

iTR

iScrubbot M2 Pro

Commercial Floor Scrubber

Product Manual

Please read the manual carefully before using the product, and keep it properly.



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About iScrubbot M2 Pro

Thank you for choosing iTR M2 Pro Commercial Floor Scrubber, and sincerely hope that M2 Pro can bring you and your company a cleaner, intelligent and convenient working environment in the future.

The manual will guide you how to better use our products by providing you all information as comprehensively as possible, which is of great help for you so as to get the optimal product experience.

If there is any questions during daily use, please contact with us as soon as possible and we will serve you wholeheartedly.

Introduction

M2 Pro is iTR series commercial floor scrubber, which is applicable in factories, garages, airports, stations, schools, hospitals and many other places. M2 Pro can work continuously for several hours without driving, which is a satisfied option to clean ground materials, including ceramic tile, marble floor tile, mosaic, epoxy floor, terrazzo and emery. Furthermore, it has a strong cleaning capability, integrating various daily cleaning and maintenance business functions, including floor washing, sewage absorption, sterilization, ash reduction and disinfection. The machine carries with 120AH super capacity battery and 117L water tank to ensure that the theoretical single operation area can reach 7,200m² without automatic replenishment.

Adhering to the consistent design concept “User First” of iTR, the whole machine can be performed with daily maintenance easily, and the key vulnerable parts have been realized the convenient replacement as well as carries out the maintenance of vulnerable parts, including the water absorbing rubber strip and brush disc no need additional tools.

You can conduct real-time management of software operation through APP, and realize one click operation after the first time deployment. You can also release instructions through the whole property management system to complete tasks, which will be of great help to reduce staff and increase efficiency, and enter the robot era easily!

Product parameters

Product model		iScrubbot M2 Pro
Weight and volume	Dimension (L×W×H)	1.0×0.84×1.2m
	Net weight	110KG
Movement parameters	Running speed	0.1-0.6m/s
	Maximum working area	7200m ²
	Minimum passing width	1.2m
	Climbing angle	8°
	Obstacle crossing height	1.5cm
	Maximum distance to the margin	10cm
Noise		72dB(A)
Obstacle stopping	Frontal	10-100cm
	Rear	5-15cm

Create map	Max mapping area	40000m ²
	Max mapping number	100pcs
Charging	Manual charging	Standard
	Auto charging	Optional configuration
Network	WiFi	2.4GHz
	4G	Standard configuration
Screen	Size	8 inches
	Resolution	720P
Battery	Rated voltage	24V
	Capacity	120AH lithium battery
	Charging time	3-4h
	Maximum endurance	4h
Water tank	Volume of sewage tank	45L

Water Tank	Volume of clean water tank	72L
	Water tank material	Flame retardant material
Motor	Rated brush disc motor power	2×200W
	Rated drive motor power	2×150W
	Maximum power of whole machine	400W
	Maximum suction pressure	1200W
	Quantity	18kPa
	Angle	1
Sensor	Quantity	180°
	Detection distance	1
	Field of view(FOV)	300cm
	Rated brush motor power	69°×42° (H×V)
Ultrasonic sensor	Quantity	10

Sensor	Ultrasonic sensor	Maximum detection distance	50cm	
	Liquid level sensor	Quantity	1*clear water pressure sensor and 1*sewage water level sensor	
Brush disc	Speed		200RPM	
Senare parts	Station (optional)	Dimension (LxWxH)	400×410×1095mm	
		Rated voltage	Input 220V, output 29.4V	
	Charger	Dimension (LxWxH)	335×152×90mm	
		Rated voltage	Input 220V, output 29.4V	
Work environment		Working temperature	0°C - 50°C	
		Working humidity	0% ~ 90% rh	
		Highest altitude	3000m	

*Driven by the continuous improvement of products, the product in the manual shall be subject to the actual products. The updating right is reserved by our company.

If there is any questions during daily use, please contact with us as soon as possible and we will serve you wholeheartedly.

Safety specification

M2 Pro commercial floor scrubber is only applicable to **indoor** environment. Before using the product, please read the manual carefully and comply with the following instructions:

NOTE: Equipment meeting Class A requirements may not offer adequate protection to broadcast services within a residential environment.

① Cautions !

Before using the machine:

1. The operator must read the manual carefully and use the machine according to its instructions.
2. Make sure that the voltage of the power socket is consistent with the input voltage of the station.
3. Before starting the machine, please check whether the emergency stop button is pressed. If pressed, the machine will not be able to start tasks automatically after startup.
4. Before starting the machine, please check whether the manual button is pressed. If pressed, the machine will not be able to perform tasks automatically after startup.
5. Before starting the machine, please check whether all parts of the machine are intact and whether consumables are in normal and available state.
6. Before starting the task of the machine, please make sure it is near the starting point and adjust the front direction of the vehicle, otherwise the positioning of the machine will be lost directly.
7. Before using the machine, please ensure that the cover of the sewage tank has been closed tightly.
8. If it is used near the suspended environment, including the stairs, please prepare a limit line near the stairs and test whether the product can detect the edge of the suspended area without falling. Meanwhile, a protective fence shall be set at the edge of the suspended area to prevent the machine from falling.

When using the machine:

1. Please be careful with your feet when the machine is moving.
2. Please set the necessary signs near a task area when it is working.
3. When the machine is running, please do not block the ultrasonic radar and laser lidar.

4. Do not block the ultrasonic sensor, binocular camera and lidar when it is working.
5. Please press the emergency stop button on the machine surface immediately once it encounters an emergency.

When charging the machine:

1. You are kindly invited to use the original charger and battery designated by the manufacturer. In case that the battery is damaged, please contact the manufacturer, authorized dealer or relevant after-sales personnel.
2. When charging, please ensure that the charging plug is firmly connected. Poor contact may lead to overheating, which may lead to danger.
3. The charger shall not be covered or close to humid or flammable or explosive environment.
4. Disassemble any sensors without permission is strictly prohibited.

When maintaining the machine:

1. The machine should be stored in a dry and cool place.
2. Please turn off machine's power switch before maintaining.
3. Please do not modify the machine or change its original design or configuration without authorization. For maintenance, please contact the professional maintenance personnel designated by the manufacturer.
4. Please use accessories sold or recommended by iTR only.
5. If the machine will be rested for a long time, please clean the sewagetank, cut off the power of machine, and ensure that the machine is charged once a quarter to prevent the internal battery from discharging excessively and reducing the battery life.
6. Before transporting the scrubber, the power switch of it must be turned off.
7. If the power cable is damaged, please contact the manufacturer, authorized dealer or relevant after-sales personnel to replace it to avoid danger.
8. Do not use the damaged power cable or power socket to use the machine.
9. Do not use the machine when it cannot work normally due to falling, damage, outdoor use or water. To avoid injury, the product shall be repaired by the manufacturer, authorized dealer or relevant after-sales personnel.
10. Before scrapping the product, please contact the manufacturer, authorized dealer or relevant after-sales personnel for disposal at the first time.

⚠ Warning

Untrained personnel are prohibited from using the machine!

Non professionals' disassembly to the machine without permission is strictly prohibited, otherwise the damage caused will be borne by the user.

The machine is strictly prohibited to be used in the following environments:

1. Outdoor.
2. Environment with open fire or fragile products.
3. Extremely hot (above 50 °C) or extremely cold (below 0°C)

During using, maintaining and servicing, the following operations are prohibited:

1. The shell is prohibited from contacting corrosive cleaning liquid.
2. Operating the sewagetank during the operation of the machine is prohibited to prevent hand from clamping.
3. In case the sewagetank is full, the machine is prohibited to be used.
4. It is forbidden to carry out other operations when cleaning the sewagetank.

Instructions for discarding batteries:

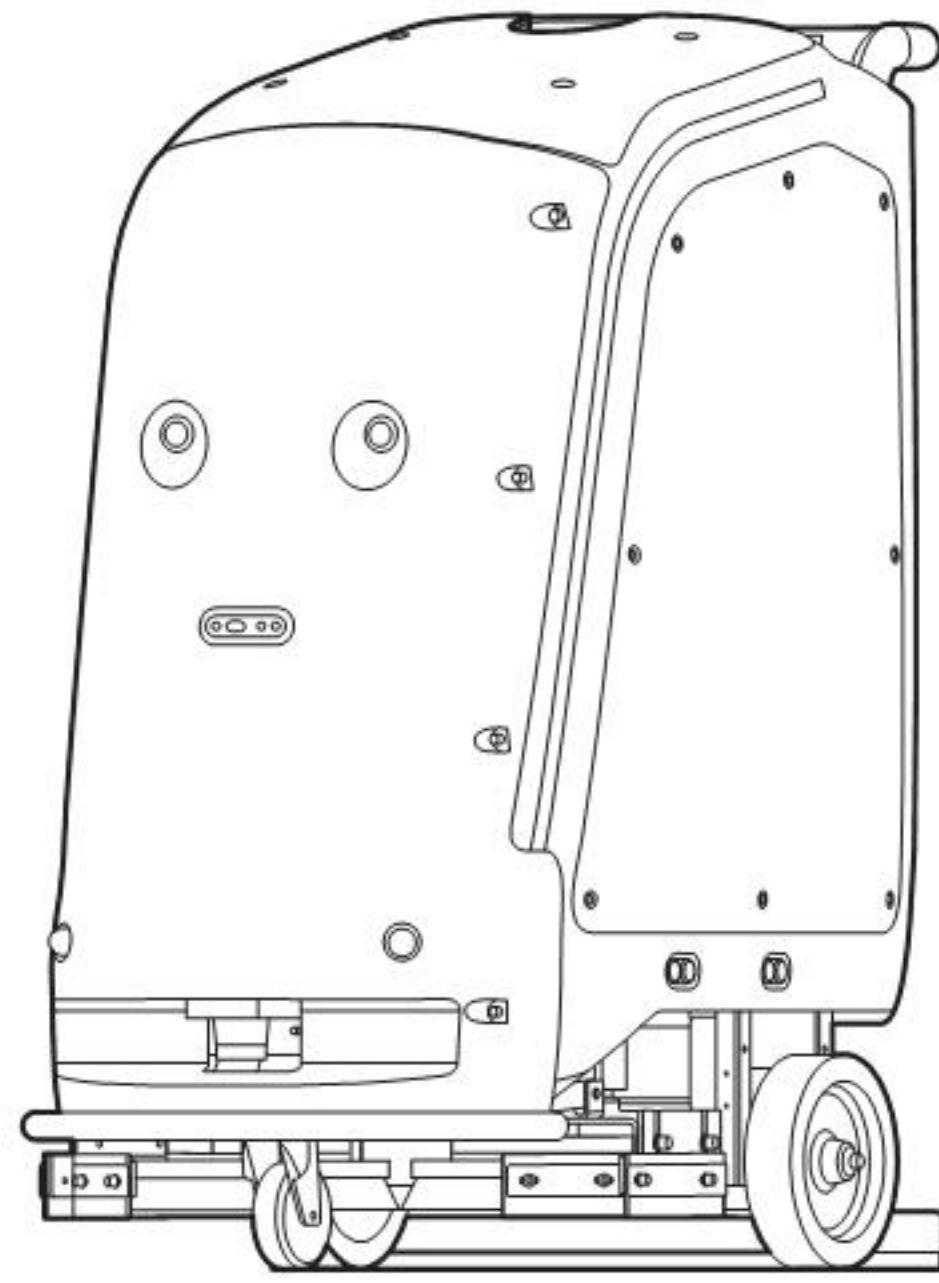
1. If you want to replace or discard the battery of machine, please contact iTR after-sales service personnel for disposal.
2. The chemicals contained in the built-in battery of machine will pollute the environment. Please be sure to take out the battery inside of machine before disposing.

Caution! Battery leakage and exudation material will be harmful to people's health!

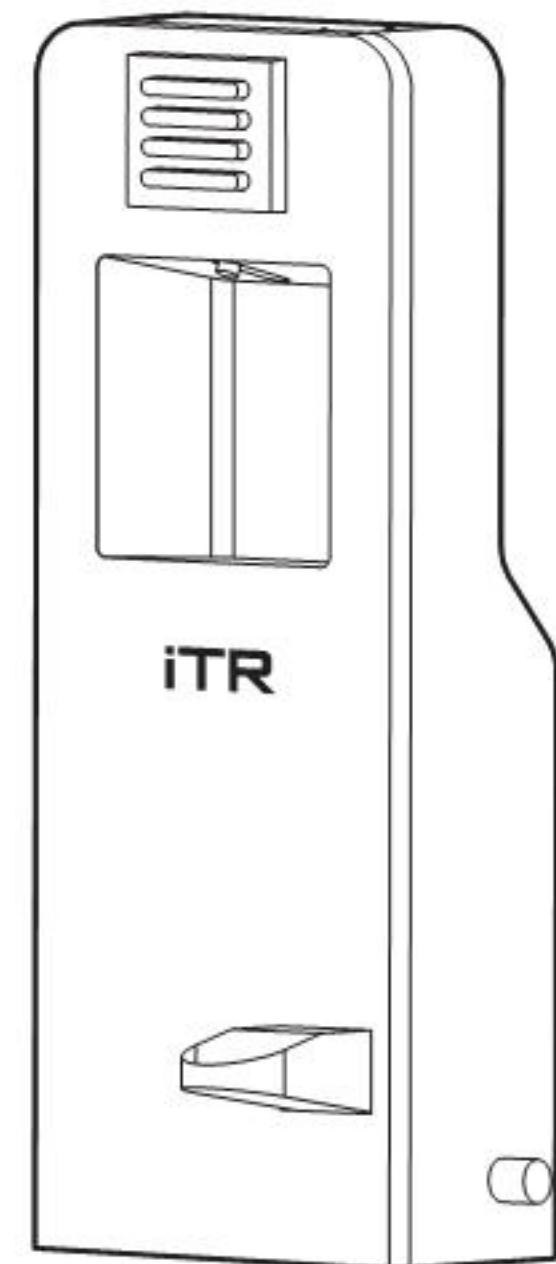
1. If the battery has leakage and exudation, please ensure to prevent from contacting with eyes or skin.
2. In case of accidental contact, please wash your hands and eyes with clean water immediately. If you still feel unwell, please seek medical treatment immediately.

The company will not be liable for any loss and injury caused by improper use.

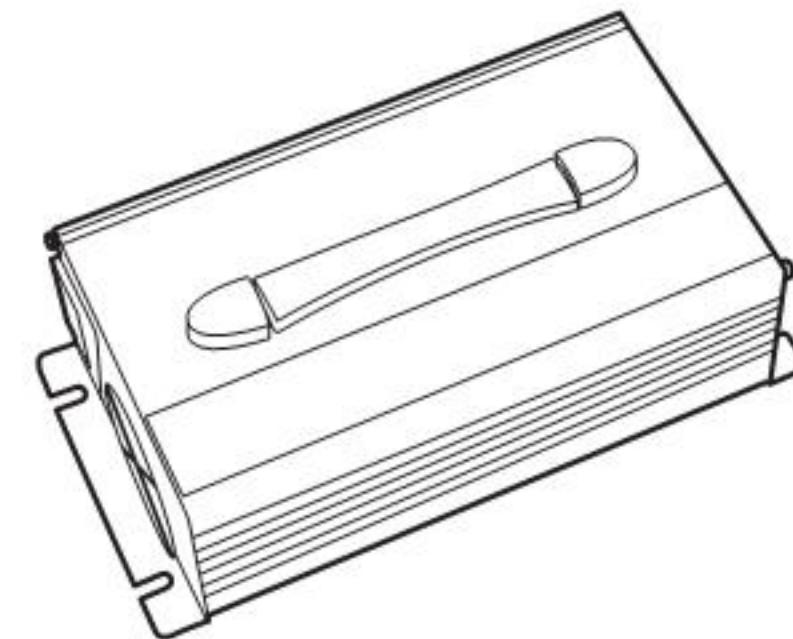
Packing list



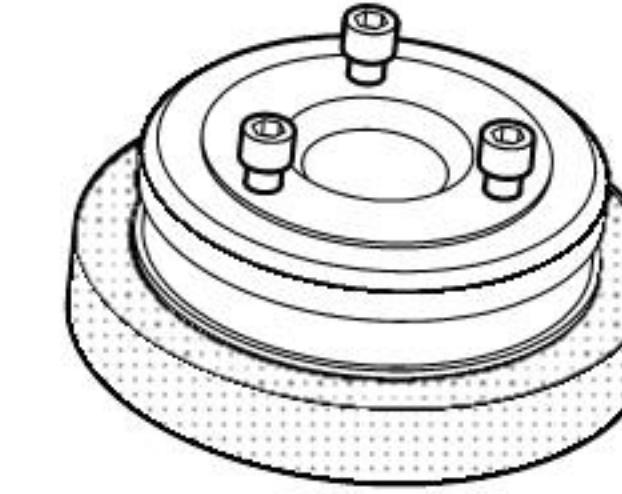
Host*1



Water supply and drainage station*1



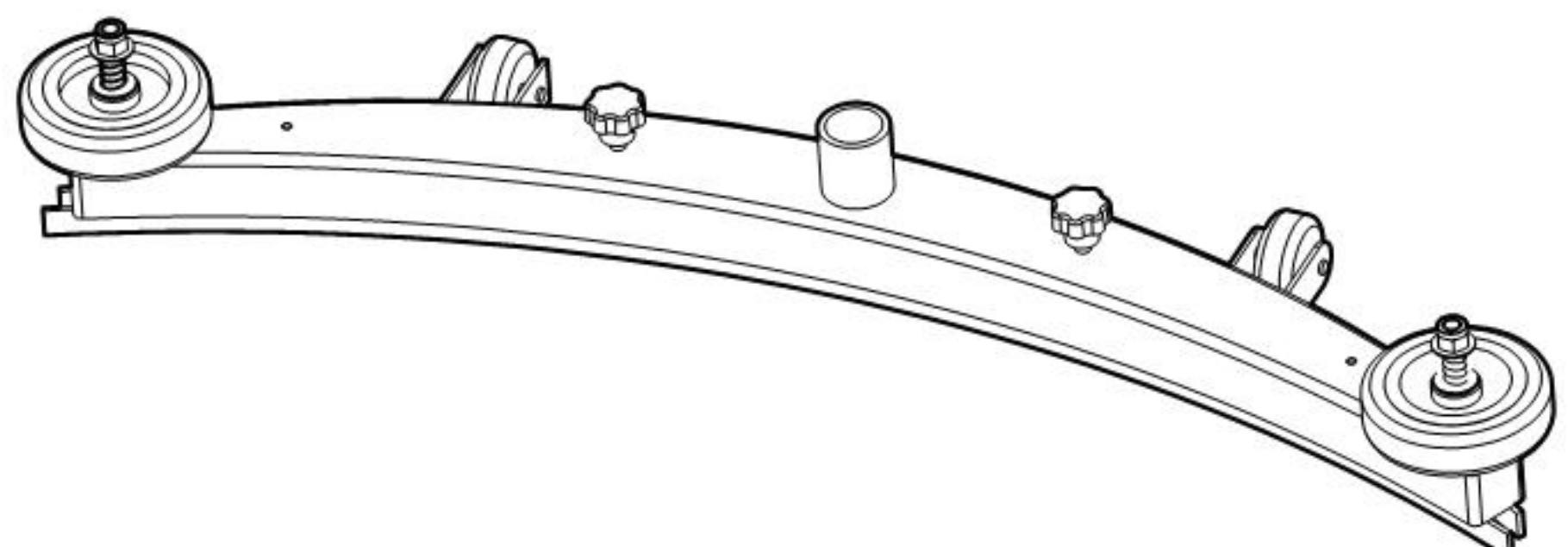
Charger*1



Cleaning pad*2



Test report*1



Suction wiper*1(2*adhesive strips)



Packing list*1



Product manual*1



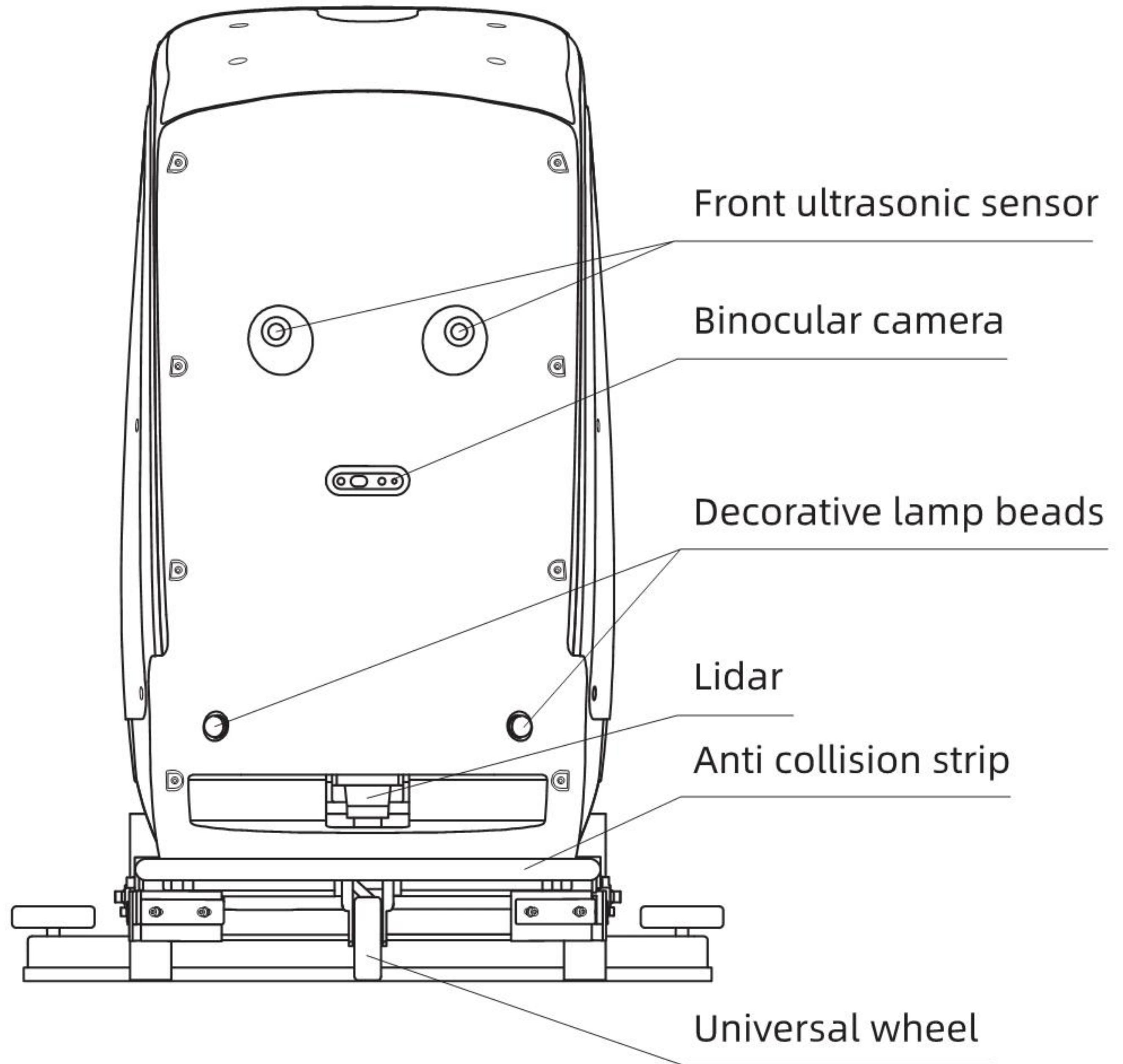
Inspection report*1

*The product in the manual shall be subject to the actual products. Driven by the continuous improvement of products, our company reserves the updating right.

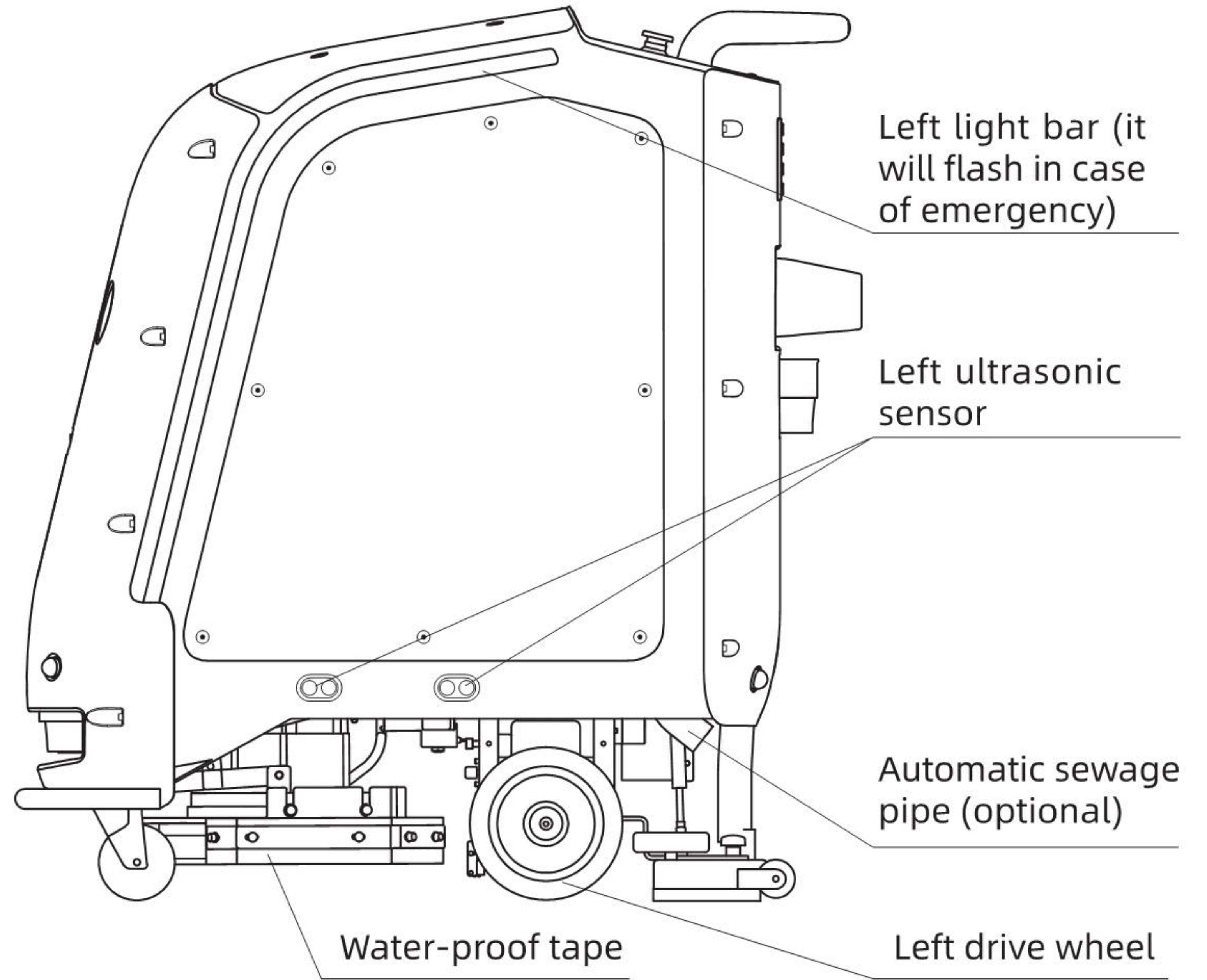
Hardware introduction

Host

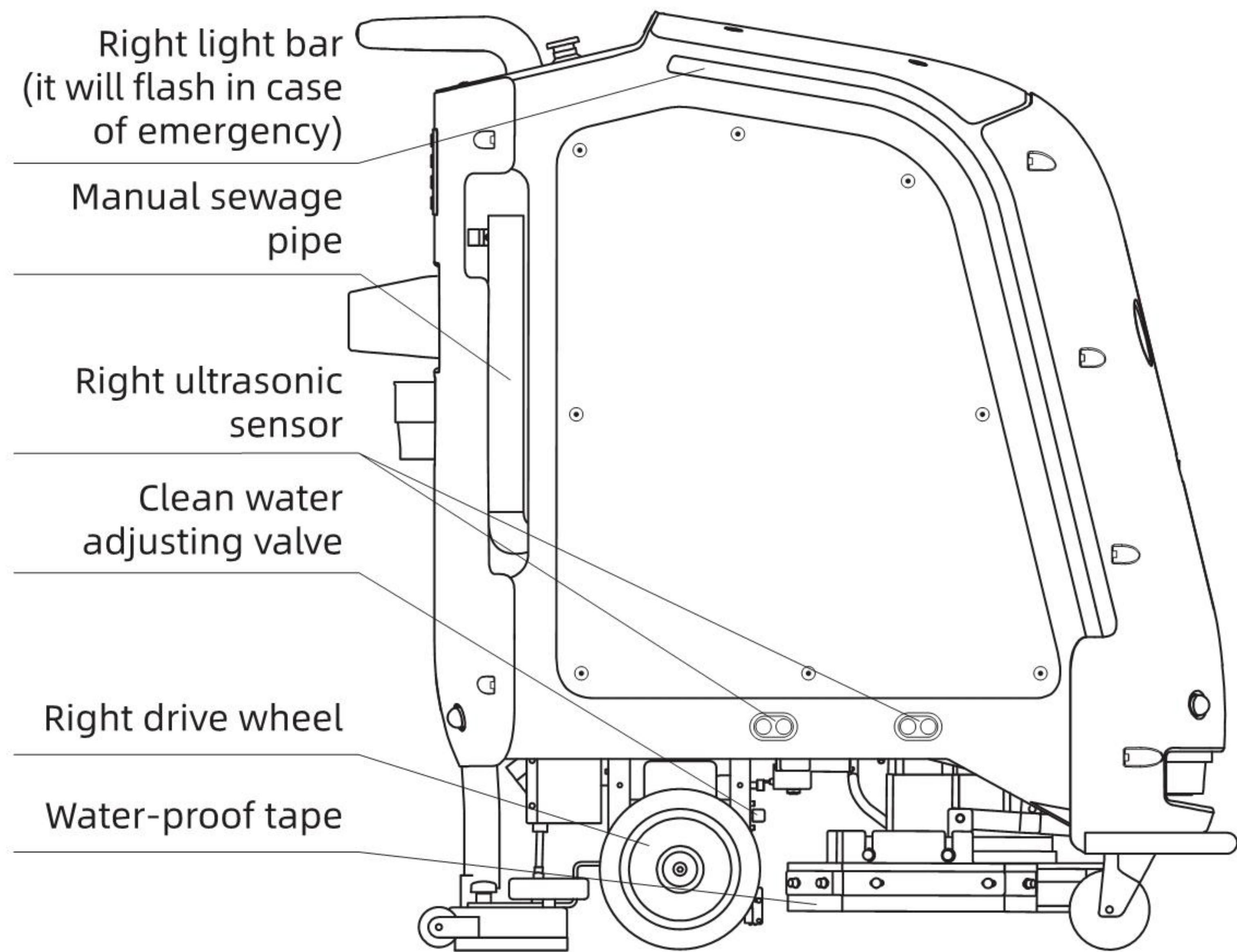
Front of host



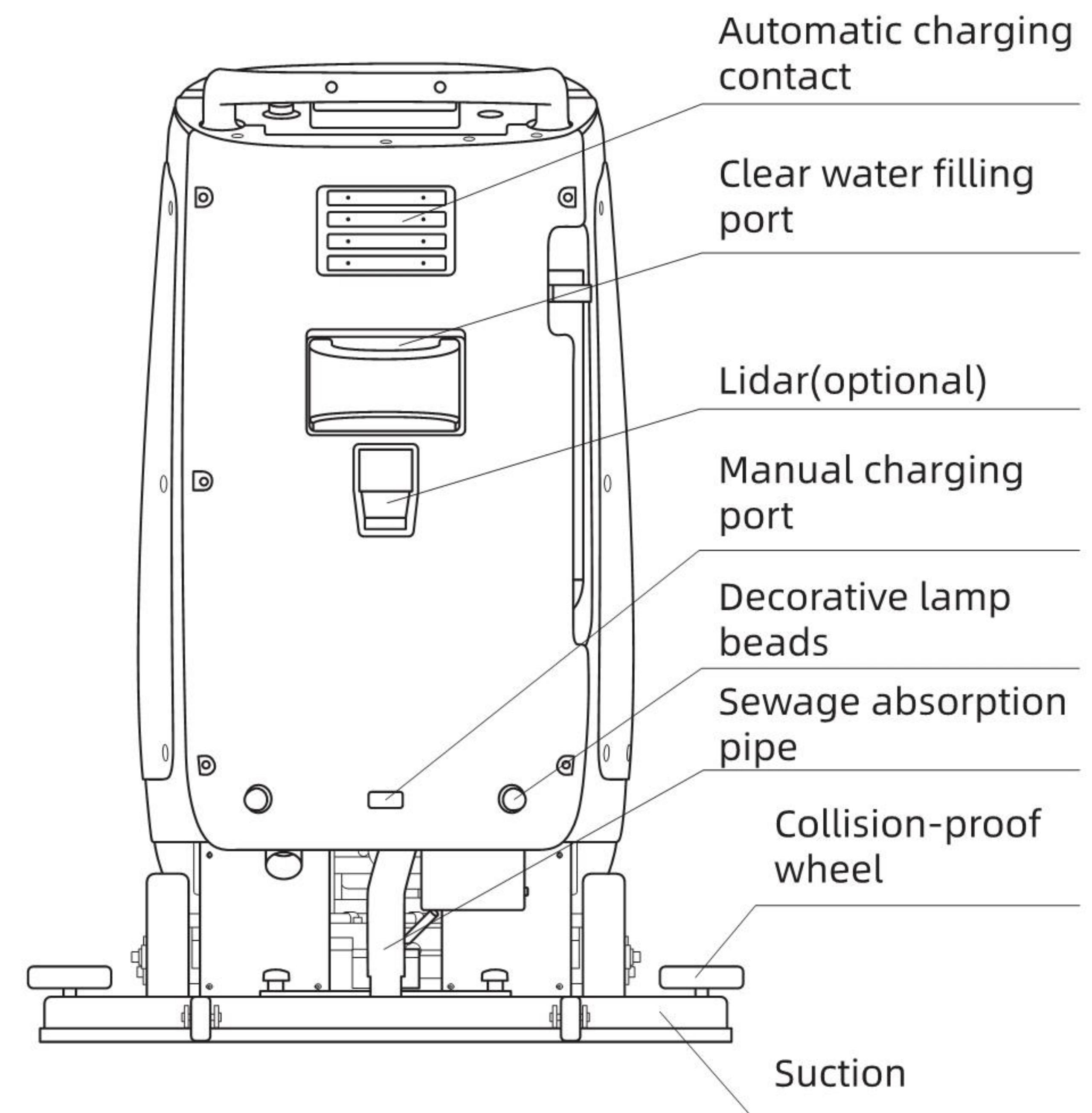
Left of host

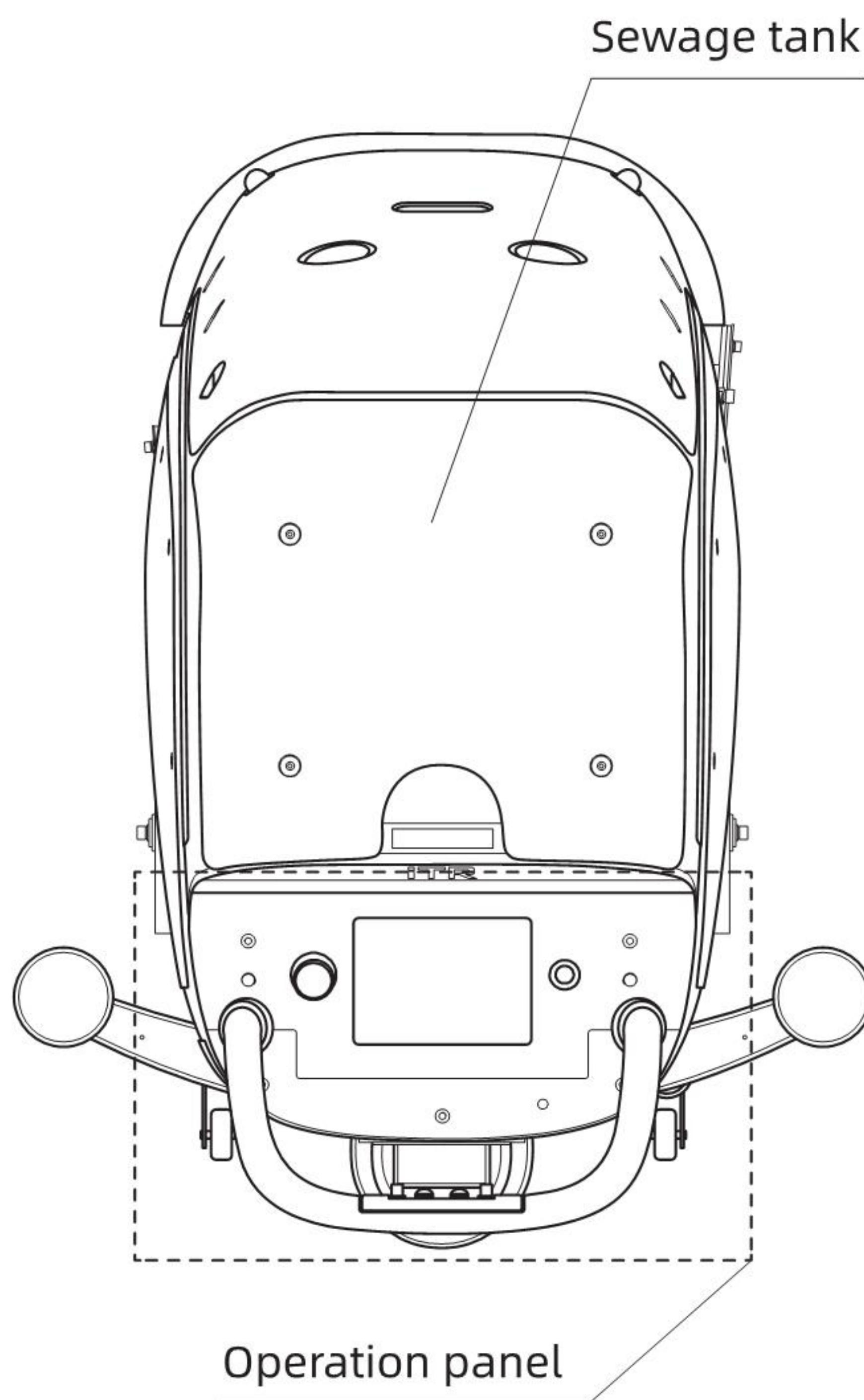
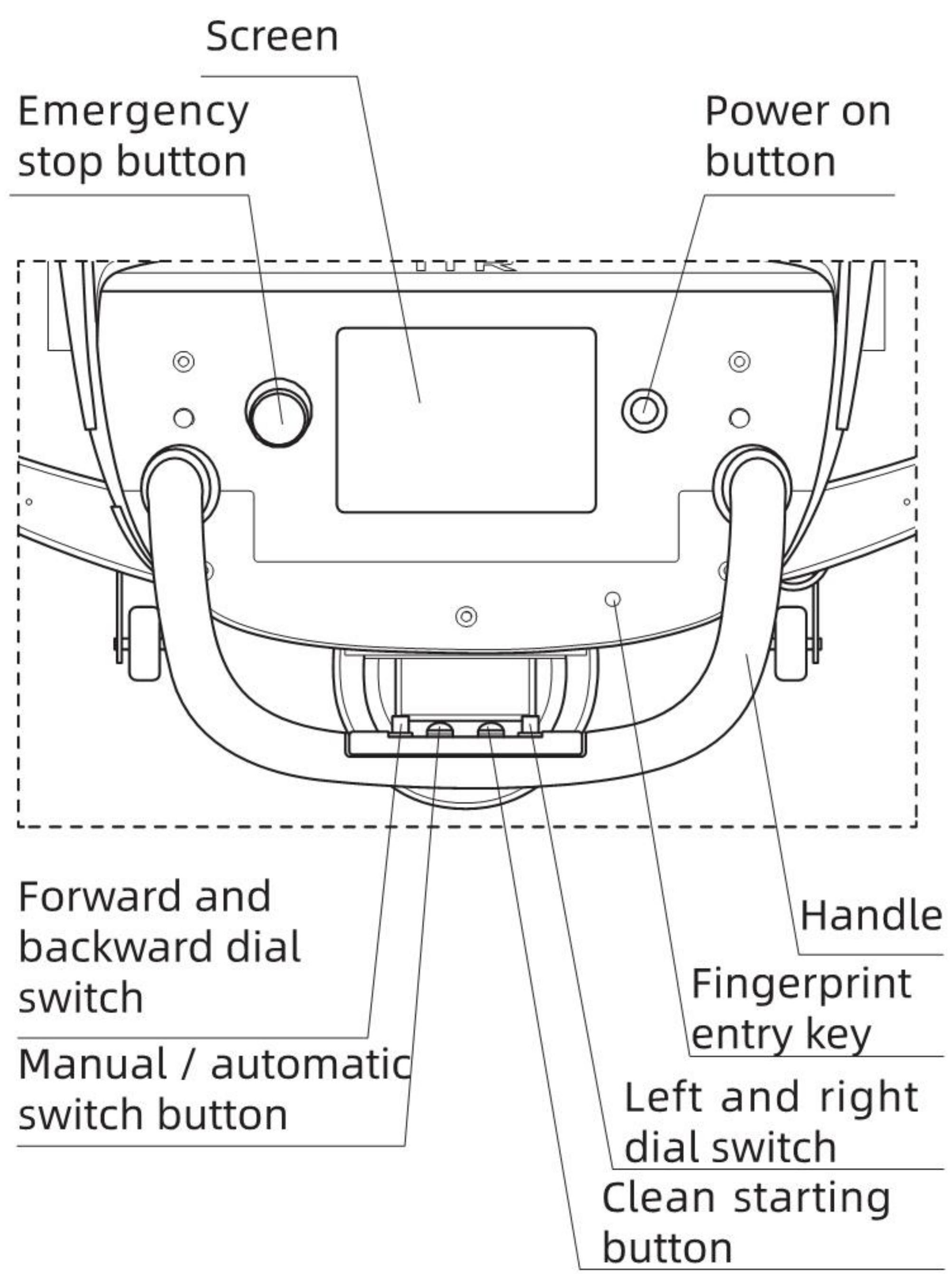
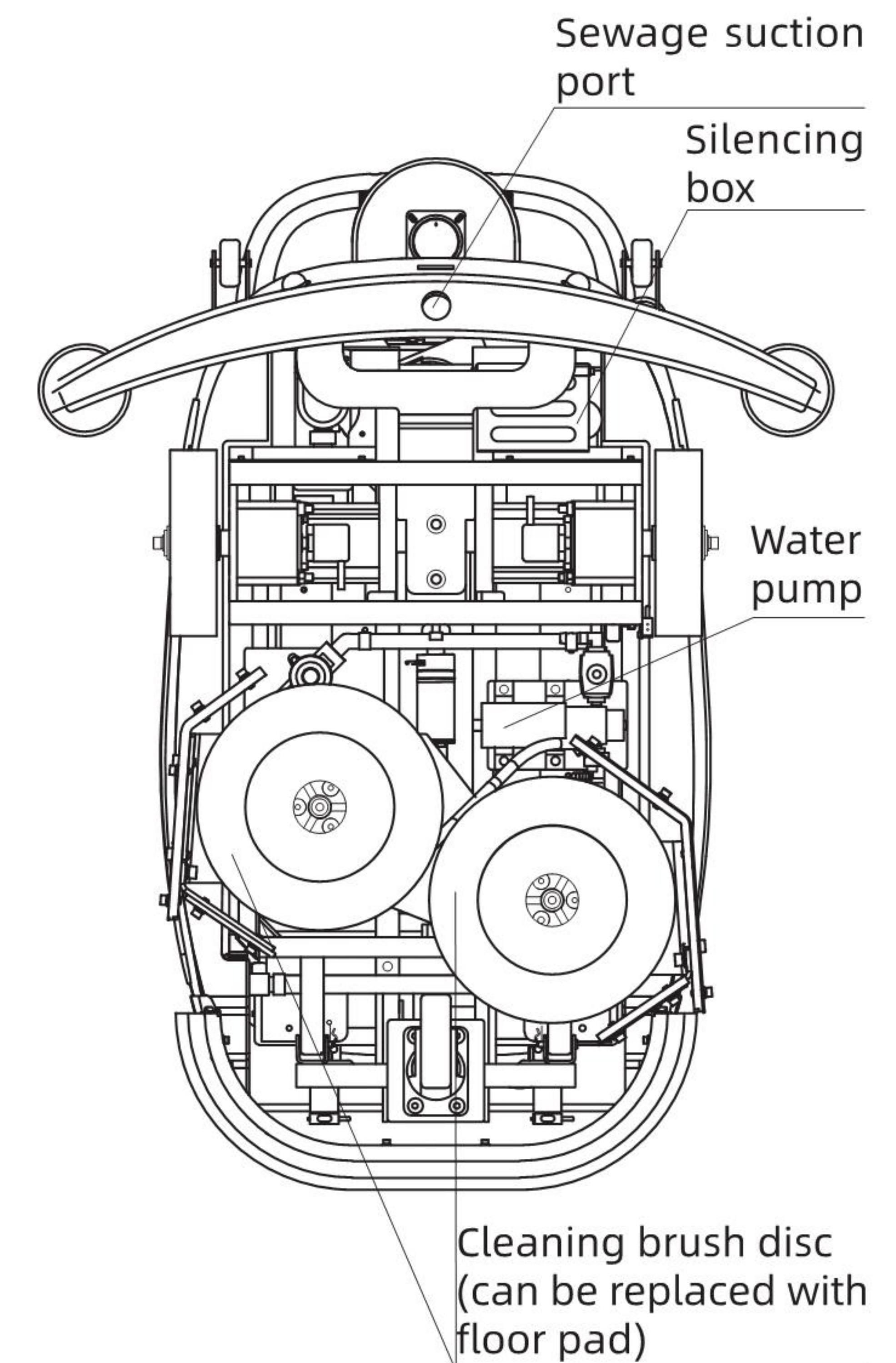


Right of host



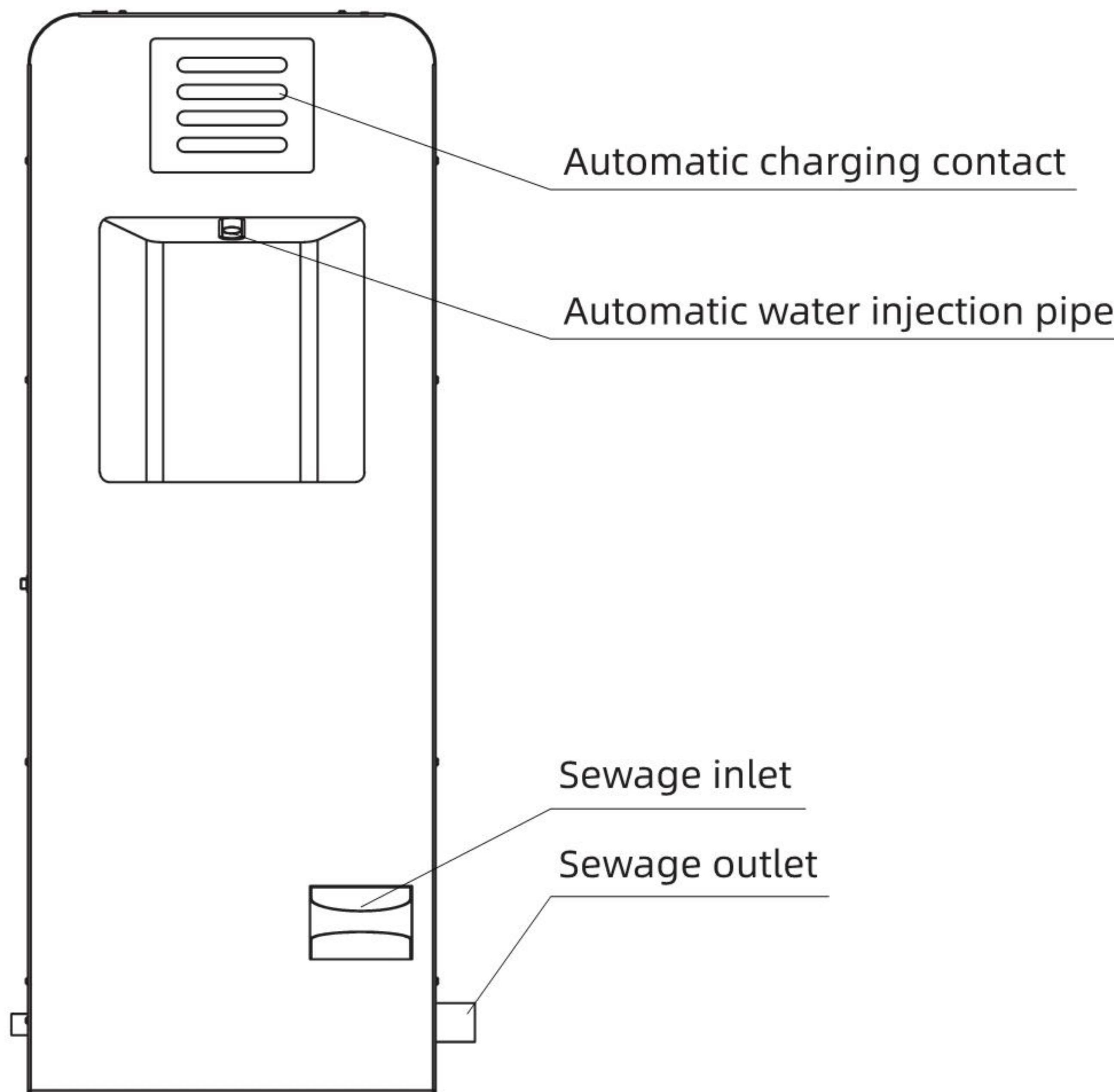
Back of host



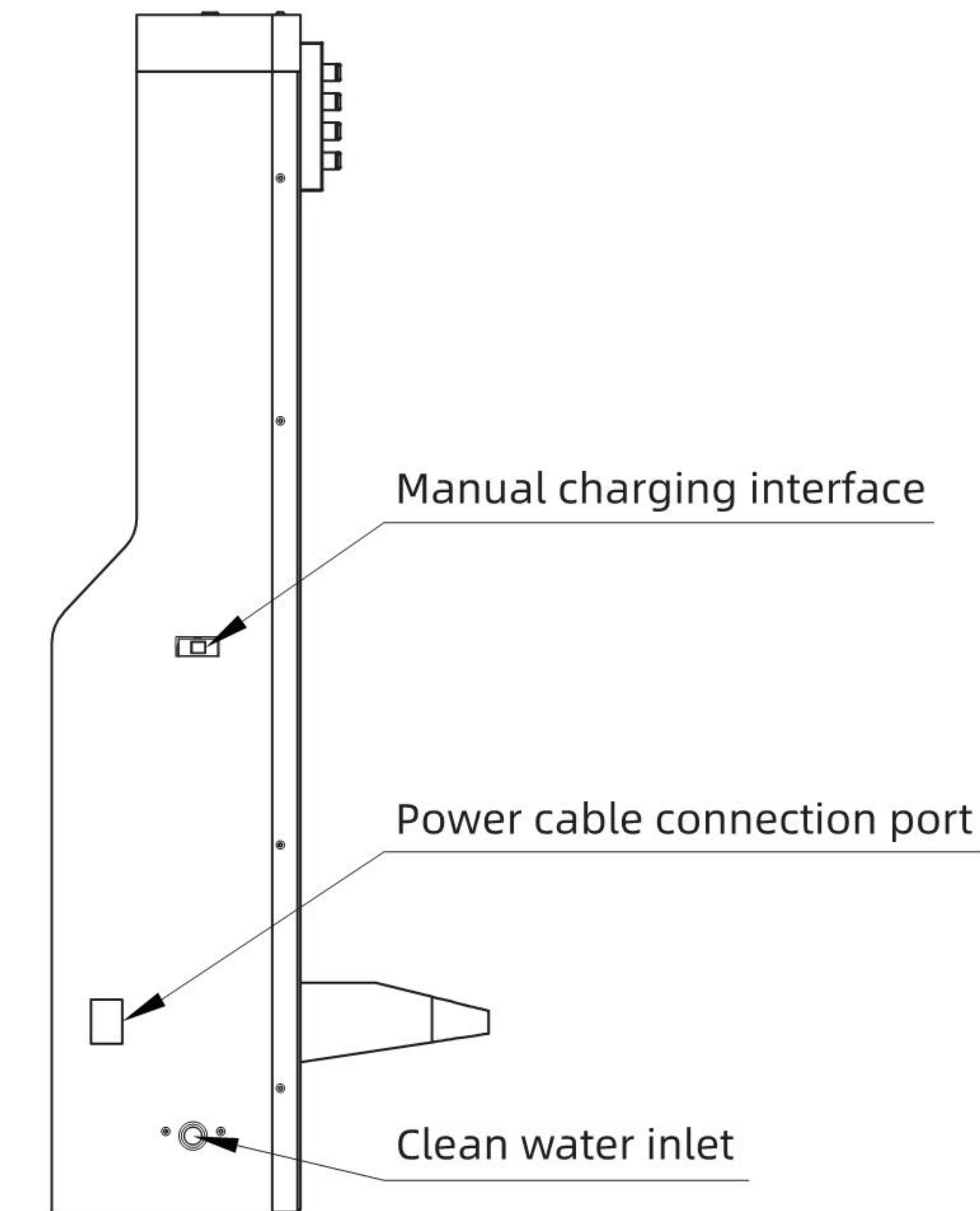
Top of host**Operation interface****Bottom of host**

Water supply and drainage station (optional)

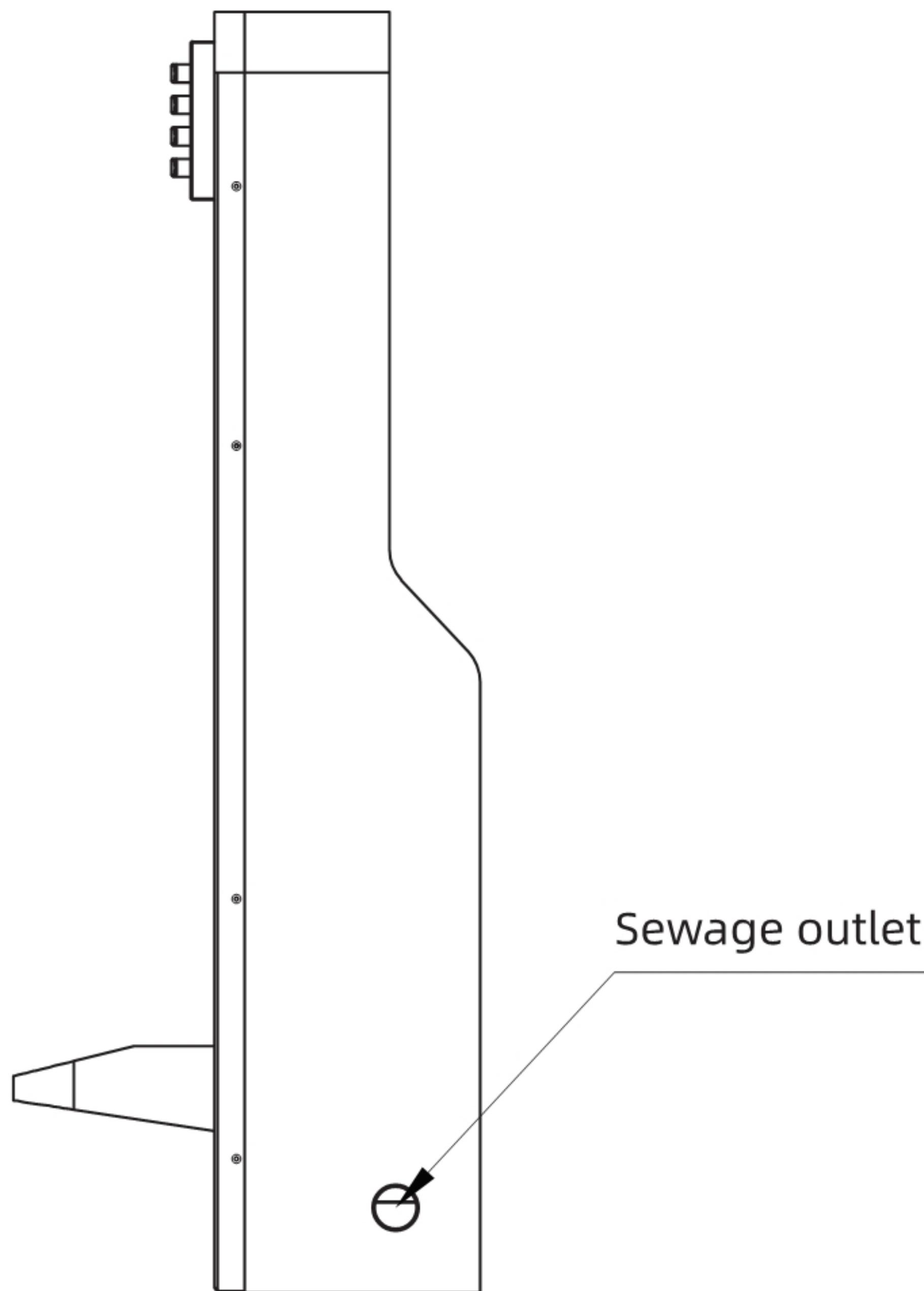
Front of station



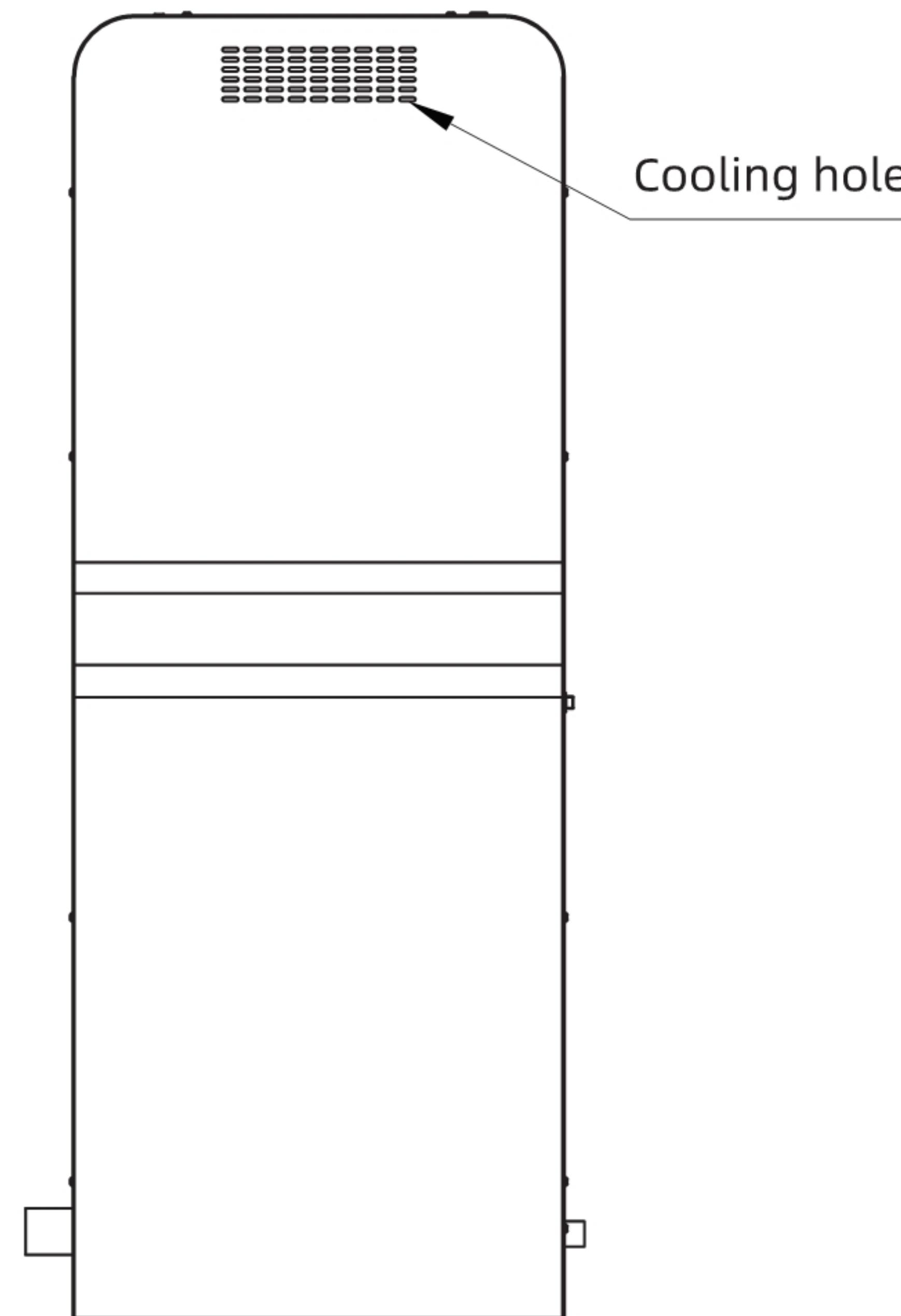
Side of station



Right of station



Back of station



Machine deployment

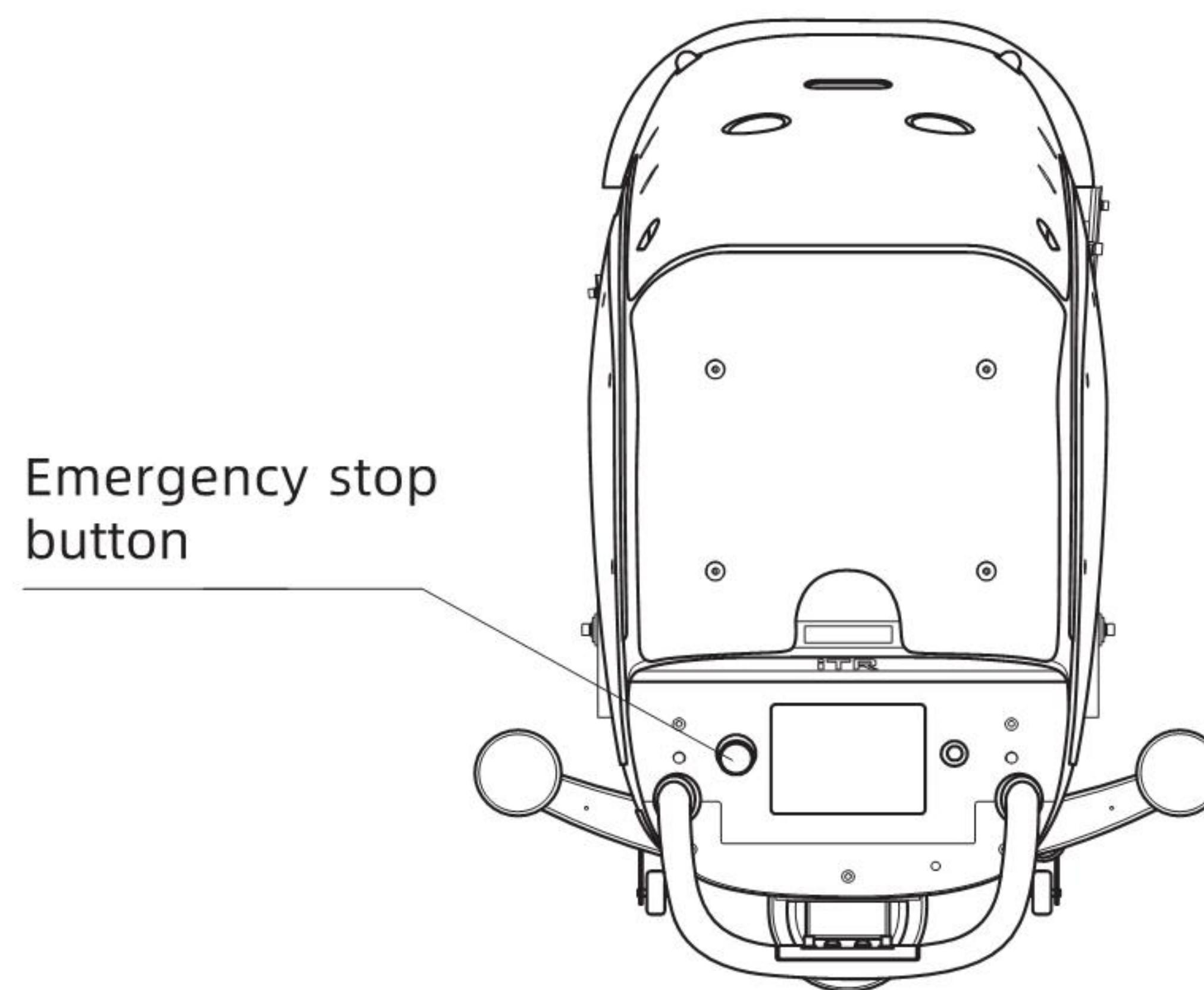
Cautions

M2 Pro Commercial Floor Scrubber has features of high automation, intelligence and strong power. Each scrubber is equipped with multiple safety protection mechanisms to provide maximum safety protection for nearby personnel.

In order to ensure the safety of equipment operators and others, all operators must pass the professional training of our company or the designated agent before working.

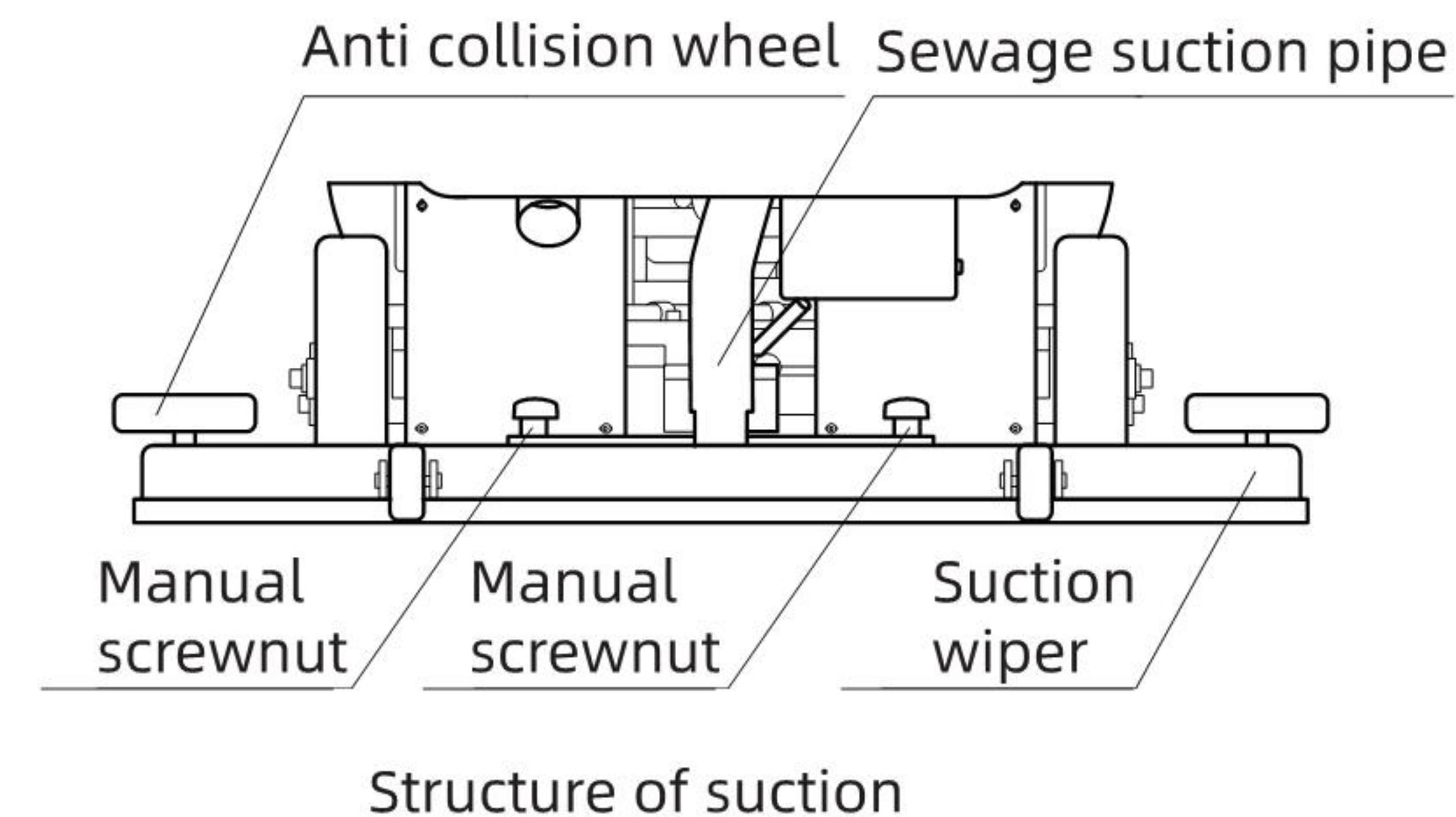
Preparations

1 Please ensure that the emergency stop button is unplugged.



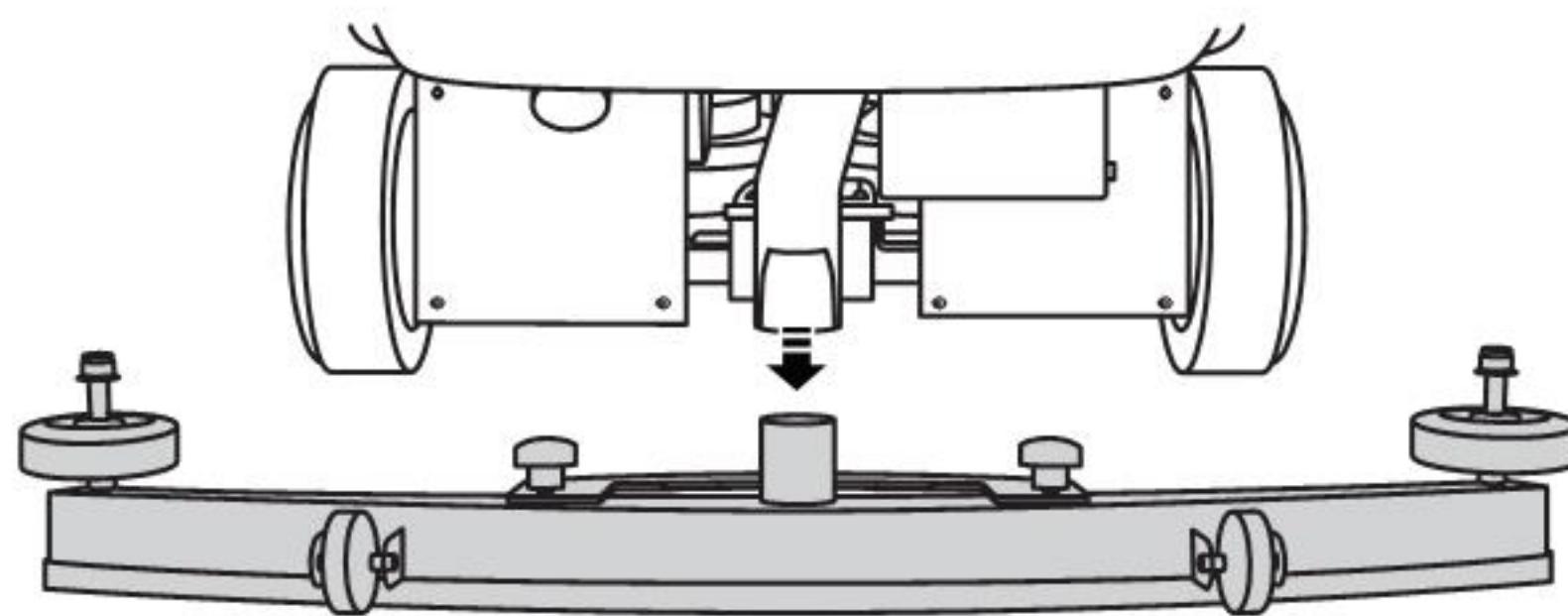
2 Cleaning suction

Note: if there is no obvious dirt on the suction wiper and the adhesive strip, you are suggested to clean the surface with clean water.

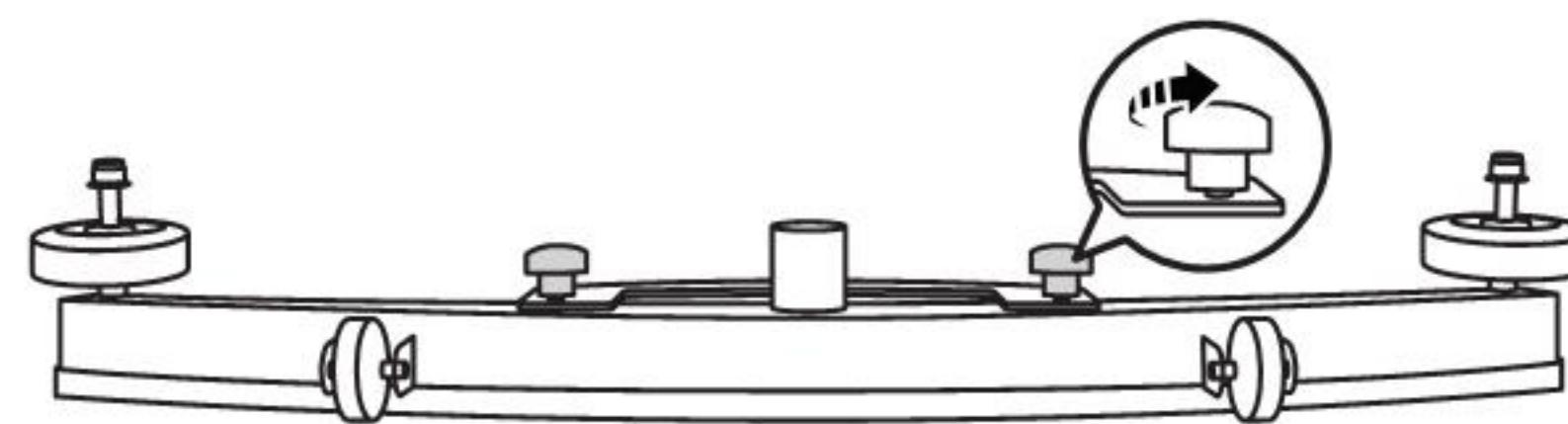


The suction wiper is behind and below the main body of the machine.
When cleaning the suction wiper,

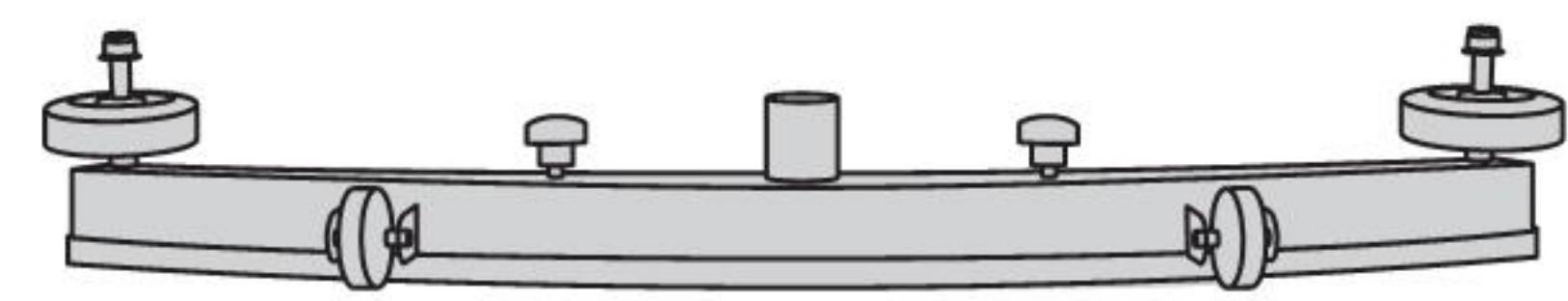
a. Please unplug the suction pipe from the suction wiper first:



b. The suction wiper is fixed by two manual nuts, please loose the nut counterclockwisely.

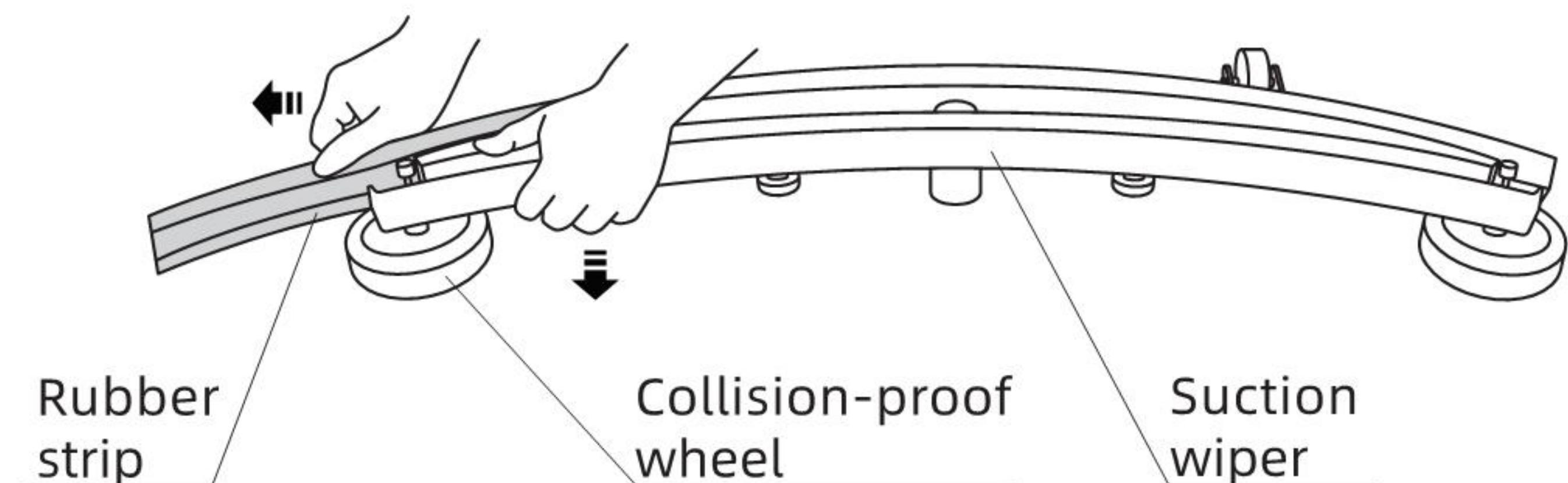


c. The suction wiper can be easily pulled back.



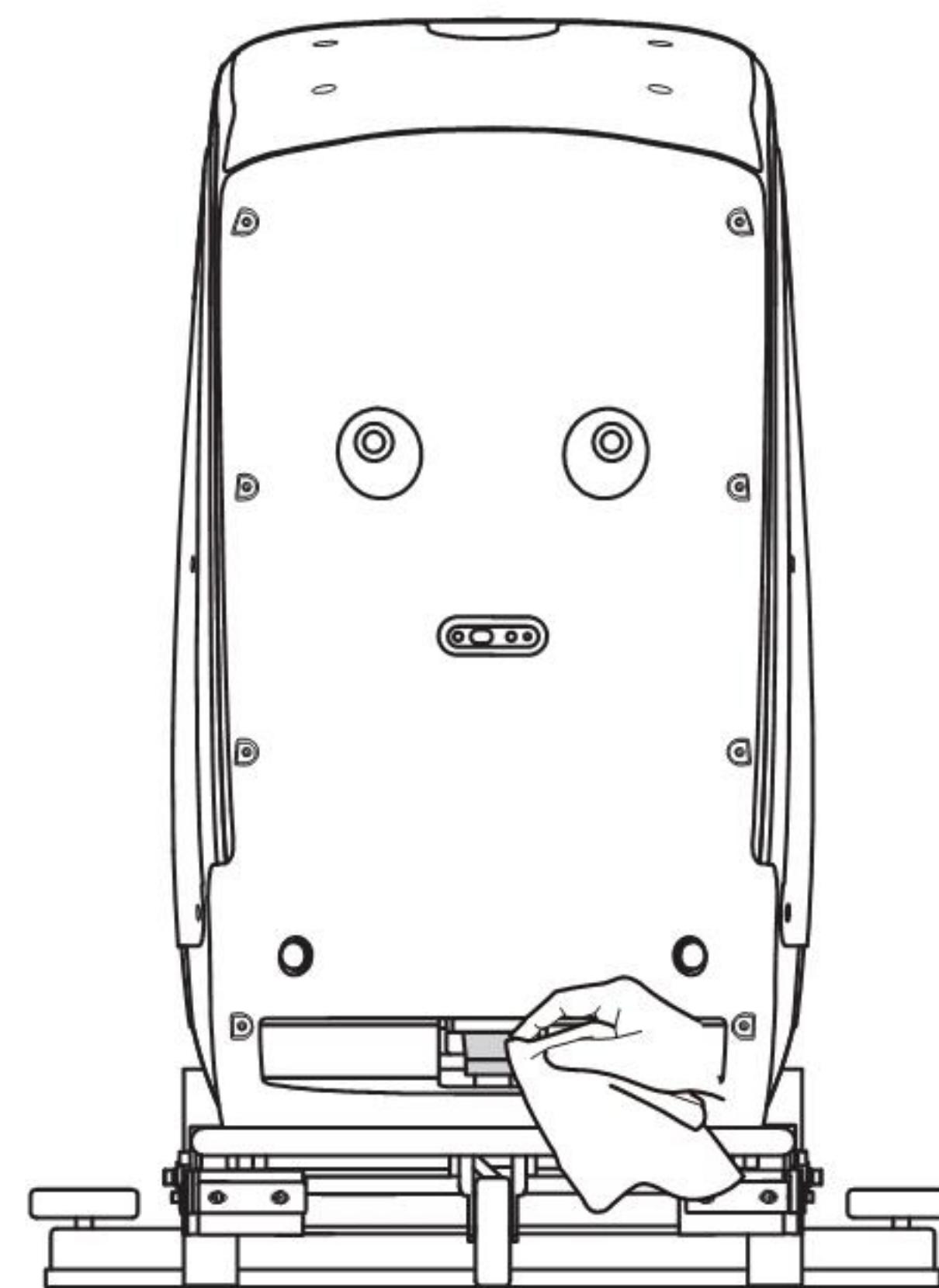
3 Clean the adhesive strip:

After removing the suction wiper, please place the collision-proof wheel on the ground, press the suction wiper, pull out the rubber strip to the left / right, and then clean the rubber strip.



Please press the collision-proof wheel and insert two rubber strips according to the previous steps after cleaning. Afterwards, please install the suction pipe and manual screw nut in turn.

4 Please gently wipe the laser lidar with a clean cloth and ensure that the surface of laser lidar is free of dirt.



Charging

Before the delivery, the machine has around 70% power, which does not need to be charged temporarily. If charging, please refer to “Manual charging” on page 49.

Power on

M2 Pro can configure three different startup buttons for customers, including key power on button, fingerprint lock power on button and ordinary power on button. Customers can freely choose the power on button by their needs.

Key power on

The user can select the key start button to start the machine. The specific operation is as follows: Please rotate the key clockwise, and when the power key is on, it indicates that the power on is successful.

Fingerprint power on button

The user can use the fingerprint entered by the machine to power on the machine. To use the fingerprint entered by the machine, please press and hold the fingerprint power key in the upper right corner of the machine operation interface. When the power key is on, you can start the machine.

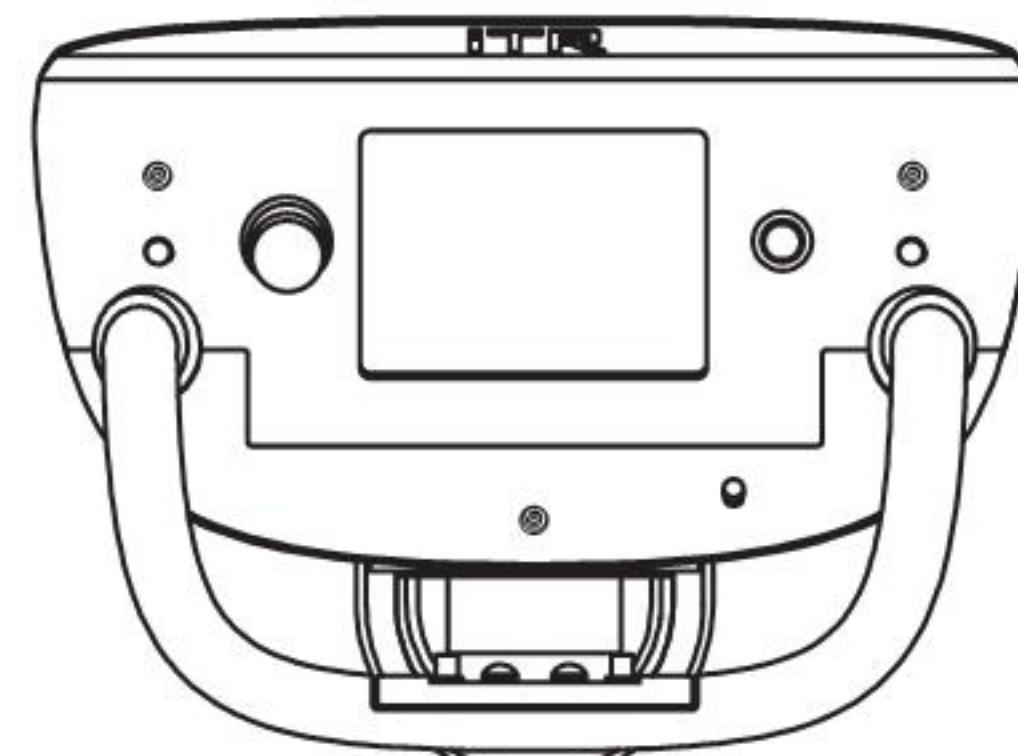
Note: How to enter a fingerprint?

Please wait until the machine enters the login page, and afterwards, you can enter the fingerprint.

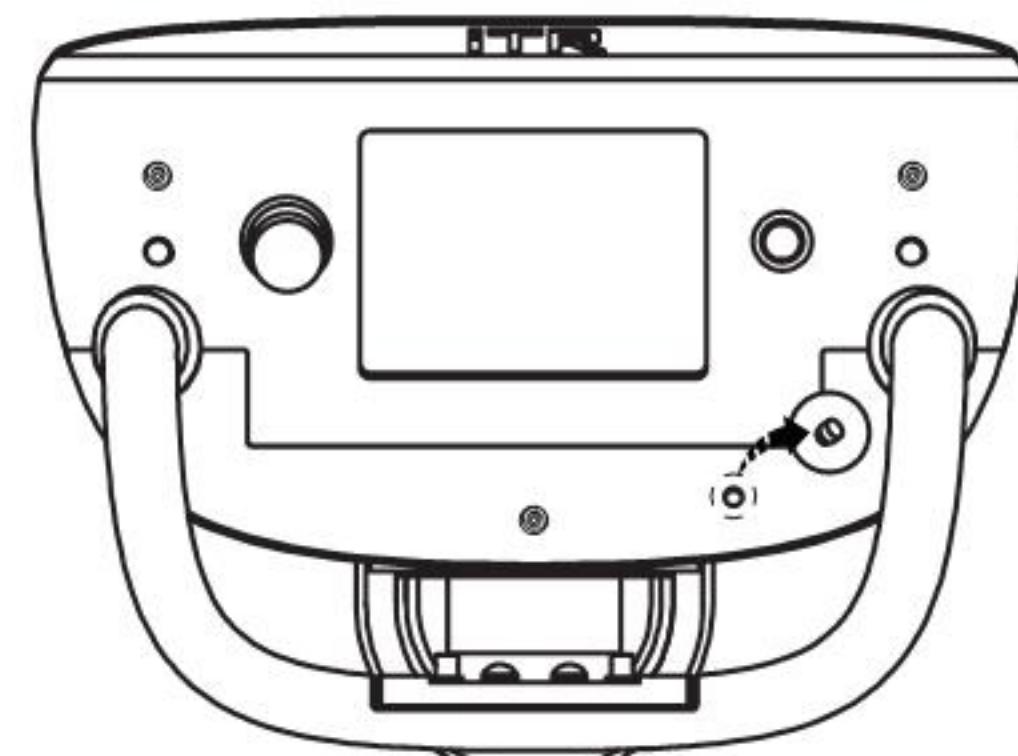
Tip: Please gently wipe the fingerprint key with a clean cloth to ensure the accuracy of fingerprint entry before entering.

1 Remove the rubber sleeve

Please remove the rubber sleeve of fingerprint setting key at the bottom right of the machine screen firstly, and keep it properly.



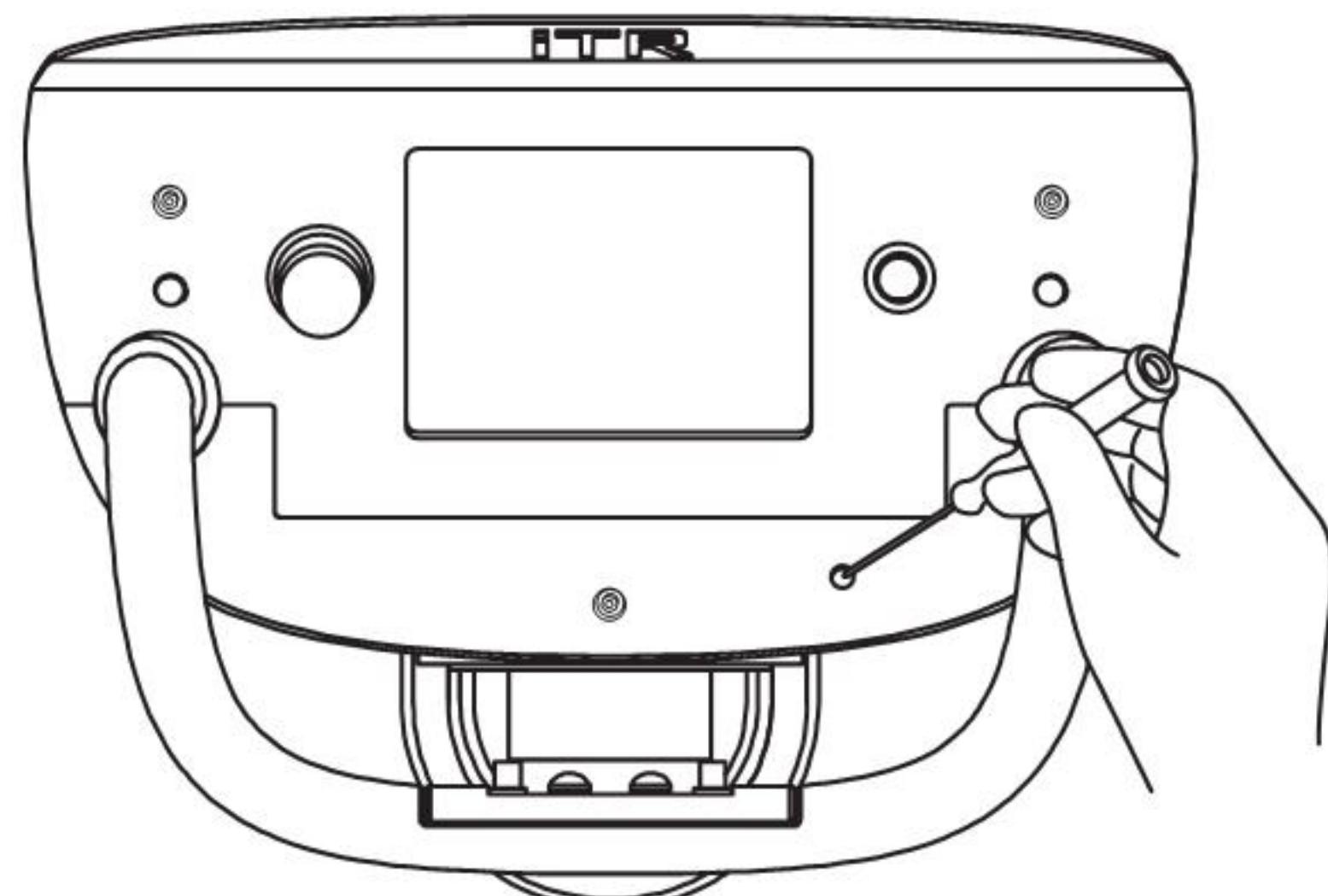
(Before removing the fingerprint setting key)



(After removing the fingerprint setting key)

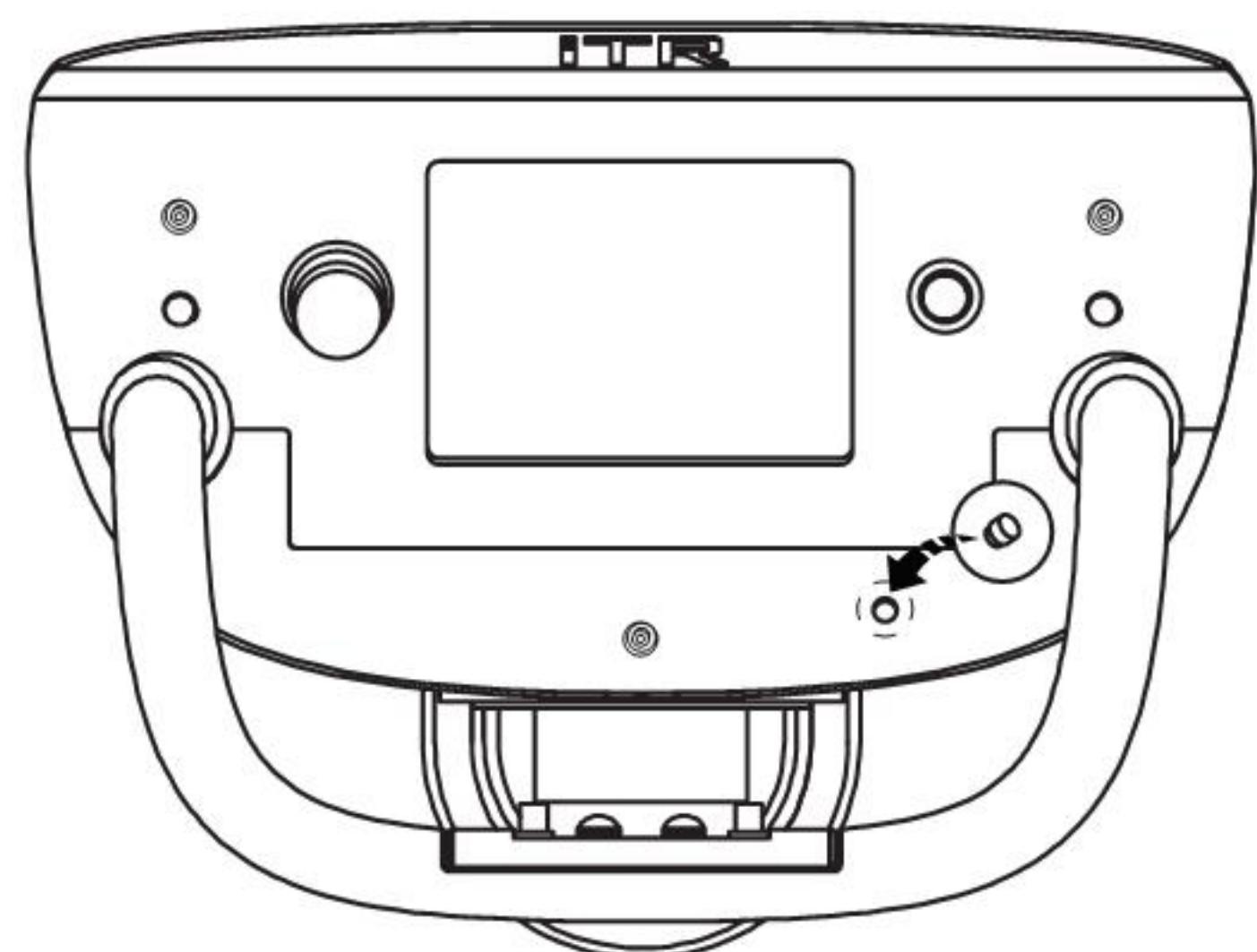
2 Entry preparation

Please insert a small screwdriver into the hole of the fingerprint setting key and shortly press the fingerprint setting key. At this time, the fingerprint power key will flash quickly, and you can enter the fingerprint.



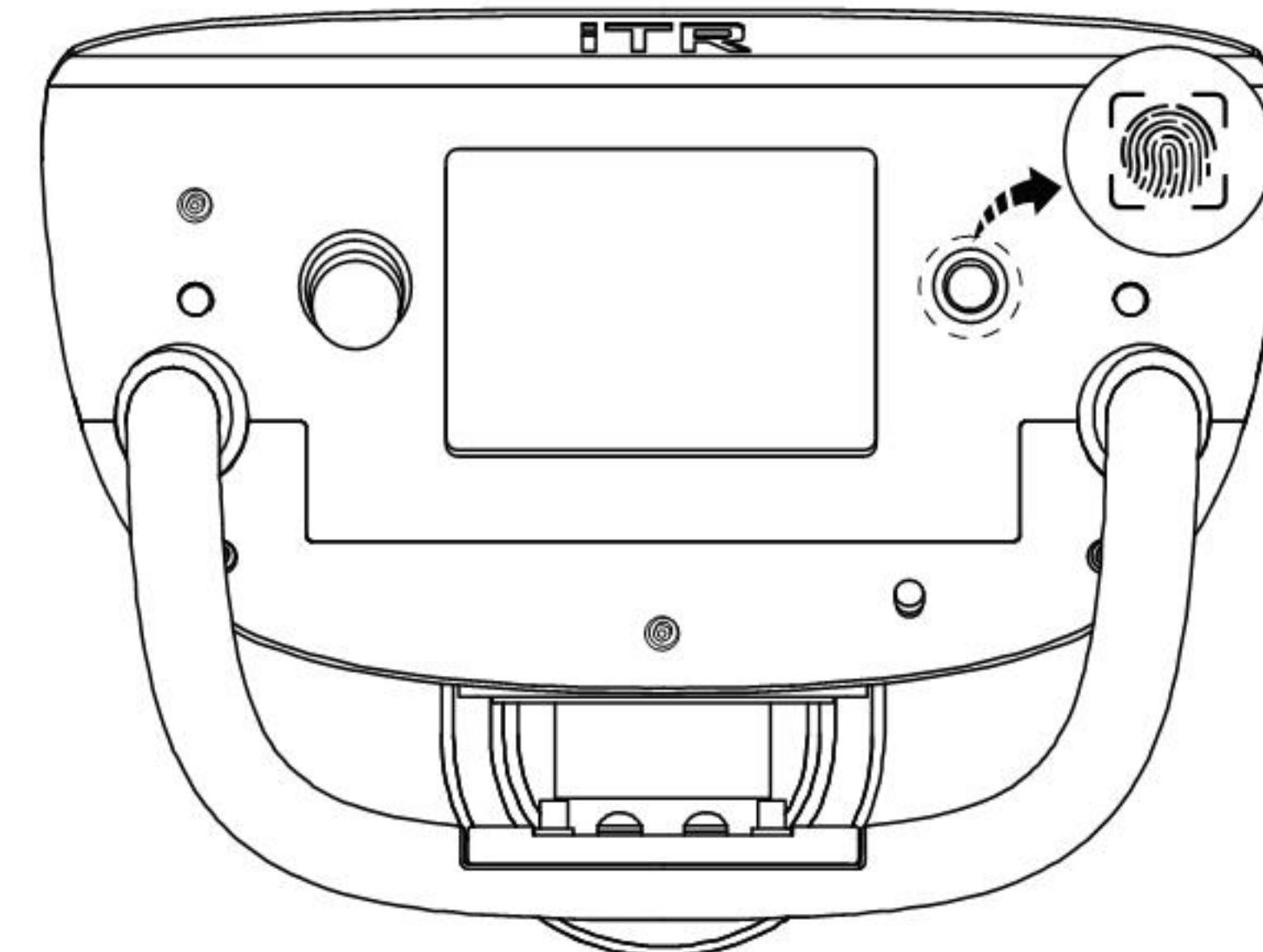
4 Return the rubber sleeve to its original position

After entering the fingerprint, please put the rubber sleeve of the fingerprint setting key in place.



3 Input fingerprint

Please gently press the power button with your finger. At this time, the machine will sound “DiDiDi”, which means you are entering your fingerprint. When the power key is on briefly and the machine plays music, it means that your fingerprint is entered successfully.

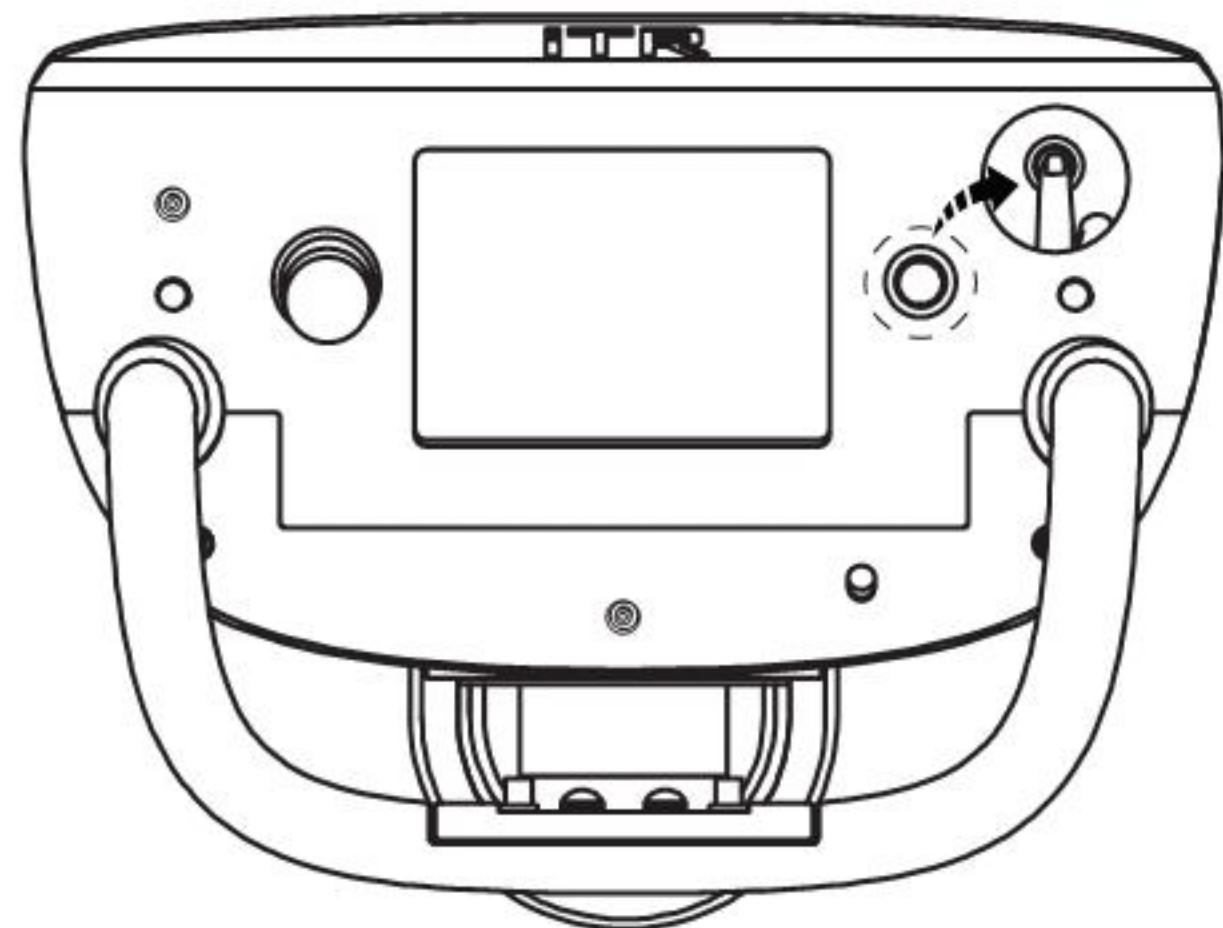


Note: How to restore the fingerprint to the factory settings?

Please press and hold the fingerprint setting key. When you hear “DiDi” and music, please delete all fingerprints, which will restore to the factory setting.

Normal button power on

Please press and hold the ordinary button in the upper right corner of the machine operation interface. When the power key is on, it means that the machine is powered on successfully.



Connect network



- 1 Before creating the map, please connect your mobile phone to the WiFi of machine
- 2 Please search the WiFi in name **[iTR-M1-*****]** After clicking the WiFi, there will be a dialogue window to remind you entering password. Please enter the last five figures of WiFi **[iTR-M1-*****]** twice, afterwards, you will enter successfully.

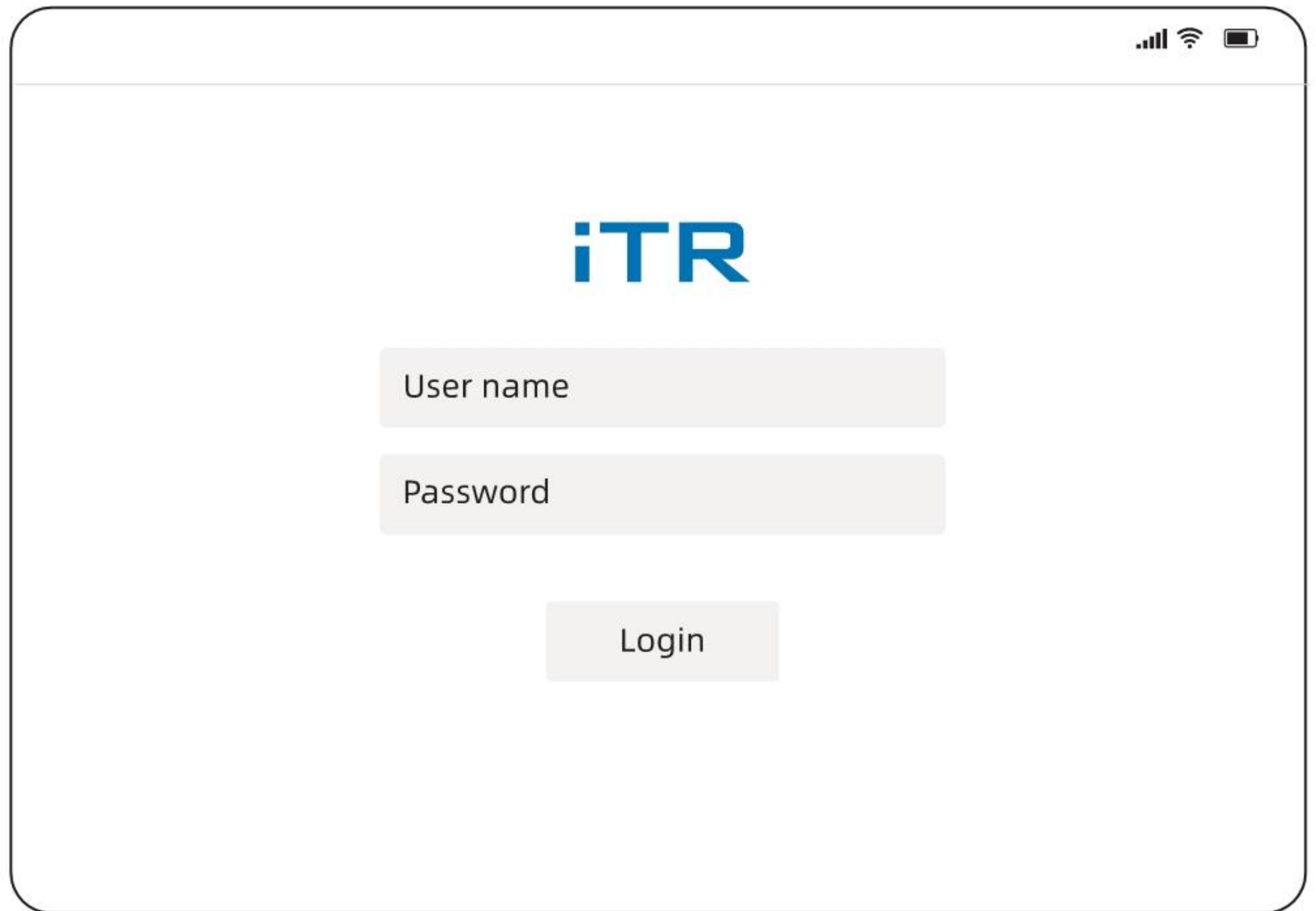
Example:

If the WiFi name is **[iTR-M1-12345]** , the password is 1234512345.

If the WiFi name is **[iTR-M1-10000]** , the password is 1000010000.

Login account

Please enter user name and password in HD interface and click "Login".



Administrator	User name:	
	Password:	
Operator 1	User name:	
	Password:	
Operator 2	User name:	
	Password:	
Operator 3	User name:	
	Password:	
Operator 4	User name:	
	Password:	
Operator 5	User name:	
	Password:	

Note:

Each company is set with 1 administrator account and 5 operators accounts by default, operator account and administrator account of the same company can be logged in to machine operation software. You can contact iTR to increase the account number of administrator and operator. User names and passwords of administrator account and operator accounts shall be remembered clearly. To facilitate management, it's suggested to record user names and contact information in the form.

To better summarize the use of scrubber by operators in different shifts, the operator shall log off. Afterwards, operator of next shift can relog in.

Map creation

Preparation

- 1 Please download the [iTR Center] APP on your mobile phone (currently only available at the Android platform) to create a map, and you can scan the QR code below to download;



- 2 After successful scanning, please enter the password [123456]. Then, download the software;
- 3 After powering on, log in to machine's APP and connect the mobile phone to machine's network. For the connection method, please refer to [Connect Network] on page 22.

Note:

1. "iTR Center" will be updated irregularly. In case of failed QR code above, please contact iTR after-sales engineer.
2. For the download method of map drawing software, please contact ITR after-sales engineer.
3. Currently, "iTR Center" is only available for Android system.

Log in to APP on mobile

Open the APP "iTR Center" and log in to the account.

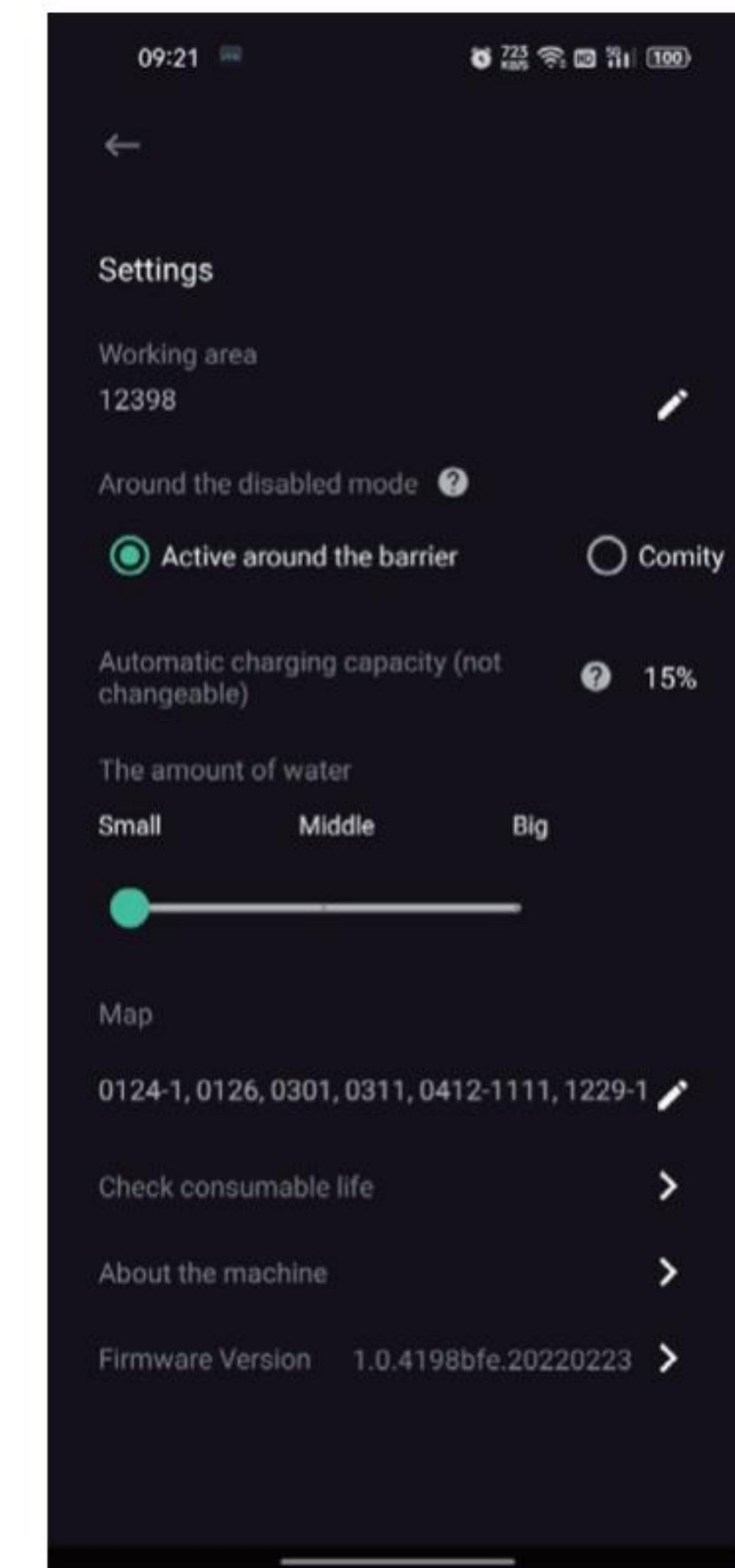
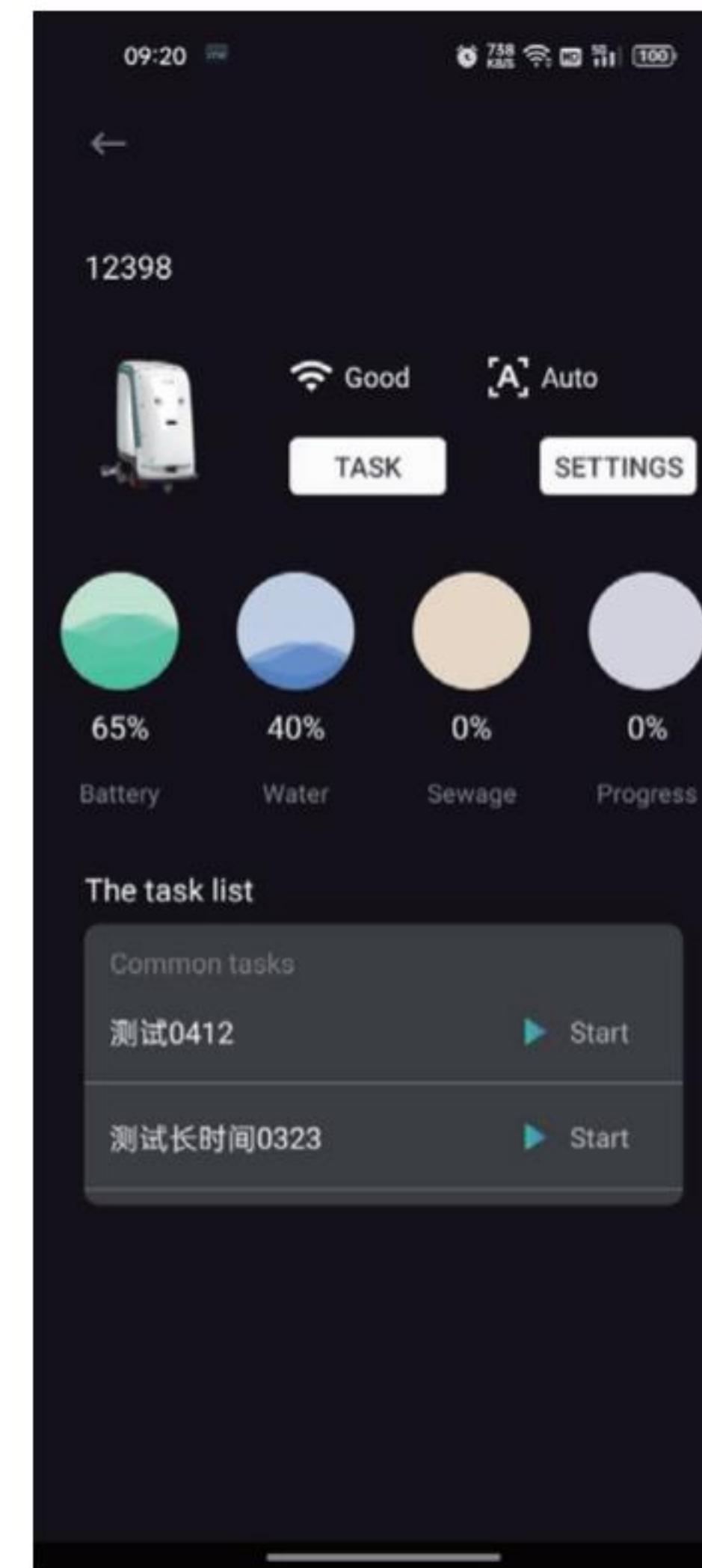
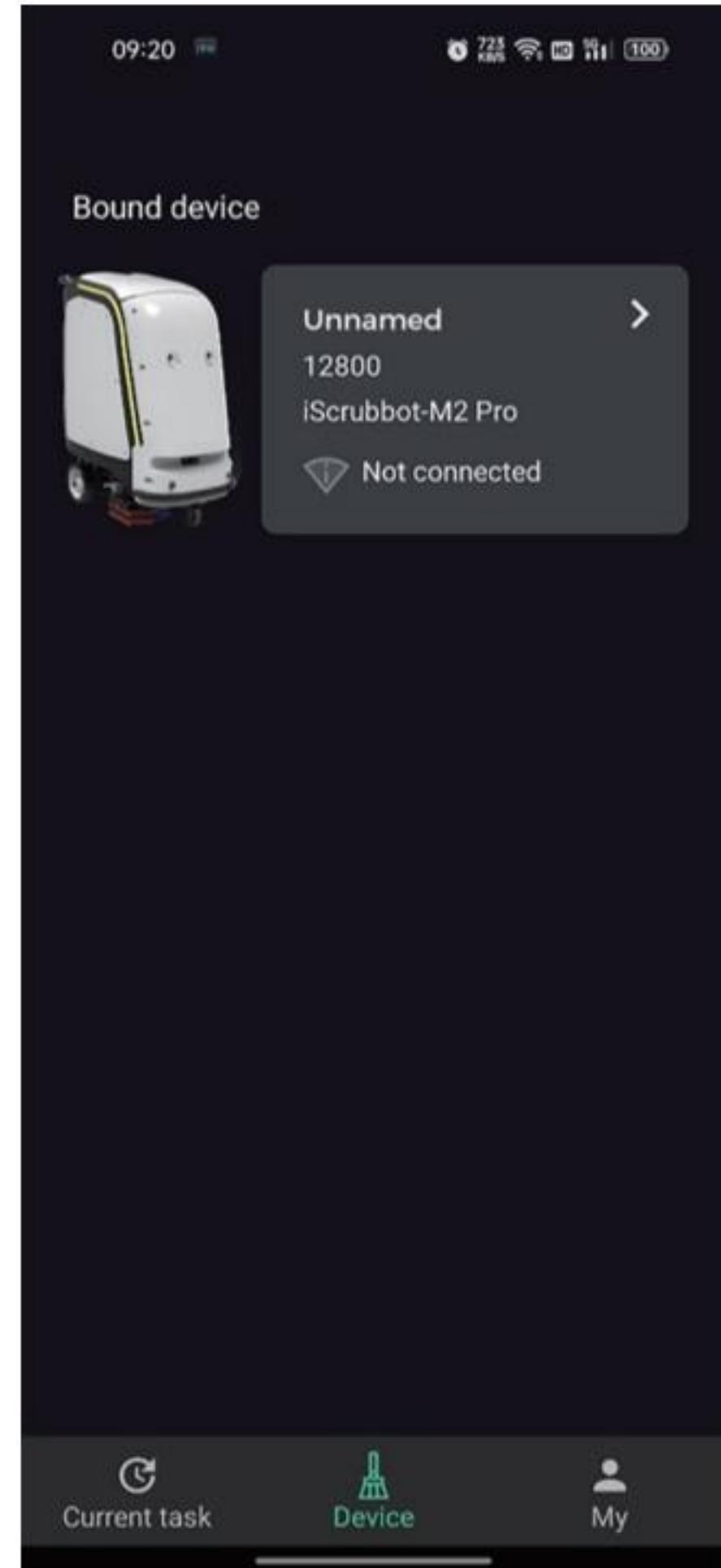
Note: If there is no account, please contact iTR after-sales engineer.

Map creation

1 You can find the right machine in main interface and click to enter.

2 Enter [Equipment Details Page] (Figure) of machine and click [SETTINGS] - [Map];

3 Click the [Map] button;

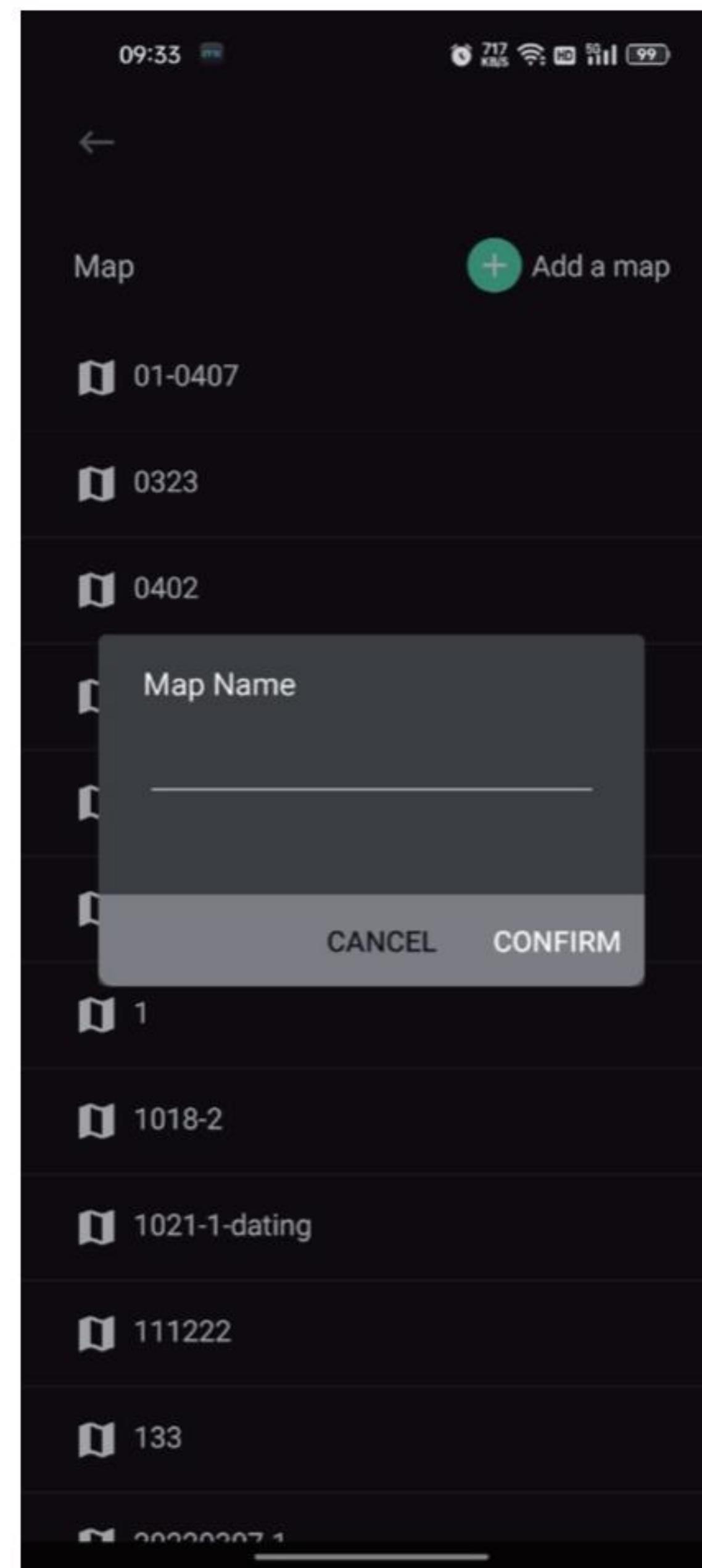
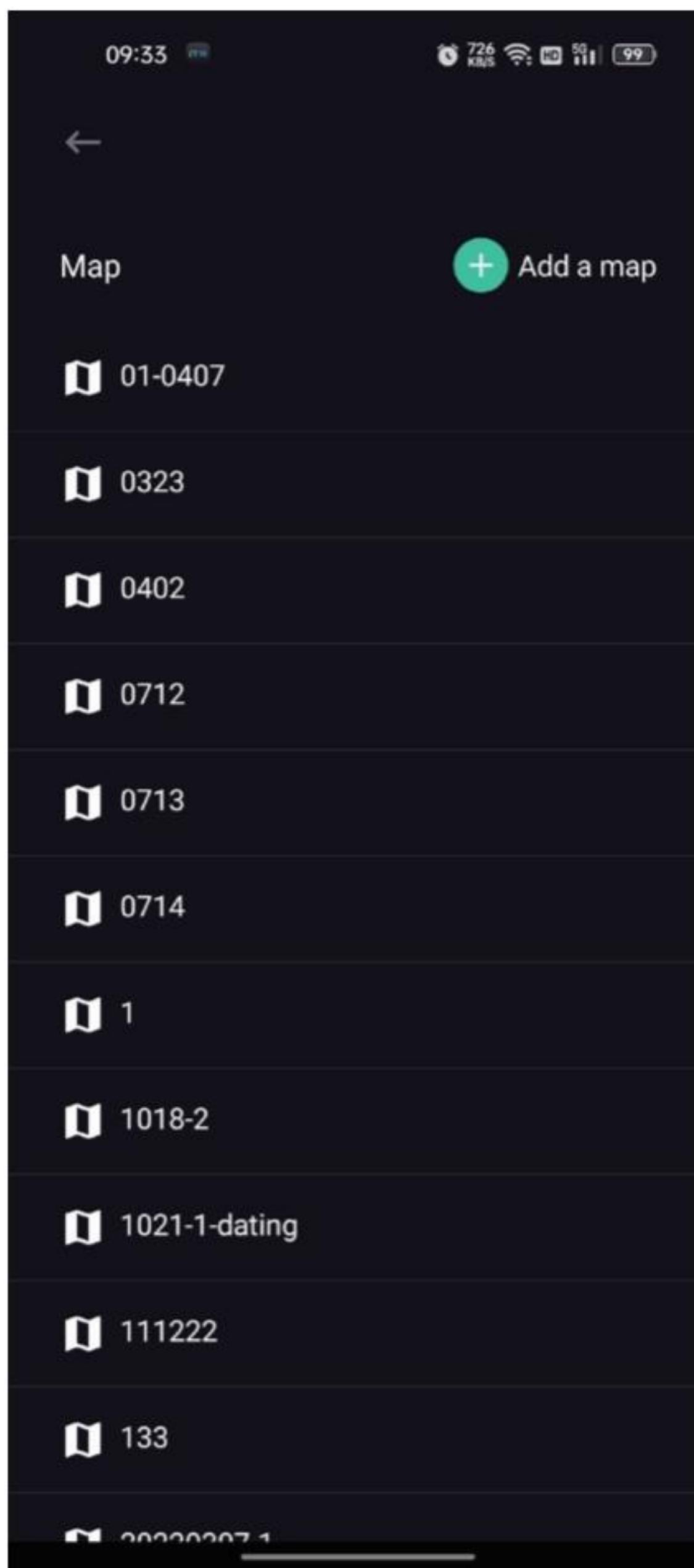


Note:

If the status panel on left side of machine is gray, please check the following situations:

1. The equipment is not powered on.
2. The equipment is not connected to special network.
3. The mobile phone has no network or signal of mobile phone is poor.

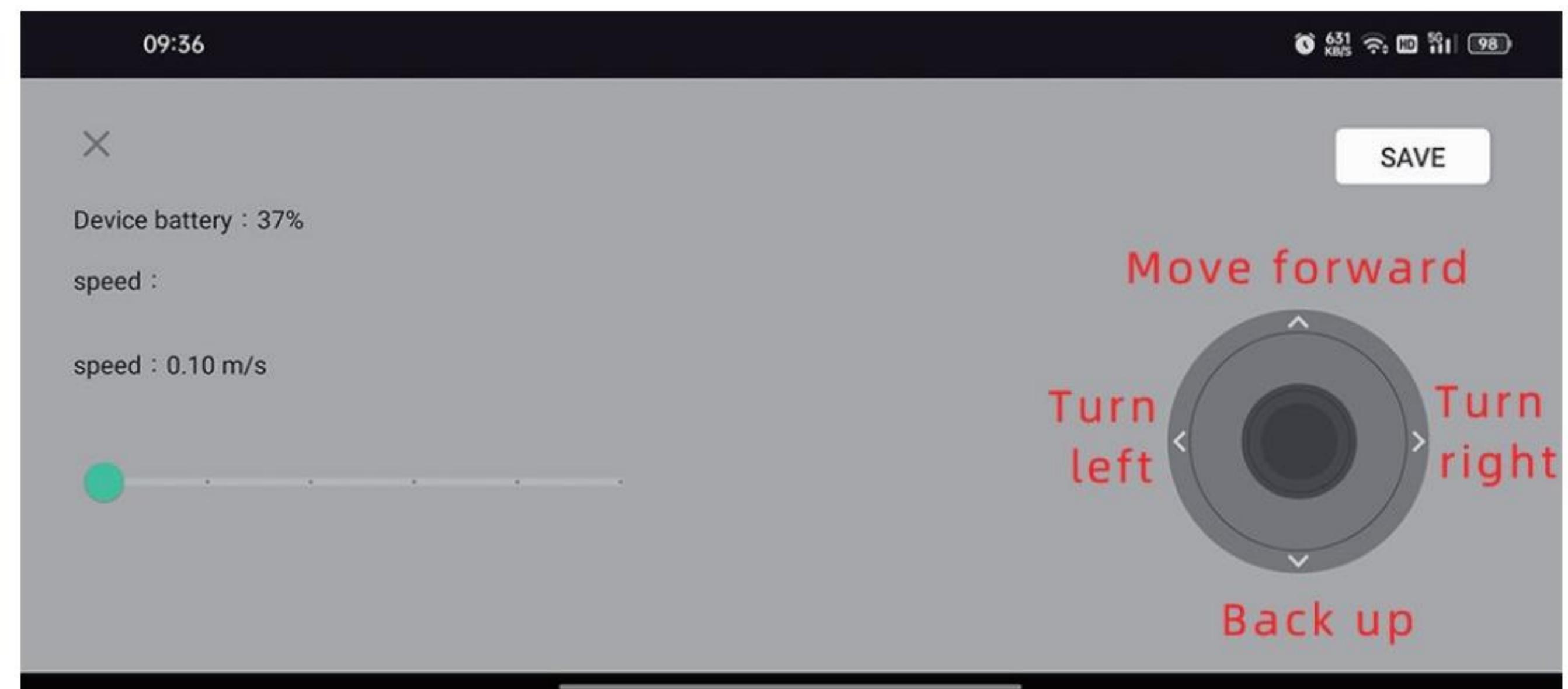
4 Click [Add a Map] , then enter the name of map and click [CONFIRM] to start map creation;



5 Then, enter into machine's map creation interface,

Pulling the left green speed point can control the speed of machine, Starting from left to right of green speed point represent the sequential increase of speed;

The right steering wheel controls the travel of machine. After finishing the map creating, please click the button "Save" to complete the map creation.



Note:

1. Please pull up the red emergency stop button on the left side of machine when creating map. Otherwise, the mobile phone will not control the forward and backward actions of machine;
2. The recommended speed shall not exceed 0.3m/s during map creation;

Note:

The name of map can only be composed by English letters, numbers and some special characters.

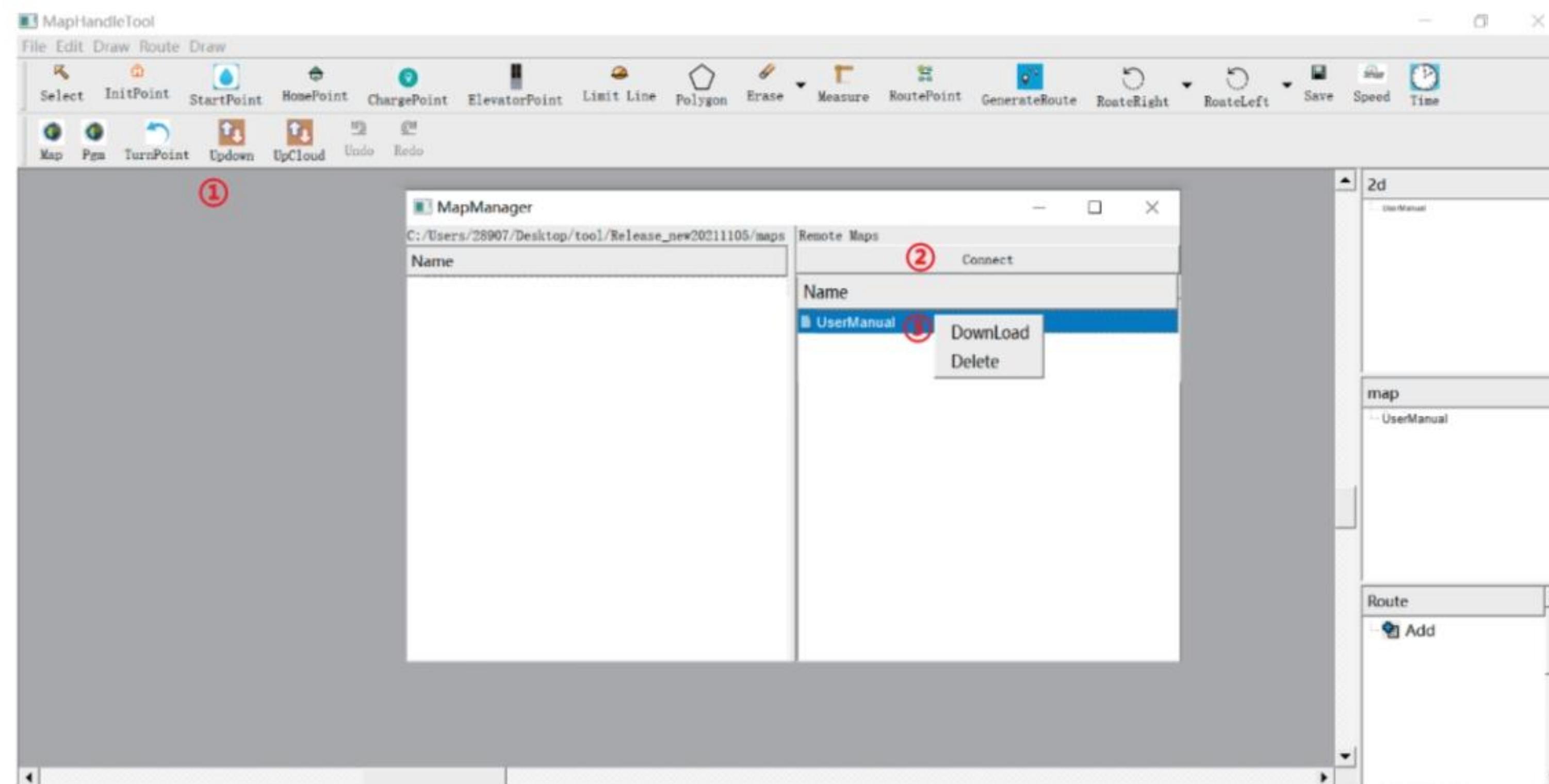
Route creation

Preparation

Before creating the route, please ensure that: 1. The computer has been downloaded the route creation software; 2. The computer has been connected to machine's network.

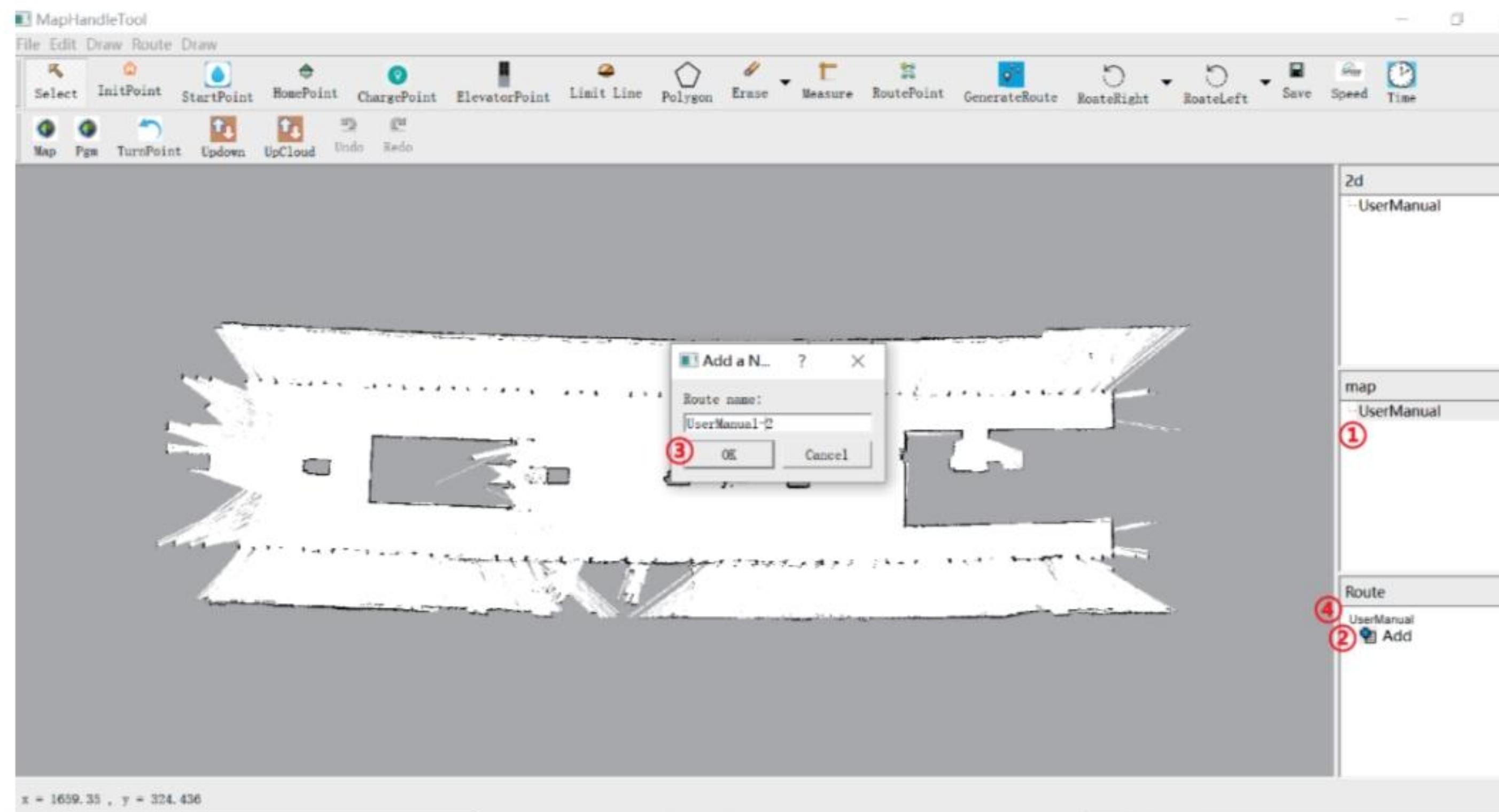
Route file creation

- 1 Enter the map drawing software (software name is "MapHandleTool.exe") and click "Updown" ;
- 2 Click "Connect" to connect;
- 3 Select the corresponding map name (namely, the map name created on mobile phone. Here, the map is uniformly named "UserManual" for convenience of understanding). Rightly click and select "DownLoad" to download the map. Afterwards, map file will be successfully downloaded to route creation software.



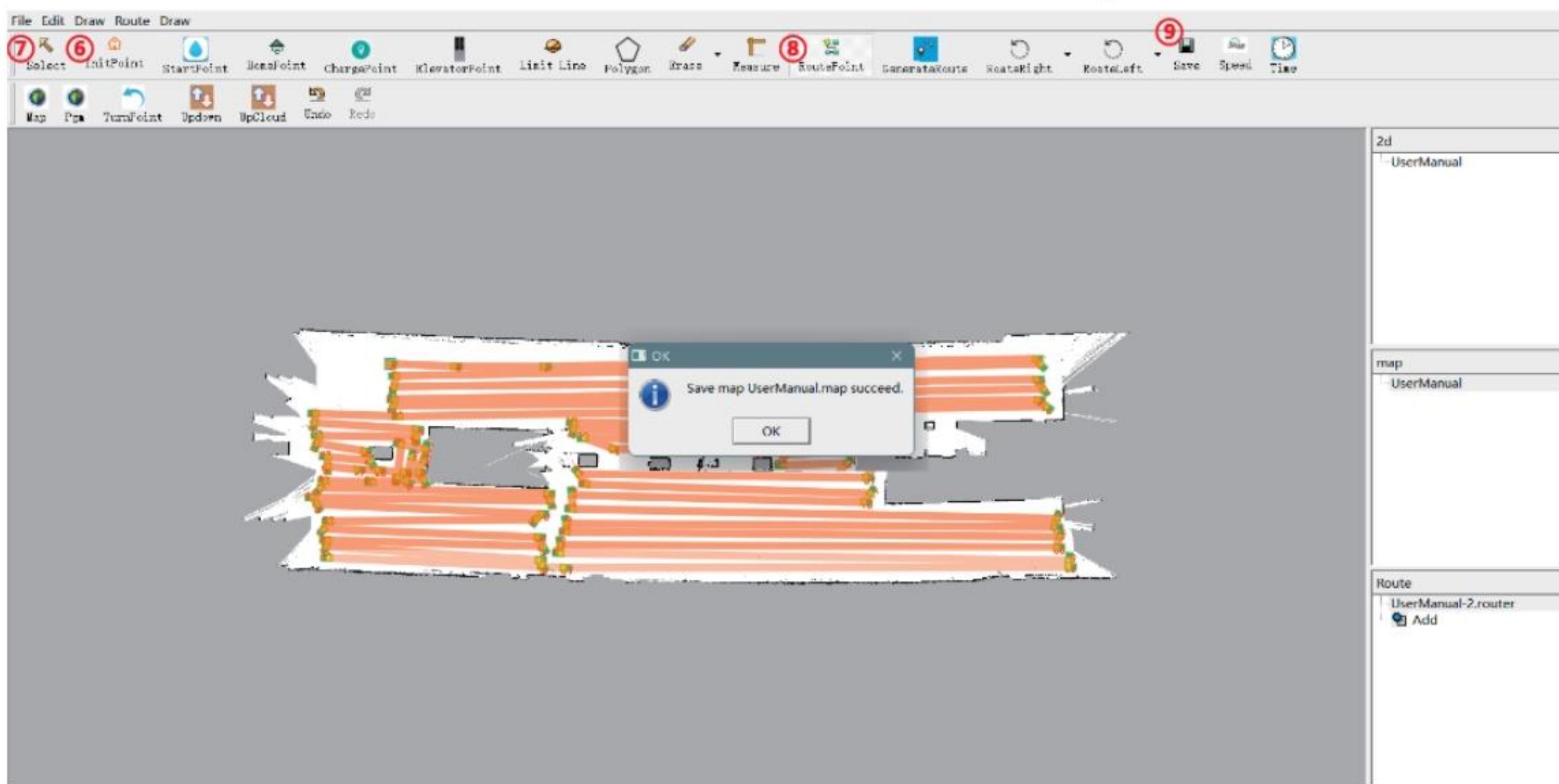
Draw route

- 1 Click the right map file in the map column on the right. (Take "UserManual" as an example);
- 2 Click "Add" in the button "Route" below to show the dialogue box "Add a Name" ;
- 3 Enter the route name (the route in figure is temporarily named "UserManual-2" for convenience of understanding), and click "OK" to save the route name;
- 4 Click the route file with end name of ".router" in "Route" (the route file in figure is "UserManual.Router");
- 5 Slide the mouse wheel up to adjust the map to the appropriate size;



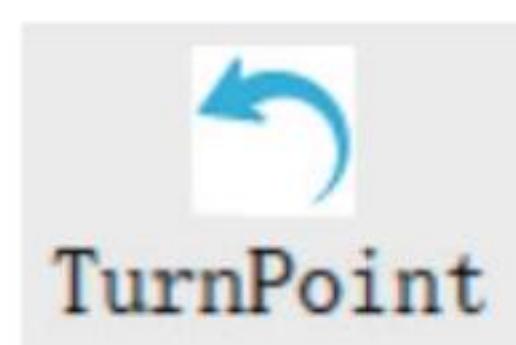
- 6 Select the button "InitPoint" and click the map. The map will generate a point, which is the starting point;

- 7 Select the button “Select” and click “InitPoint” in figure to slightly adjust the direction of arrow. The arrow’s point direction represents the travel of machine;
- 8 Select “RoutePoint” (Note: the first “Routepoint” created shall be coincided with “Initpoint”), click the map by the actual situation of the site, and create the route (Note: the ratio of the distance on the map to actual distance is about 1:1, and the error is about 5cm, so that the point can be placed according to this distance);
- 9 After creating the route, click the button “Save” to save it. If appearing the diagolue box “Save map UserManual.map” , it means that the save is successful, and click “OK” to end the operation.



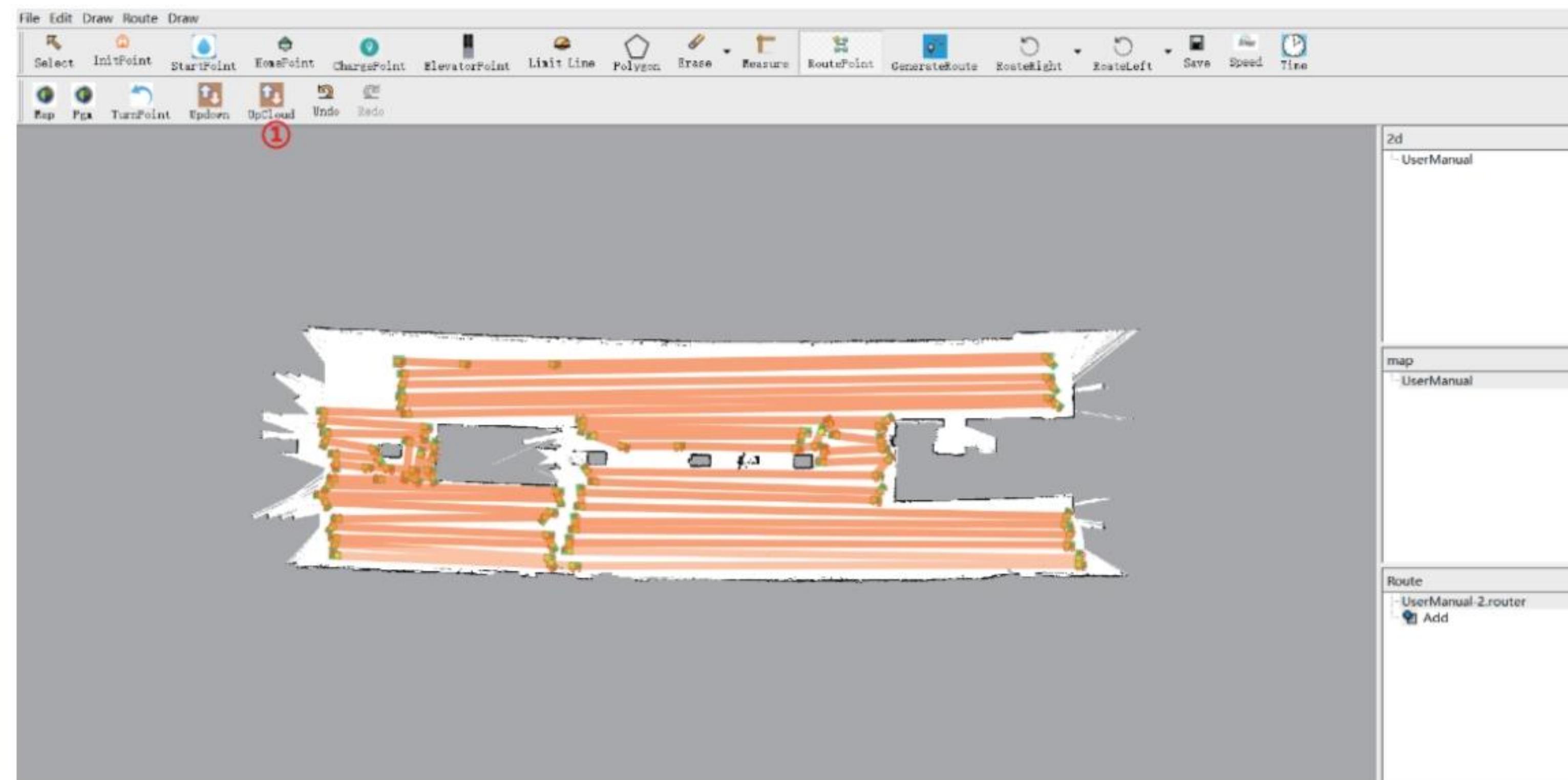
Add deceleration point

Click the right route name under the created map, then, click “Turnpoint” , and wait for 5 seconds, and finally click “Save” . The deceleration point will be completed.

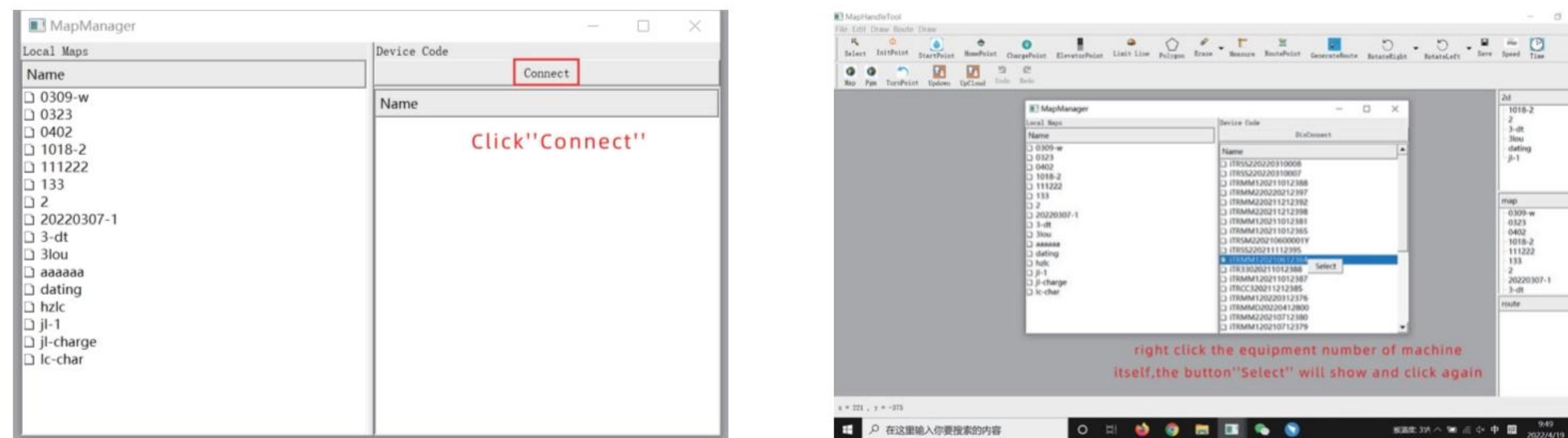


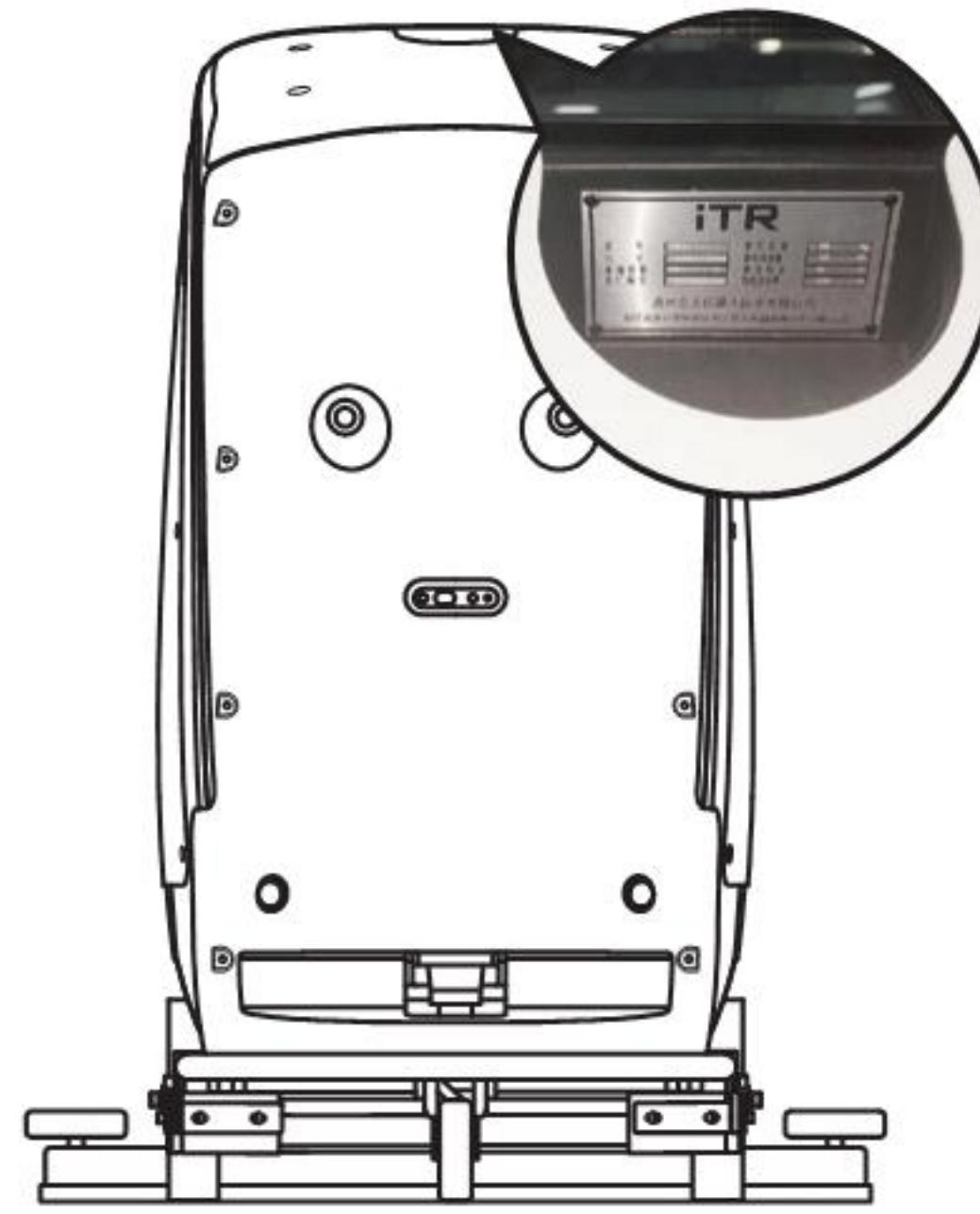
Upload route

- 1 Click the button “UpCloud” and show “Map Manager” dialogue window;



- 2 In the equipment number on the right, click “Connect” , rightly click the equipment number of machine itself, the button “Select” will show and click again;

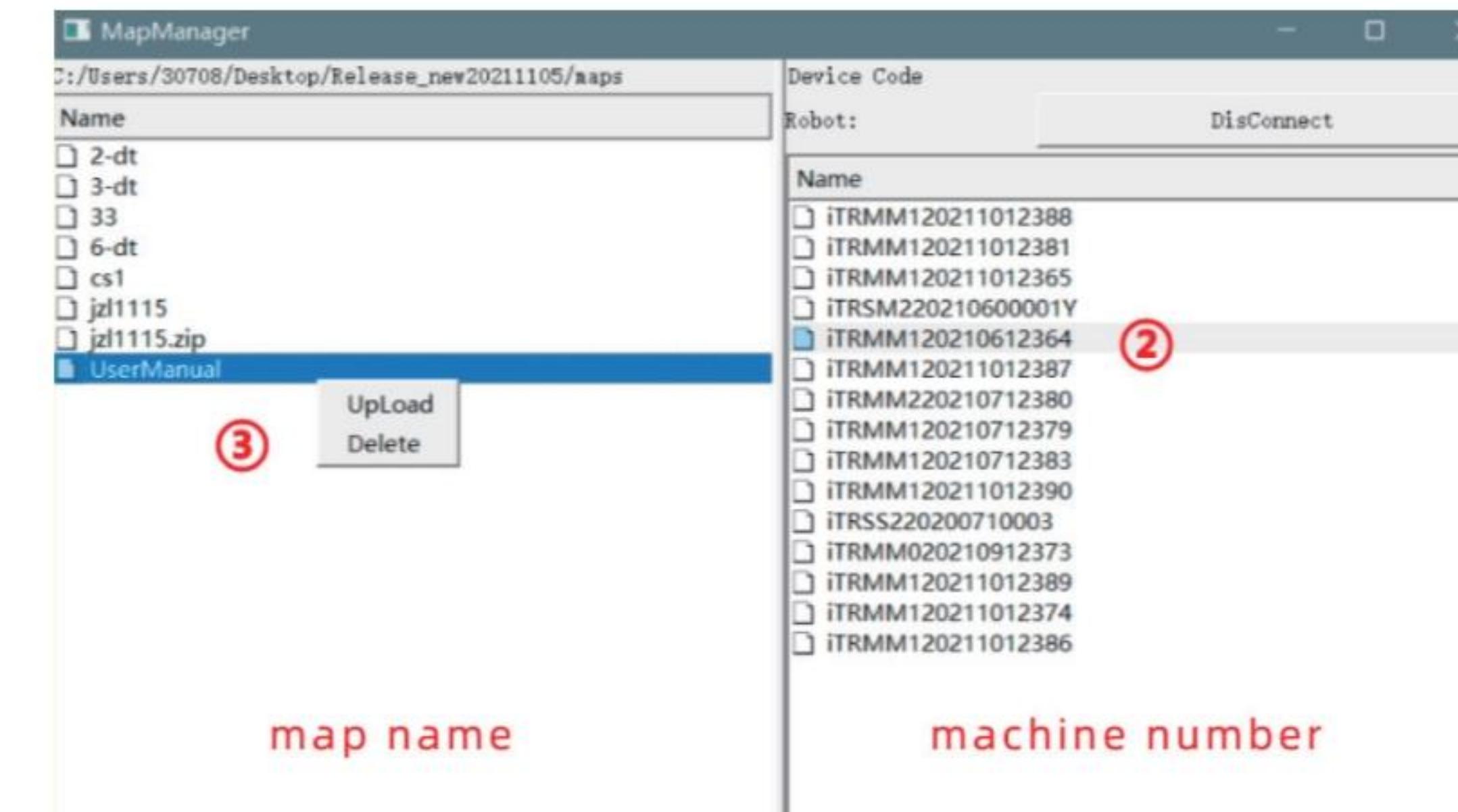




Note: What's the equipment number? The suggestions are as follows.

1. Please check the number behind the “Delivery number” at the cover of sewage tank of machine;
2. iTR cloud platform - equipment management - equipment list;
3. Contact iTR after-sales personnel.

3 Select the newly created map in the map list on the left, (taking “UserManual” as an example), right click, then, shows button “Upload”, and click button “Upload”, wait for the dialogue box of “Upload Succeeded”, and finally click the route, which represents successful upload.



Note:

1. The view angle of laser lidar is 180°C .The scanning range is the horizontal plane of laser lidar's height, and scanning distance is 25m;
2. It is recommended that people stand behind of machine and handle the direction key of mobile APP to control the map creation. People are prohibited to stand on the left and right sides of scrubber;
3. It is suggested that the machine shall not scan the map too fast, and 0.3m/s is the best option;
4. It is forbidden to move back when the machine scans the map, otherwise, it will affect the map creation effect.

Attachment: Button functions of map creation software

Select



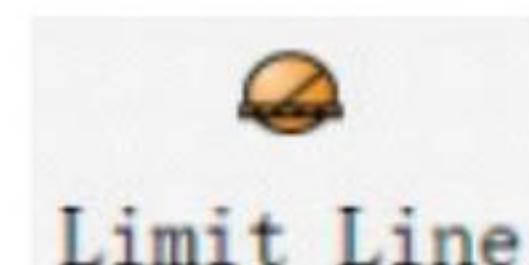
Function:

Adjust point position

Usage method:

- ① Click to select and drag to adjust;
- ② Drag the box to adjust the whole.

Limit Line



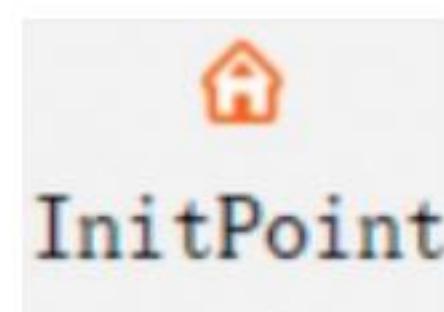
Function:

Specify that the machine is prohibited from driving is used to draw the area that is prohibited from driving, such as the glass wall. If the line is created, the machine cannot enter the corresponding area.

Usage method:

Select limit line, use the left mouse button to pull out a line in the corresponding area on the map, and draw the line position after releasing it.

InitPoint



Function:

The point where the machine task starts.

Usage method:

- ① Select “Initpoint” and click click the driveable route on the map to set the starting point;
- ② Then, select the button “Select”, click “Initpoint” in the map to move the position of “Initpoint”, or drag the arrow above initpoint to adjust the direction.

Polygon



Function:

Specify the area where the machine can travel, and the polygon represents the area allowed to drive in. After drawing the polygon points, the machine can only travel in the corresponding area.

Usage method:

Select polygon. In the corresponding area of the map, click it