

Autonomous Driving Floor Scrubber CHANCEE Series SC50P User Manual



It is strictly prohibited to use this equipment without reading this manual.

Preface

Sincerely thank you for purchasing the CHANCEE SC50P autonomous driving floor scrubber (hereinafter referred to as “the product ”). To achieve the best cleaning effect and prolong the service life of the floor scrubber, please read the instructions in this manual carefully before operating and maintaining the floor scrubber, and follow the instructions strictly. If you have any comments and suggestions, please contact us in time. We're more than happy to provide you with enthusiastic and fast service! Specific operations vary among different versions and models, and this manual is only used as a reference for end users. Our company reserves the right to modify and interpret this manual.

If you encounter any problems in the use, please contact our account manager for answer. For more information, please visit our website.

Cautions

Caution read the instructions before using the machine.

This machine is not intended for use by persons (including children) with reduced physical.

This appliance contains batteries that are non-replaceable.

Machines left unattended shall be secured against unintentional movement.

WARNING Operators shall be adequately instructed on the use of these machines.

WARNING Always ensure that safety support is installed before working beneath hopper.

WARNING Do not inhale exhaust gas fumes. Only use indoors when adequate ventilation is provided, and when a second person has been instructed to look after you.

CAUTION This machine is for indoor use only.

CAUTION This machine shall be stored indoors only.

WARNING Do not use for cleaning purposes on surfaces having a gradient exceeding that marked on the machine.

WARNING Always ensure that warning light is switching on when the hazardous exposed side brushes are moving.

WARNING Do not allow the supply cord to come into contact with the rotating brushes.

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1. Product Overview

1.1 Product Instruction

CHANCEE SC50P is a general-purpose smart floor scrubber launched by CHANCEE Technology, which integrates scrubbing, sweeping and mopping. It can autonomously perform multiple tasks such as sweeping, scrubbing, and mopping on various grounds in various. With functions such as accurate environmental sensing, automatic charging, automatic, water filling / draining, sewage filtration and recycling, ect., it can be operated easily on various indoor and outdoor medium and arge scenarios of hard grounds such as concrete, marble and PVC .

It is widely used in indoor and outdoor scenarios such as indoor parking lots, industrial plants, logistics warehouses, shopping malls, high-speed railway stations, airports, gymnasiums, exhibition halls,which improves cleaning efficiency, relieves the cleaners from heavy workload, empowers the cleaning industry with autonomous driving, and helps enterprises effectively reduce costs and increase efficiency.

1.2 Product Features

By integrating professional and efficient cleaning design, stable and smart autonomous driving, safe and reliable machine design, and convenient and ultimate interaction design, SC50P is able to carry out efficient and autonomous cleaning in multiple devices and scenarios. The product features are mainly demonstrated in the following aspects:

Efficient and Professional Cleaning

- 1.Cleaning width of 0.5m, running speed of 1m/s, with the maximum cleaning efficiency of 1800 m²/h, meeting the needs of efficient cleaning of large sites.
- 2.The machine adopts double roller brushes+ double side brushes design, scrubbing and sweeping in one, greatly reducing the blockage of the suction pipe;
- 3.The machine supports multipleways of cleaning, such as sweeping/ scrubbing mopping, and adapts to various types of hard grounds;
- 4.The water tanks are designed with a total capacity of over 70L, avoiding frequent water addition and drainage, and greatly prolonging the duration of a single operation;

5.60Ah large-capacity batteries that supports nearly 3-hour operation without interruption;

6. A variety of efficient cleaning methods such as coverage cleaning, cleaning of missed areas, and break point resuming.

• **Stable and Safe Autonomous Driving**

1.360-degree blind spot-free perception, first-class fusion perception and fusion positioning technology;

2.Extremely fast, automatic and efficient mapping, supporting map expansion and automatic update;

3.Complex scenarios , with multi-sensor fusion-based precise positioning and precise control.

4.Multi-mode intelligent obstacle avoidance path planning; 5.Obstacle recognition, autonomous obstacle avoidance, automatic full coverage path planning

• **Safe and Reliable**

1.Ensure the safety of floor scrubber with multiple functions such as anti-collision, anti-fall, anti-slip;

2. Ensure safe operation with sound and light warnings and multiple safety strategies for autonomous driving;

3.Electromagnetic braking, safe parking;

4.Compliant with EU safety certification, A- SPICE Standard design, reliable and guaranteed quality.

• **Smart Operation**

1.Elevator linkage, one machine for multiple floors;

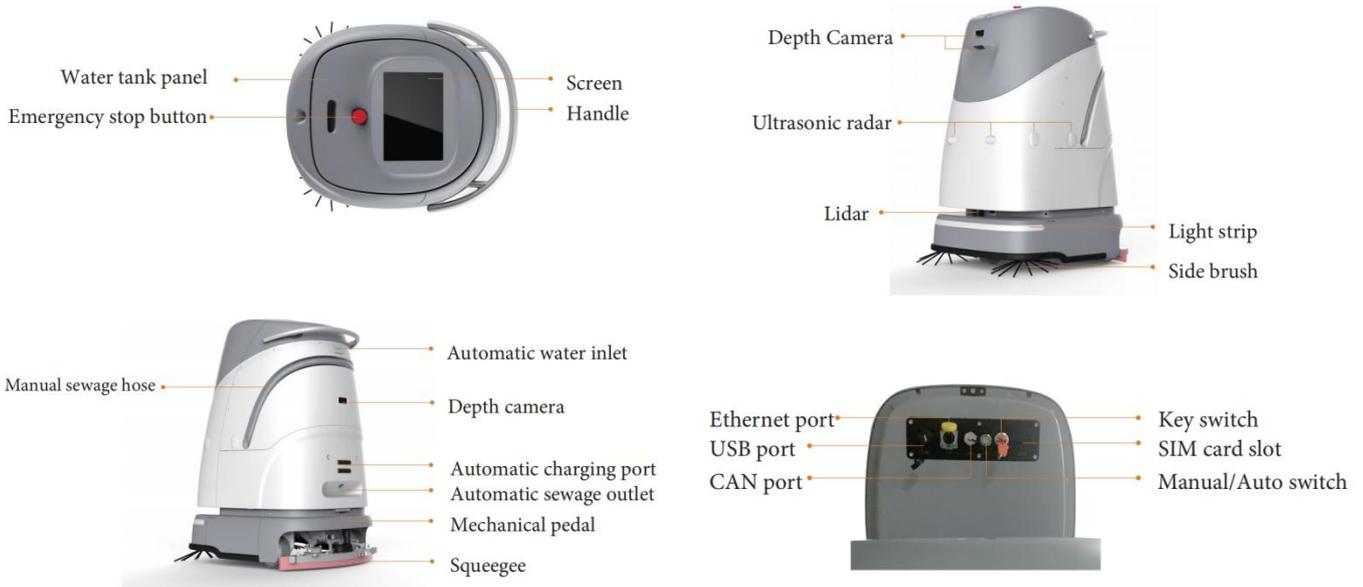
2.Automatic charging & automatic water filling and drainage;

3.Task Reports & Data Dashboards, Smart Voice & Minimalist Interaction;

4.Scheduled Shifts & Timed Start, Cloud Operation & Butler Service

1.3 Introduction of Product Application

Sensors used in automatic driving and safety control include lidar, depth camera, ultrasonic radar, IMU, anti-collision sensor, wheel tachometer, etc. Human-computer interaction is performed through the operation screen and voice; the cleaning components include solution tank, recovery tank, trash can, rolling brushes, side brushes, squeegee, etc. The main components of the floor scrubber are shown in the pictures below.



1.4 Introduction of Components of the Floor Scrubber

•Control Screen

At the central part of the operation panel of the SC50P floor scrubber, there is a touch screen, through which the users can have human-computer interaction. It is automatically loaded with the floor scrubber APP after the floor scrubber is turned on. Through the APP, users can carry out operations such as mapping and creating tasks, and can have control over the floor scrubber through the APP.

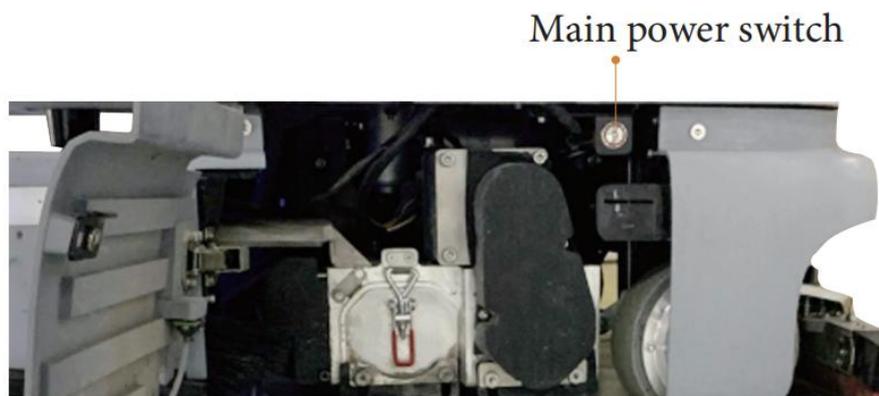
•Key Switch

Insert the key into the keyhole and turn the key from Off to On. Wait for about 30 seconds, the floor scrubber will be powered on and the start-up screen will appear,

and then the operator or manager can carry out subsequent cleaning operations, such as mapping, task management, clicking other buttons on the control panel, etc.. In terms of storing the floor scrubber in the storage room after cleaning, please make sure to turn the key from On to Off to shut down the floor scrubber, and pull out the key and keep it in good place after it is completely shut down.

•Main Power Switch

The main power switch of the floor scrubber is the direct switch for battery external output. When the floor scrubber is not used for a long time, the main power switch should be turned off.



•Forced Manual Button

Open the battery compartment cover of the SC50P floor scrubber, you will see a forced manual button. When there is a problem with the screen and you cannot enter the APP to switch to manual operation/ or when the industrial controller fails to issue instructions, you can press this button. The floor scrubber will be switched to the Bottom-level Control Mode for manual driving.

Note: When the manual mode is enabled, the floor scrubber does not have function of automatic obstacle avoidance, so the movement of the floor scrubber is completely dependent on the observation and control of the operator. Therefore, please observe the dynamics of the surroundings with care and react in time in case of emergencies.

•Emergency Stop Button

It is easy to use the Emergency Stop button. Press the button, the floor scrubber will be stopped immediately, and the indicator of the floor scrubber will turn from blue to red. At this time, no man can move the floor scrubber nor carry out any other operations. To restore the running or operation of the floor scrubber before pressing the Emergency Stop button, turn the Emergency Stop button clockwise and pull it up. After restored, the floor scrubber will resume its running or operation.

Note: Press the **Emergency Stop** button with care. Press the Emergency Stop button to stop the floor scrubber immediately only in emergencies. In manual mode and automatic mode, the Emergency Stop button works normally.

•**Side Brush**

Side brushes are mainly used for floor cleaning. By gathering the garbage on both sides to the middle of the floor scrubber, the side brushes can expand the cleaning area, especially the cleaning edges, which can be cleaned effectively through the side brushes during edge cleaning.

•**Roller Brush**

Roller brushes are at the bottom of the floor scrubber. Remove the baffles on both sides of the floor scrubber to disassembly and replace the roller brushes. The roller brushes are mainly used for floor sweeping and scrubbing. During floor scrubbing through the roller brushes, turn on the sprinkler and water absorption for a better scrubbing effect. For different types of grounds and garbage, you can set the roller brush pressure and speed on APP to achieve efficient cleaning effect.

•**Squeegee**

By collecting the sewage and sucking the sewage into the recovery tank with the motor during the cleaning process, the squeegee can ensure the cleanliness of the floor during cleaning.

•**Recovery Tank**

During operation, the floor scrubber holds the floor sewage collected by squeegee in the recovery tank, which is of a capacity of 30L.

•**Solution Tank**

During the cleaning, the floor scrubber sprinkles water through the solution tank, which is of a capacity of 42L.

It ensures that the water volume of the floor scrubber can support a long-term uninterrupted operation during the normal cleaning and normal application.

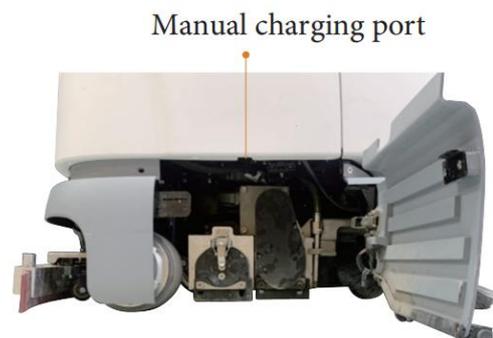
·**Trash Can**

The trash can collects the garbage on the floor during cleaning. The trash can should be cleaned regularly to avoid the overflowing garbage blocking the squeegee as the trash can is too full. Open the side panel of the floor scrubber to remove and install the trash can.

·**Manual Charging Port**

The manual charging port is located inside the battery compartment of the floor scrubber. When charging the floor scrubber, it is recommended to turn off the floor scrubber by the key switch, which will shorten the charging time; when charging manually, plug the charger into the manual charging port.

Note: If the floor scrubber has been equipped with a workstation, after manual charging is completed, the automatic charging connector needs to be connected.



·**Automatic Charging Port**

The automatic charging port is the charging port on the vehicle end used with the workstation for automatic charging. The floor scrubber automatically connects to the charging port on the workstation end for charging. In manual charging, it is not recommended to use this port.

·**Automatic Water Inlet**

The automatic water inlet is the inlet on the vehicle end used with the workstation for automatic water filling. The floor scrubber automatically connects to the water inlet on the workstation end for water filling. In manual water filling, it is not recommended to use the inlet.

·Automatic Sewage Outlet

The automatic sewage outlet is the outlet used with the workstation for automatic sewage discharge. The floor scrubber automatically connects to the sewage outlet on the workstation end to discharge sewage. The outlet cannot be used in manual sewage discharge.

·Manual Sewage Hose

The manual sewage hose is a pipeline used in manual sewage discharge.

·Light Strip

There is a light strip at the bottom of the floor scrubber that indicates the vehicle status and gives prompts of human-computer interaction during normal or abnormal operation.

The display and prompts of the light strip are as follows:

Light display	Vehicle status
Red light always on	Emergency stop
Slow flashing red light	Low on power
Red light flashing faster and faster	Charging with power lower than the low battery threshold

Light display	Vehicle status
Slow flashing yellow light	Positioning lost during automatic operation, creating teaching/ auto-fill.
Yellow light flashing faster and faster	Charging with power higher than the low battery threshold
Yellow light flashing outward	Trapped during autonomous driving
Fast flashing blue light	In idle mode
Slow flashing blue light	In sleep mode
Blue light flashing outward	In map scanning mode
Green light always on	Fully charged
White light always on	In manual mode

·SIM Card Slot

After inserting the SIM card into the SIM card slot, the floor scrubber can execute functions such as cloud management, OTA upgrade, etc..

·Debugging Port

The USB port,the Ethernet port and the CAN port are the debugging ports. Except for copying data with USB, other functions should be carried out by professional debugging and after-sales personnel.

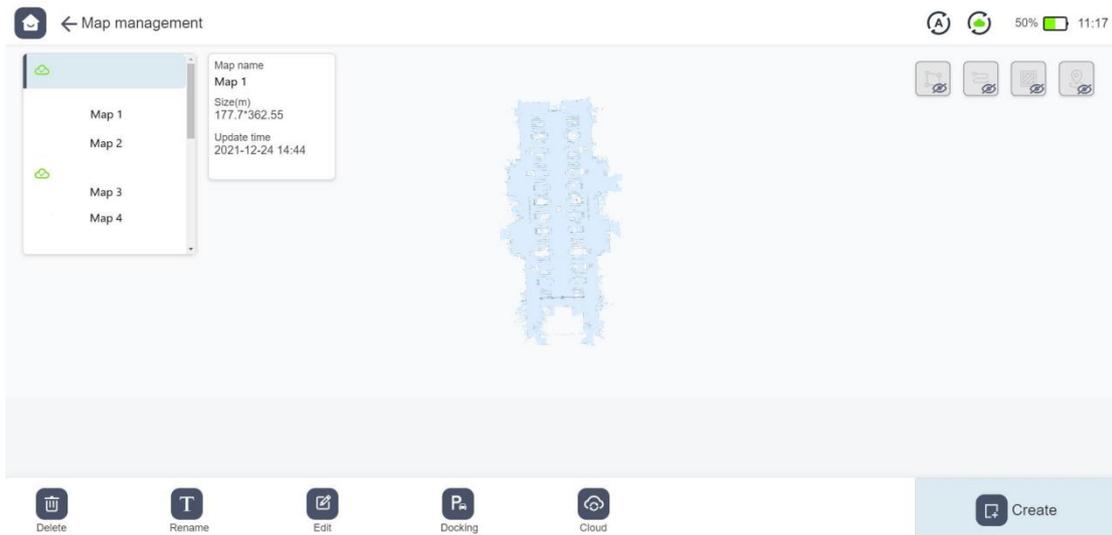
2. Data Management

In [Settings], the data of the floor scrubber can be managed in a unified way.Data management is mainly aimed at the building,editing and management of maps and tasks in the process of actual task execution. It mainly includes mapping and management, task building and management, and combo task building and management. The following will elaborate on how to implement the functions of map management and task management.

It is recommended that data management and related operations should be carried out by professionals or relevant personnel trained in equipment operation.

2.1 Map Management

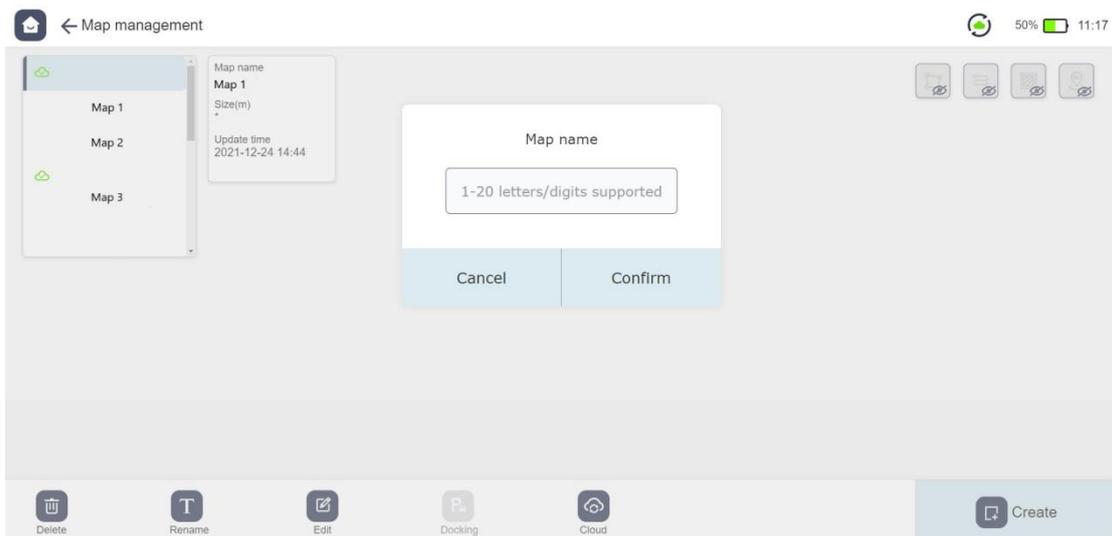
Click the [Map/Task Data] icon in the [Settings] menu on the home page, and then select [Map Management] to enter the Map Management main interface as shown in the picture below. In this interface, you can scan new maps, select and view the maps scanned before in the Map List on the left, as well as rename, edit and delete the maps.

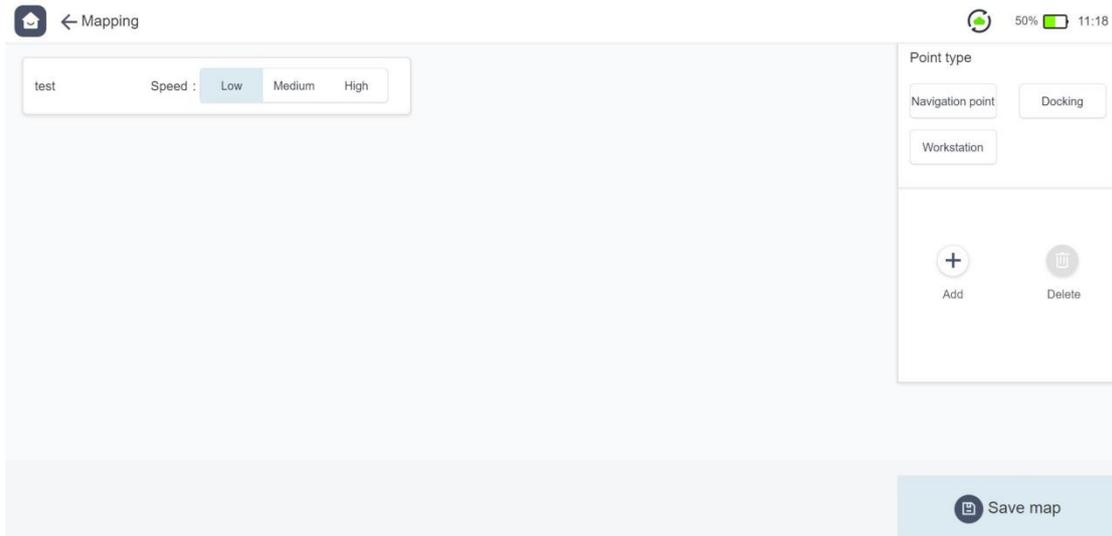


■ Map Scanning

1. Click the [New Map] button in the lower right corner of the Map Management main interface. After entering the map name, you will enter the Map Scanning interface. You can drive the floor scrubber around manually in the environment, during which time the laser sensor will detect the surroundings and create a high-precision map based on the collected environment data.

2. After the mapping process is finished, please click [Save Map]; if you are not satisfied with the map currently built, click the [Back] button in the upper left corner to cancel the saving.

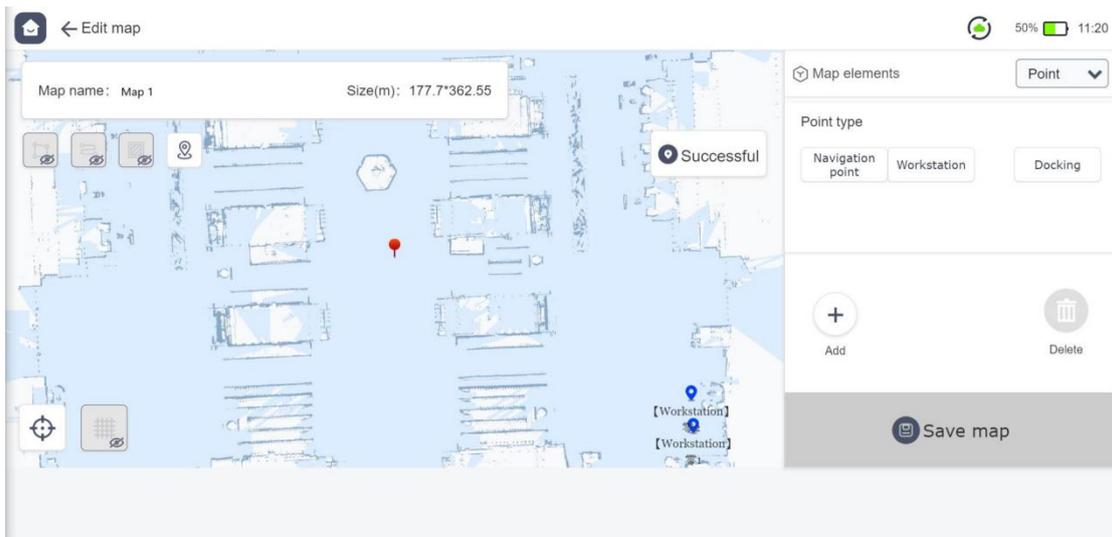




■ Map Editing

At the bottom left of the Map Management main interface:

1. Click the [Rename] button to rename the map.
2. Click the [Stop Point] button to bind the map to the stop point. After the map is bound to the stop point, the floor scrubber will automatically return to the stop point if there is no operation for a long time after the automatic operation is completed.
3. Click the [Edit] button to edit the current map. In the newly opened Map Editing interface, you can add various map elements to the map.



① Function points

Types of function points	Description
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Navigation point	By integrating the added navigation points into the tasks, you will be able to customize the navigation paths among tasks during the operation.
Stop Point	After the operation is completed, if not operated for a long time, the floor scrubber will return to the stop point automatically for standby.
Depot	After adding a depot, if the power, the solution tank and the recovery tank of the floor scrubber reach the threshold, the floor scrubber will automatically go to the depot for charging, water filling and water drainage.

② Virtual walls

Virtual walls are added to the map to mark the areas that the laser fails to scan, so as to keep the floor scrubber from accidental collisions in the above areas and causing danger.

③ Function zones

Map Elements	Description
Carpeted Zone	Add carpeted zone to the map In automatic driving, before the floor scrubber passes the speed bumps, it will lift its roller brushes, side brushes and squeegee in advance before the carpeted zones, and stop watering to avoid damaging the carpets.
Map Elements	Description
No-go Zone	Add no-go zones in the map. Mark dangerous zones or no-go zones on the map to prevent the floor scrubber from cleaning such zones and entering such zones during automatic operation.

Map Beautification	<p>To beautify the original map, you can define the areas to be cleared or filled.</p> <p>[Clear Zone] means to clear the map data in the zone. The zone will be an obstacle-free zone.</p> <p>[Fill Zone] means to mark the zone as an obstacle zone.</p> <p>Users can beautify the obstacles or laser noises in the map by this function.</p>
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④ Map Beautification

To beautify the original map, you can define the areas to be cleared or filled.

[Clear Zone] means to clear the map data in the zone. The zone will be an obstacle-free zone.

[Fill Zone] means to mark the zone as an obstacle zone.

Users can beautify the obstacles or laser noises in the map by this function.

Please refer to the Map Editing interface shown above, the general editing steps are as follows:

① Click the [Map Elements] button in the upper left corner to hide/show the previous function points, function zones, virtual walls and task paths in the map.

② In the [Map Elements] of the right Edit bar, select the elements to be edited.

③ In terms of adding zones/ line segments, select [Add], drag the map, and draw a line segment. Click [Add] again, and draw another line segment to delineate different shapes on the map. Click the [Finish] button after delineating the desired zones/line segments.

④ In terms of adding function points, drag the map to the location to be marked. After selecting the type of a function point, click the [Add] button and enter the name of the function point to add it on the current map. For some types of function points, by adjusting the directional arrows, you can also choose which direction the floor scrubber should be facing after reaching the function points.

⑤ To delete the changes you just saved, click the previously edited elements again, such as virtual walls, function zones and function points, and then click the [Delete] button on the right to delete the corresponding elements.

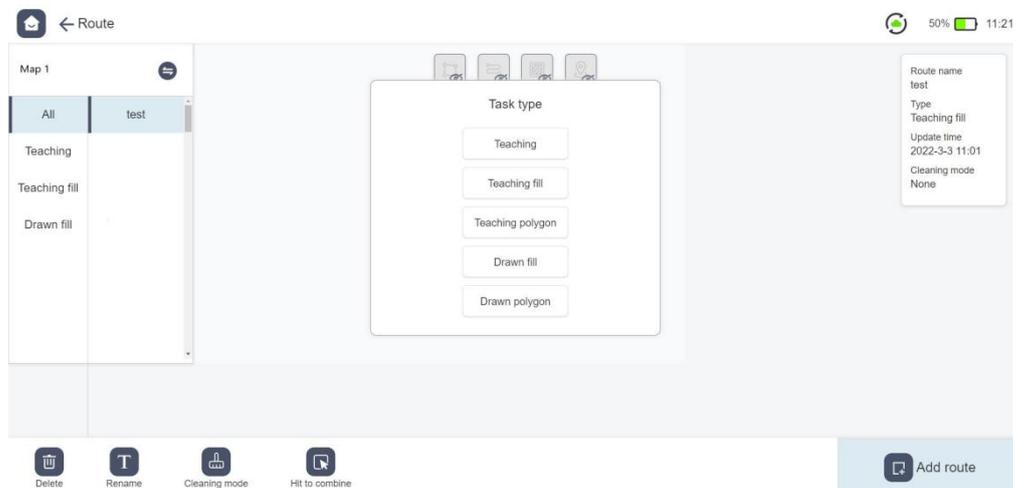
⑥ Click the [Save] button to save the current operation. Save all and exit.

2.2 Task Management

Click the [Map/Task Data] icon in the [Settings] menu on the home page, and then select [Task Management] to enter the Task Management main interface as shown in the picture below. In this interface, you can create a series of basic tasks, such as recording teaching tasks, fill tasks, the hand-drawn fill tasks, etc.

In the Task Management interface, click the [Add Task] button at the bottom right corner, and then select what type of tasks you want to add. There are three types of tasks :

manual teaching, teaching auto-fill, and hand-drawn auto- fill. You can add any one of them.



①Teaching:

If you select the type "Teaching" for the task, after entering the name of the completed task, you will enter the Teaching page. Manually drive the floor scrubber around, during which time the floor scrubber will record its own traveling path in real time. After drawing an ideal path with control over the floor scrubber and save it successfully, the trace of the floor scrubber will be generated.

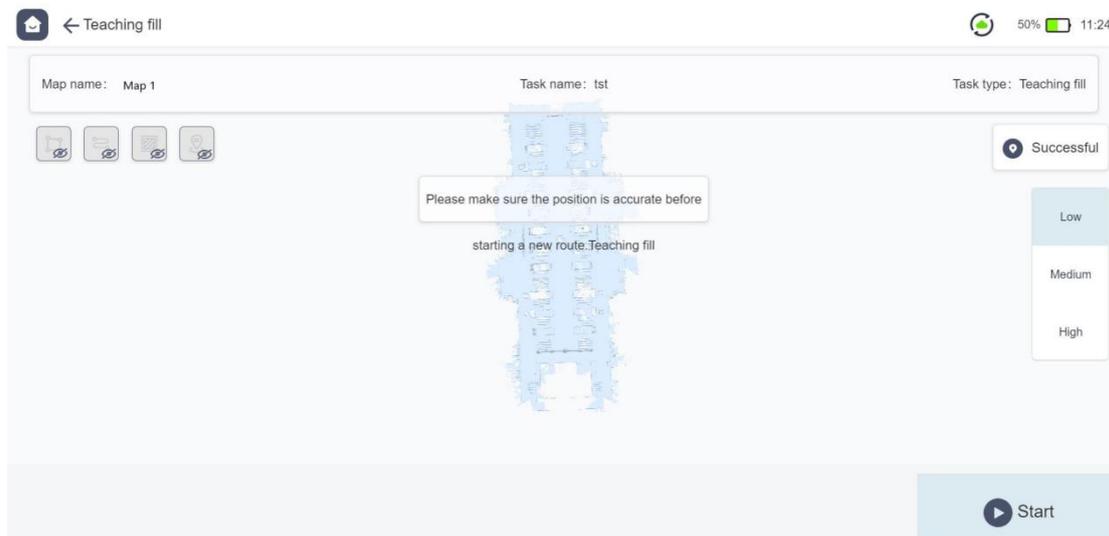
Later when the floor scrubber executes its task, it will carry out the cleaning along the path that it has traveled in the teaching name of the completed task, you will enter the Teaching page. Manually drive the floor scrubber around, during which time the floor scrubber will record its own traveling path in real time. After drawing an ideal path with control over the floor scrubber and save it successfully, the trace of the floor scrubber will be generated.

Later when the floor scrubber executes its task, it will carry out the cleaning along the path that it has traveled in the teaching

② Teaching Auto-fill:

If you select the type "Teaching Auto-fill" for the task, after entering the name of the completed task, you'll enter the Teaching Fill Recording page. Drive the floor scrubber around until a closed-loop zone (i.e., connecting the start point and the end point of the floor scrubber's traveling path, with the central area enclosed by the path) or a closed-loop zone formed by crossed paths has been drawn .

After the closed-loop zone is successfully drawn, on such basis, the floor scrubber will automatically work out the path in the closed-loop zone to fill the entire zone, so that the floor scrubber's path can automatically cover the zone.



③ Hand-drawn Auto-fill:

If you select the type "Hand-drawn Auto-fill" for the task, after entering the name of the completed task, you'll enter the Hand-drawn Task Recording page. Select multiple points in the map to form a closed-loop zone, and confirm to complete the zone. It will automatically work out the path in the closed-loop zone to fill the entire zone, so that the floor scrubber's path can automatically cover the zone.

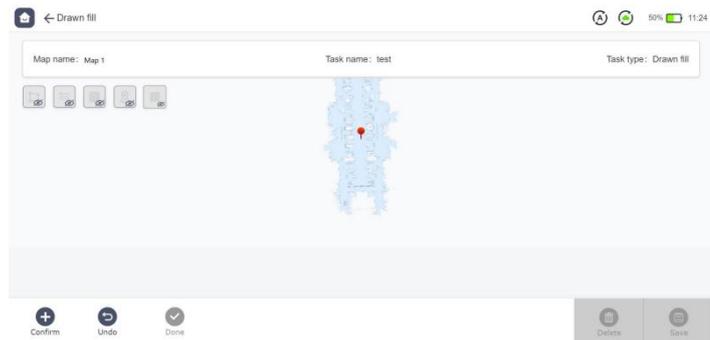
If there is an obstacle in the zone, when carrying out the automatic coverage operation, the floor scrubber will automatically avoid the obstacle and continue the coverage operation

④ Quick Tasks:

Click the [Map/Task Data] icon in the [Settings] menu on the homepage to create a quick task. This is used to quickly create a task, with type as "Manual teaching" or "Teaching Auto-fill" . The process of creating quick tasks is

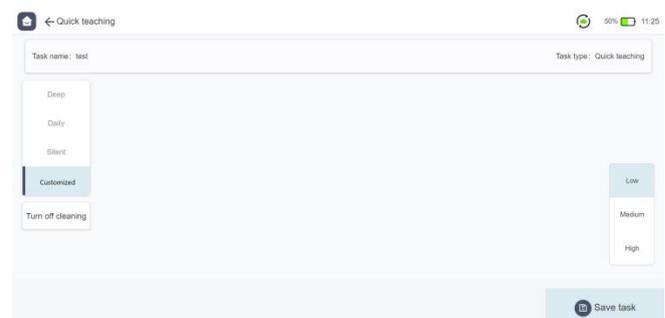
the same as that of creating normal tasks, which is by manually teaching a path or a closed zone.

When a quick task is created, the map will be scanned automatically. After the quick task is saved, a new map and a combotask will be generated automatically, skipping the process of creating a new map and a new combotask.



Click the [Map/Task Data] icon in the [Settings] menu on the home page, and then select [Combo Task] to enter the Combo Task main interface as shown in the picture below. Click the [New Combo Task] button at the bottom right corner, enter the name of the combo task, and choose to enter the Combo Task interface.

Enter the ComboTask interface, click the [Add Task] and the [Add Function Point] buttons to combine into a new task with all kinds of tasks and function points you have created before. Check in the List of



Added Tasks whether the added tasks meet the requirements, and click the [Save] button to save the added tasks to the List of Combo Tasks.

Note: Only the combo tasks can be selected and executed in [Automatic Operation].

Path Planning Considerations

No overly pronounced grooves or bumps in the path lines (especially sharp-edged path lines), otherwise the automatically generated path lines will be messy and may have gaps.

If the cleaning zone is irregularly shaped, please divide it into several regular coverage areas according to the actual situation on site;

If the passage is too narrow, manual teaching is recommended over auto-fill (considering work efficiency, it is recommended to use teaching mode if the passage width is less than 2m. Please make decisions according to the site situation);

If it is a solid wall, 5cm away from the wall is acceptable, but if it is a shelf or a glass door and some other irregular fragile/reflective or translucent edge, don't get too close, otherwise it may cause unnecessary danger.

3. Operation Guide and Description

This chapter is mainly for the personnel who directly operate or manage the SC50P floor scrubber. Those who directly operate the floor scrubber need to know how to control the floor scrubber to move, execute cleaning tasks, fill the water tanks, drain the recovery tank, charge the floor scrubber and carry out other basic operations, while for the managers of the floor scrubber, besides the above content, they also need to know how to build maps, create cleaning paths, deploy cleaning tasks, view the cleaning task completion reports of the floor scrubber, check the health status of the floor scrubber and carry out a series of advanced operations. The above operations will be introduced successively below.

3.1 Turn on and Move the Machine

① Move the machine : SC 50 autonomous driving floor scrubber can be moved when it is off or when it is on manual mode . When it is on automatic mode , it does not support manual driving even though it is not performing tasks . Do not push the floor scrubber by force, otherwise it may cause damage to the motor.

② Manual and automatic mode switching : There are two ways to switch between manual and automatic modes. You can switch through the manual/automatic mode switch button , or you can switch through the APP interface . After entering the APP interface with account password , you can switch to manual driving through the screen switch button.

3.2 Add Water/Discharge Water

If this is your first time to use the machine, add clean water to the solution tank. Remove the panel of the water tank , open the cover of the solution tank, and add water to it; if it is not your first time to use it, in addition to adding clean water to the solution tank, you should also check whether there is sewage in the recovery tank. If yes,

discharge the sewage before cleaning, so as to avoid the suspension of cleaning caused by the recovery tank filling up too quickly.

After using the machine, if you are not going to use it in a short period of time, empty the recovery tank to avoid odor caused by long-term storage of sewage in the recovery tank; if you are not going to use it for a long time, empty both the solution tank and the recovery tank, and replenish water next time before use.

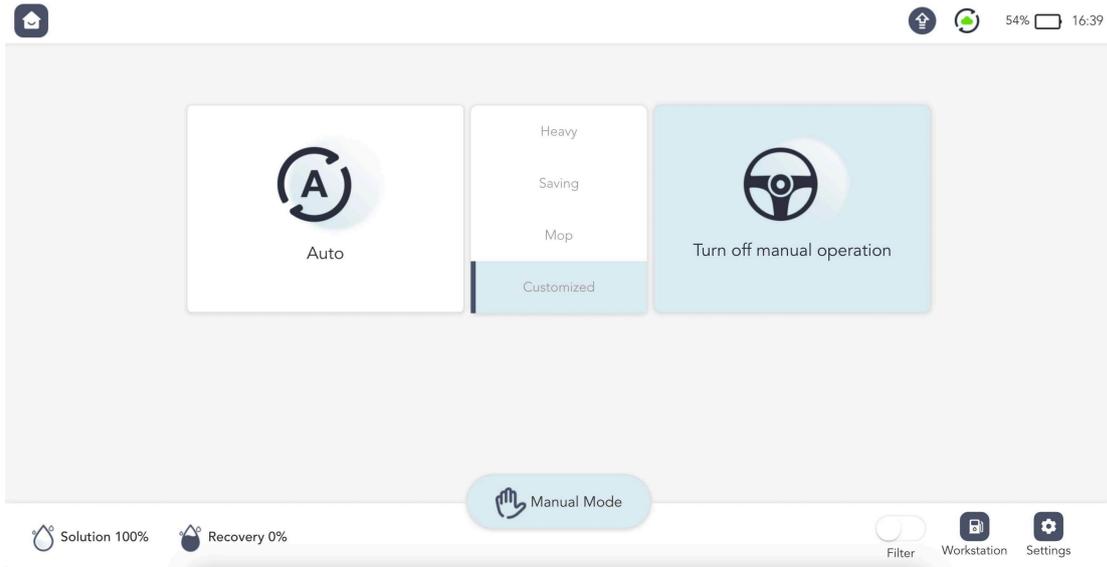
During operation, when APP indicates that the water level is low (you can also check it through the water level viewing window), it means that water has not been added to the solution tank or has been consumed. To continue floor cleaning, please add water for the operation, such as tap water, etc.

Note: Before adding water, please drive the floor scrubber to the designated location for water filling. During water filling, make sure that the water does not splash into the machine or overflow into the machine.

- ① Remove the top panel of the floor scrubber, and then open the water tank cover of the solution tank;
- ② Put the water pipe into the solution tank, turn on the water tap to add clean water into the solution tank until it is 90% full.
- ③ After adding water, remove the water pipe, put back the top panel, and then push the floor scrubber to the area to be cleaned and start operation.

3.3 Sewage Filtration System

To ensure that the machine can operate uninterruptedly for a longer period of time and to maximize water saving, the SC50P has been developed with large water tanks and added with a sewage filtration recycling function, which allows for the recycling of sewage. The sewage filtration system adopts a three-level filtration mechanism, which includes a metal filter inside the recovery tank and a two-level filter element in the solution tank. The sewage filtration function is optional and can be switched on by the users via the menu on the homepage of the on-board tablet APP.

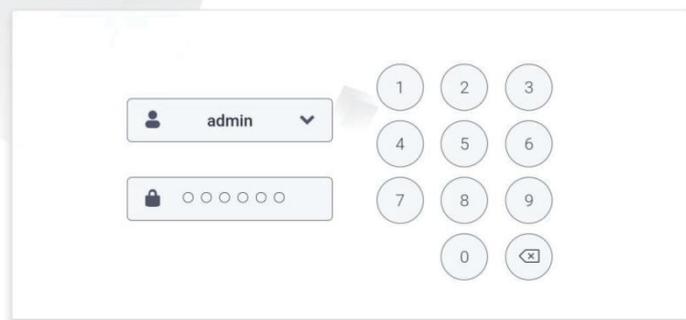


3.4 Manual Operation

The autonomous driving floor scrubber has completely retained the manual operation of the traditional floor scrubber. It supports executing cleaning tasks through manual operation, allowing cleaners to carry out cleaning tasks by manually controlling the movement and steering of the floor scrubber. Operation steps are as follows:

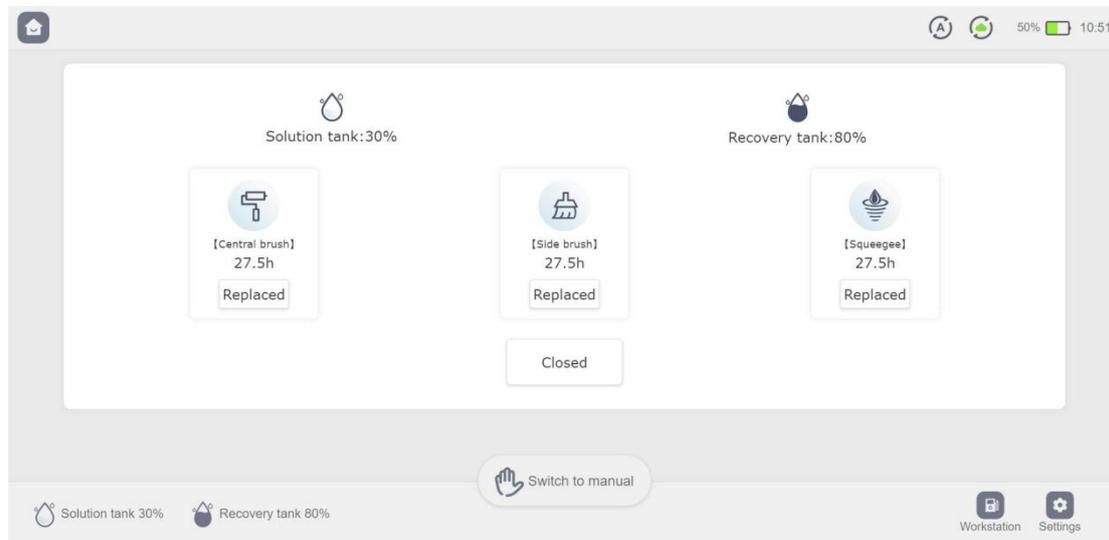
① 30 seconds after turning on the floor scrubber with the key, the floor scrubber will enter the vehicle APP; The user name of ordinary users for the first login is User and the password is 123456. The users can set a new password through the APP.

② As shown in the picture below, the login interface will appear on the screen. Select the corresponding user name among the login options, and then enter the



corresponding password to enter the APP.

③ After logging in successfully, a reminder of the floor scrubber's status will pop up as below, which will display the current water tank status, remaining service life of consumables and other information. Click the below [Close].

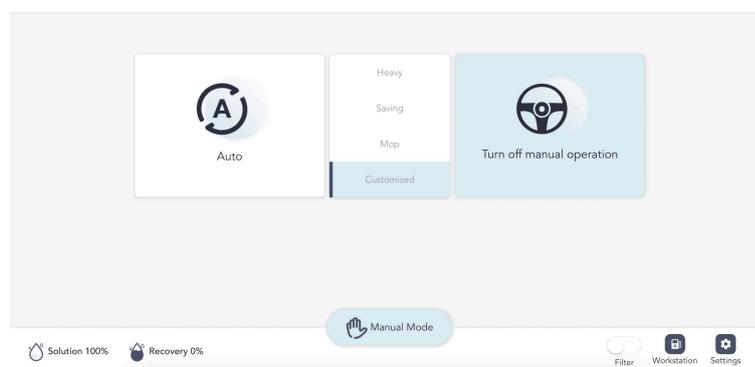


④ Click [Close] to enter the APP main interface, as shown in the picture below. Before you start manual operation, make sure that the floor scrubber is in [Manual Mode].

Simply click [Manual Operation] to start the manual operation of the floor scrubber, and push it around with hands for cleaning operation.

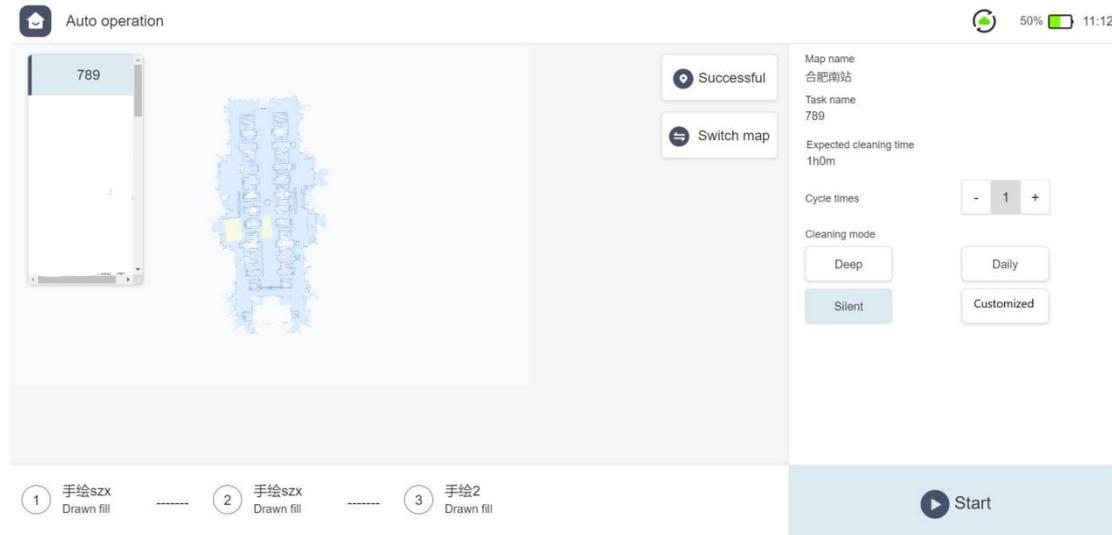
After the cleaning is finished, click [Close Manual Operation] directly to stop all cleaning operations.

In the middle of the page, you can choose the scrubbing mode of the floor scrubber. Three fixed cleaning modes are available, with support of customized cleaning.



3.5 Automatic Operation

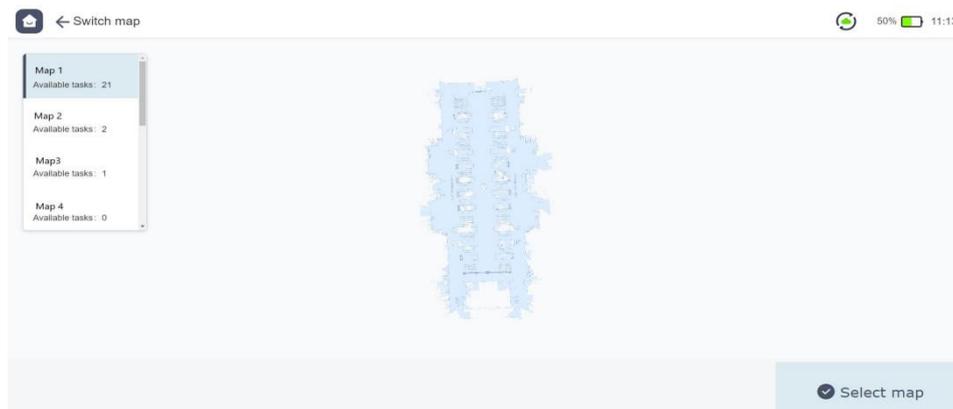
First, move the floor scrubber to the location where the operation should be carried out. In the APP main interface, click the [Automatic Operation] button to enter the Automatic Operation interface shown as below. In this interface, you can choose to add in advance the task to be completed, and set the desired cleaning mode and cleaning times.



After completing the settings, click the [Start Task] button at the bottom right corner of the page. The floor scrubber will carry out the task automatically according to the selected task, the cleaning mode and the cleaning times. Operation steps are as follows:

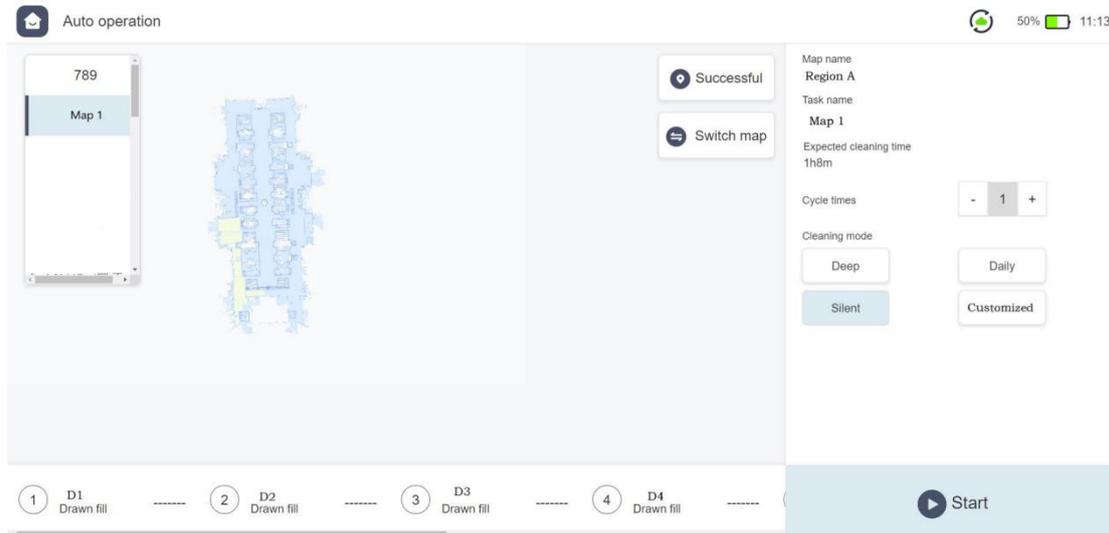
①switch Maps:

On the right side of the Start Automatic Operation page, you can [Switch Maps]. Go to the Map List page, select the "Map List" option on the left side to check the maps in which cleaning operations need to be carried out, as well as the number of executable tasks in the current map. Select the map you want to perform automatic operation as required, and then click the [Confirm Map] button.



② Select Task:

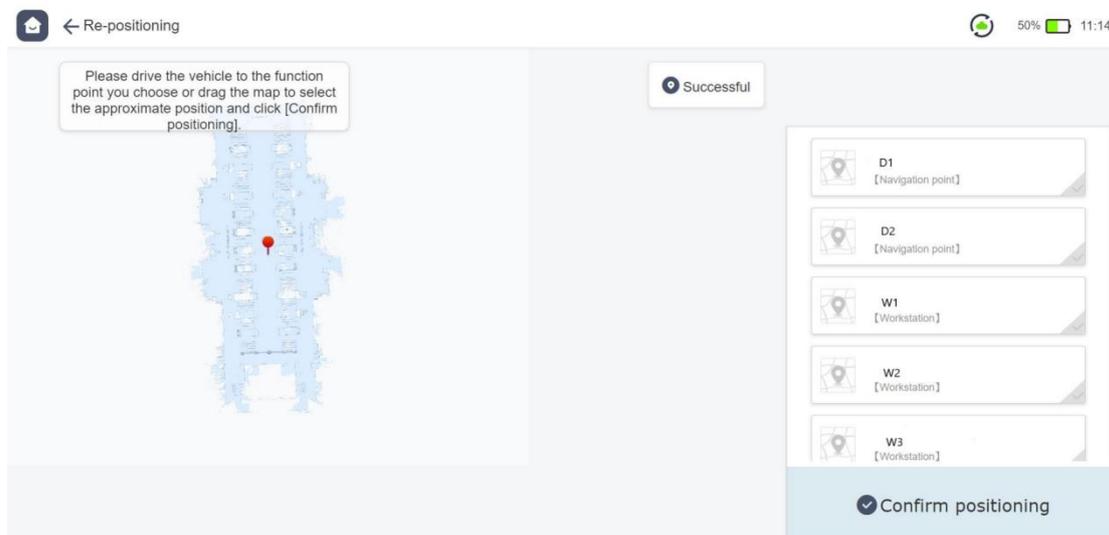
On the left side of the Start Automatic Operation page, you can view the executable tasks in the current map. By switching to different tasks, the covered cleaning areas of the selected task will be displayed in the map synchronously. Select the task you need to execute by the task name, and then click the [Start Task] button.



③ Repositioning:

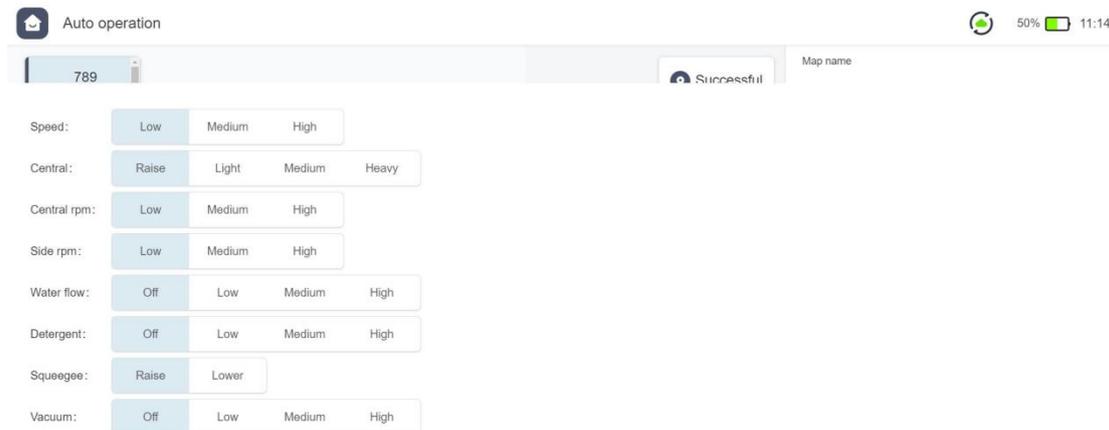
If the current status of map positioning displayed in the screen is [Positioning Failed], click the [Positioning Failed] status button to reposition the map.

Drag the map or pinpoint the current approximate location of the floor scrubber in the map through the Function Point list on the right, then click the [Confirm Positioning] button and wait until the positioning status in the upper right corner becomes [Positioning Succeeded], and the green laser line and the edge of the obstacle overlap, which indicates that the positioning is successful. If not, repeat the above operation.



④ Set the Cleaning Times:

In the Task Information bar on the right side of the Automatic Operation page, you can select the cleaning times of the task by clicking the "+", button. The floor scrubber will then execute the task you have selected repeatedly until the selected cleaning times have been met.



⑤ Select the Cleaning Mode:

In the Task Information bar on the right side of the Automatic Operation page, you can select the cleaning mode for the task to be executed. The floor scrubber will then carry out the cleaning operation according to the cleaning parameters set in the cleaning.

⑥ After you click the [Start Task] button at the bottom right corner, the floor scrubber will count down to 5 seconds, and then start the automatic operation after the countdown.

⑦ Pause Task:

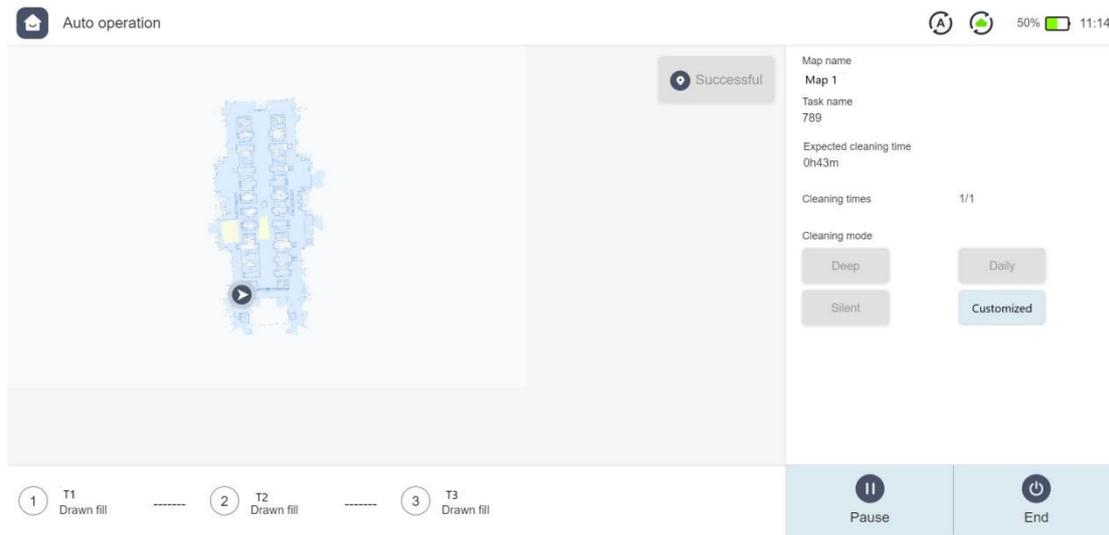
At any time during the automatic operation, you can click [Pause Task] to pause the current task, click [Continue Task] to continue the task, and click [End Task] at the bottom right corner to end the current cleaning task.

During the task, you can click the [Skip This Task] button at the bottom left corner to skip the current task and execute the next task.

After the task is paused, you can readjust the cleaning mode of the automatic operation.

⑧ End Task:

Click the [End Task] button at the bottom right corner to directly end the whole automatic operation task.



3.6 Stop the Machine

There are multiple ways to stop the machine.

- ① In case of emergencies, directly press the red Emergency Stop button on the control panel to immediately stop the floor scrubber. At this point, the machine will not be powered off but will stop the operation.
- ② Turn the key inserted into the On/Off key hole on the control panel from On to Off to turn off the floor scrubber, so as to stop the floor scrubber from moving.

3.7 Discharge Water

During floor cleaning, if the APP indicates that the recovery tank is full, it means that the sewage in the recovery tank of the floor scrubber has reached its limit capacity. At this time, the floor scrubber will not be able to continue the cleaning operation. You need to drive the floor scrubber to the designated drainage point to discharge the sewage before continuing the operation. The operation steps are as follows:

- ① Drive the floor scrubber to the designated drainage point (it is recommended that it should be consistent with the water filling point, which will be convenient for the cleaning and maintenance of the recovery tank);
- ② Pull out the drainage hose, unplug it and discharge the sewage into the sewer;
- ③ After discharging the sewage, put the plug back (make sure that the plug is tight enough, otherwise it may affect the scrubbing effect), and the floor scrubber will be

back to normal again. At this time, put the drainage hose back to its proper place, and then drive the floor scrubber to the area to be cleaned and start the operation.

④ If you want to discharge the water in the solution tank altogether, you can pull out the rubber plug at the bottom of the solution tank, the water in the solution tank will be discharged automatically.

Note: After using the floor scrubber, discharge the water in both the solution tank and the recovery tank, and clean the remaining water in the groove of the filter element before storing the floor scrubber in the storage room .

3.8 Charging

In the upper right corner of the APP interface on the control panel display, you can check the current remaining power of the floor scrubber. When the power is less than 10%, the floor scrubber will prompt that the power is low. At this time, the floor scrubber cannot carry out the cleaning operation normally.

You need to drive the floor scrubber back to the charging point, and make sure that it is fully charged before proceeding to the next step.

① Manually drive the floor scrubber to a known charging point; it is recommended that the charging point should be set at a flat and dry place, and protective measures should be taken to keep the children out of reach and dangerous accidents;

② After driving it to the designated charging point, please park the floor scrubber on a flat floor and insert the key into the On/ Off key hole on the control panel. Turn the key from On to Off to shut down the power, and then charge the floor scrubber.

③ Please use the original charger of the CHANCEERPLUS;

④ After the floor scrubber is fully charged, perform proper operations in strict accordance with the following order: Fully charged: unplug the charger AC input plug → unplug the charger DC output plug.

Then turn on the floor scrubber and drive it back to the designated place to continue the cleaning operation. You can also store the floor scrubber in the storage room and use it next time.

4. Maintenance suggestions

When using the CHANCEE SC50P floor scrubber, the operator needs to carry out simple maintenance on the floor scrubber before and after each use, periodically carry out the necessary inspection and maintenance, and regularly replace the consumables to ensure the best performance of the floor scrubber and maximize the service life.

4.1 Daily Maintenance

In daily use, we need to carry out the necessary maintenance on the intelligent floor scrubber to prolong its service life and maintain good cleaning effect , so that the machine can be in a good condition for a long time and create more application value for customers.

Before maintenance, the power must be turned off to prevent accidental electric shock or parts damage.

The floor scrubber should be placed in a dry and ventilated place to avoid the humid environment affecting the electronic and electrical components and shortening the service life.

If the storage environment is below 5 °C , please make sure that there is no remaining water in the whole water circuit.

If you add detergent in the solution tank, please make sure to add defoamer in the recovery tank.

Daily Maintenance and care

① Drain the water in the solution tank and the recovery tank, and clean the water tanks with a hose or a spray gun. Make sure that the water tanks are clean inside out, prevent the accumulated dirt from blocking the recovery tank , and at the same time , avoid spilling water elsewhere . Each time after discharging sewage , please close the valve in a timely manner.

② Cleaning of filter element: As tiny solid particles will attach to the filter element, rinse the filter element with flowing water;

③ Check whether there is silt/debris in the recovery tank, if there is, please clean it up immediately;

④ Cleaning of absorbent strip: use a wet towel to clean the inner side of the rubber strip to prevent the accumulated hair and other dirty things from affecting the scraping

effect. Keep the surface clean, so as to reduce wear and tear and prolong its service life.

- ⑤ Trash can cleaning: After daily operation, dump out the garbage in the trash can on the front side of the roller brushes to prevent odor;
- ⑥ After the floor scrubber finishes operation, please check the battery power. If necessary, please charge in time.

Weekly Maintenance and Care

- ① Check whether there is dirt on the sensors. If there is, please wipe it gently with a soft cloth or paper towel. Avoid wiping it directly by hand, which will cause scratches and other damages.
- ② Check the water scraper for wear and tear, and replace it if necessary.
- ③ Check the wire filter element of the recovery tank, if there is a hole or other damage, please replace it in a timely manner.
- ④ Every week after removing the roller brushes, clean them, as there maybe hair or other dirt entangled in the brushes.
- ⑤ Check whether the sewage suction hose is broken. Take it off and flush the inner wall to prevent the accumulated lint and other debris from affecting the effect of water absorption.
- ⑥ If the water tanks have an odor, deodorize the water tanks with the deodorant purchased in accordance with product instructions.
- ⑦ It is recommended to disinfect the tanks twice a week. Use the disinfectant solution according to the proportion recommended by product instructions.
- ⑧ Flush the pipelines: After cleaning the water tanks, add water, and clean the floor for 3 to 5 minutes with a large amount of water, so that the large amount of water can fully flow through the pipelines to clean the pipelines thoroughly.

Long-term Maintenance and Care

- ① Check whether the spring, screw, sheet metal parts of the squeegee are loose, deformed and damaged.
- ② Check whether the recovery tank is leak-proof. If there is air leakage, please replace it.
- ③ Check whether the sealing ring of the tank cover is broken, and whether there is air leakage in the drainage hose.

④ Check whether there is strange sound in the whole structure that affects the normal use.

⑤ Apply grease to squeegee pulleys and other frequently rotating or rubbing areas.

⑥ If the roller brushes have worn down to the red bristles, please replace them.

4.2 Description of consumables

The main consumables of SC50P include the absorbent strip, roller brushes, water stopper, filter element, etc.

Their replacement cycles vary according to the floor materials of the use scenarios. In the actual application scenario, the users can shorten or prolong the replacement of the consumables at their sole discretion depending on whether the working frequency of the floor scrubber is high or low. The replacement cycle should be adjusted according to the cleaning effect of the floor scrubber.

4.3 Trash Can Maintenance

Material: LDPE;

Maintenance standard: It is recommended to rinse it everyday after the cleaning operation is finished.

Maintenance method: Take out the trash can everyday after the cleaning operation is finished, pour out the garbage, and rinse the trash can with clean water to prevent it from getting smelly.

4.4 Wire Filter Maintenance

Material: stainless steel wire

Maintenance standard: Users equipped with workstations are recommended to flush the wire filter everyday after operation to avoid poor drainage;

Maintenance method: remove the wire filter from the recover tank and brush it under the faucet or flush it with a high-pressure water gun.

4.5 Solution Tank Filter Element

Material: PP cotton;

Maintenance standard: Everyday after operation (if the sewage filtration function is not activated or the filter element is not installed, maintenance and cleaning is not necessary);

Maintenance method: Rinse away the sewage in the filter element tank, and flush the filter element with clean water to wash away the dirt on the surface.

4.6 Recovery Tank Waste Container Maintenance

Material: LDPE + stainless steel wire

Maintenance standard: Everyday after operation Maintenance

method: Take out the waste container of the recovery tank, pour out the garbage and flush it with water to avoid blockage.

4.7 Roller Brush Maintenance

Material: Nylon roller brush;

Replacement standard: When the use time reaches the replacement time specified in the consumables, or when a roller brush has worn down to the red bristles.

Roller brush replacement method: Remove the side maintenance panel, open the roller brush cover, pull out the roller brush; then put in a new one, check whether the other end is in place during installation, and then lock the roller brush cover; the front and rear roller brushes are disassembled and assembled from the left side and the right side respectively in the same way.

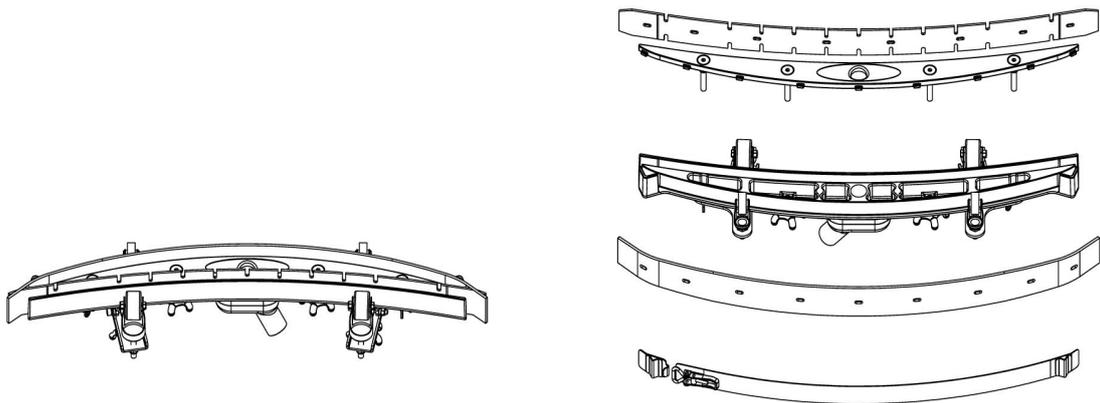
4.8 Absorbent Strip Maintenance

Material: Natural rubber material

Service life: Depending on the actual use. Please check whether the absorbent strip is seriously worn and affects the effect of water absorption. If yes, replace it.

Note: If the effect of water absorption has become worse, but the absorbent strip does not appear to be worn, please check whether the water tank cover has been installed properly. You can first turn on the suction function, and then pull the buckle on the water tank, if the water tank cover cannot be opened, then the cover is installed properly.

See the following chart.



4.9 Water Tank Maintenance

Each time after the cleaning task is finished, carry out necessary maintenance on the water tank: empty the sewage in the recovery tank, and rinse the water tank with clean water; take out the wire filter of the recovery tank and rinse it, and remove the waste container of the recovery tank and clean it with a brush.

4.10 Battery Maintenance

Do not disassemble or replace the batteries without permission, otherwise it may cause unnecessary losses.

- ① Do not place the batteries near heat sources nor places with high pressure, nor expose the batteries to sunlight for a long time.
- ② Do not throw the batteries into water or fire.
- ③ Do not short-circuit the batteries by connecting metals directly to the positive and negative poles.
- ④ Do not expose batteries to excessive physical vibration and shock. Do not hit, drop or step on the batteries.
- ⑤ Without the manufacturer's permission and guidance, it is strictly prohibited to disassemble or assemble the batteries.
- ⑥ Do not mix batteries of different manufacturers, types and models.
- ⑦ Do not use or store the batteries in high temperature ($>45^{\circ}$) environment, otherwise it will cause the batteries to overheat or catch fire, or shorten the battery service life.

- ⑧ In the event of long-term storage, make sure to charge and discharge the batteries every 30 days.
- ⑨ Please use the matching or recommended professional lithium battery charger.
- ⑩ Please stop using the batteries if there are noticeable abnormalities such as abnormal smell, discoloration, noise, liquid leakage, or serious deformation.
- ⑪ If any electrolyte gets in the eyes or on the skin, wash it off immediately with water and seek immediate medical attention.
- ⑫ Keep the batteries out of the reach of pets and children, and do not allow children to touch the batteries.
- ⑬ Do not drop the batteries when you install or remove the batteries during transportation. Do not stack the batteries in more than 3 layers and turn them over to ensure that the front sides are facing up.

5. Troubleshooting

The floor scrubber may not work as you expected. We have summarized the most common problems based on the data feedback from technical support, and provided effective ways to troubleshoot and solve the problems. You can refer to the following chart to troubleshoot the problems immediately when they occur.

Problems	Possible reasons	Solutions
Map unclear or double image	The floor scrubber is moving fast, resulting in poor mapping.	Please adjust the speed to medium or low in the Mapping interface, and then drive the floor scrubber around manually to build the map.
	The sensor is contaminated by dust or obstructed by obstacles.	Clean the outer part of the laser sensor with a dust-free cloth and check if there are any foreign objects blocking the sensor.
	The environment is complex, with glass walls and other highly transparent materials.	In mapping, please control the map boundaries with virtual walls if highly transparent materials are detected in the surrounding environment.
Initialization failed	A wrong map has been selected	Select the correct map.
	The initialized location selected by APP is far away from the actual location, which should be within 2m range.	When choosing the initialized location, make sure that the laser data and the map are matched. It is recommended to find a location with obvious landmarks for initialization.
	There are many onlookers at close range.	No onlookers at close range.

Problems	Possible reasons	Solutions
No movement of the floor scrubber	The floor scrubber is not powered on, thus cannot be turned on nor move.	Please connect the charger to the charging port of the floor scrubber, and control the floor scrubber to move after the floor scrubber is fully charged.
	The floor scrubber is not on and cannot move.	Please turn on the floor scrubber with the key in the On/Off key hole on the control panel of the floor scrubber. If it doesn't work, please check whether the main power switch has been turned on, and try if you can control the floor scrubber

		to move.
	It is on automatic mode.	Need to switch to manual mode manually.
	The red Emergency Stop button on the control panel has been pressed, which has triggered emergency braking of the floor scrubber and caused it unable to move.	Please turn the red Emergency Stop button clockwise to restore the motion function of the floor scrubber.
In the cleaning mode on the control panel, the pressure of the roller brushes is in a lifted state.		Go to the Cleaning Mode Settings on the APP homepage, adjust the pressure of roller brushes to high, medium or low (set according to the actual situation), and set the speed of roller brushes to medium.
Roller brushes of the floor scrubber not spinning	Whether the APP has indicated that the recovery tank is full or there is no more clean water, causing the floor scrubber unable to continue the cleaning. The roller brushes have been entangled with hair or other linear objects, and an over-current warning has been given.	Drive the floor scrubber to the water room to discharge sewage or add clean water before continuing the cleaning. Check whether there is any related warning on the APP. Remove the roller brushes and check if there is any entanglement problem.

Problems	Possible reasons	Solutions
The floor scrubber not absorbing water	Squeegee not put down.	Go to the Cleaning Mode Settings on the APP homepage. Check whether the squeegee is put down. Put it down and see whether the absorbent strip is down.
	The Suction button set in the cleaning mode is off and cannot absorb water.	Go to the Cleaning Mode Settings on the APP home page, turn on the suction function to see if it is normal.
	Whether the APP has indicated that the recovery tank is full or there is no more clean water, causing the floor scrubber unable to continue the cleaning.	Drive the floor scrubber to the water room to discharge sewage or add clean water before continuing the cleaning.

	The water suction pipe is in poor connection or it has been blocked by unknown objects.	Check whether the suction pipe is normally connected to the front part of the absorbent strip and the recovery tank, and whether there is any blockage. If yes, adjust it or remove it in time.
	The squeegee has poor contact with the floor.	Adjust the universal wheel of the squeegee so that the rubber part is in good contact with the floor.
	There are solid residues stuck on the absorbent strip, or the shape of the absorbent strip has changed, or it has been severely damaged and worn, which affects effect of water absorption.	Clean the absorbent strip, adjust the shape or replace it with a new absorbent strip.
Problems	Possible reasons	Solutions
Poor cleaning effect of the floor scrubber	The roller brushes have not been cleaned for a long time and have been stained with a lot of dust and garbage, affecting the cleaning effect.	Remove the roller brushes for cleaning, and then install them back to the floor scrubber.
	The roller brushes are severely worn and have poor cleaning performance.	Replace the roller brushes with new ones of the same specification.
	The floor to be cleaned is dirty or there is solid waste on the floor, and the floor scrubber can't clean it all at once.	Pre-clean the floor to be cleaned. Clean the regular garbage, and then start the cleaning. To ensure the final cleaning effect, you can repeat the cleaning one more time.
Unable to charge	The power supply socket is powered off and cannot provide power.	Please make sure that the power supply socket is powered on. Check it out by connecting the charger to other sockets.
	The charger is damaged and cannot be used for charging.	Check whether the charger indicator is always on red. If it is, the charging is normal. If it is off or flashing, the charger is working abnormally. Please contact CHANCEE technical support for repair.
	The batteries are damaged and cannot be charged properly.	If the charger works normally, but the percentage of battery power does not increase with the charging time, it indicates that the batteries have been damaged or are abnormal. Please contact CHANCEE technical support for battery replacement.
	The main power switch is off.	Turn on the main power switch.

Unable to turn on	The batteries have no power.	Charge the batteries.
	The key switch is not turned on.	Turn on the key switch.

If you have tried all the solutions to the above problems, but the problems still exist, or if you encounter a problem that is not listed above, please contact CHANCEE after-sales service in time for further assistance. Thank you for your support.

6. safety precautions

6.1 Safety Guidelines

To ensure safety, please observe the following rules when operating and using the CHANCEE SC50P autonomous driving floor scrubber.

1. Do not operate the floor scrubber:

- ① unless you have received proper training or are authorized by the manufacturer/dealer;
- ② unless you have carefully read and fully understand the user manual;
- ③ unless you are physically and mentally ready to operate the floor scrubber properly in accordance with the user manual;
- ④ if the floor scrubber is in conditions unsuitable for operation, such as when it is being charged, drained or filled with water;
- ⑤ if the floor scrubber has been installed with accessories or supplies that are not authorized by CHANCEERPLUS, as errors may occur in the operation due to the use of such supplies or accessories;
- ⑥ do not use the floor scrubber in unsuitable environments, grounds or areas with possible falling objects. If you have any questions, please contact the CHANCEE after-sales service .

2. Before turning on the floor scrubber:

- ① Check whether there is enough power to complete the task;
- ② Check whether the consumables of the floor scrubber are in a normal and usable state;
- ③ Check whether all parts of the floor scrubber are intact;

- ④Check whether there is enough water in the solution tank to complete the task;
- ⑤Check whether the water level of the recovery tank is close to or reaches the high limit;
- ⑥Check whether the Emergency Stop button is working properly.

3.Precautions for manual operation:

- ①In non-manual cleaning, please lift the brush assembly and squeegee of the floor scrubber;
- ② In manual operation, observe the reminder for full sewage with care. When the reminder appears, please be sure to stop scrubbing and discharge the sewage;
- ③Drive and carry out other operations of the floor scrubber in strict accordance with the user manual;
- ④In manual driving, please grab the handle tightly, slow down in turning, and do not turn the steering wheel suddenly. To avoid collision, please observe the surrounding environment with care when driving manually;
- ⑤In emergencies where the floor scrubber needs to be stopped right away, press the red Emergency Stop button immediately;
- ⑥On slopes($\leq 8^\circ$), to avoid danger, push the floor scrubber with at least two people;
- ⑦On grounds that may cause slippage, to avoid danger, make sure that the floor scrubber moves at a slow speed;
- ⑧Please report for repair in time if the floor scrubber breaks down.

4.When the cleaning task is finished:

- ①Please be sure to completely cut off the power, except when charging;
- ②Please discharge the sewage, clean the filter element effectively, and rinse the recovery tank to avoid odor;
- ③Please park the floor scrubber at the designated location;

5.Please be sure to completely cut off the power when maintaining the floor scrubber;

- ① Please use the accessories and consumables specified by the manufacturer for replacement;
- ② Please do not disassemble the floor scrubber without permission . For maintenance, please contact the professional maintenance personnel designated by the manufacturer;

③ Please do not modify the floor scrubber, change its original design or configuration without permission. Any modification to the machine requires the authorization from the manufacturer;

6. In transporting the floor scrubber:

①The power must be cut off during the transportation of the floor scrubber. Do not touch the laser and other sensors directly, otherwise it will directly affect the operation of the floor scrubber;

②To reduce freight pressure and avoid water in the water tanks from splashing or leaking during the transportation, please make sure to empty the solution tank and recovery tank before transporting the floor scrubber;

③If you want to transport the floor scrubber by a vehicle, please pack and protect the floor scrubber with packing tape, boxes, wooden pallets and foam, so as to avoid unnecessary damage during the transportation.

7. When not using the floor scrubber for a long time:

①Fully charge the floor scrubber at least every 3 months, otherwise it will directly affect the service life of the floor scrubber;

②If the floor scrubber is not used for more than a week, please be sure to discharge the water/sewage, and cut off the power. Otherwise, it will cause over discharge of the batteries, which will affect the service life of the floor scrubber .

8. Anti-freeze protection:

①When the floor scrubber stops working, please discharge the water in the solution tank and the recovery tank in time to avoid freezing, blocking or cracking the water pipe. Keep the floor scrubber in a dry and warm place;

②Use the floor scrubber in a warm indoor environment if at all possible;

6.2 Precautions for Use

1.SC50P is only suitable for normal use in standard scenarios. Please do not operate it on uneven and soft grounds, nor use it in scenarios with poor floor conditions, such as places with a lot of garbage, pits, etc.;

1. SC50P is only suitable for normal use in standard scenarios. Please do not operate it on uneven and soft grounds, nor use it in scenarios with poor floor conditions, such as places with a lot of garbage, pits, etc.;

2. If there is a lot of glass or other transparent materials and obstacles around the use environment, it will cause malfunction of the sensors. It is not recommended to use the floor scrubber in such environment;
- 3.If there are places or objects less than 5cm above the floor in the working environment, please move the objects away or draw virtual walls to separate the objects or places from the working environment;
4. If there are blind corridors, speed bumps and other areas on the floor unsuitable for scrubbing, please draw the speed bump zones;
5. If there are areas with carpets on the floor, please draw the carpeted zones;
6. If there are steps, stairs, elevators, pools or other areas in the environment that may cause falling, draw the virtual walls to separate them;
7. If there are ground lamps in the environment, which maybe damaged when the floor scrubber passes by, please draw the virtual walls to separate them;
8. The floor scrubber is not waterproof. Do not splash water directly on the machine or rinse the machine;
- 9.Please charge the floor scrubber in time everyday after using it;
10. Please check whether there is enough power everyday before using the floor scrubber;
- 11.The cleaning effect is better with warm water. If you use warm water for cleaning, make sure that the water temperature shall not be higher than 70 °C. If you're not sure if your scenario will work with our product, please contact our after-sales service for more information.

6.3Maintenance Matters

1. Within the warranty period, free maintenance will be provided for non-man-made damage. For man-made damage, maintenance fee will be charged according to the standards of our company. Please refer to the after-sales service policies of CHANCEERPLUS.
- 2.After the warranty period, you can choose to extend the warranty or pay for maintenance.
- 3.It is strictly forbidden to disassemble the floor scrubber without authorization, such as panels, the internal control box, etc. Once found, the user will not be able to enjoy the established warranty policy.

4.If the floor scrubber works abnormally and the problem cannot be solved by regular troubleshooting, please contact the after-sales service in time for support or contact the dealer to inquire about warranty matters.

6.4 Safety Signs

Instructions and safety signs of CHANCEE SC50P have been indicated below.Please refer to and follow the safety regulations to avoid danger . If the user fails to operate the floor scrubber safely in accordance with the chart below , the loss and risk to the company or individual shall be borne by the user.

Signs	Description	Remarks
	Mind your hands: Don't put your hands in wherever this label is attached, otherwise it may cause great danger.	
	The floor scrubber is automatic and smart. Before starting the automatic operation, please stay way to avoid danger.	
	Do not push the floor scrubber.Only the operation is allowed to move the floor scrubber during task execution.	
	Do not pedal on any part or any platform of the floor scrubber to avoid danger.	
	The floor scrubber must be parked on a flat surface.	
	The maximum slop is 8° .	

7. product parameters

CHANCEE SC50P product core specification Description		
category	specification item	specific value
vehicle specification	Dimension	800(L)X700(WW)X1200(H) mm
	vehicle weight	180 kg
	Total weight	200 kg
	Rated Power	720 W
	Maximum travelspeed	1 m/s
	verticalheightofsurmountable obstacle	1.5 cm
	Height of recognizable obstacle	5 cm
	Maximum slope	8%
	Minimum U-turn width	1.2m
	Minimum passagewidth	800mm
	sensor configuration	2D LiDAR *1, RGBD*5, Ultrasonic radar *6, collision sensor, anti-drop sensor, IMU, wheel speed meter
Screen specifications	screen size	10 inch
Battery specifications	Endurance time	2~3h(scrubbing)/ 5-7h (mopping)
	Battery capacity	60 A*h
	Battery life	cycles>1500
	charging time	1.2h
CHANCEE SC50P product core specification Description		
Category	Specification item	Specific value
	Maximum cleaning efficiency	1800m2/h
	Cleaning width (with side brushes)	800mm
	Scrubbing width	500mm
	Squeegee width	706mm

Cleaning specifications	Solution tank capacity	42L
	Recovery tank capacity	30L
	Width of edge cleaning	5 cm
	Trash can size	1.5L
	Air-suction volume	2.08m ³ /min
	Vacuum degree	18.18 kpa
	Roller brush speed	800/900/1000 rpm
	Roller brush overrun	2mm
	Side brush speed	800/900/1000 rpm
	Operating noise	70dB
	Roller brush diameter	100mm
	Pore sizes of 3-level filters	100um/50um/30um

