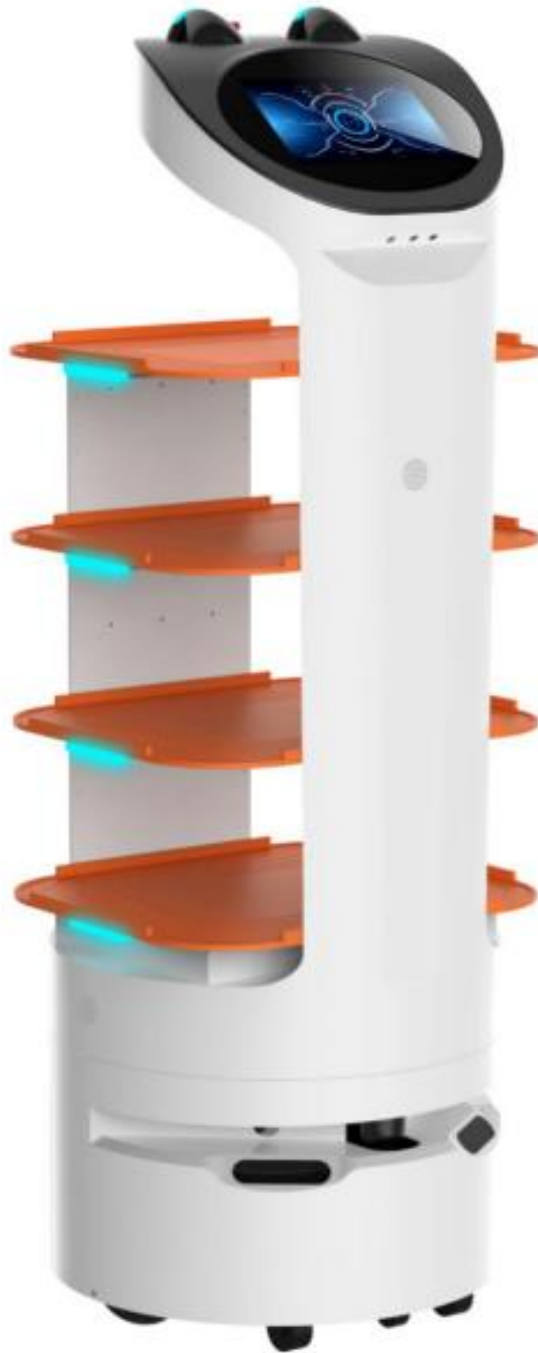


Panda Robot User Manual

Version : 2.2.4 G

Date : October 28, 22



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1、Product Description

Safety requirements for use

- ✧ Do not use immediately after an extreme temperature change (e.g., moving from a cold outdoor area to a warm indoor area).
- ✧ Do not use in dusty, wet, rainy, dirty or near magnetic fields.
- ✧ Do not use in an environment that is flammable, explosive, or near a heat source.
- ✧ Do not leave the robot in direct sunlight for a long time.
- ✧ The ground in the robot running area should be solid, smooth and flat.
It is not recommended to use the robot on carpet, soft and ditchy ground, or outdoors, which will reduce the robot's performance or risk the robot falling over.
(Since the robot can move and complete various movements independently, please pay special attention to: do not move on ground with slope to prevent injury to personnel, damage to the robot and damage to equipment, facilities and objects caused by accidental tipping or uncontrolled operation of the robot, and if moving on sloping roads, it needs to be guarded by a person)
- ✧ Please note that there are steps or steps in this area, avoid moving the robot in this area to prevent it from falling or falling down.
- ✧ In the case of all-glass doors and walls, please make sure to stick safety

signs between 22cm and 25cm from the ground to prevent injuries or damage to the robot.

- ✧ Do not drop, fall, crush, bend, poke, cut, microwave, burn or paint the robot and parts.
- ✧ Do not attempt to disassemble the robot and its accessories; disassembly should only be performed by authorized professionals
- ✧ Do not apply excessive pressure on the screen and device to avoid damage, only use your fingers to interact with the touch screen
- ✧ To ensure the reliability of this product and the safety of its operation, please make sure to use the exclusive accessories for this robot
- ✧ Avoid obstacles of too low a height (the height of obstacles must not be lower than the ultrasonic sensor and laser sensor installation position, not less than 25cm)
- ✧ Avoid escalators, stairs, steps and other environments with a drop greater than 5cm
- ✧

Charging Notes

- Please use the original AC-DC power cord and the charging station equipped with the robot to charge the robot.
- Use a power supply that is properly grounded and meets the requirements

of local codes and regulations and this manual, as failure to do so will result in electric shock and damage to the robot.

- No touching or handling of the robot while it is charging
- Do not drop or hit the charging pile
- Do not touch the power cord with wet hands or unplug the charging pile by pulling the power cable
- Prevent the charging pile from being wetted by rain, liquid and moisture
- If the robot is not used for a long time, it is recommended that you charge it every 15 days or so to ensure that the battery is always active and in the best condition.
- Do not use the battery for other devices
- Don't try to touch the charging pile and the charging port output of the robot, there may be some risk
- Charging pile layout area needs to be against the wall and open within a radius of 2 meters

※ Special attention: improper operation of the battery can cause accidents such as battery explosion, fire, leakage and corrosion

Structure parameters

①Robotic components overview



①10.1-inch display

②3D camera

③Speaker

④dinner tray light

⑤3D camera

⑥15.6-inch advertising screen

⑦Infrared sensor

⑧Charging electrode sheet

⑨Emergency stop button

⑩dinner tray

⑪ Power button

⑫Laser

②Specification parameters

Product Specifications	
Operating System	Android7.1
Overall size	500mm(L)X500mm(W)X1460mm(H)
Total Weight	62Kg
Dinner tray size	500mmX430 mm
Number of plates	4
Single plate weight limit	12Kg
Processor type	RK3399
Memory LPDDR3	4G
FLASH	16GB
Screen size	Front main screen: 10.1 inches, resolution 800*1280 Rear advertising screen: 15.6 inches, resolution 1080*1920
Android WiFi	Support 2.4G
Remote function	Support remote navigation status monitoring, remote online update navigation system
Environmental requirements	Working temperature: 0°C~50°C Ambient humidity: 5% ~ 85% Storage temperature: -10°C~50°C
ROS Navigation Specifications	

Operating system	LINUX
laser	25 meters, 905 nm wavelength, 230° working area
Gyro sensor	Single-axis gyro sensor
Hard disk	32G high-speed solid state drive
Motor driven	6.5 inch hub motor
512AN_HMW module Intel WIFI	Support dual-band 2.4&5G WIFI&BT4.1 802.11b/g/n wireless LAN 11ac 5.15GHz-5.825GHz
Moving speed	0.1~1m/s (custom)
Navigation Board	Intel Core I5 Motherboard
Navigation	Laser Navigation + Visual Obstacle Avoidance
Power Systems	
Battery capacity	Lithium Iron Phosphate Nominal 25.6V 25AH
Battery life	≥10 hours
Charging time	28.4V/7A (about 4 hours)
Charging method	Manual charging, automatic recharging

2、 Instructions for use

A. Meet Your Robot

Power on: long press the figure below 【On/Off button】 , 1 to 2 seconds or so, the buzzer a short "drop" sound, wait for the machine to turn on.

On/Off button



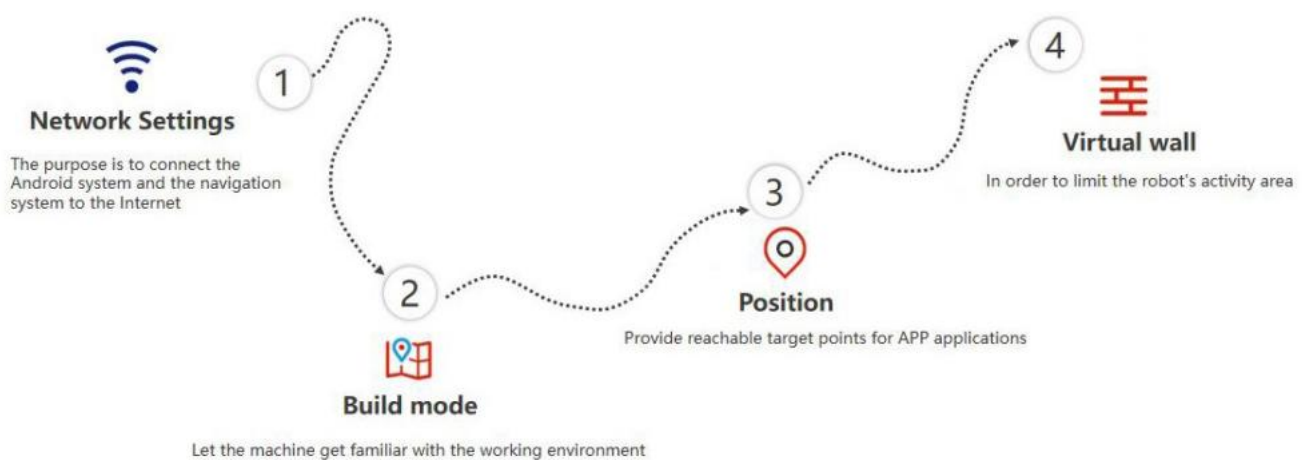
Shut down: long press the 【on/off button】 for about 3 seconds, the beeping sound "beep" display will first rest screen shutdown, and then the motor power off.

Charging: You need to plug the adapter into 110-220V and the DC head into the automatic charging pile, then the green light of the charging pile will be turned on, indicating the charging status ready.

- ① Manual charging: push the robot onto the charging pile and make full contact between the charging piece at the back of the robot and the charging piece on the charging pile.
- ② Auto-charge: Refer to the following navigation deployment, after deploying the charging stake points, open the 【Delivery】 app on the Android screen to customize the power value that triggers auto-charge back

B. Navigation Deployment

Note: The following content is the introduction of all the functions of the robot deployment background, the functions that must be operated are 1,2,3,4 points in the figure below, other functions depend on specific scenarios and usage.



The Step 1 【 Network Settings 】

Open the 【Delivery】APP on the Android screen of the robot, and when you enter the APP for the first time, follow the APP guide: select the APP language - connect to the network - to enter the APP

The Step 2 【 Build map 】

- **The purpose of building the map is for the robot to recognize the working environment**
- The robot needs to scan the actual environment to build the "original map", and the machine can compare with the original map based on the real-time scan during the navigation process to find its location

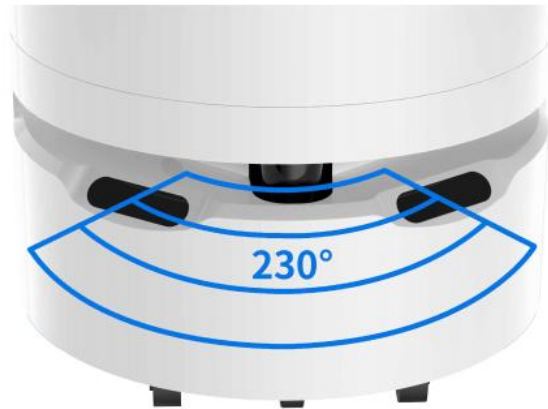


Actual environment



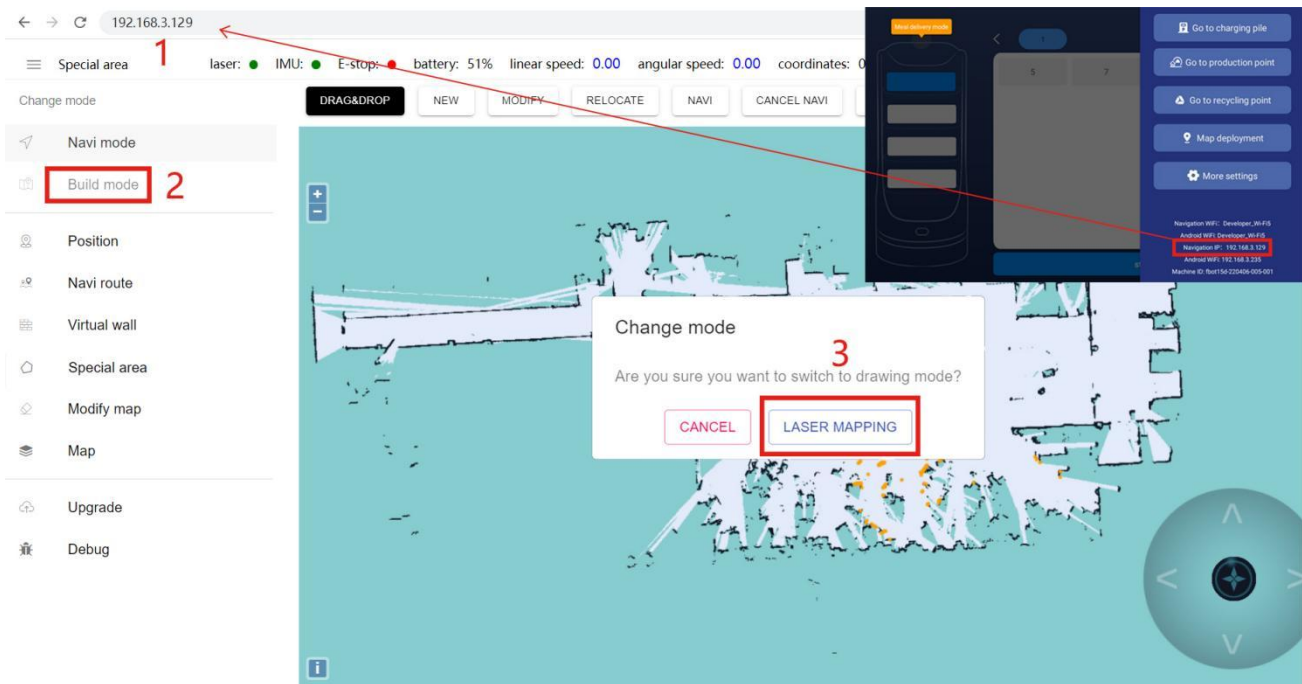
The map scanned by
the robot's laser

- The view angle of Laser is 230°, the scanning range is the horizontal plane of the radar height; the scanning distance is 25m



- Require a person to stand back and push the robot, or use the keyboard arrow keys to control the build chart

1. Please follow the order of the chart below to enter the build page



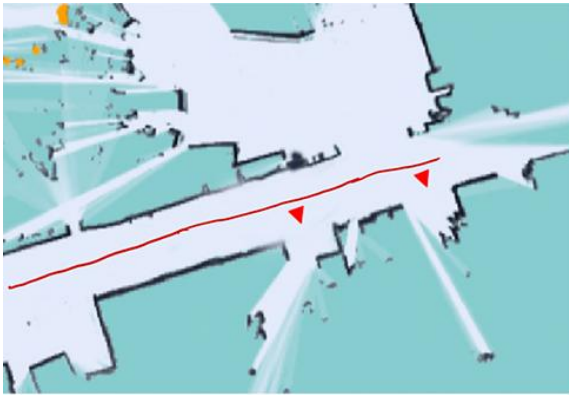
①Obtain the IP from the "Navigation IP " of the 【Delivery】 app.

Note: The scanning device (computer or cell phone) needs to be connected to the same LAN as the robot (chrome browser recommended)

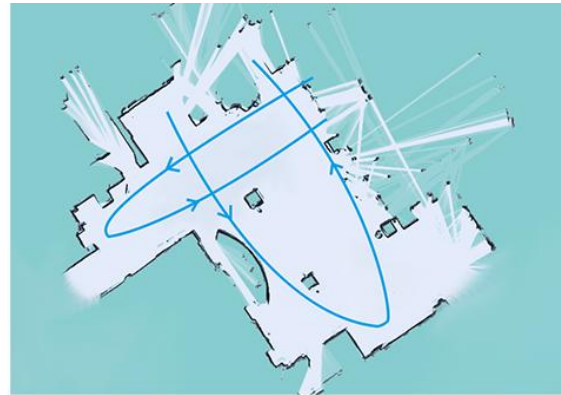
Building method: you can turn on the emergency stop switch and click the button to control the robot, or use the keyboard arrow keys to control the robot to build a map; you can also press the emergency stop switch to push the machine to build a map.

2. Enter the "Build mode" after the machine first in situ turn a circle to sweep the surrounding features, do not turn too fast when the speed, after a circle can be pushed (control) machine to go. Narrow areas can take a straight line, the process of walking need to pay attention to encounter a gap in place, slowly rotate the machine in place 90 ° to face the gap to clear the feature

points, and then slowly turn back to continue to sweep the map; open areas can follow the U-shaped route, as follows



straight line



u-shaped route

3. pushing (control) the machine to go when you need to pay attention to the laser and the actual terrain match, if the match does not stop for a while, wait for the laser and the actual terrain match and then continue to go. As shown in the figure below.

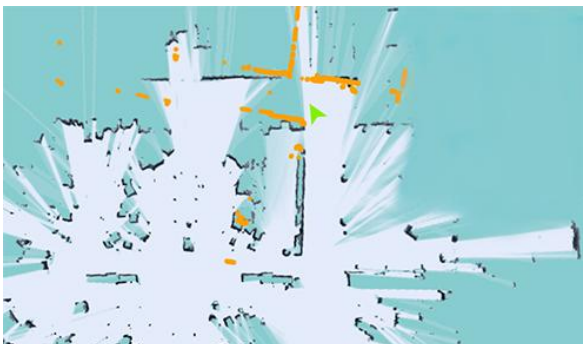


figure 1

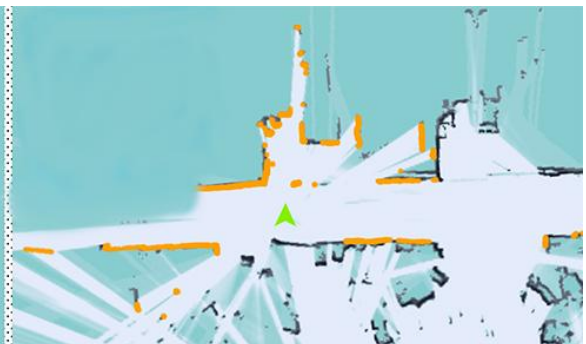


figure 2

Figure 1: Laser and terrain mismatch (when the laser and terrain do not match, you have to stop and wait for the laser and terrain to match before

continuing to push the robot to build the map)

Figure 2: Laser and terrain matching (some areas need to be turned around for the robot to sweep clearly, such as wide terrain and in rooms)

4. Once the machine reaches the end of the line, do not move the machine again, just observe if the map is neat and free of ghosting and matches the actual terrain, if there is no obvious misalignment, then you can click "Finish", if there is a misalignment, please wait for a while and the algorithm will correct it. If there is no successful correction in 10 minutes, consider rebuilding the map.

Caution:

1. Choose a place with obvious feature points and neat terrain as the starting and ending points, and slowly turn around in place at the beginning to scan the surrounding environment clearly.

2. When pushing or controlling the robot, walk slowly, always watching to see if the laser matches the terrain. If a mismatch occurs, you need to stop and wait for the laser to match the current terrain.

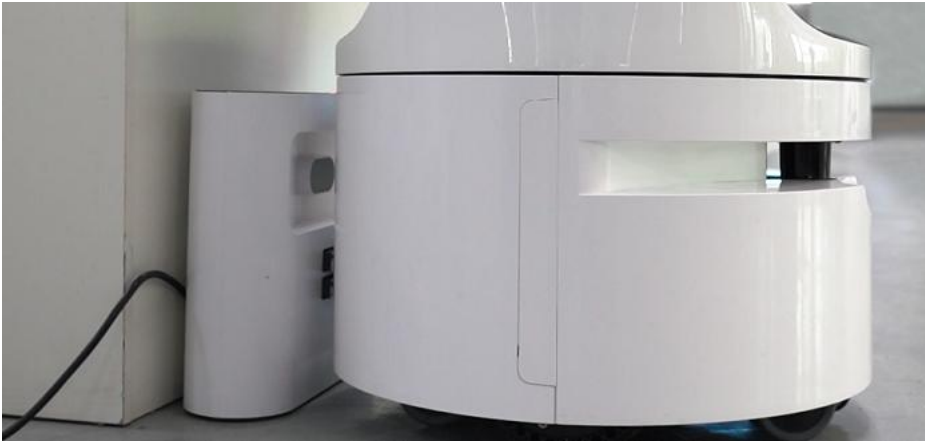
3. When the robot reaches the end, observe whether the map is neat and free of overlap and matches the actual terrain. If there is no correction in 10 minutes, consider rebuilding the map.

The Step 3 【 position 】

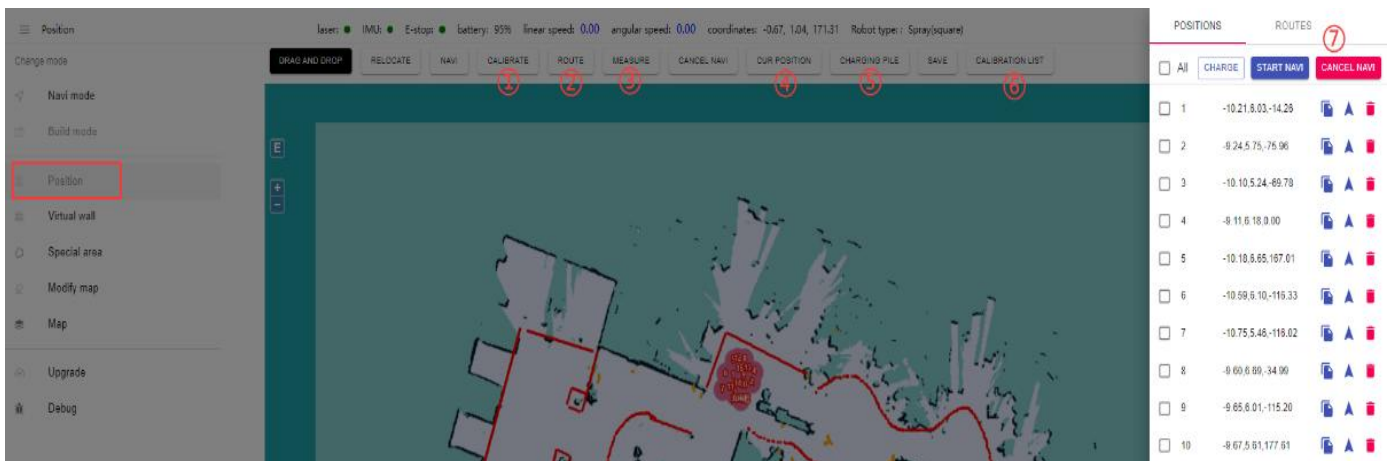
The role of the calibration location: to provide reachable target points for business layer applications

Note: The calibrated position should be at least 20 cm away from the surrounding obstacles as well as the virtual wall; the machine must be turned on within 2m of the charging pile for subsequent use.

Schematic diagram of the charging pile calibration method:



Firstly, move the machine to place the charging slider of the machine right in front of the charging slider of the charging pile and click the button "Charging pile" on the menu bar of the map.

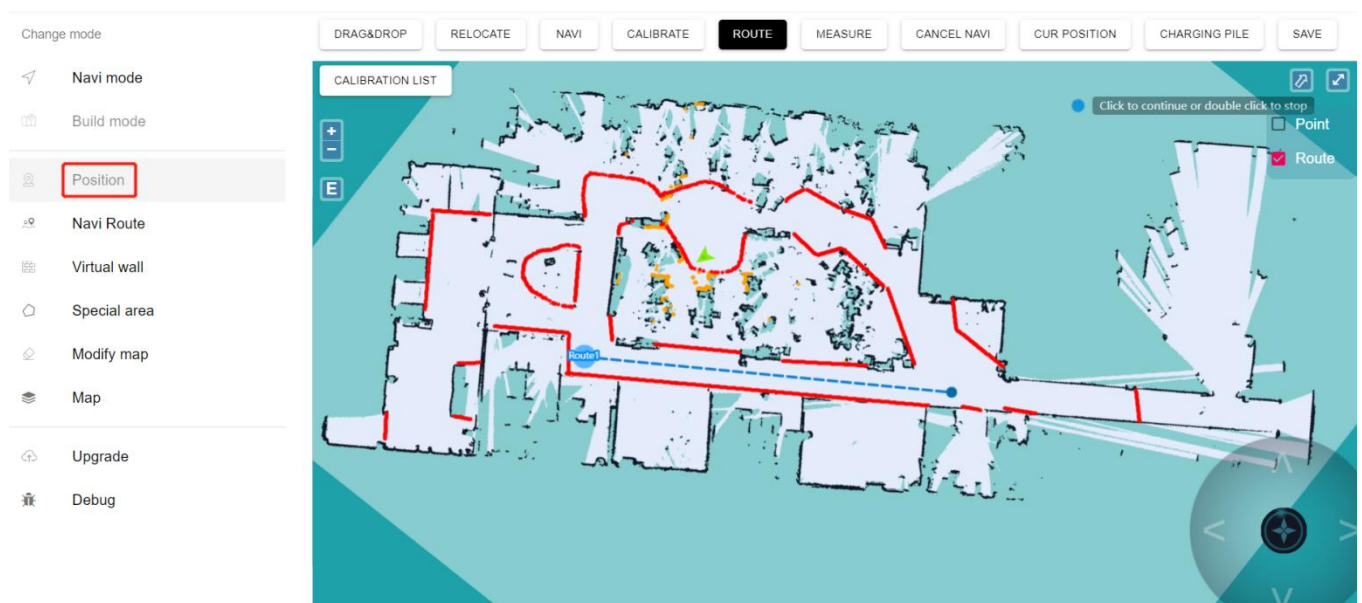


①**CALIBRATE:** You can drag and drop on the map to get the coordinates of the specified location for calibration

②**ROUTE:** You can click on the map to plan a fixed route for the machine to navigate

Route drawing method: Click **【Route】** , click and move the mouse on the

place where the route needs to be planned on the map to draw a route, and then name the route in the prompt box that pops up on the web page. The blue straight line in the figure below is the planned route. (step: the distance between two points on the route)



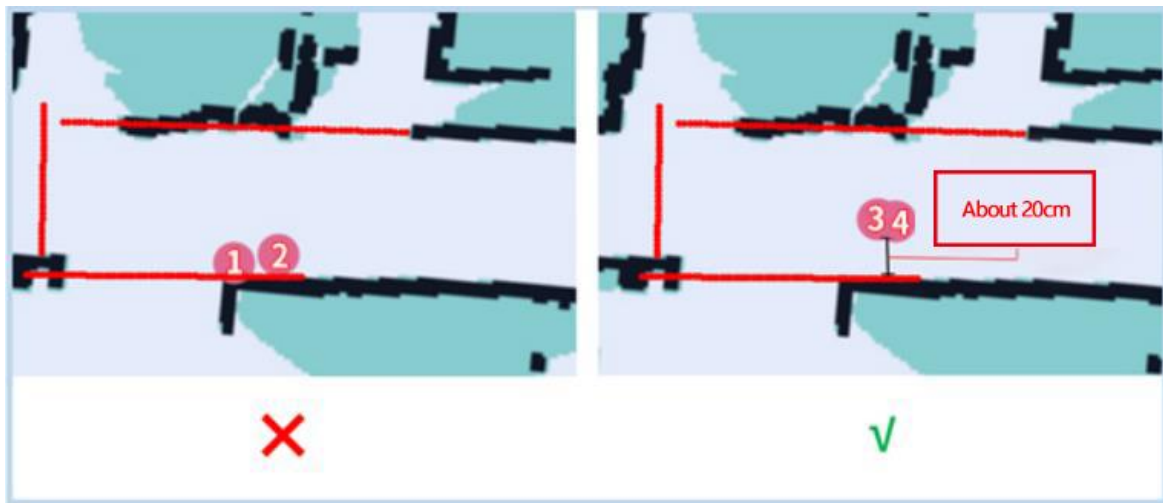
③**MEASURE:** Click on any two points on the map to get the distance of the driving route

④**CUR POSITION:** The current position of the robot can be obtained for location calibration

⑤**CHARGING PILE:** Place the charging shrapnel of the robot right in front of the shrapnel of the charging stake, and then click on "charging pile" to calibrate it, the icon will move forward automatically when calibrating (Note: only this point is an exception)

⑥**CALIBRATION LIST:** When you click on it, the "Location List" and "Route List" will pop up on the right side of the screen.

➤ **The calibration example is as follows:**



Caution:

1. Make sure that the current position of the machine is correct when you calibrate the position.
2. The calibrated position should be at least 20 cm away from surrounding obstacles and virtual walls.
3. It is recommended that there are no obstacles within 1.5 meters to the left and right of the charging pile

The Step 4 【 virtual wall 】

Function: Restrict the robot's activity area



DRAG&DROP: The map can be zoomed, panned, and rotated. Press "Shift+Alt+left mouse button" to rotate the map; Press "Ctrl+left mouse button" to select. A rectangular area will be selected, and the virtual walls in that area will be cleared.

DRAW CURVES: Can draw a section of curve, often used in the drawing of irregular terrain.

DRAW LINE: Click on two locations to draw a straight line between

the clicked locations automatically, often used for regular terrain or roughly drawing the general area

ERASER: Just circle the virtual wall you want to remove

SAVE: The drawn virtual wall will be stored only if you click "Save"

CLEAR ALL: If you are not satisfied with the current virtual wall, clicking the Clear button will clear the virtual wall altogether (you need to click Save for it to take effect)

Example: Glass wall

Note: The laser can penetrate the glass, so when drawing the virtual wall, you need to pay attention to draw the virtual wall outside the glass some



figure 1



figure 2



figure 3



figure 4

figure 1 Actual environment

figure 2 Map scanned by laser

figure 3 Error

figure 4 Correct

Example: Table

Note: The laser can only scan a horizontal plane, so consider the protruding part of the desktop when drawing the virtual wall



figure 1

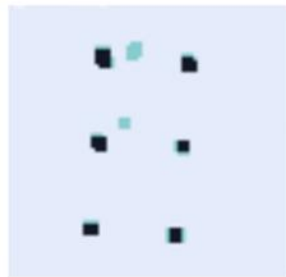


figure 2

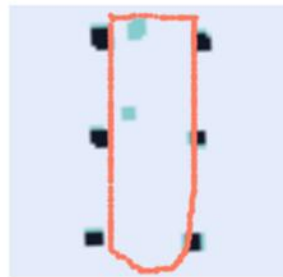


figure 3

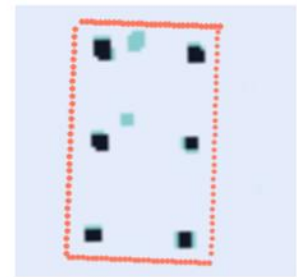


figure 4

figure 1 Actual environment

figure 2 Map scanned by laser

figure 3 error

figure 4 correct

Caution:

1.The minimum passing distance of the machine is 90cm, so take care of this when drawing the virtual wall

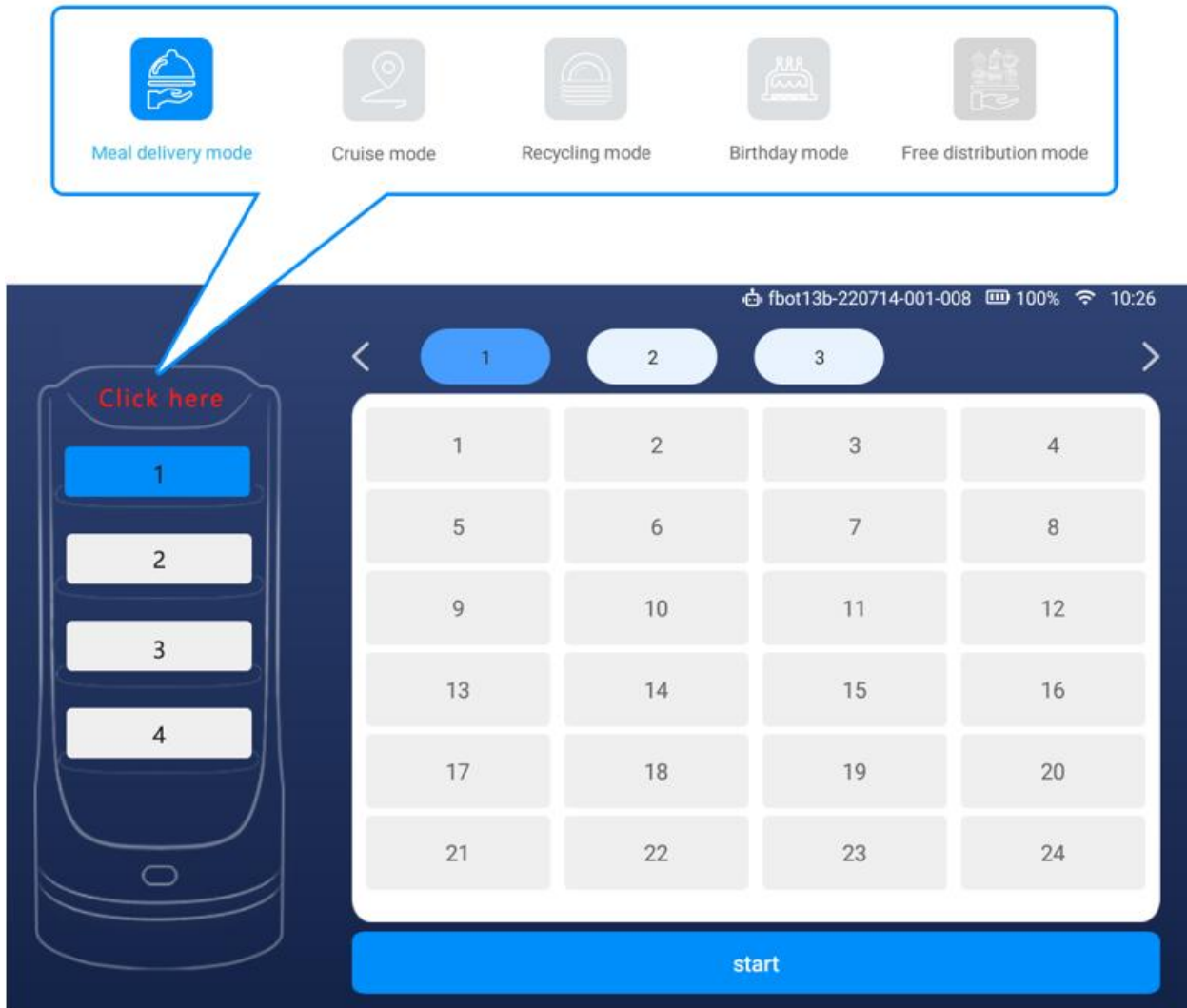
2.The main purpose of the virtual wall is to draw the space for the robot to move around and to separate the area where you don't want the robot to travel with a virtual wall

3. Please be sure to create virtual walls for areas that do not need to be driven or where the laser cannot be swept (glass walls, tables, chairs, steps, and translucent and fragile objects, etc.)

The Step 5 【 Start delivery 】

Open the 【Delivery】 software on the screen.

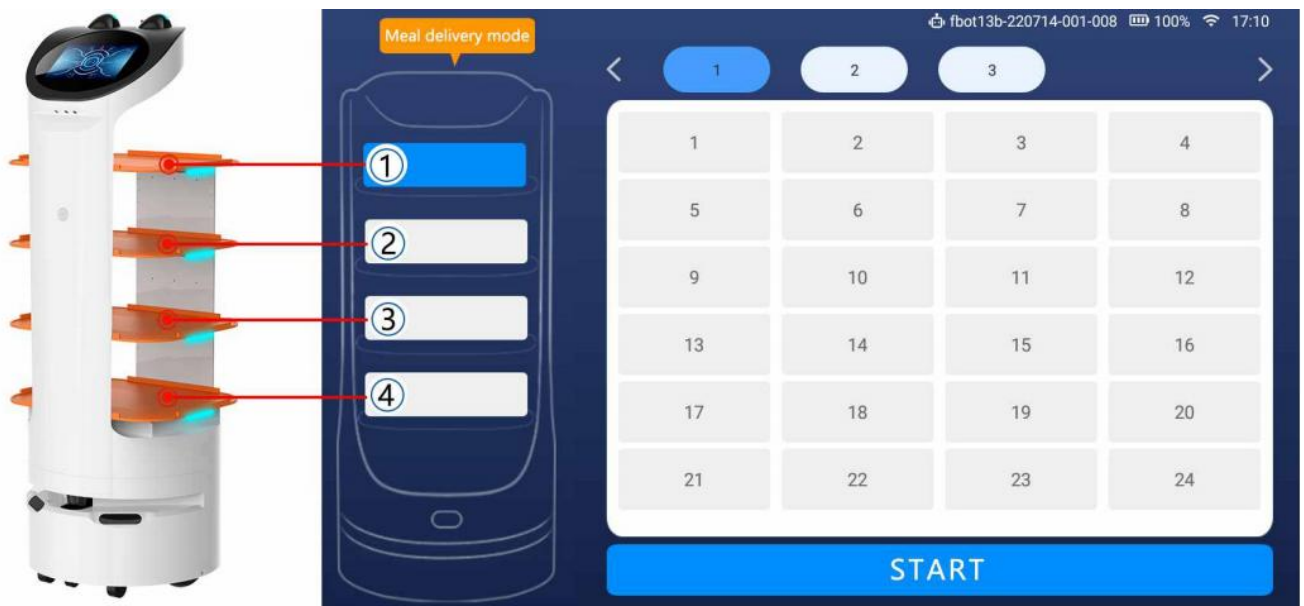
5 delivery modes are supported: 【meal delivery mode】 , 【cruise mode】 , 【recycling mode】 , 【birthday mode】 , and 【free distribution mode】 . Please refer to step 6 【More Settings】 for detailed use of different delivery modes.



a, select the table

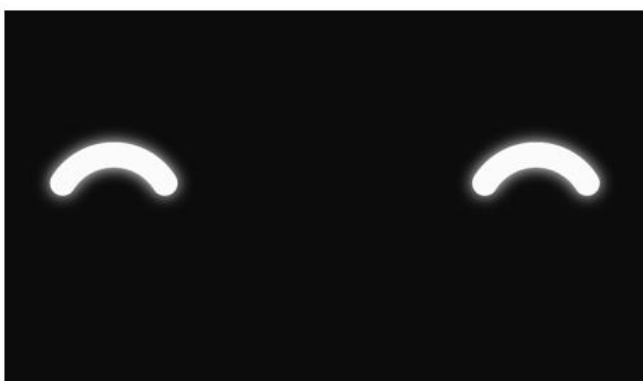
As shown below: The 1, 2, 3, 4 shown on the table selection interface corresponds to the meal tray grid on the delivery robot, the meal delivery mode can only choose one meal tray grid delivery point.

(The factory default is the【meal delivery mode】, if you need a grid meal tray corresponding to multiple tables can be switched to the 【free distribution mode】)



b, Meal delivery

The machine will be in accordance with the dining tray grid of the selected table to send meals in turn, the machine will start counting down after reaching the target point, the countdown will end to the next delivery point or click the screen 【go to the next table】 will end the countdown early (【return】 : the machine will return to the 【production point】)



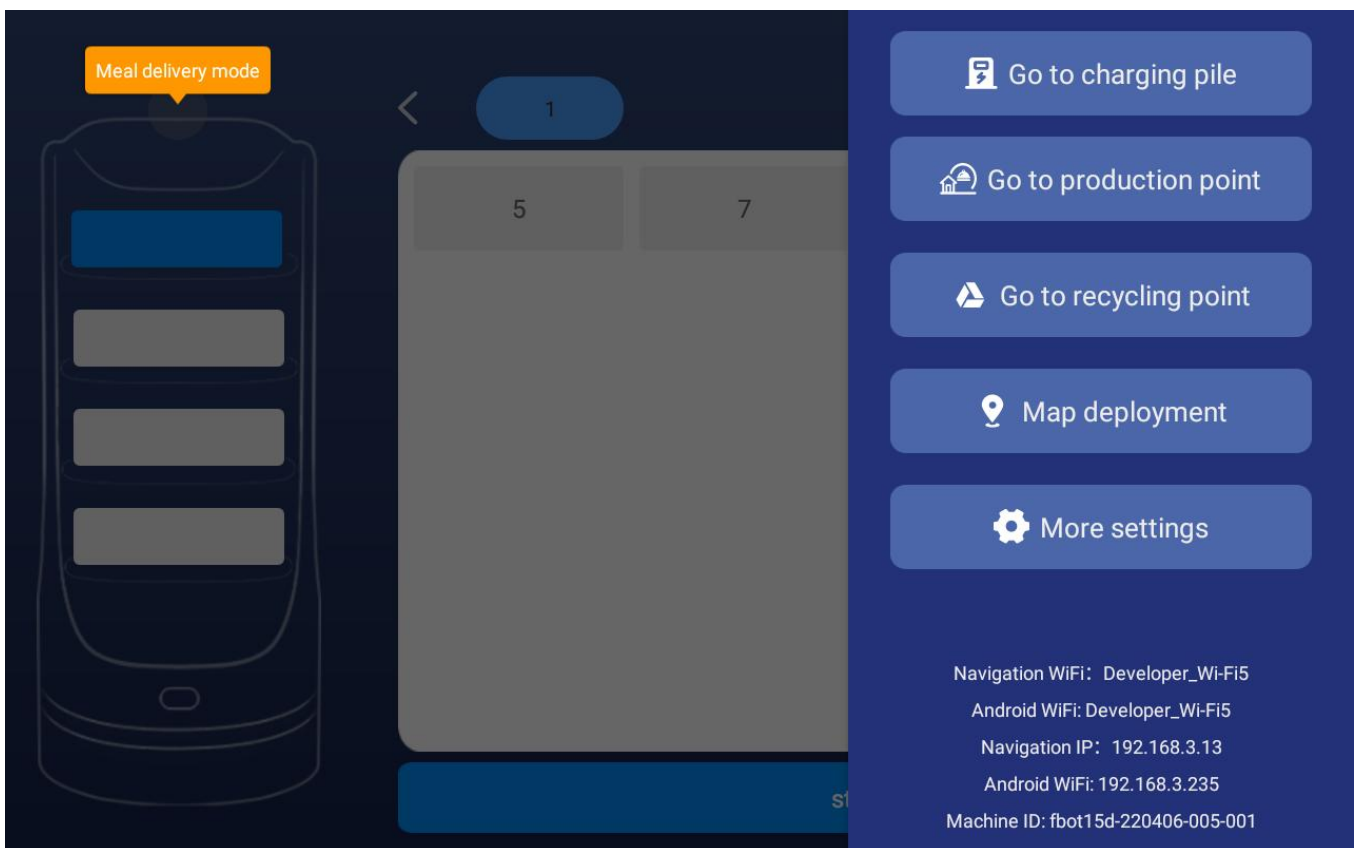
Interface status during delivery



Arrival at table position interface status

c, Charging

- ①Open APP, when the power is lower than the set minimum, the machine will automatically return to the charging pile to charge.
- ② When the machine starts charging interface state will have charging tips **d, swipe from the right side of the screen to the left for more convenient operations, as shown in the following interface**



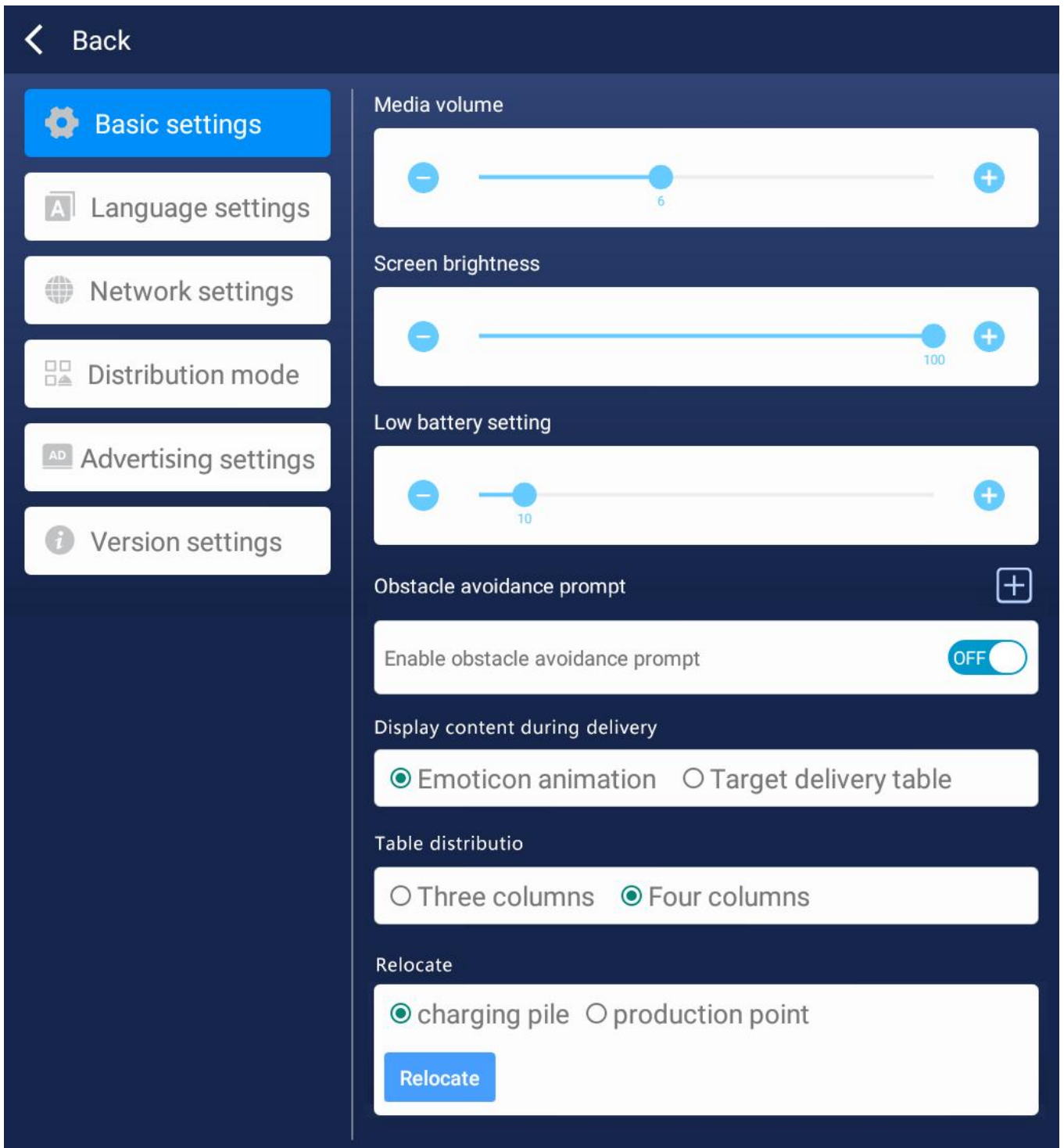
- ①**Go to charging pile:** Click on the machine will go to the charging pile for charging
- ②**Go to production point:** Clicking on the machine will take you to the pick-up window
- ③**Go to recycling point:** Clicking on the machine will take you to the plate collection point

④**Map deployment:** You can re-enter the map to add points or rebuild the map, etc.

⑤**More settings:** Please refer to step 6 **【More Settings】** for specific content settings

The Step 6 【 More Settings 】

●**Basic settings:** You can change the language, switch the network, select the meal delivery mode and other operations



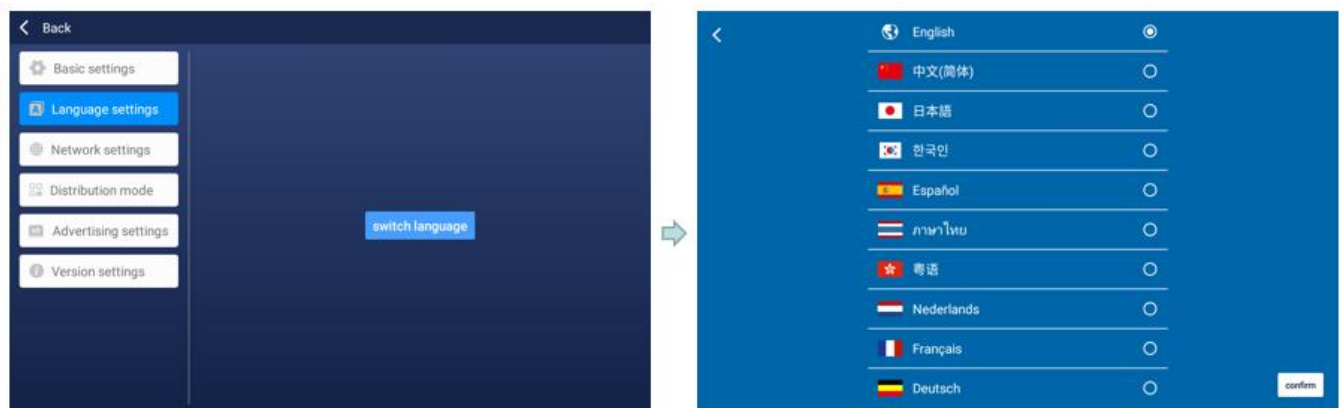
Low battery setting: Trigger low power automatic charging value of the machine

Obstacle avoidance prompts: The announcement prompt when the machine encounters an obstacle during operation, click to  add a custom

announcement

Relocate: Move the machine to the repositioning location, then turn the machine's emergency stop switch to the right, then click the repositioning button, the machine will be repositioned to the current position

●**Language settings:** You can switch other languages

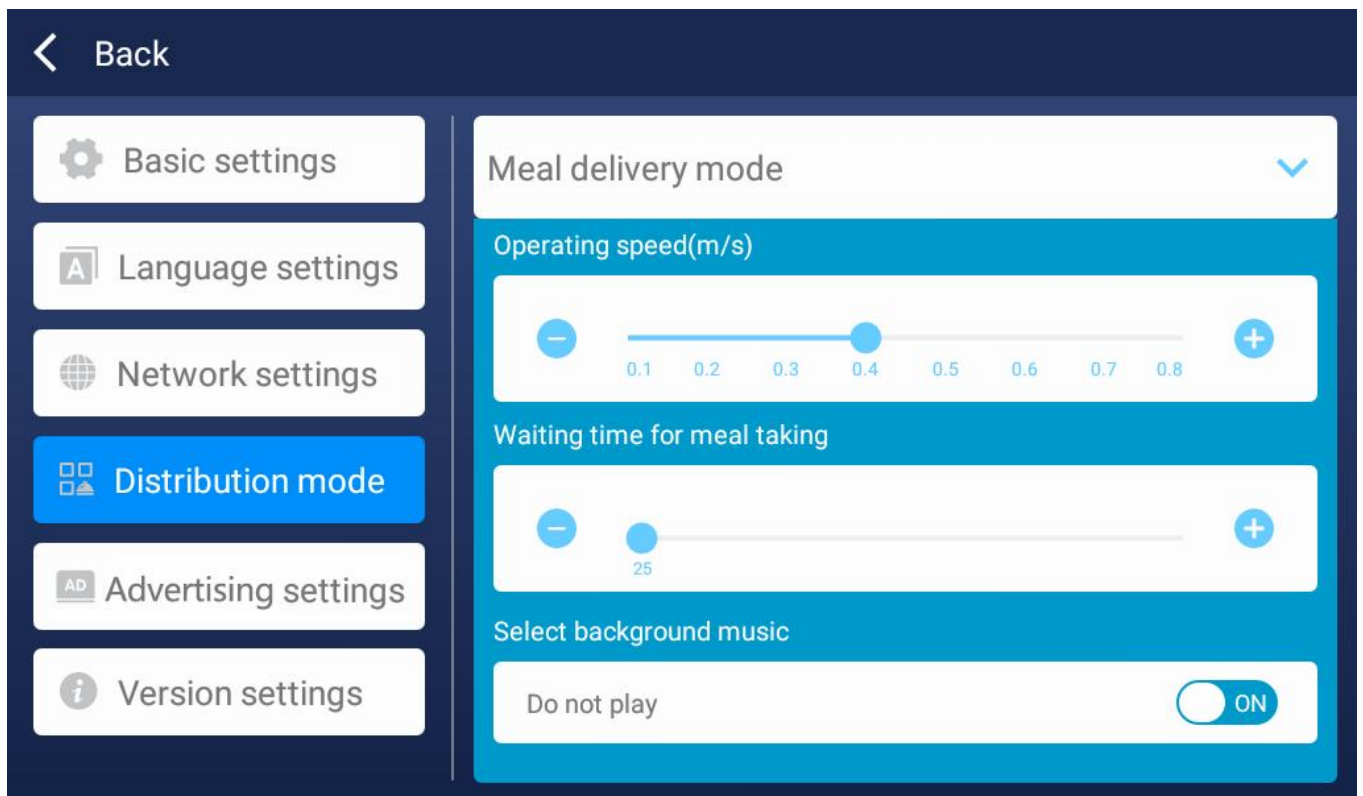


●**Network settings:** You can switch to other network



●**Distribution mode:** You can select the content of the desired mode to adjust

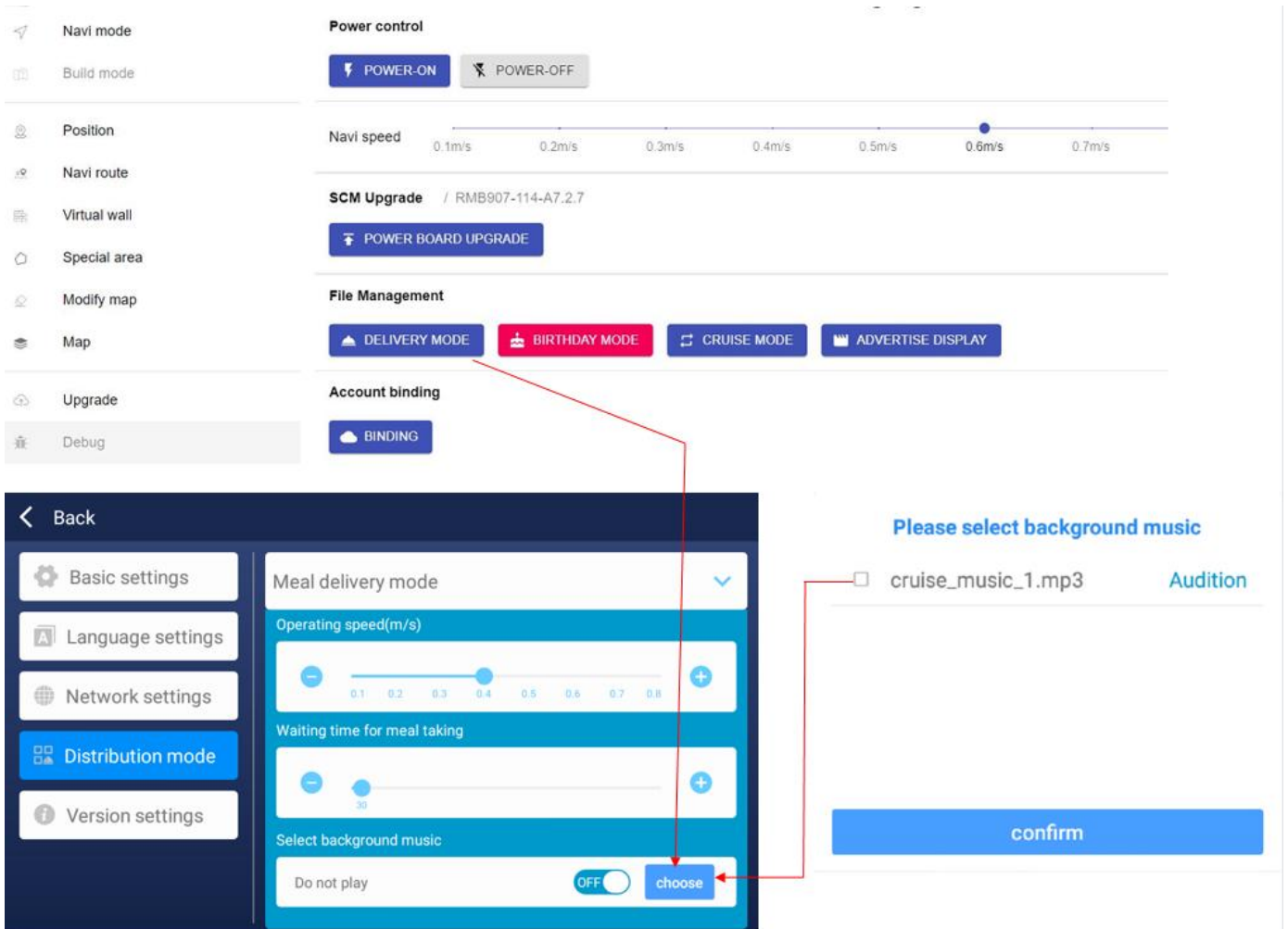
①**Meal delivery mode:** Select this mode robot will deliver according to the order of the meal tray, a grid of meal tray grid can only choose a delivery point.



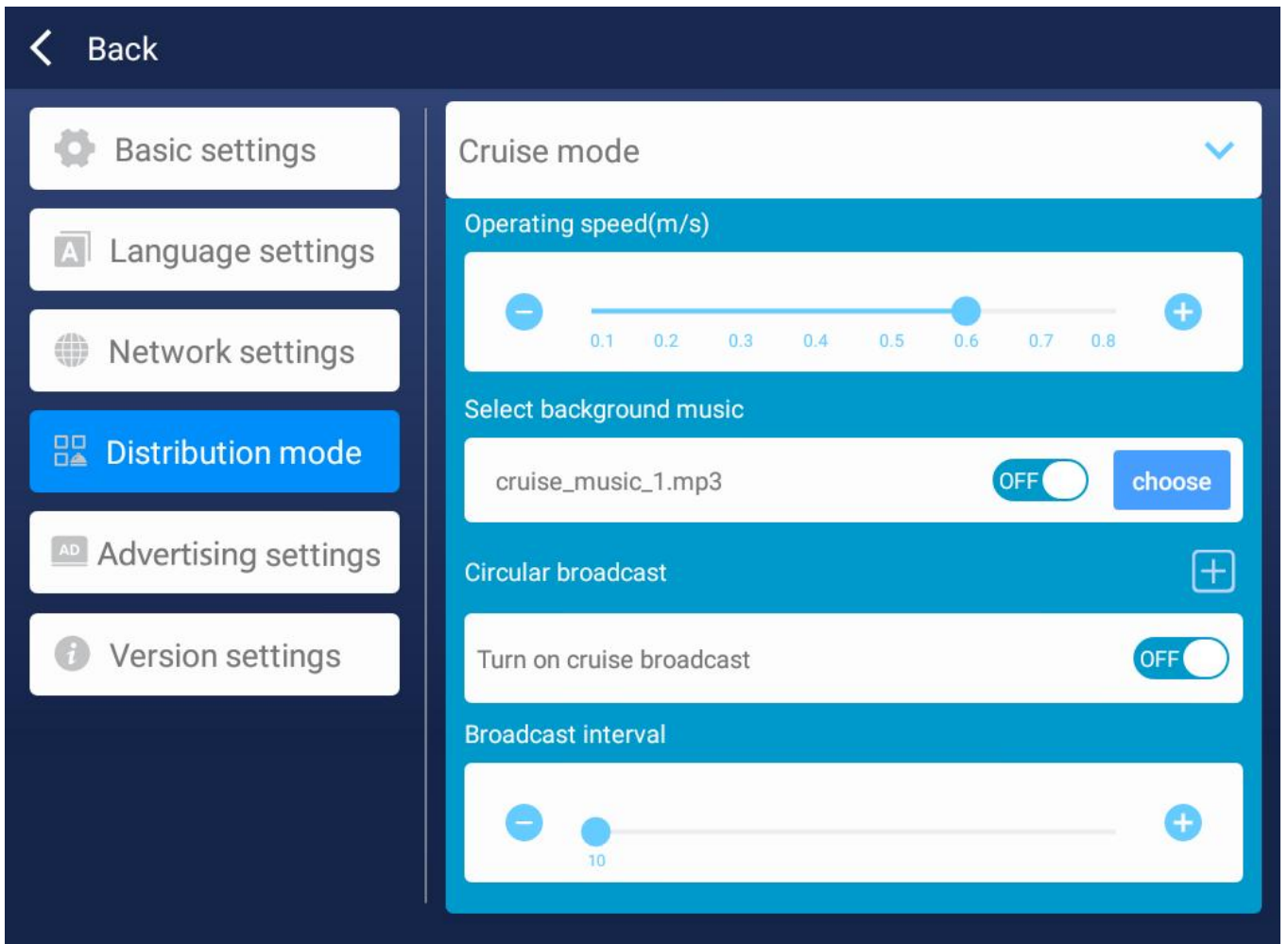
Waiting time for meal taking: Adjustable length of stay at the point

选择背景音乐: 设置机器人在行走过程中播放的背景音乐，音乐上传路径如下

Select background music: Set the background music to be played during the robot's walk, and upload the music path as follows



②**Cruise mode:** Select this mode the robot will cruise uninterruptedly according to the specified route.



Select background music: Set the background music to be played during the robot's walk, please refer to 【Meal delivery Mode】 for uploading method

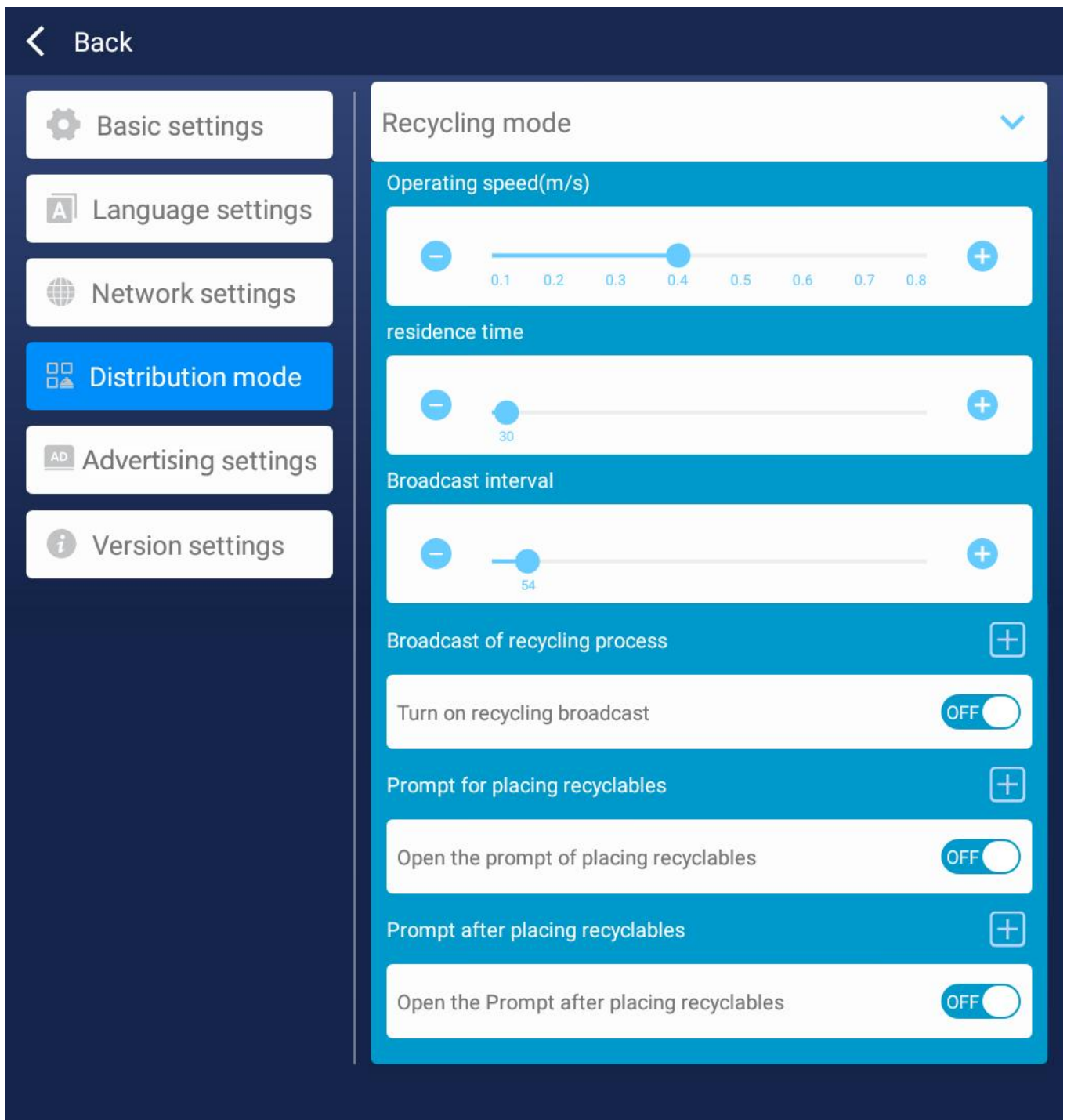
Circular broadcast: Customizable announcements during robot cruises

Broadcast interval: The length of time between announcements of the "circular broadcast"

③**Recycling mode:** The robot recovers the plates according to the designated table points and returns to the recovery point after the recovery is completed

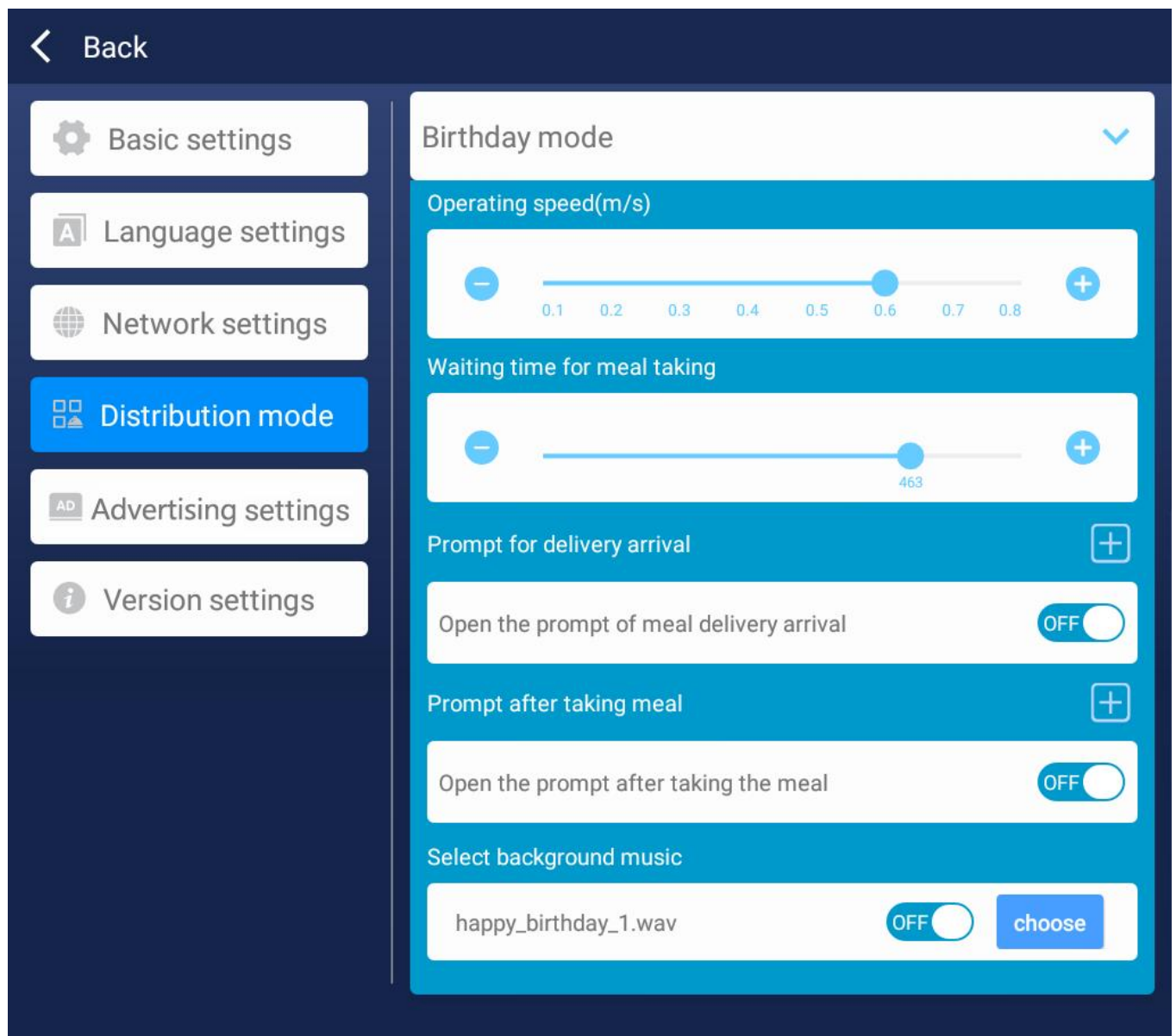
Customizable recycling cycle announcements, tips on placing recyclables,

tips on placing finished, etc.

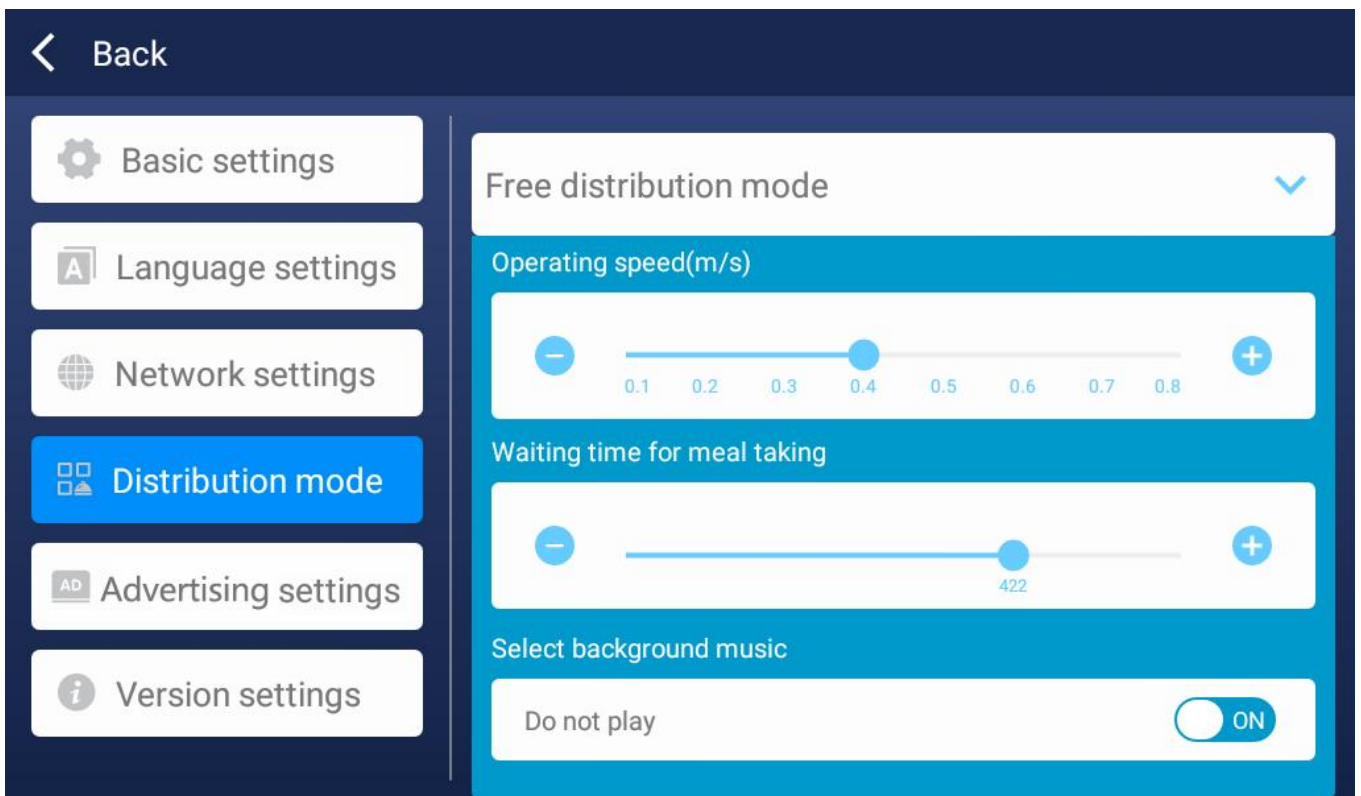


④**Birthday mode**: This mode can only deliver one table, and can be customized with delivery arrival prompt, meal completion prompt,

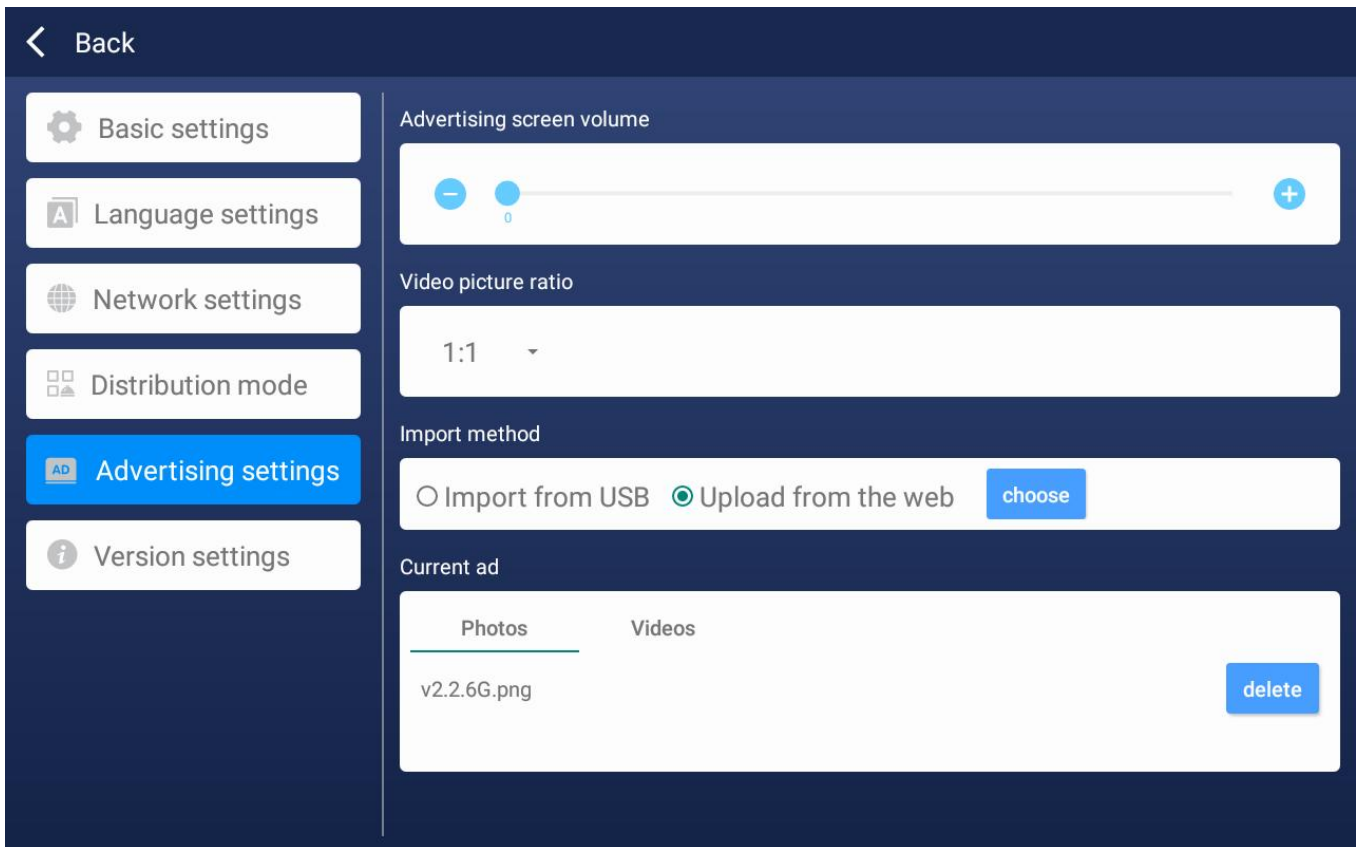
background music, etc. (Please refer to 【Meal delivery mode】 for background music upload method)



⑤**Free distribution mode:** This mode allows you to select multiple tables, customize the running speed, the length of the meal and the background music (please refer to 【Meal delivery mode】 for the method of uploading background music)



- **Advertising Settings:** You can adjust the volume of the advertising screen, upload video pictures of the advertising screen and other settings of the advertising screen



Advertising screen volume: adjust the volume of the advertising screen

Import method: upload video image method

Current ad: successfully uploaded images and videos

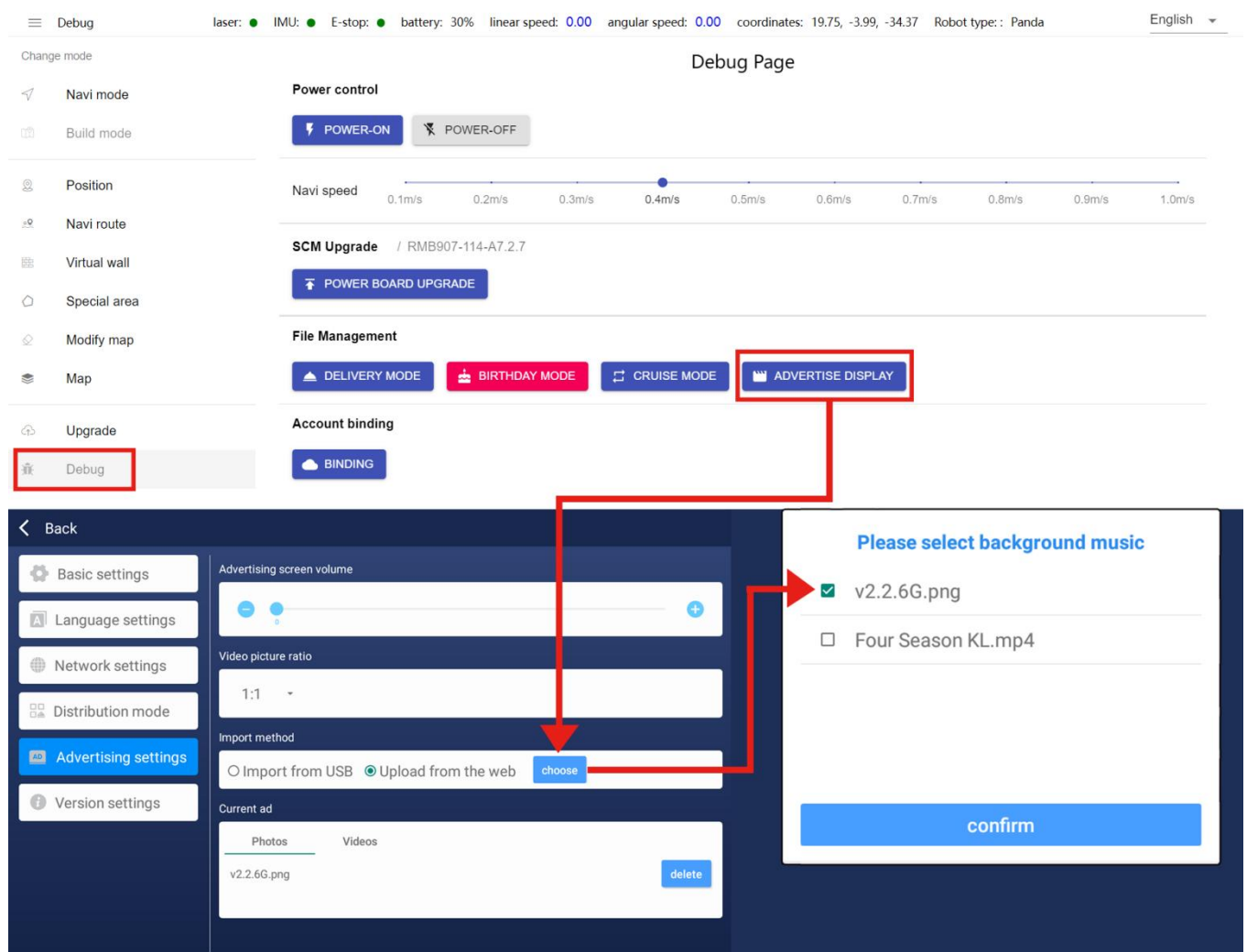
a.Import picture and video method: import form USB

- ①Open the main Android system 【Settings】, click 【USB】, close 【Connect to pc】 and return to the main Android system interface.
- ②Using a USB flash drive, create a new folder in it, formatted as image.
- ③Then put the images and videos you want to upload in the image folder
- ④Use the key to open the cover of the shell behind the screen
- ⑤Insert the USB flash drive into the USB serial port of the rear case

- ⑥ Enter【Delivery】APP, - Slide the right side of the screen - 【More Settings 】
- 【Advertising Settings】 - One click to import data from USB flash drive
- ⑦ After loading out, just exit 【Delivery】 and re-enter 【Delivery】

b. Import image and video method: upload from the web

Open the webpage and select 【Debug】]- 【Advertise display】 - 【Upload file】 to select the file to upload



Note: The advertising screen is divided into two parts: top and bottom

1. if only images are uploaded inside the folder, the advertising screen will display the images in full screen.

2. If only video is uploaded inside the folder, the ad screen will play the video in full screen

3. If there are pictures and videos inside the folder, the top half of the ad screen plays the video and the bottom half shows the pictures

- **Version settings**: You can view the current software version number, navigation version number, etc.

3、 other functions explained

a 【 Navi Route 】

Role: The machine will deliver meals on the drawn route

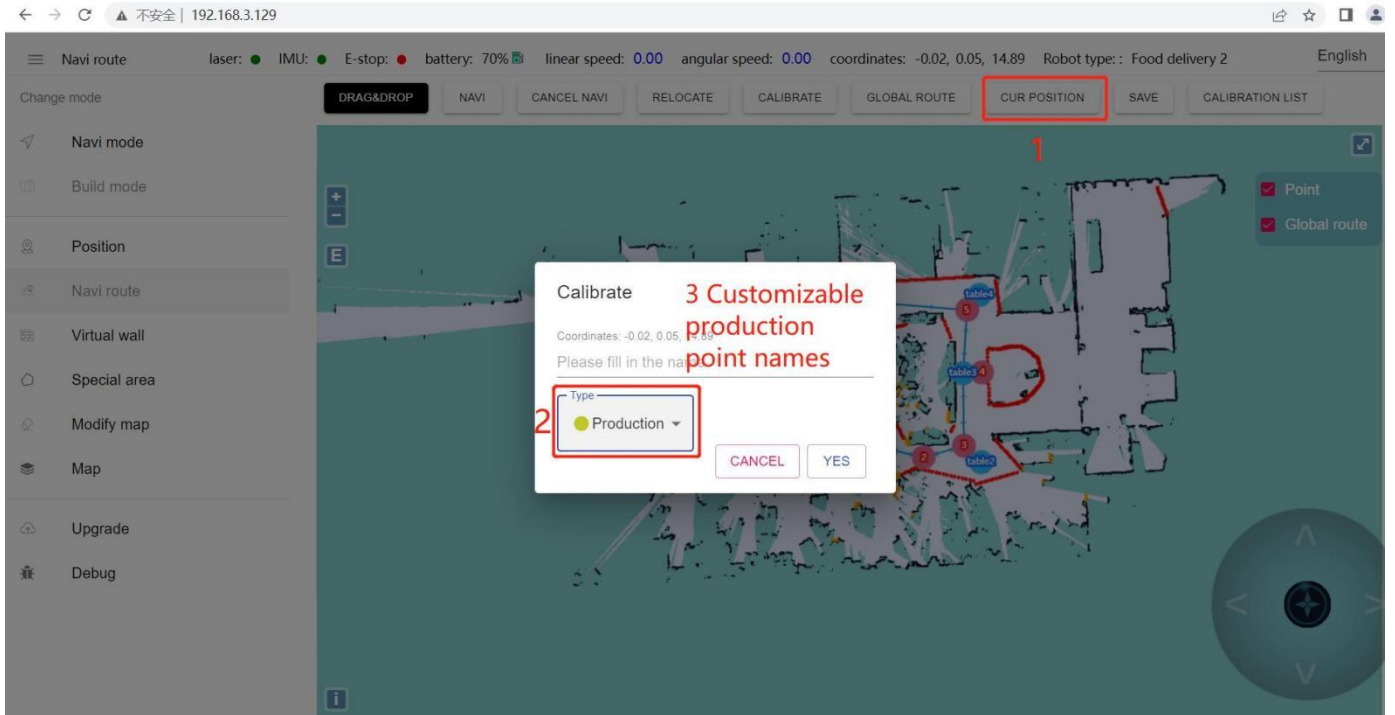
Use your computer browser to enter the web terminal by entering the robot IP, and select the 【 Navi Route 】 page to set the points and routes.



1. Marking points

① Marking special points: production point, charging point, recycling point

When marking the above points, please push the machine to the position to be marked, click 【cur position】 on the map and enter the point name and select the corresponding point type in the pop-up dialog box.

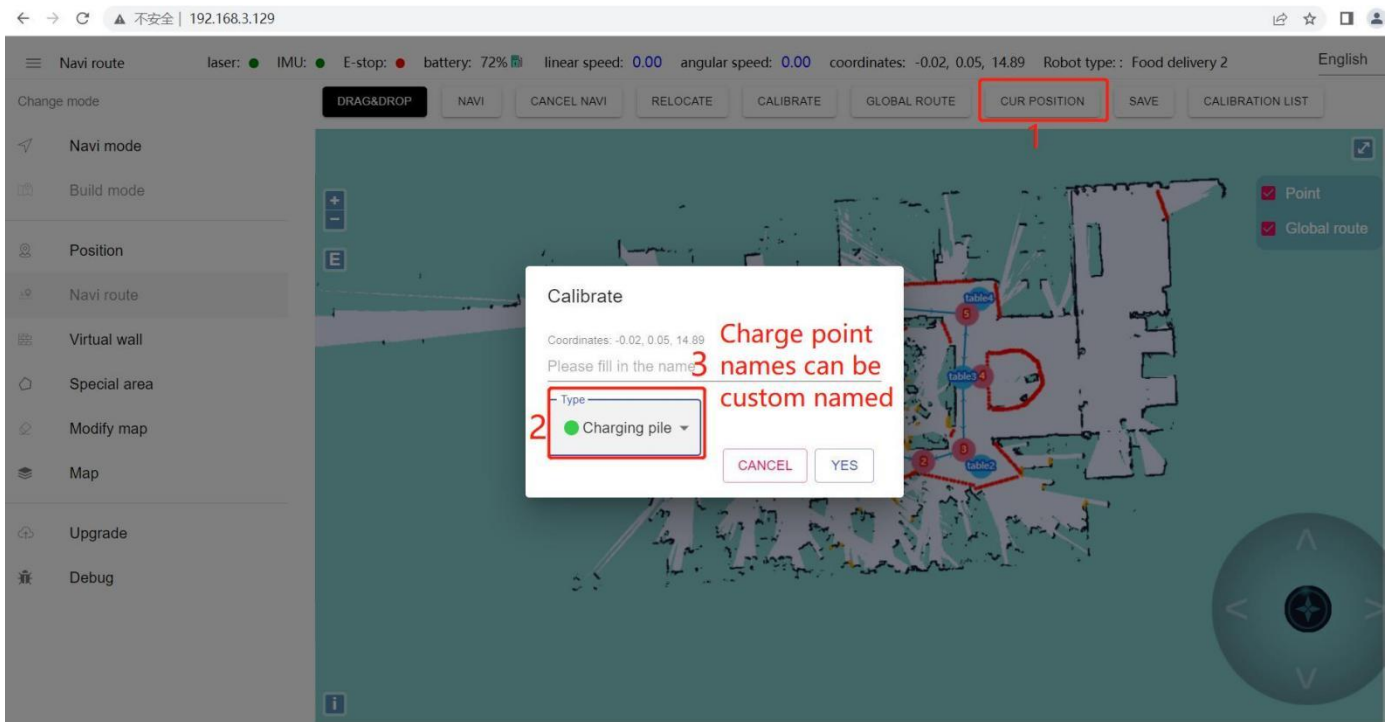


Note: The point name can be customized, but the corresponding point type should be selected.

Charging point labeling method:

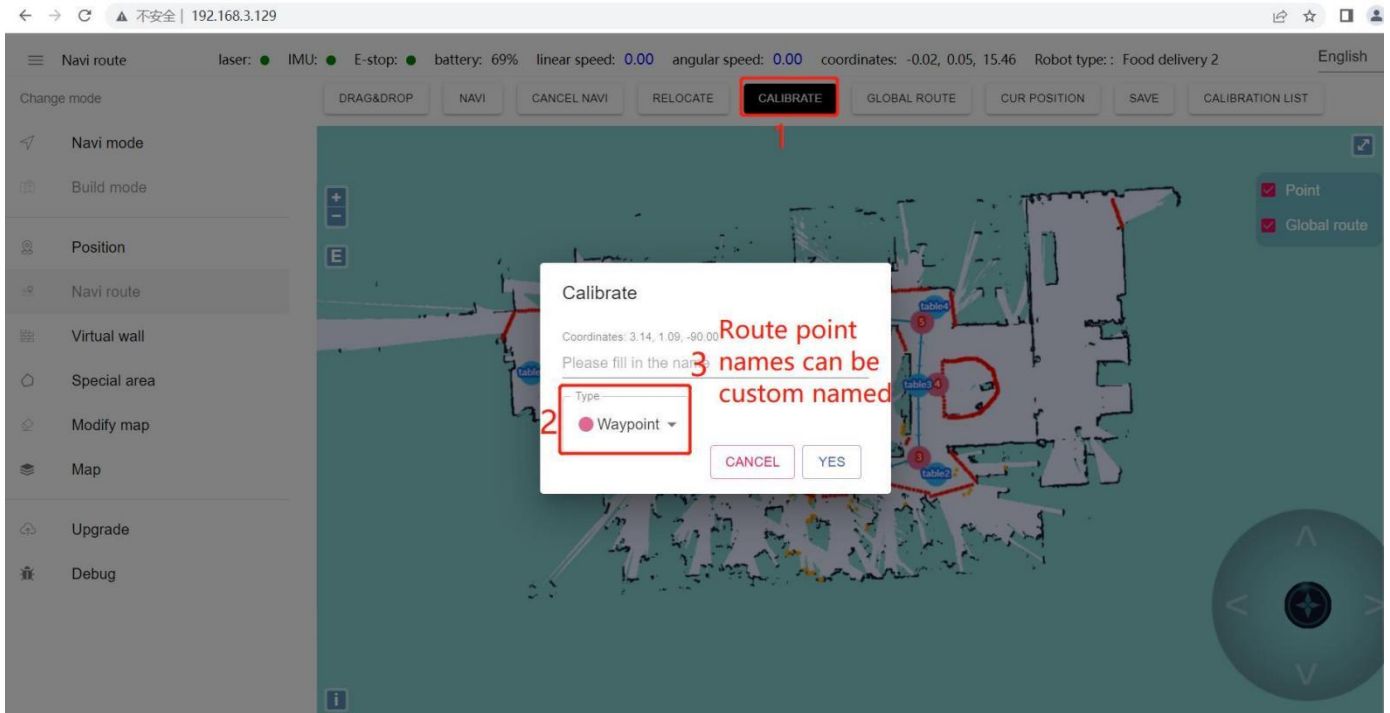


Stop the machine and place it 50cm in front of the charging pile, click 【cur position】 , select 【Charging pile】 as the type, and name the point as the charging point. Charging point electric name can be customized.



② **Marking route points:** After marking special points, you also need to mark route points to connect all points by route points. Route points do not need to be very precise, so you can select the 【calibrate】 state, and then mark them directly on the map, and select the point type as 【Waypoint】 .

Note: The distance between the two points is kept within 2 meters



③ **Marking delivery points:** The delivery point is the table number. Push the machine to the required stopping position, and adjust the orientation of the machine stopping, click 【cur position】 to name the table point, type select 【Delivery point】 the name can be custom named.

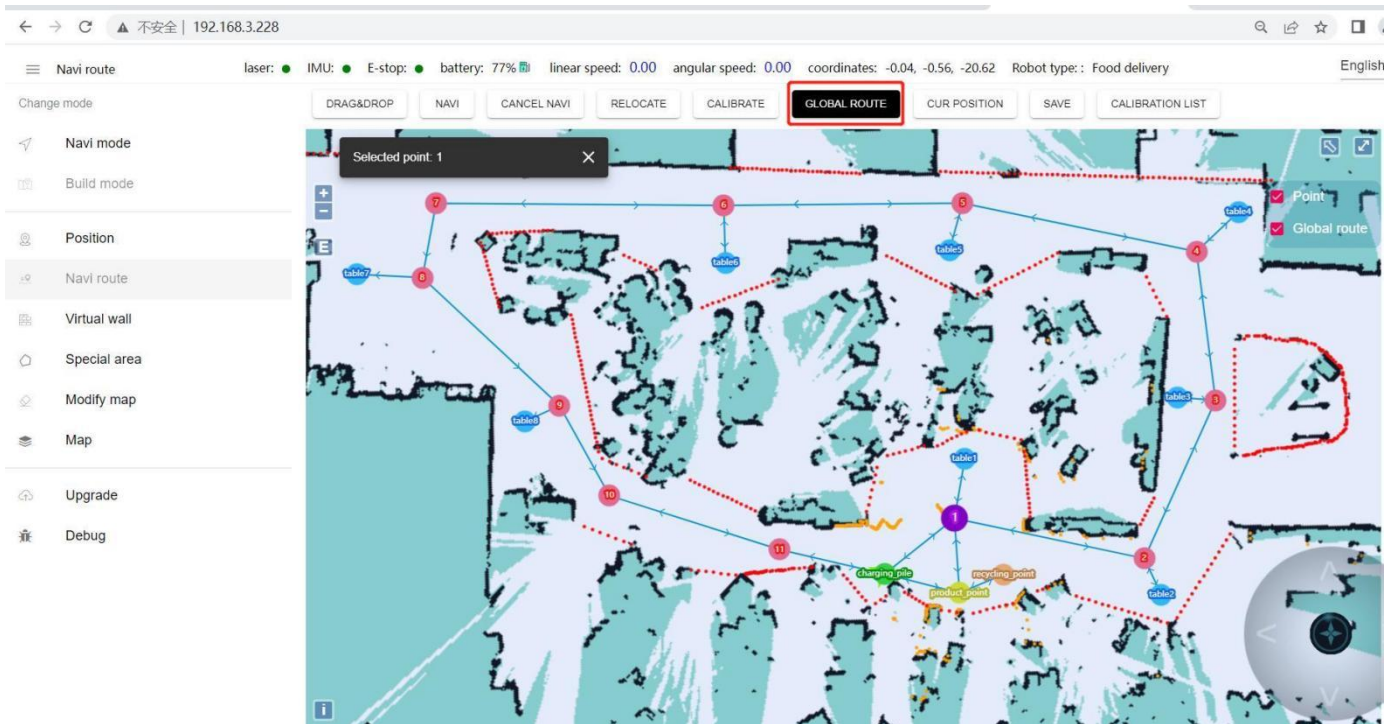
④ **Marking temporary stop:** The temporary stop is for the production point. When the kitchen space is relatively small, the production point can only accommodate one machine. In this case, you can set a 【temporary stop】 in the open area at the entrance of the kitchen. The machine that is going to the production point will stop at the "temporary stop" temporarily and wait for the previous machine to leave the production point before going to the production point.

⑤**Marking avoidance point:** When two machines meet, the machine closest to the avoidance point will go to the avoidance point first to avoid, and let the other machine pass first

2、 Drawing the route

After the route points are marked, the navigation route needs to be drawn. Connect the calibrated points to form a navigable route according to the actual situation.

Select the 【Global Route】 state, click to select the points to be connected, the selected points will turn purple, and then select the points that can be connected, then the two points will directly generate a route. Follow this step to connect all the adjacent points to complete the route, the arrow of the line segment indicates the direction in which the machine can navigate.

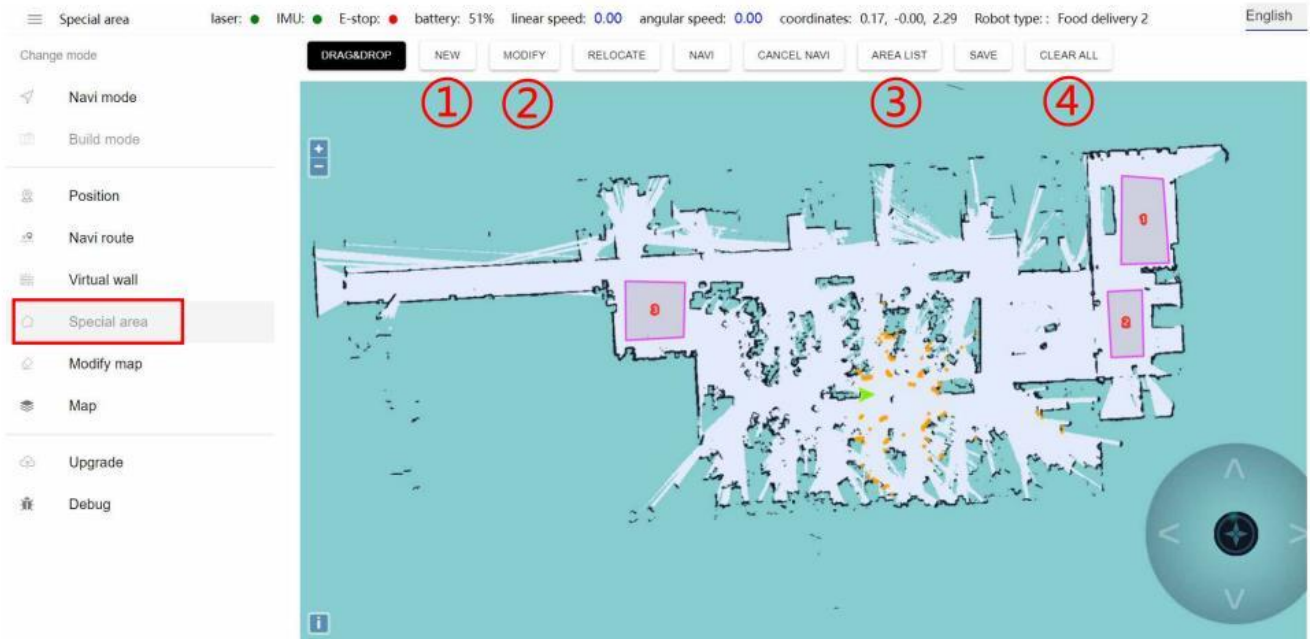


Caution:

1. Drawing route can not cross or close to (30cm) obstacles and virtual walls, if there is an obstacle between two points, you can add another point in the middle of two points more than 30cm away from the obstacle, and then connect three points
2. All points must be connected to at least one point, and there must be at least one import and one exit route, otherwise the point may not be reached or arrive at the other points can not be reached again

b 【 Special area 】

Function: Area can be drawn to limit the robot's travel speed in a certain area



①**NEW**: You can draw polygons in the map by left-clicking on them, and when you are done, the name box of the area will pop up to define the area and the speed.

②**MODIFY**: To adjust the edited speed area, click on the speed area to be edited, then the color of the area will change (the lines around the selected area will become thicker and turn red), then pull the lines to adjust the size of the area

③**AREA LIST**: After clicking on it, a list of edited regions will pop up on the right side of the page, and you can redefine the speed and name of the regions in the region list and delete them.

④**CLEAR ALL**: Refers to clear all edited special areas with one click

Note: You have to click Save after editing to make it effective

c 【 Modify map 】

Note: Generally rarely use this function, try not to edit to modify the map



① **SAVE**: Click Save before applying changes to the map

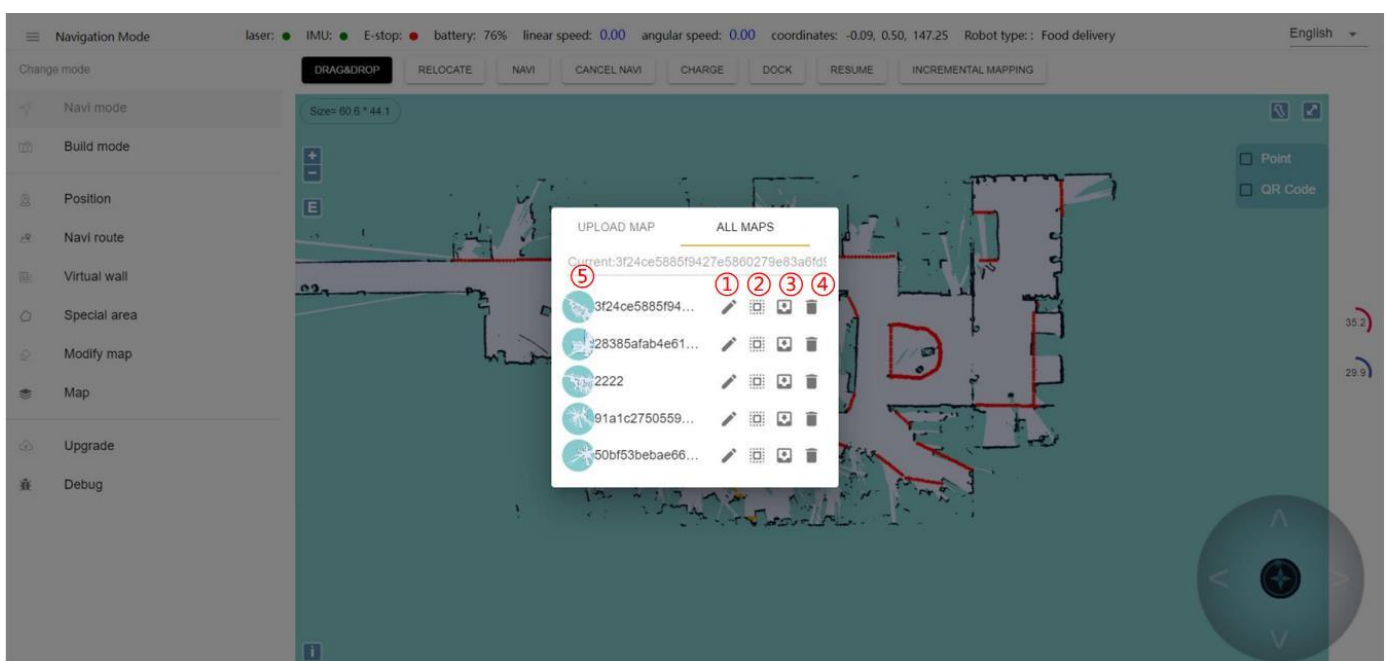
② **Clear ALL**: Clear drawn polygons

③ Here is the drop-down menu, you can choose different types of map areas

- **Empty area**: Noise removal (e.g., noise left on the map by pedestrians during map scanning and temporary obstacles, etc.), do not remove real obstacles as noise
- **Blocked area**: Do not use
- **Unknown area**: Do not use

④ The same way as special area operation, the inside of the drawn polygon is the modified area

d 【 Map 】



①Modify the map name ②Apply this map ③ Export this map

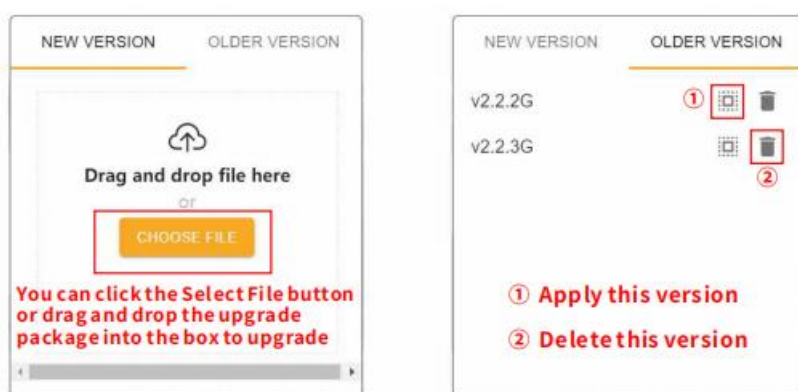
④ Delete this map

⑤ Mouse hover to show the preview map, click to show the original map

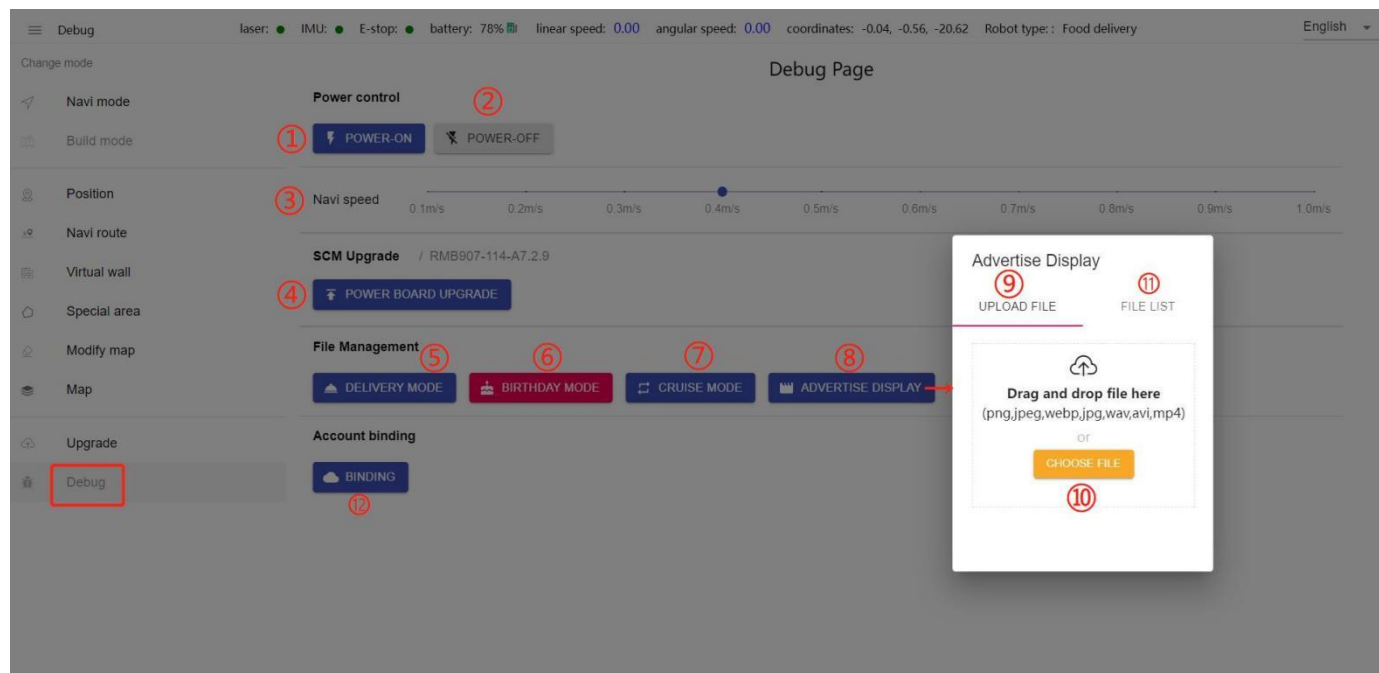
Note: The map will not be applied immediately after uploading, you need to find the map in "All Maps" and then click the "Apply" icon.

e 【 Upgrade 】

Warm tip: We will upgrade to the latest version before the machine is shipped, if you need to update the version later then follow the method below to operate



f 【 Debug 】



① Power on: Turn on 24V external power supply

②Power off: Turn off 24V external power supply

③Navi speed: adjust the driving speed of the machine (unit: m/s)

Power board upgrade: factory is already the latest version, no need to do the update

⑤ Distribution mode: upload distribution mode background music files

⑥Birthday mode: upload the birthday mode background music file

⑦Cruise mode: Upload cruise mode background music file

⑧ Advertising display: upload advertising pictures and video files

⑨ Upload file: Upload file portal

⑩Select file: Upload file path selection

No display: The list of files that have been uploaded successfully

⑫: Bind the machine to the cloud platform management account name

(The number of music and video files supported for upload in each mode is 20, and the maximum support for a single file is 1G)

Note: Cloud platform management account provided by the manufacturer

4、Precautions for daily use

① Machine positioning is lost

Overview: Position loss is a mismatch between the location of the robot's location map and the actual environmental location

Causes:

- Positioning loss caused by moving the machine by pressing the emergency stop switch artificially
- The robot will match the current map according to the actual laser data during its movement. If the current environment is too different from the map, it will cause the robot to fail to match the map, resulting in the loss of positioning, which will cause the robot to lose its path planning ability and be unable to move.
- There are people in front of the machine to surround the loss of positioning, more people around the machine will block the laser, the laser and the terrain match will become very low, which will lead to the loss of positioning

Solution:

- Open the app 【Delivery】 on the screen, slide the hidden menu bar to the left on the right side of the main page of the app, click 【More Settings】 - 【Basic Settings】 to reposition at the specified target point
- Move the machine to the location of the charging pile and restart the machine within 2m of the charging pile
(Note: the map should be marked with the charging pile as the target point)
- Open the app 【Delivery】 on the screen, and find the "Navigation System IP" number in the hidden menu bar that pops up on the right side of the

main page of the app, and enter it into the browser to access the backend of the machine. Reposition the machine on the web side according to its actual location

② Machine does not navigate

Overview: The machine does not navigate is to let the machine navigate to a point where the machine does not move

Causes:

- Check whether the machine's emergency stop switch is open, open the machine to navigate independently (emergency stop switch rotates to the right to open, press to close)
- Check if the machine has lost its position (orange laser and black obstacle on the map do not completely overlap indicates lost position)
- Check if the machine is close to an obstacle or virtual wall (the machine's proximity to an obstacle or virtual wall will make it impossible to navigate)
- Check if the target point is near an obstacle or virtual wall

Solution:

- Positioning lost according to ① machine positioning lost solution to reposition the machine
- The machine is close to an obstacle or virtual wall to move the machine

out a little

- The target point is close to the obstacle or virtual wall to reset the target point, set to be about 20cm away from the obstacle or virtual wall

③ Machine navigation charging no response

Overview: Sending a navigation charge command to the machine The machine does not start navigation

Causes:

- Check whether the calibration of the charging point is done by using the charging point button after the machine is docked to the charging point
- Check if the charging pile target is near an obstacle or virtual wall

Solution:

- Please refer to 【Position】 for the calibration method of the charging pile
- It is best not to have obstacles within 1.5m to the left and right of the charging pile

④ Relocate

Overview: Recalibration of the machine to the wrong position

Causes:

- The site environment varies greatly from when the map was scanned

- Machine work, human press the emergency stop switch, the machine moved to the area not scanned and then moved back
- No power on at the charging polie location

Solution:

- Rescan the new map to the latest live environment
- It is a wrong operation to push the machine by pressing the emergency stop artificially during the machine operation. Avoid this kind of operation
- To turn on at the 【charging pile】 location

Caution:

When the machine has lost positioning (i.e., the laser does not match the current terrain, as shown in Figure 1), it needs to be repositioned, and the operation method of repositioning is shown in Figure 1, Figure 2 has been successfully repositioned, if not repositioned successfully then try again according to the method.

First click on the map with the mouse (the blue dot indicates the actual location of the machine), then hold down the left mouse button and drag the direction (the straight line indicates the actual direction of the machine) to relocate it.



图一

图二

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC ' s RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.