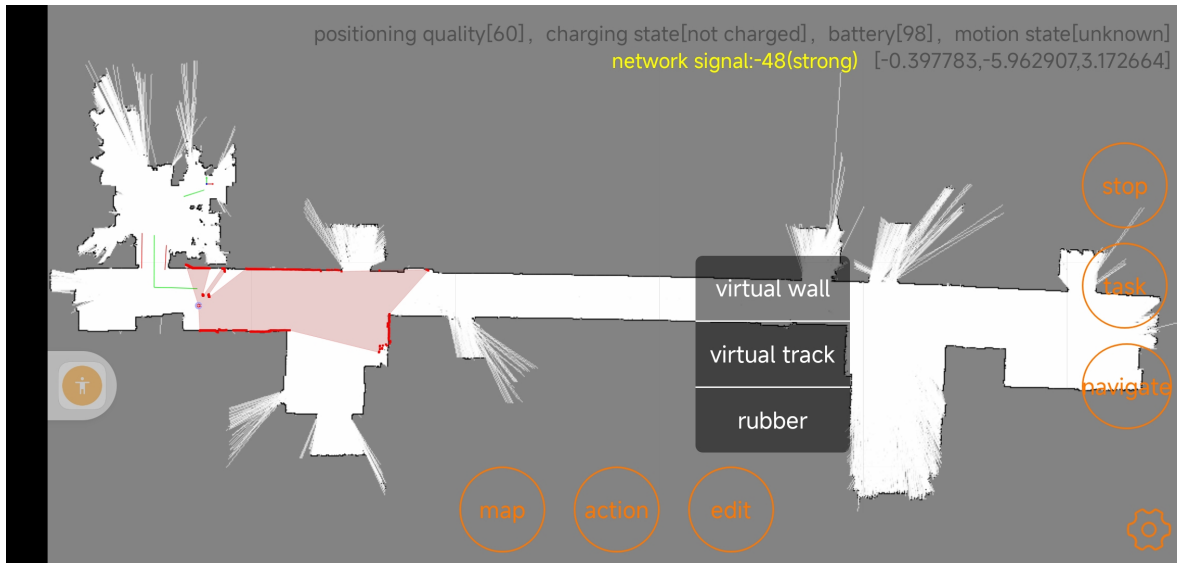
**- Between two position points:**

You can also set virtual tracks between two position points. After completing the position point settings, click "edit" → "virtual tracks" → "add" on the main interface, and the current position points will be displayed on the left. Select one position point (it will turn green) as the starting point, and then select another position point as the end point. A virtual track will be formed between the two position points.
**2) Removing Virtual Tracks**
Click "remove," then click on the virtual track you want to remove on the map area. Click "clear" to remove all virtual tracks.
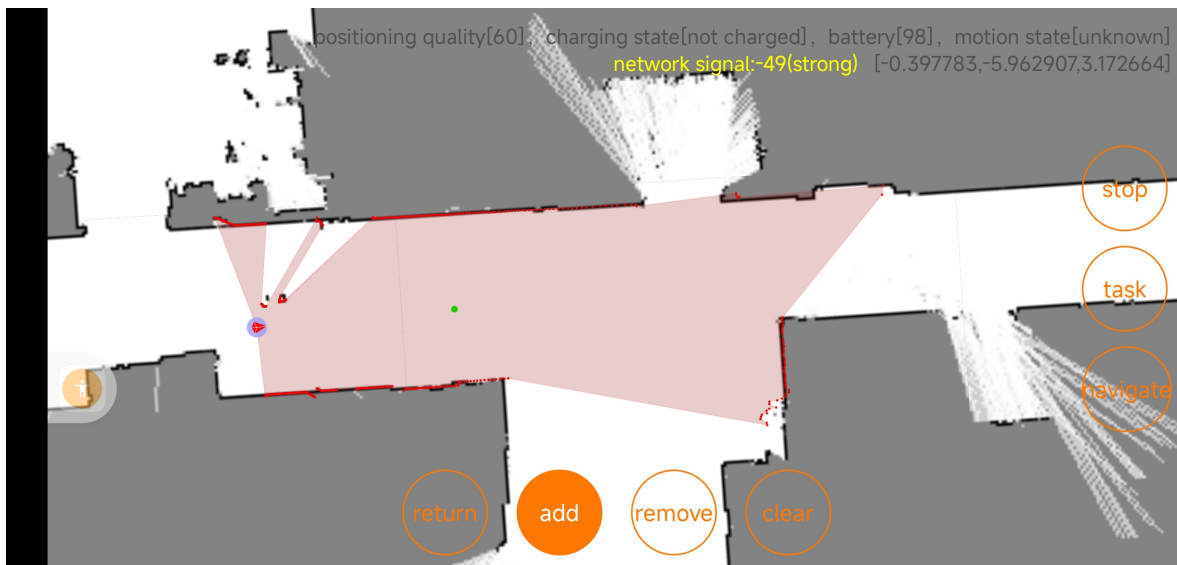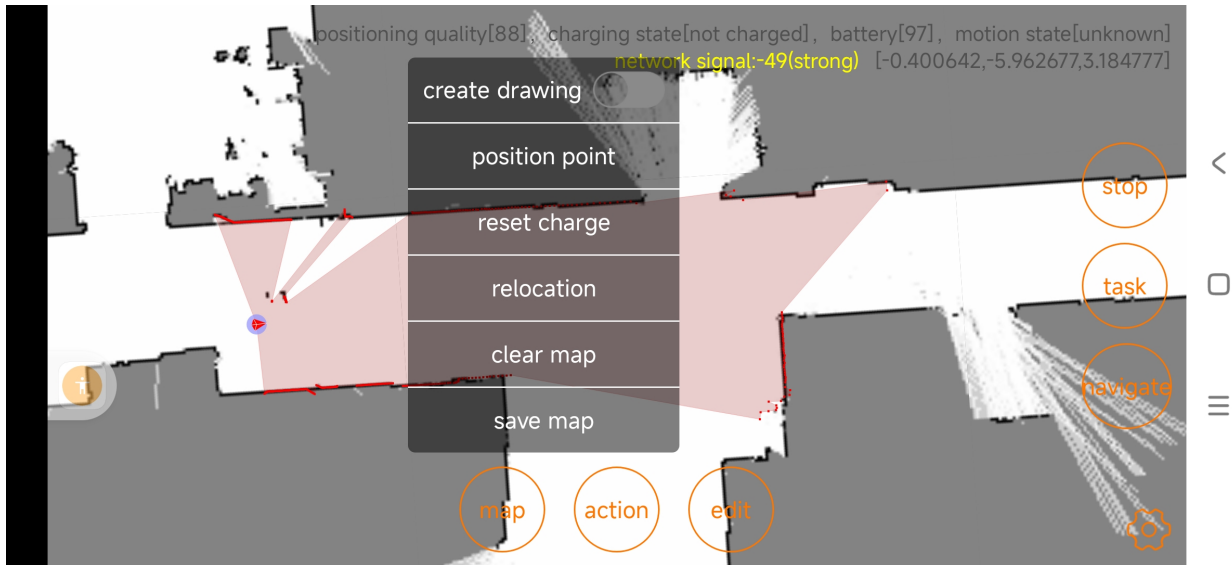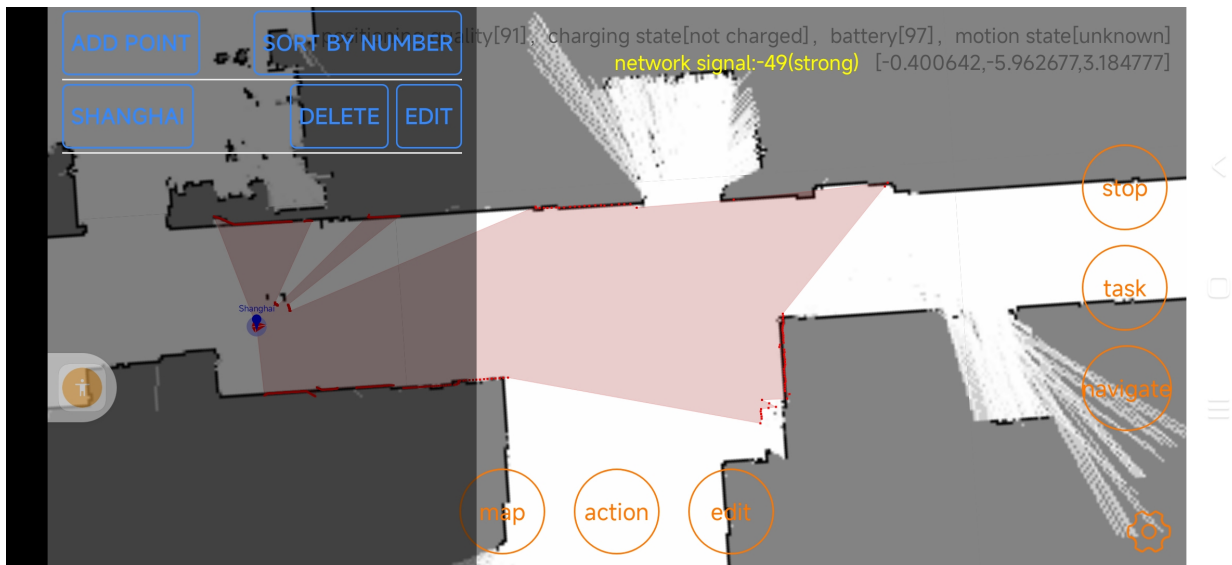
**5 Set Position Points**

After completing the map, you can also mark specific locations on the map as position points for later use in path planning. Follow these steps:
**1) Toggle off "create drawing"**

positioning quality[88], charging state[not charged], battery[97], motion state[unknown]
network signal:-49(strong) [-0.400642,-5.962677,3.184777]

create drawing

position point

reset charge

relocation

clear map

save map

map   action   edit

stop

task

navigate

**2) Control PPBot to the desired location for adding a point and rotate it to the specified angle.**
**3) Click "Position Points," then click "Add Current Position Point" and enter a number to complete the process.**



ADD POINT   SORT BY NUMBER   ty[91], charging state[not charged], battery[97], motion state[unknown]
network signal:-49(strong) [-0.400642,-5.962677,3.184777]

SHANGHAI   DELETE   EDIT

Shanghai

map   action   edit

stop

task

navigate

**4) Edit the current position point**

2:12 PM

edit the current location point

Shanghai

input Chinese name (optional)

input English name (optional)

UPDATE POINT LOCATION
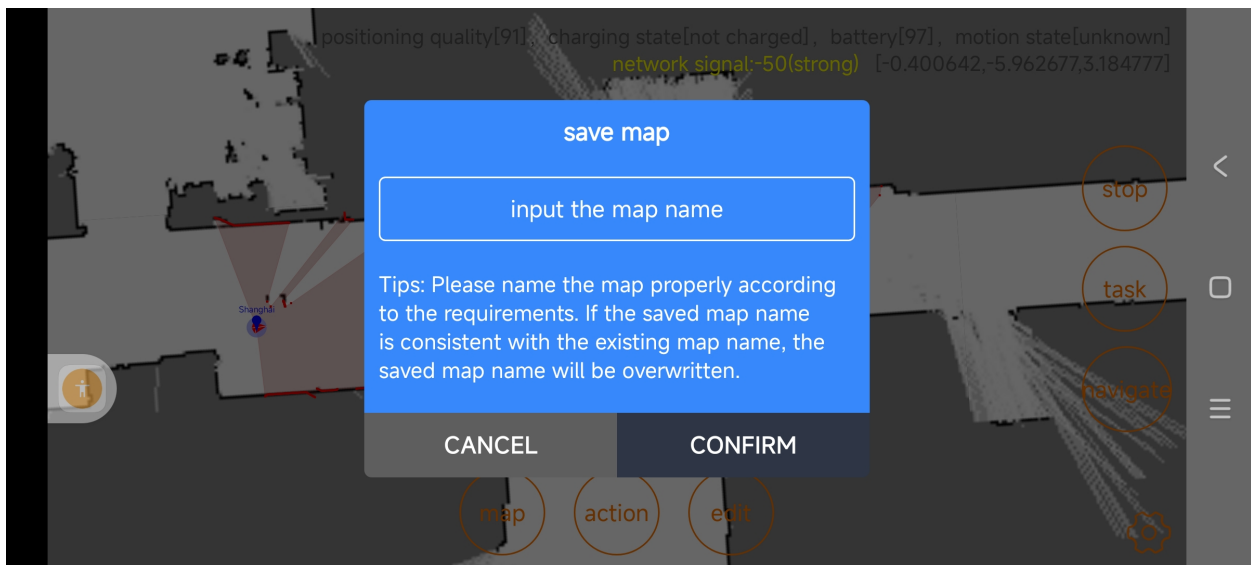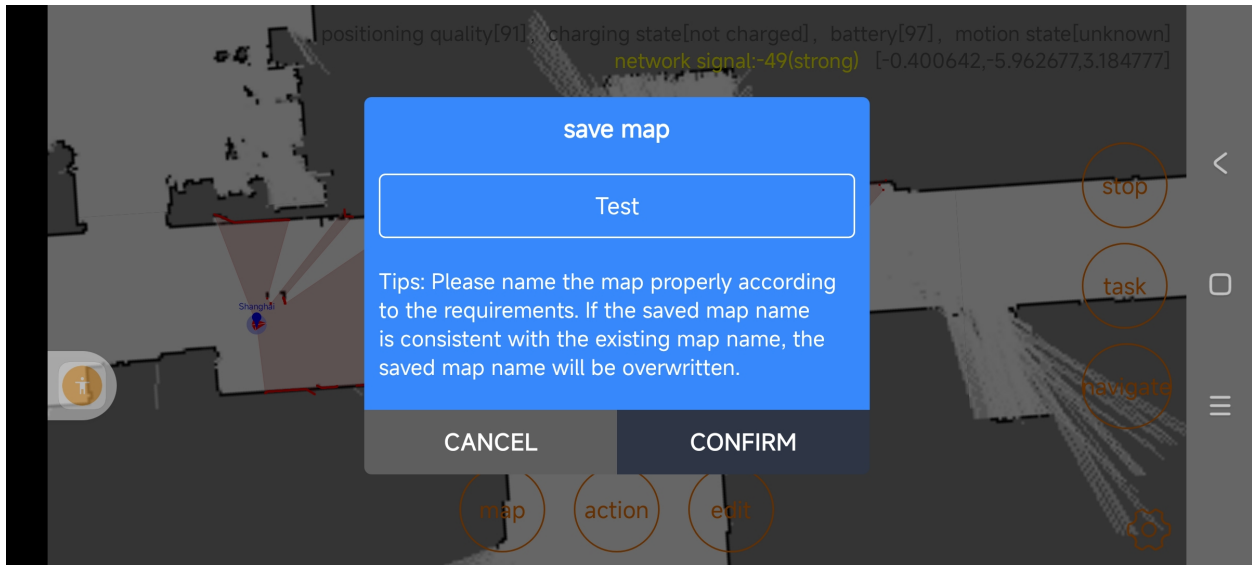
Tips: The name of the location dot and the name in Both Chinese and English can be modified, but cannot be repeated!

## 6 Save Maps
**After completing map editing, you need to save the current map for later use and loading.**



positioning quality[91], charging state[not charged], battery[97], motion state[unknown]
network signal:-50(strong)   [-0.400642,-5.962677,3.184777]

save map

input the map name

Tips: Please name the map properly according to the requirements. If the saved map name is consistent with the existing map name, the saved map name will be overwritten.

CANCEL          CONFIRM

stop

task

navigate

map    action    edit

## 7 Load Maps

**The mapping software can create maps for multiple environments and save the corresponding map files. Additionally, you can download existing map files to a new PPBot. In the map list, select the desired map file and click the "load" button to download and use the map on PPBot.**
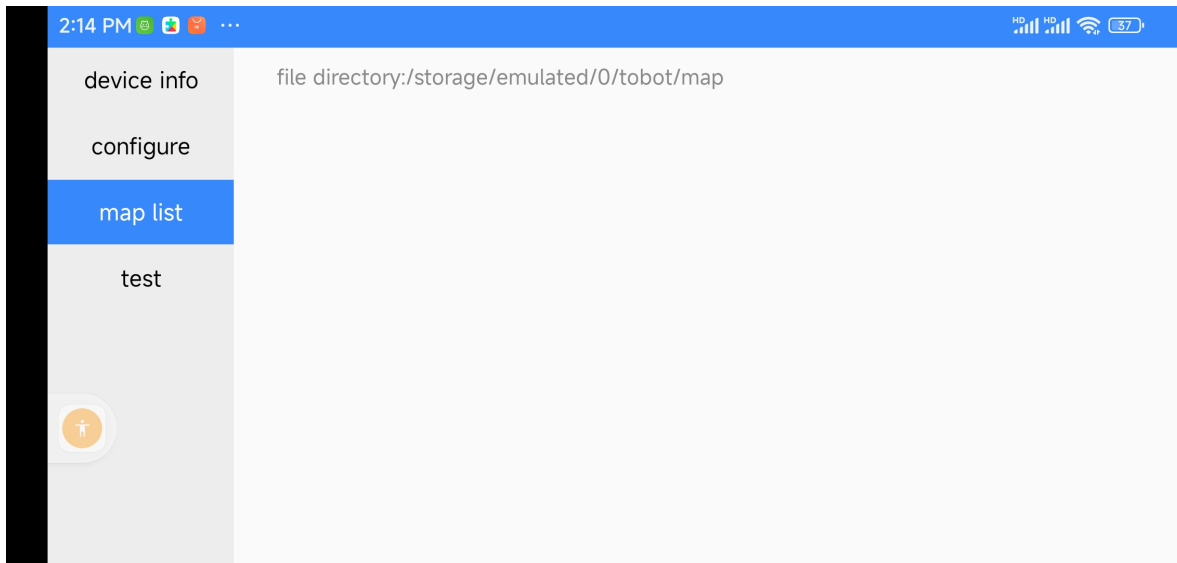


## 8 Manual Control
**PPBot can also be controlled manually using the directional keys for movement,**

**but it will not have obstacle avoidance capabilities. Click the "charge" button to automatically return to the charging pile for charging. Click on the map area on the screen to enable automatic navigation.**
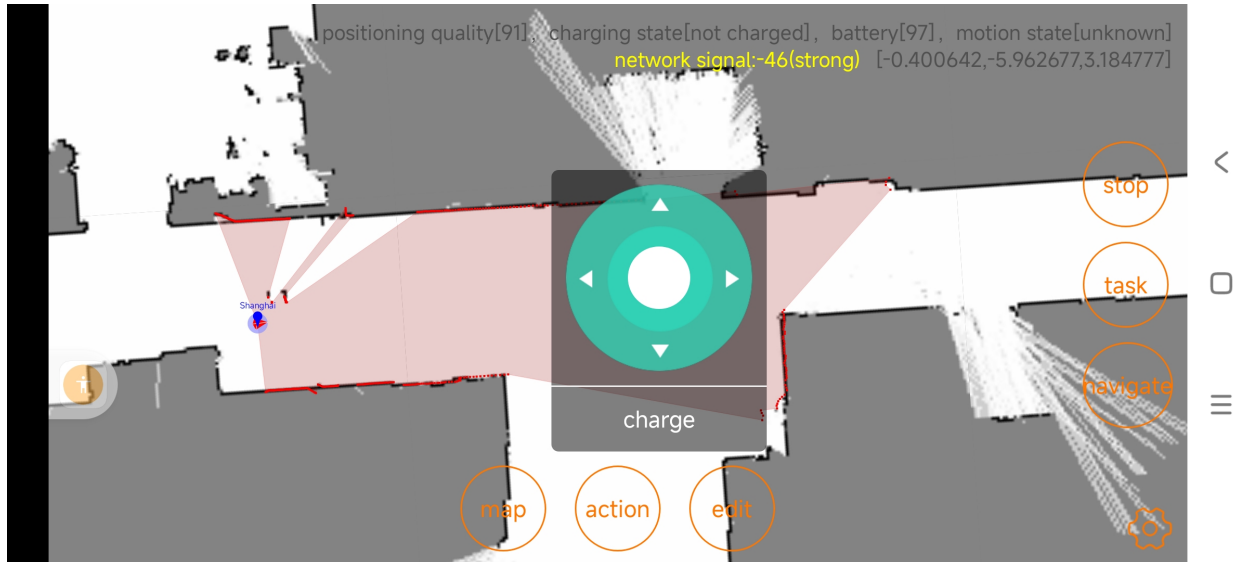


**9 Parameter Settings**
**9.1 Navigation Mode**
**- Free Navigation: When encountering obstacles during navigation, PPBot will replan its path.**
**- Track Navigation: When tracks exist, PPBot will navigate along the tracks. If obstacles are encountered, PPBot will stop.**
**- Track Priority: When tracks exist, PPBot will navigate along the tracks. When no tracks are available, PPBot will follow the planned path. If obstacles are encountered during track navigation, PPBot will leave the track, navigate around the obstacle, and then rejoin the track.**
**9.2 Point Arrival Mode**
**- Precise Point Arrival: When approaching a position point, PPBot will perform a secondary adjustment to reach the destination with higher precision, approximately within 8 cm.**

**Normal Point Arrival: When approaching a position point, PPBot will reach the destination with lower precision, approximately within 20 cm.**
**9.3 Obstacle Avoidance Mode**

**- Obstacle Avoidance: When encountering obstacles during navigation, PPBot will replan its path and navigate around the obstacles.**
**- Obstacle Pause: When encountering obstacles during navigation, PPBot will stop moving until the obstacles are removed, and then continue.**
**9.4 Low Battery Settings**
**Users can set the battery percentage threshold for PPBot to return to the charging pile for charging. When the battery level falls below the set value, PPBot will automatically return to the charging pile for charging.**