

1. Camera

The camera interface displays a video postback screen, and a black screen is displayed when there is no signal on the screen.

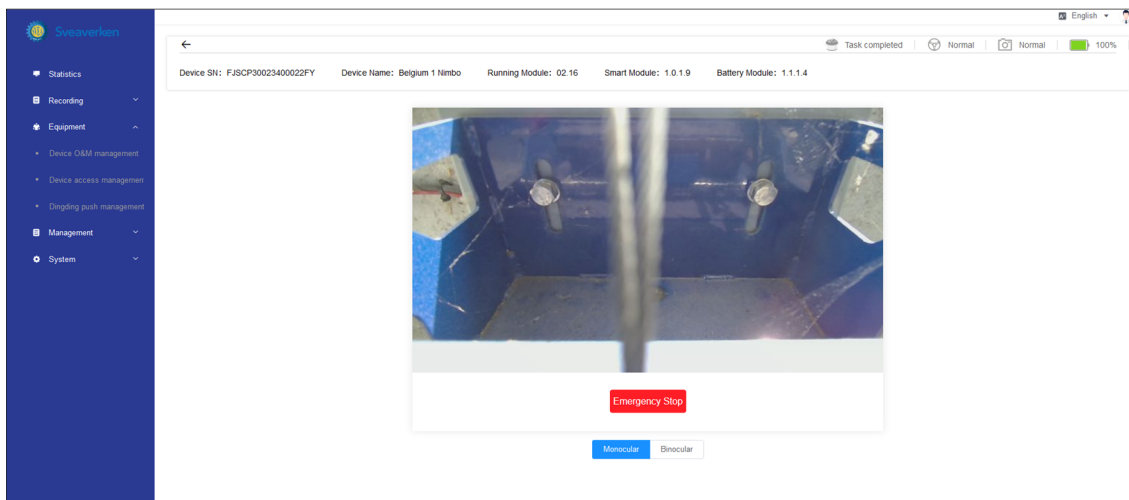


Figure26

Emergency cessation	Click the "Emergency Stop" button and confirm the operation to stop the equipment.
Monocular mode	Select the perspective of the monocular camera (at the front of the car) to view.
Binocular mode	Select the binocular camera (on the roof) perspective to view.

2. Remote control

Remote control can remotely control the device; view various parameters and maps of the device, as well as switch to manual automatic mode, manually charge, return to charge, turn on and off the escape mode, control vehicle speed, and operate the device while walking.

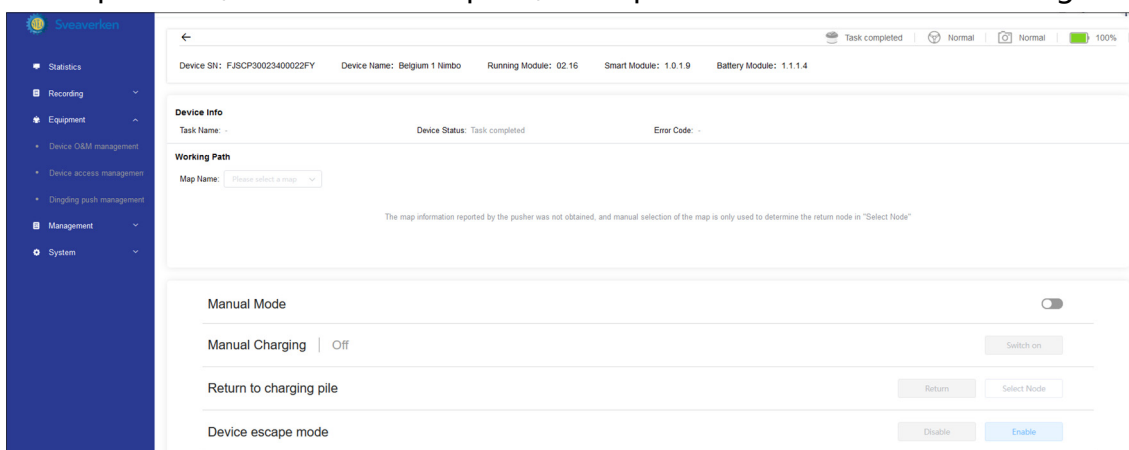


Figure27

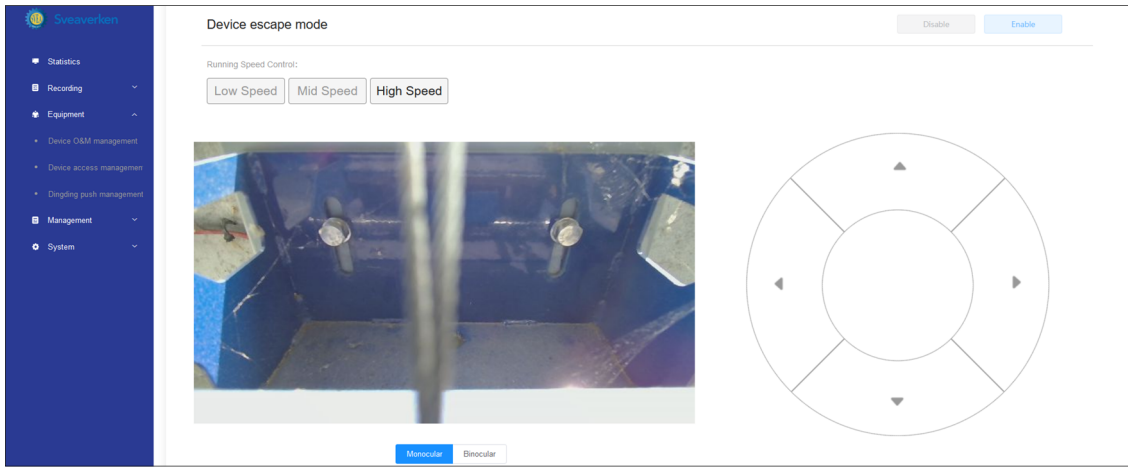


Figure28

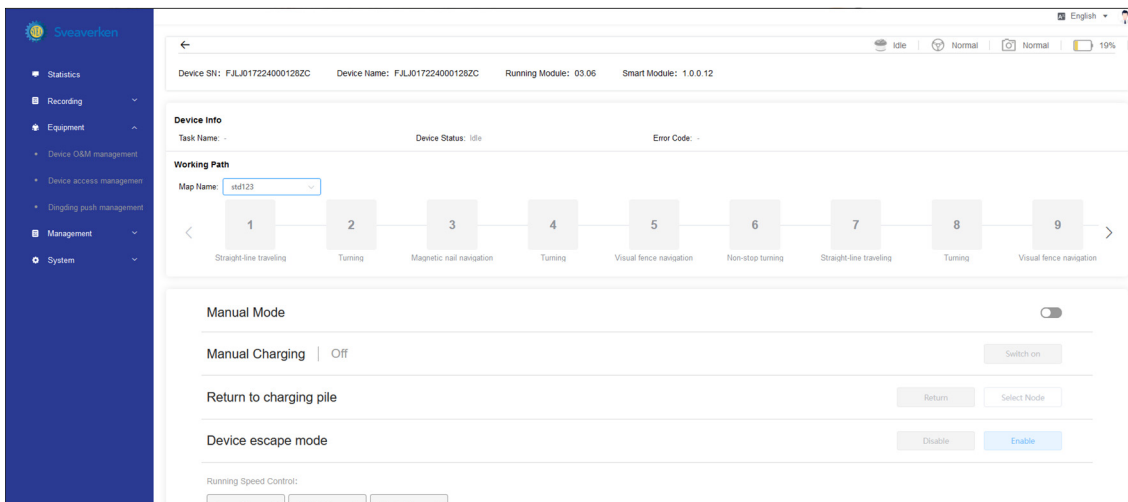


Figure29

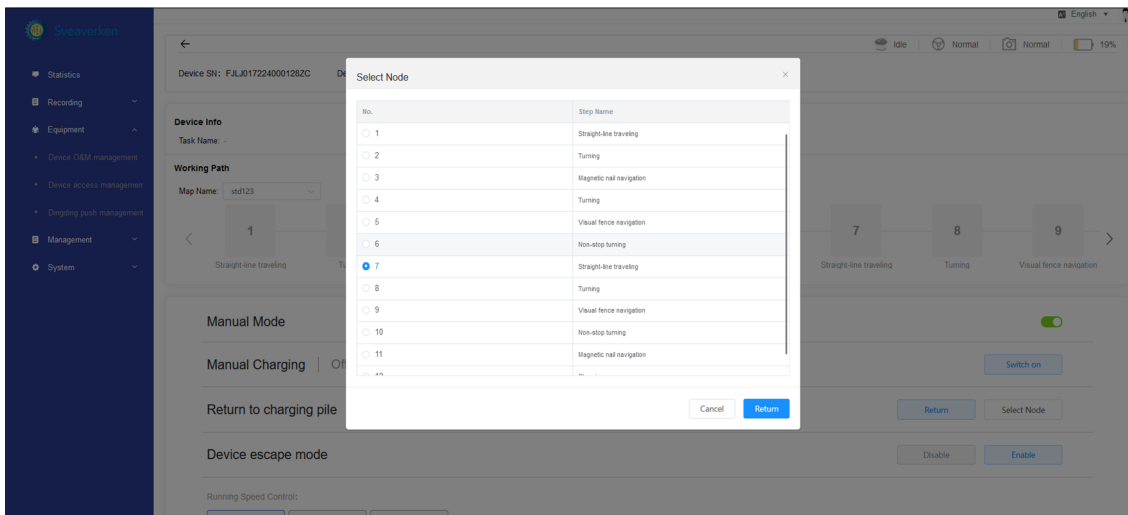


Figure30

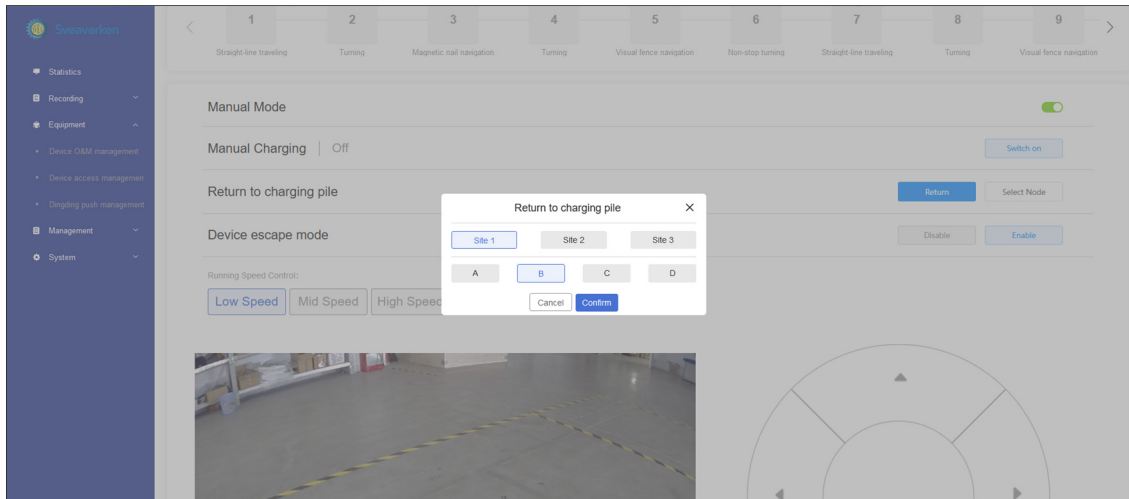


Figure31

Manual mode	Click the button on the right side of "Manual Mode", and the button switches to green to turn on the manual mode. At this time, the pusher can be controlled by the web remote control; click the button, and the button switches to gray to switch back to the automatic mode.
Direction control	Click the forward button to control the pusher to move forward at the currently set speed, and the same goes for moving backward; click the left turn button to control the pusher to make a differential turn at a percentage of the current speed, and the same goes for turning right.
Speed control	The speed is divided into three gears: slow, medium, and fast. Set the remote control pusher one gear lower than the current speed to slow down the pusher. The same applies to acceleration.
Real-time battery level	When the battery level is $\geq 80\%$, it displays green; when $80\% > \text{battery level} \geq 35\%$, it displays blue; when $35\% > \text{battery level} \geq 15\%$, it displays orange; when the battery level is $< 15\%$, it displays red.
Manual charging	Click the "Start Now" button. If the text on the right side of manual charging shows "Enabled", charge the pusher.
Select node	Select the map in the map name above to select the node in the map for return, and the device will execute the remaining map (including the selected node) in order after the selected node.
Return to charge	Click the "Return Now" button, select the site and ABCD point, and confirm to automatically return to the charging pile. (For example, select the scene and C point to return, that is, select the abnc path in the path configuration.) ²²
Device out mode	You can choose to turn on or off the escape function. Clicking the button will switch to blue, and the other button will switch to gray.

3. Task management

Task management is mainly used for modifying and managing daily tasks.

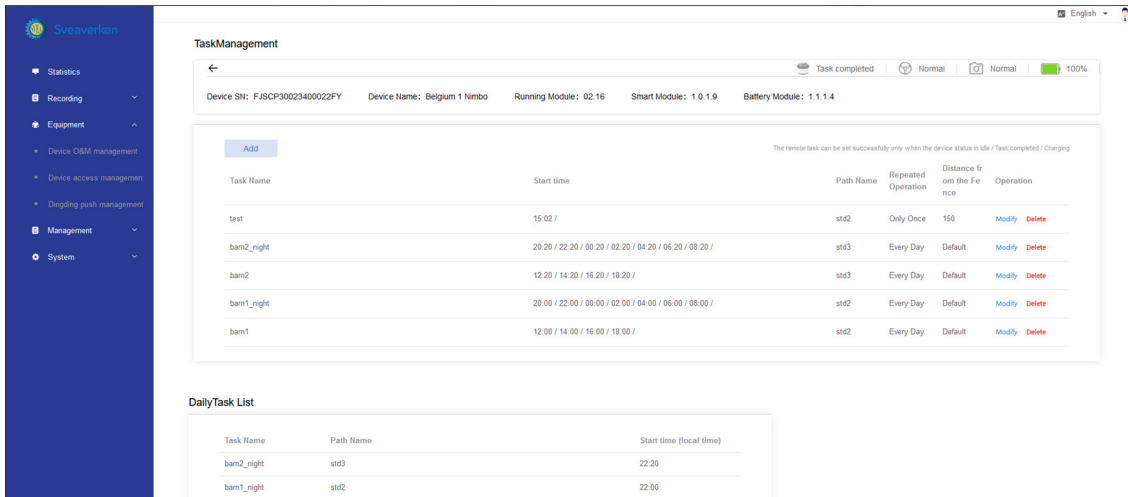


Figure32

Add tasks:

- Click Add button to enter the task addition interface.
- Fill in the task name, start time, path name, whether to repeat the task, and distance from the column.
- Save the settings and create a new task.

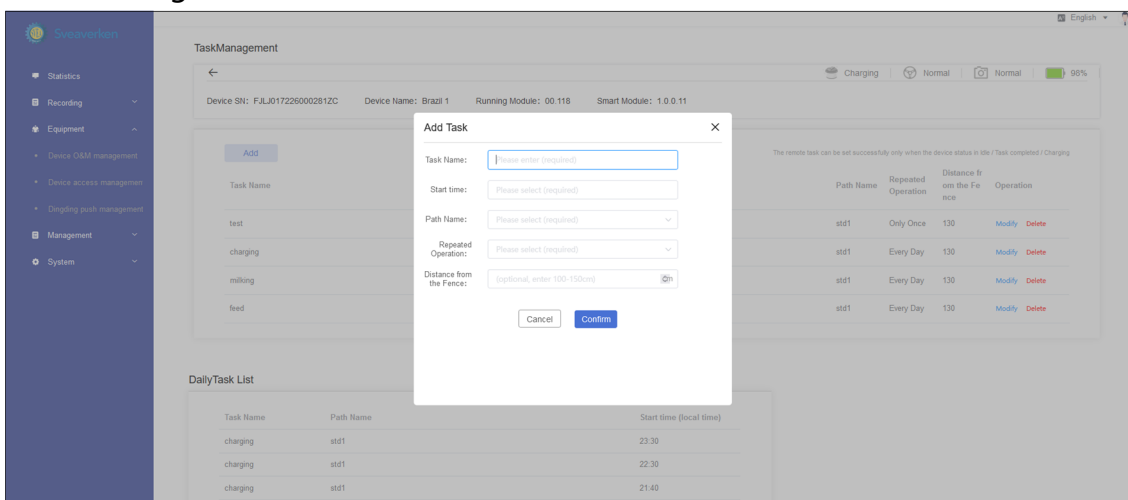


Figure33

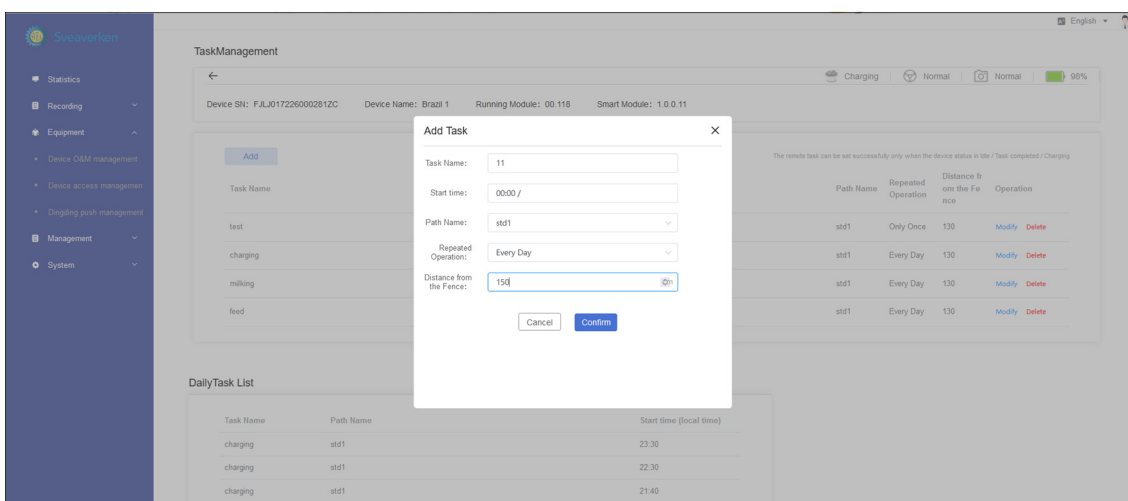


Figure34



Note: Please do not modify the current task and map while the task is in progress!
The system allows only five tasks to exist.

Modify tasks:

- Click the Modify button next to the task to enter the task modification interface.
- Modify the items that need to be modified in the task name, start time, path name, whether to repeat the job, and distance from the column.
- Click Confirm to save your changes.

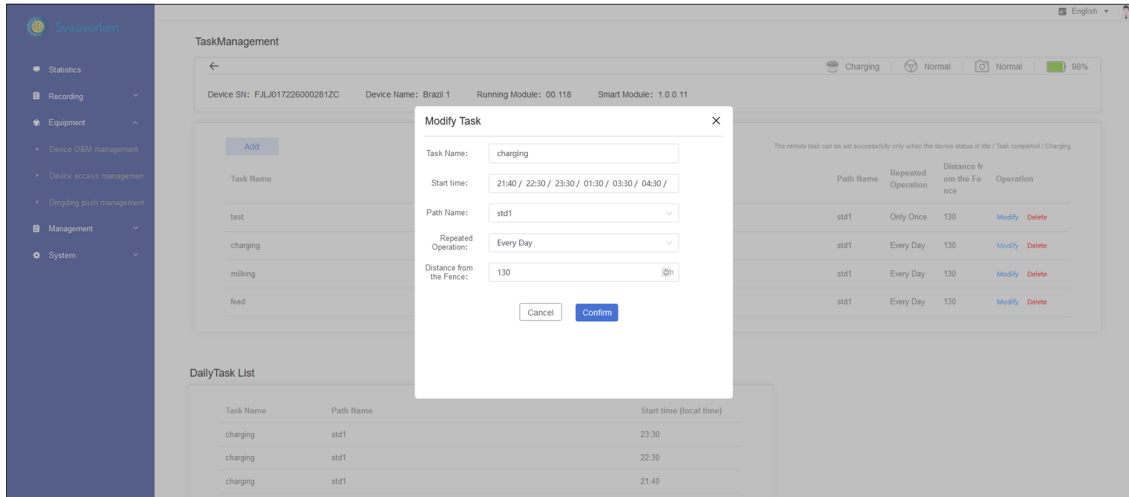


Figure35

Delete tasks:

- Click Delete button next to the task to confirm whether to delete.
- If you are sure to delete the task, please click "OK"; otherwise, please click "Cancel", and the system will cancel the task deletion.

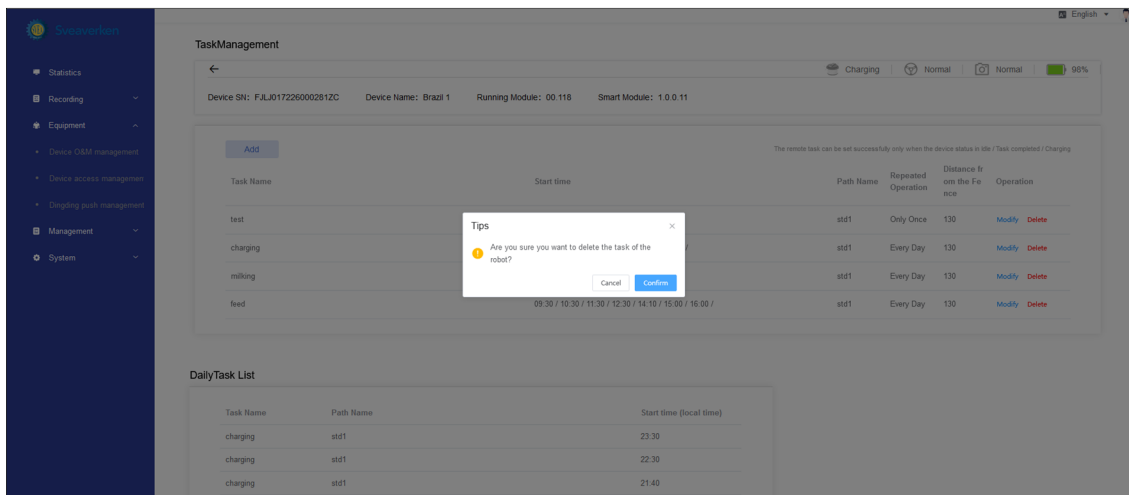
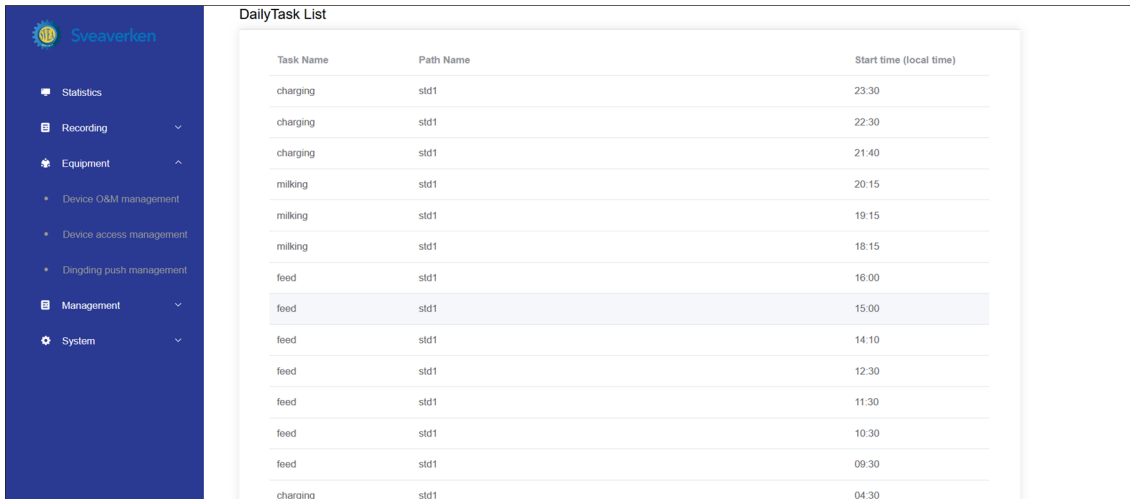


Figure36

Task list:

- Swipe down the page and a daily task list will appear. The list will display the task name, the path name where the task will run, and the start time of the task.



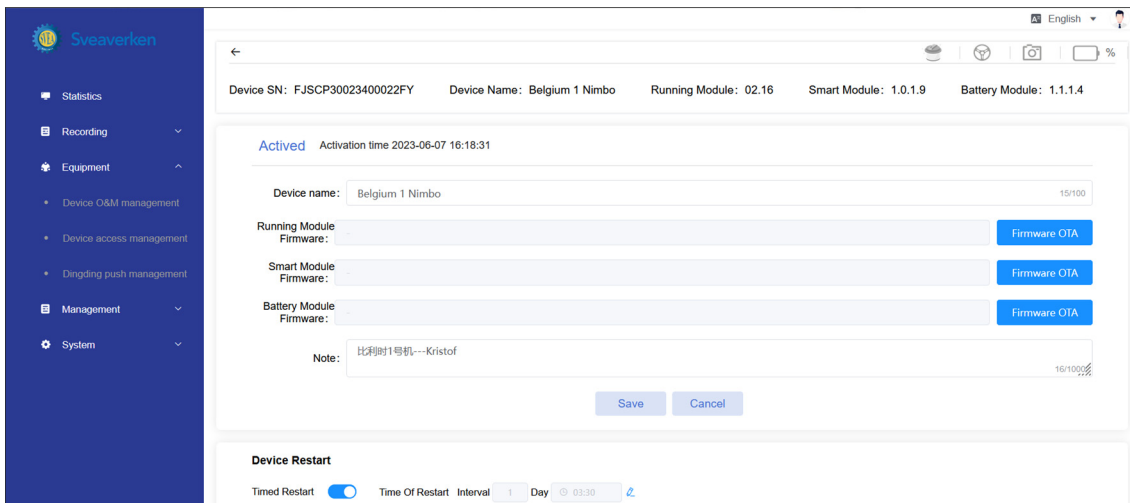
The screenshot shows the 'DailyTask List' interface. On the left is a sidebar with navigation options: Statistics, Recording, Equipment, Management, and System. The main area displays a table with three columns: Task Name, Path Name, and Start time (local time). The table lists various tasks such as charging, milking, and feeding, each associated with a path name 'std1' and a specific start time.

Task Name	Path Name	Start time (local time)
charging	std1	23:30
charging	std1	22:30
charging	std1	21:40
milking	std1	20:15
milking	std1	19:15
milking	std1	18:15
feed	std1	16:00
feed	std1	15:00
feed	std1	14:10
feed	std1	12:30
feed	std1	11:30
feed	std1	10:30
feed	std1	09:30
charging	std1	08:30

Figure37

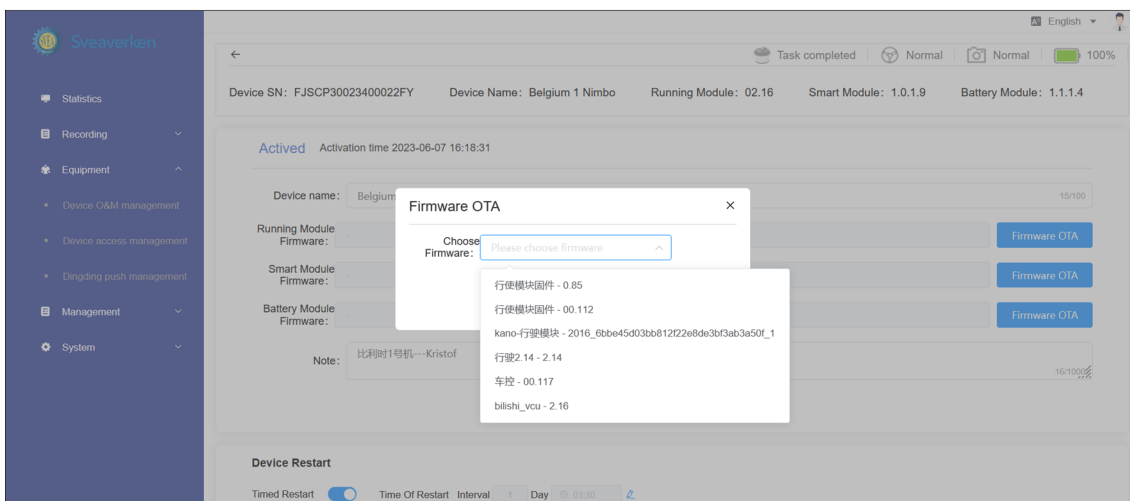
4. Facility Management

Facility Management has two major functions: upgrade and restart. It can restart the car system, set a scheduled restart, and upgrade the car system.



The screenshot shows the 'Device Restart' and 'Firmware OTA' options. The interface includes a sidebar with navigation options. The main area displays the 'Device Restart' section with a 'Timed Restart' toggle and a 'Time Of Restart' field. Below this, there are fields for 'Device name', 'Running Module Firmware', 'Smart Module Firmware', and 'Battery Module Firmware', each with a 'Firmware OTA' button. A 'Note' field is also present.

Figure38



The screenshot shows the 'Firmware OTA' dialog box. The dialog box has a 'Choose Firmware' dropdown menu and a list of available firmware packages. The background interface is dimmed, showing the 'Device Restart' section.

Choose Firmware
Please choose firmware
行使模块固件 - 0.85
行使模块固件 - 00.112
kano-行驶模块 - 2016_6bbe45d03bb812f22e8de3bf3ab3a50f_1
行驶2.14 - 2.14
车控 - 00.117
bilishi_vcu - 2.16

Figure39

Modify:

- Click the OTA button, select the firmware package and confirm.
- Fill in the equipment name, remarks, etc. that need to be modified.
- Click "Save Modifications" to upgrade and modify the note name.

Note: Please use this function under the guidance of a technician.

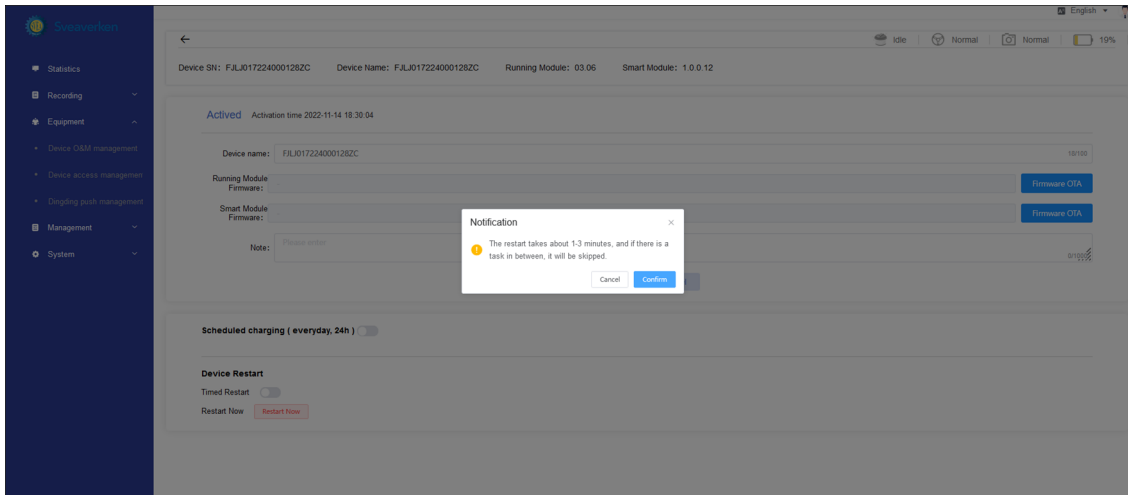


Figure40

Figure41

Device restart:

- Timed restart, click the button blue to turn it on, gray to turn it off (turning it off will result in no restart time on the right).
- When scheduled restart is enabled, click the edit button to edit the scheduled restart time.✎
- Restart Now: Click the red "Restart Now" button to confirm whether to restart. After confirming the restart, wait for 1-3 minutes for the car system to restart.

5. Parameter settings

Parameter settings can modify system parameters, which can better adapt to different terrains by adjusting the parameters.

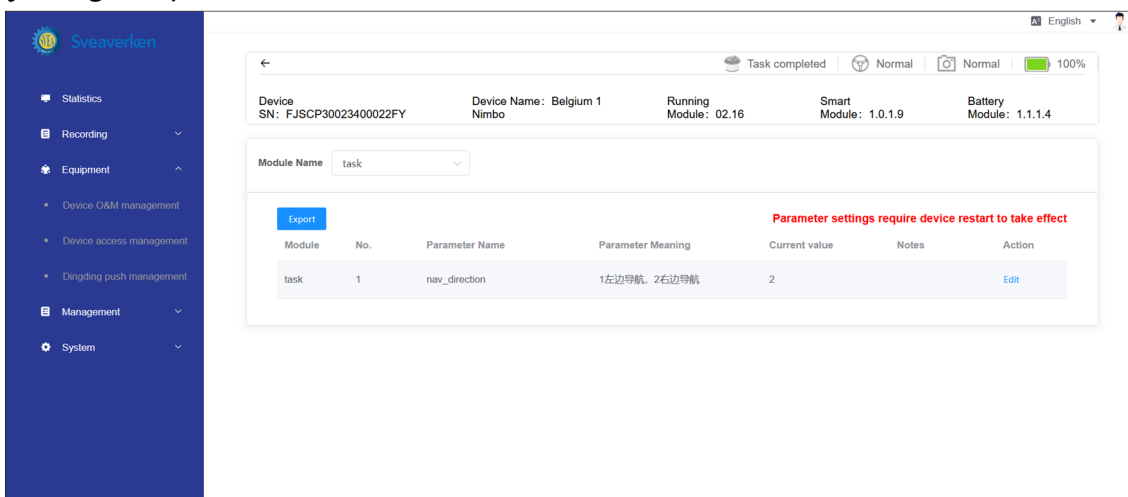
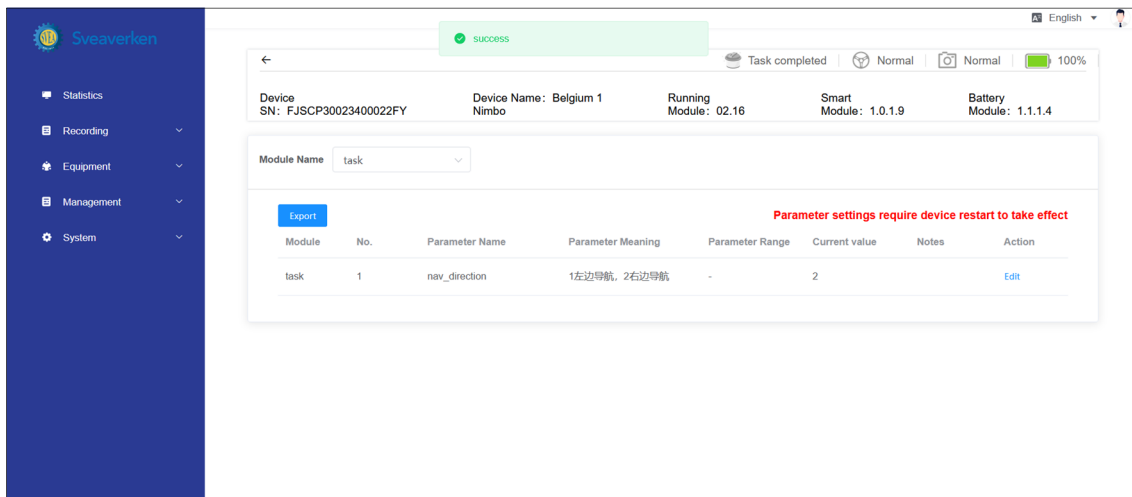
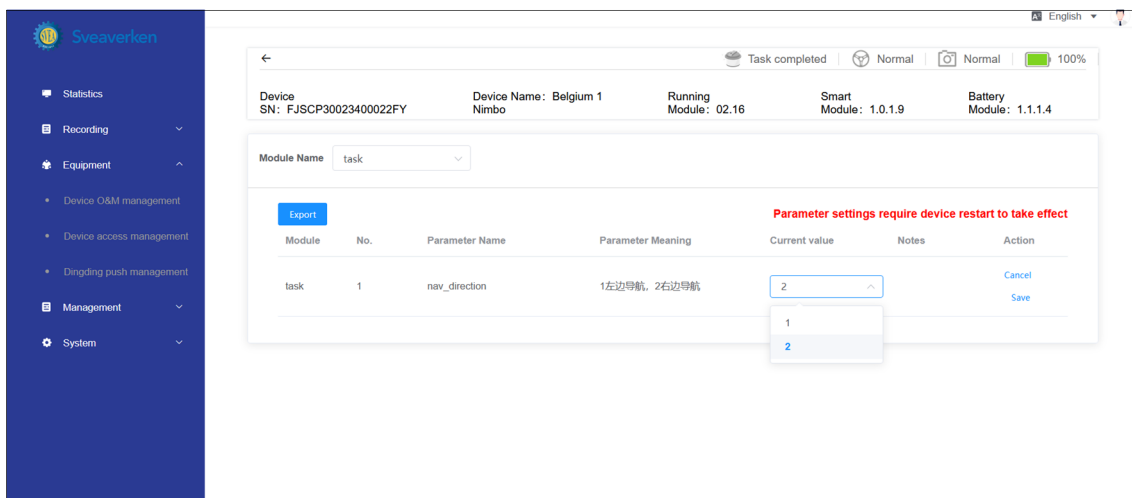
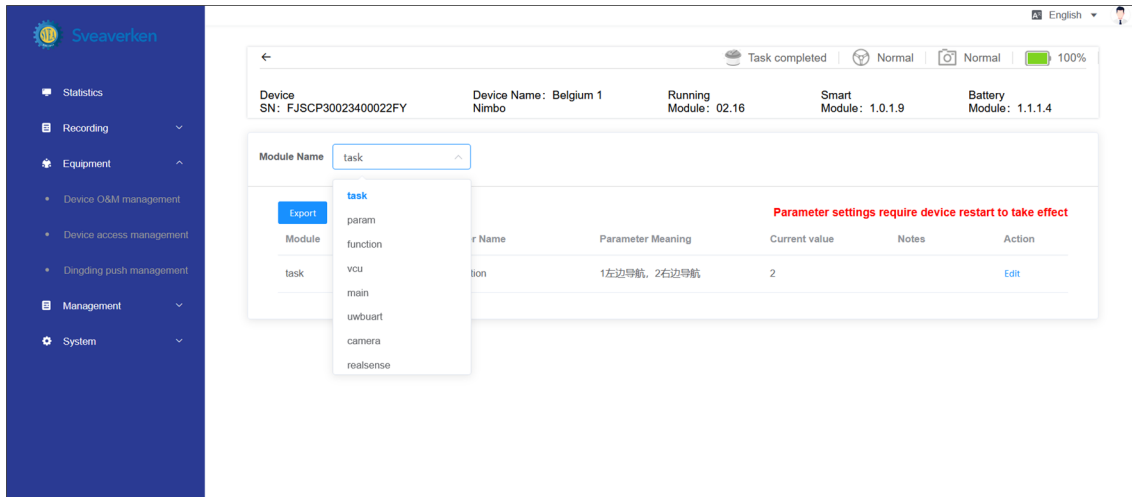


Figure42



Parameter settings:

- Select the corresponding name in the module name, then select Modify in the operation bar behind the parameter you want to modify, and modify the corresponding value.
- After the modification is completed, click Save. If a green success appears, it means the save is successful. It will take effect only after restarting after saving.



Note: Please use this function under the guidance of a technician.

6. Video settings

Video settings can be set to upload video logs, which can be modified to three settings: no logs uploaded, only logs uploaded, automatic logs uploaded, and videos. It can also detect the network speed of the car computer and prompt whether the delay is normal.

The screenshot shows the Sveaverken web interface. On the left is a dark blue sidebar with a menu containing: Statistics, Recording, Equipment, Device O&M management, Device access management, Dingding push management, Management, and System. The main content area is white and displays settings for a specific device. At the top, a header bar shows: Device SN: FJSCP30023400022FY, Device Name: Belgium 1 Nimbo, Running Module: 02.16, Smart Module: 1.0.1.9, and Battery Module: 1.1.1.4. Below this, there are two sections. The first section, titled 'Robot Network', contains a 'Real-time Latency(ms):' field with the value '23' and the status 'Normal' in green. The second section, titled 'Video and Log Upload', contains three radio button options: 'Do not upload any log', 'Only upload logs', and 'Upload logs and videos automatically' (which is selected). A blue 'Save' button is located at the bottom right of this section.

This screenshot is identical to the one above, showing the Sveaverken web interface with the same device settings and video upload configuration.

The screenshot shows the Sveaverken web interface for a different device. The header bar displays: Device SN: FJLJ0172240001282C, Device Name: FJLJ0172240001282C, Running Module: 03.06, and Smart Module: 1.0.0.12. The 'Robot Network' section shows a 'Real-time Latency(ms):' field with the value '214' and the status 'Too high' in red. The 'Video and Log Upload' section has the same three radio button options as the previous screenshots, with 'Upload logs and videos automatically' selected. A blue 'Save' button is at the bottom right.

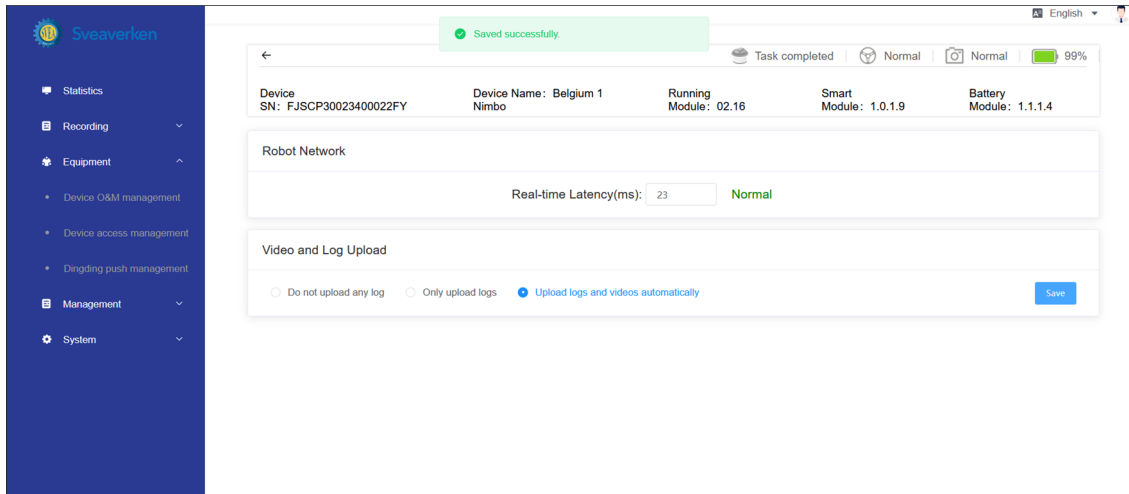


Figure46

Vehicle network speed settings:

- If the internet speed is good, the prompt on the back is in green font "Latency is within normal range".
- If the network condition is poor and the delay is too high, the rear prompt will change to red font "Delay is too high".

Video log upload settings:

- Click the small dot in front of the options Do not upload any logs, Upload logs only, Automatically upload logs, and Video to select the option. The video log will be automatically uploaded to Cloud Drive according to the selection.
- After the modification is completed, click Save and a green Save Successful will appear.

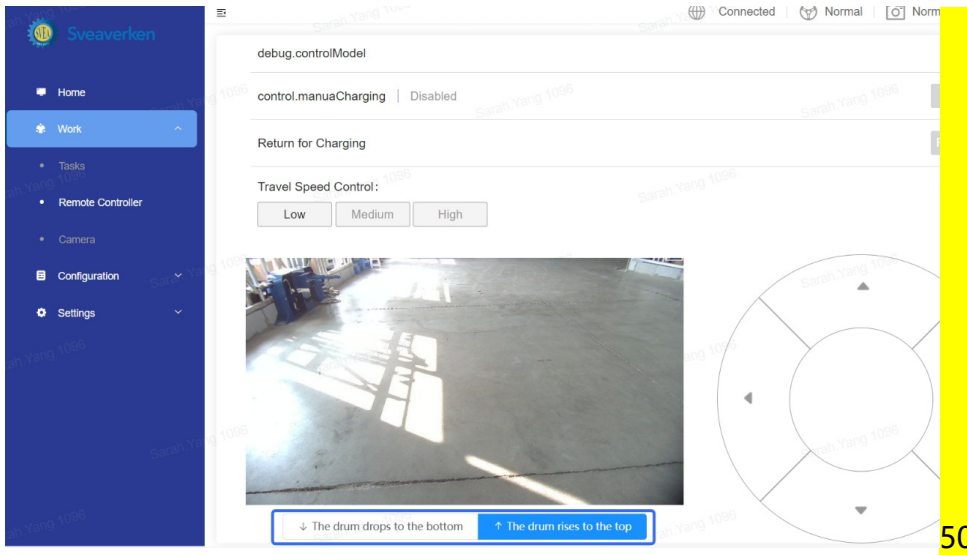
7.3.6 Drum lifting module

1. Drum lifting combination key (Bluetooth remote control)
 - Lift: Click A and the blue button in turn, release and wait for 5 seconds, then lift the drum
 - Descend: Click B and the blue button in turn, release and wait for 5 seconds for the drum to descend
 - The drum lifting reaction needs to wait for 5 seconds, and ensure that the drum is at the bottom when the pusher is working
2. Web control

Proximal web page

- Connect the machine WiFi, enter 10.33.68.254 in the browser;
- Work - Remote Control - Select the drum lift button, the blue icon represents the current drum position status.
- Ensure that the drum is at the bottom when the pusher is working

Figure



50

Operation platform

- Remote control - select the drum lifting button, the blue icon represents the current drum position status (ensure that the drum is at the bottom when the pusher is working)

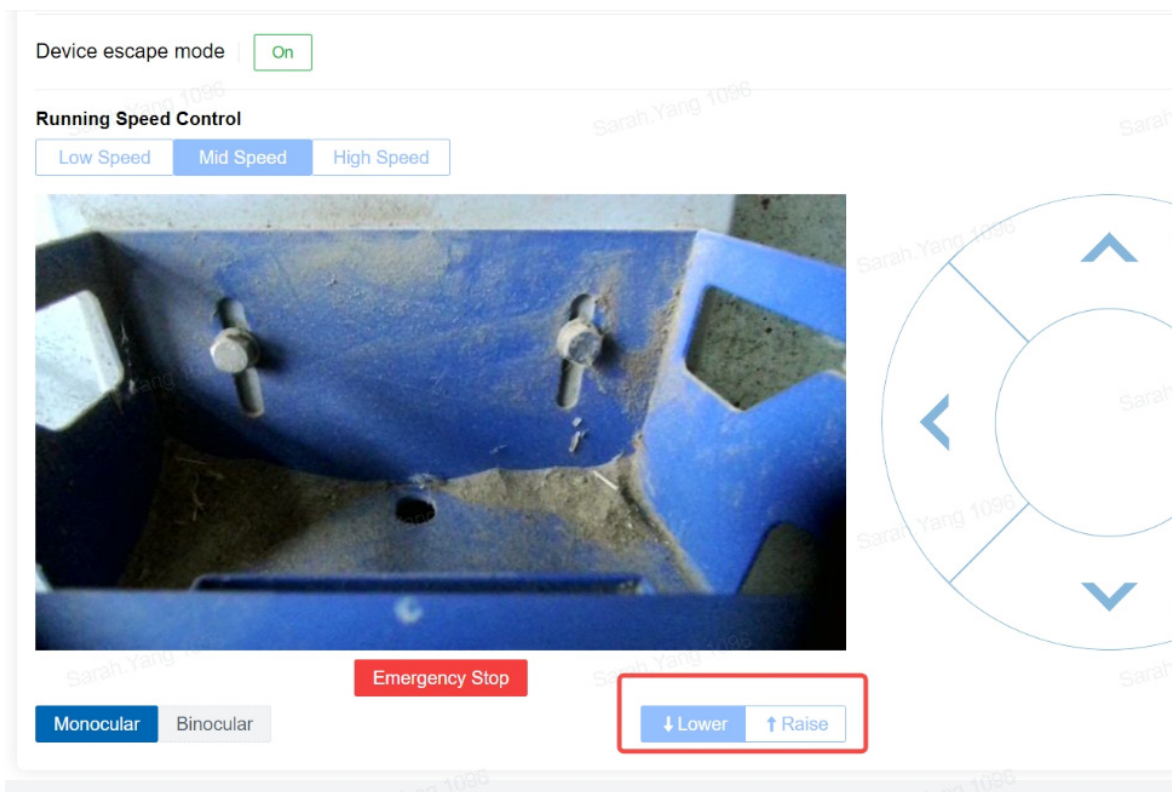


Figure 51

3. Roller lifting map configuration

Proximal map configuration

- Connect the machine WiFi, enter 10.33.68.254 in the browser;
- Configuration - Path Configuration - New Steps - Select Roller Lift;
- Select the drum operation (lifting/lowering/not operating) of the current node as needed.

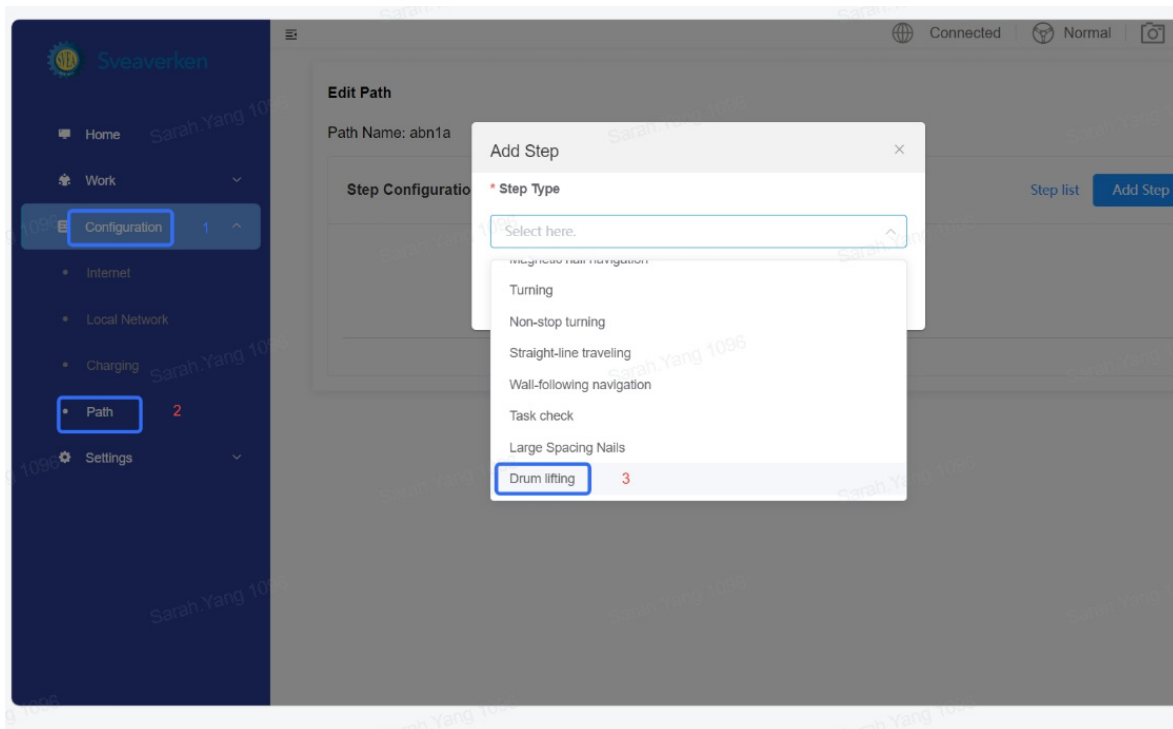


Figure52

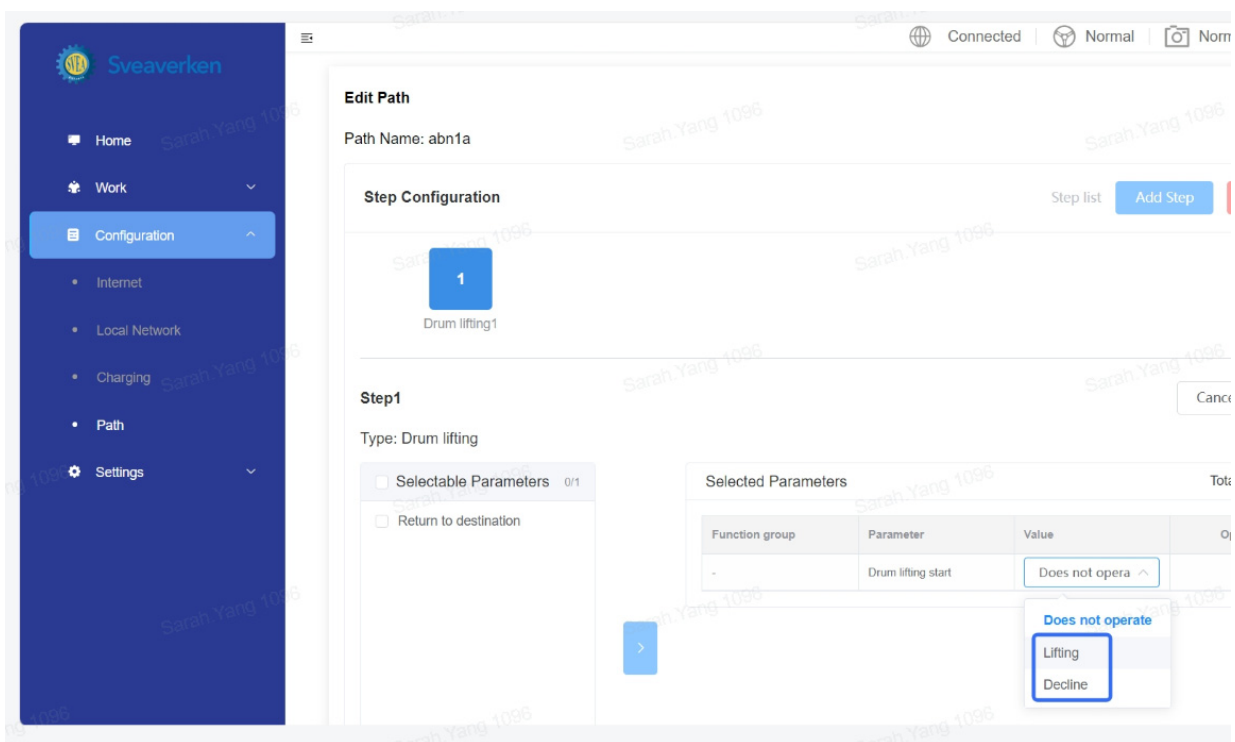


Figure53

Operation Platform Map Configuration

- Path Management - Add Step - Select Roller Lift;
- Select the drum operation (lifting/lowering/not operating) of the current node as needed.

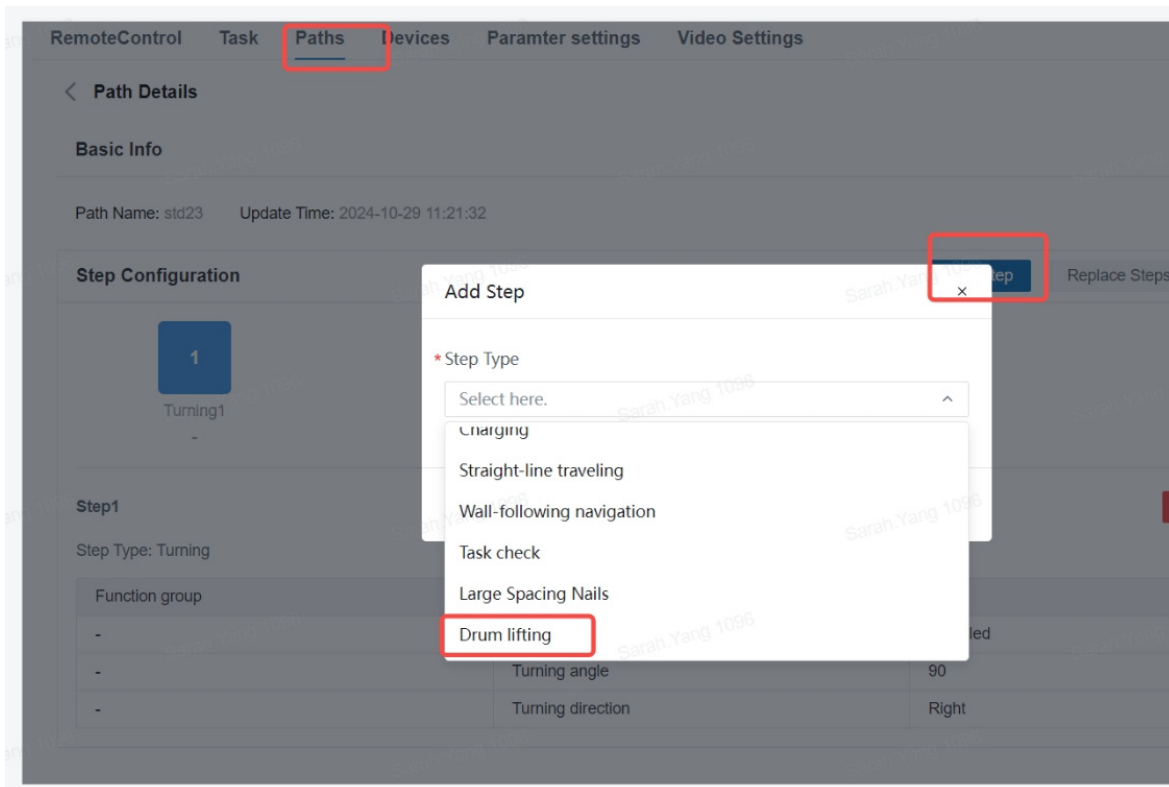


Figure54

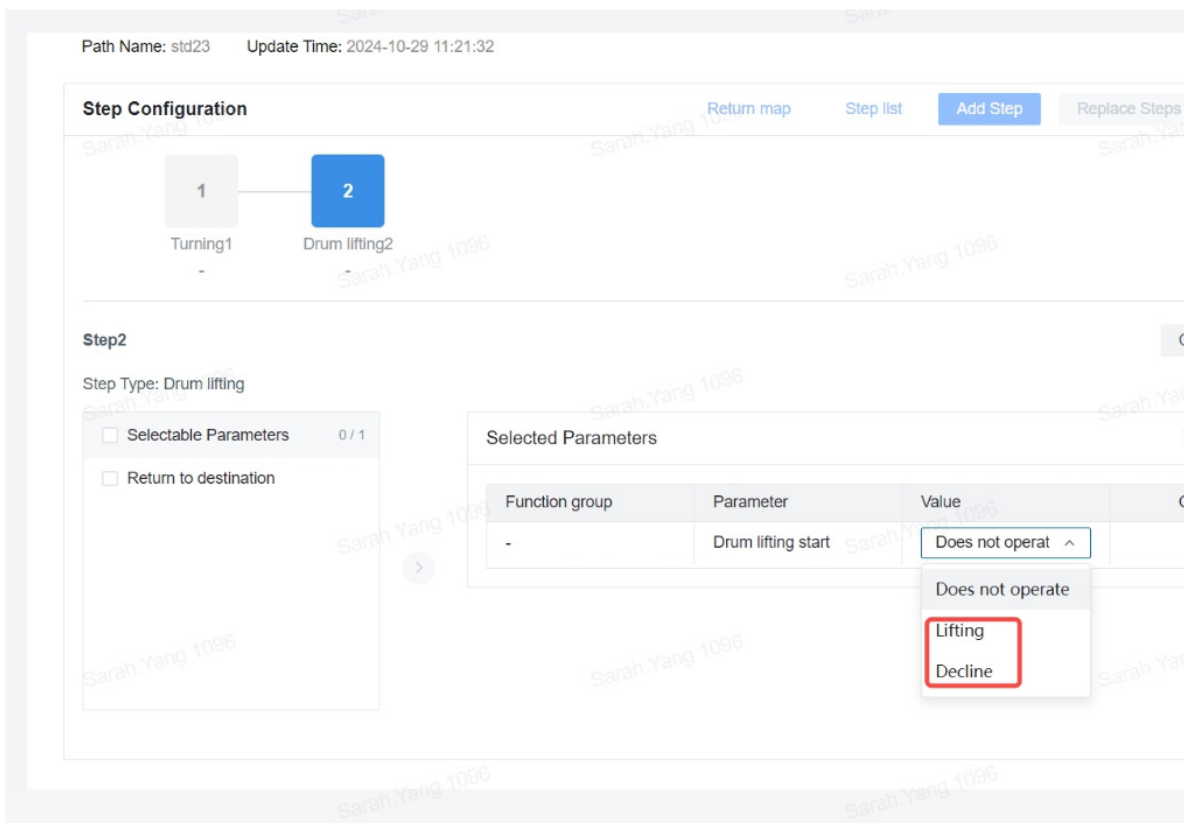
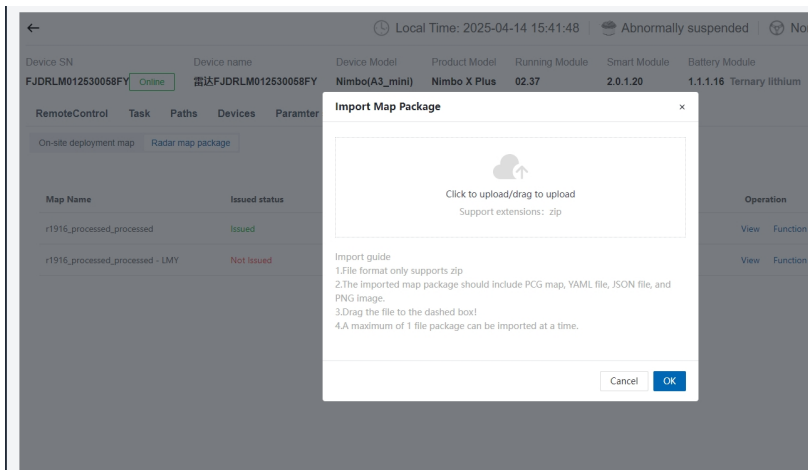


Figure55

7.3.7 Radar module

1. Import radar map package



Operation platform map package import

- Map Management - Import Map Package - Import Map Package - Click Upload - Confirm;

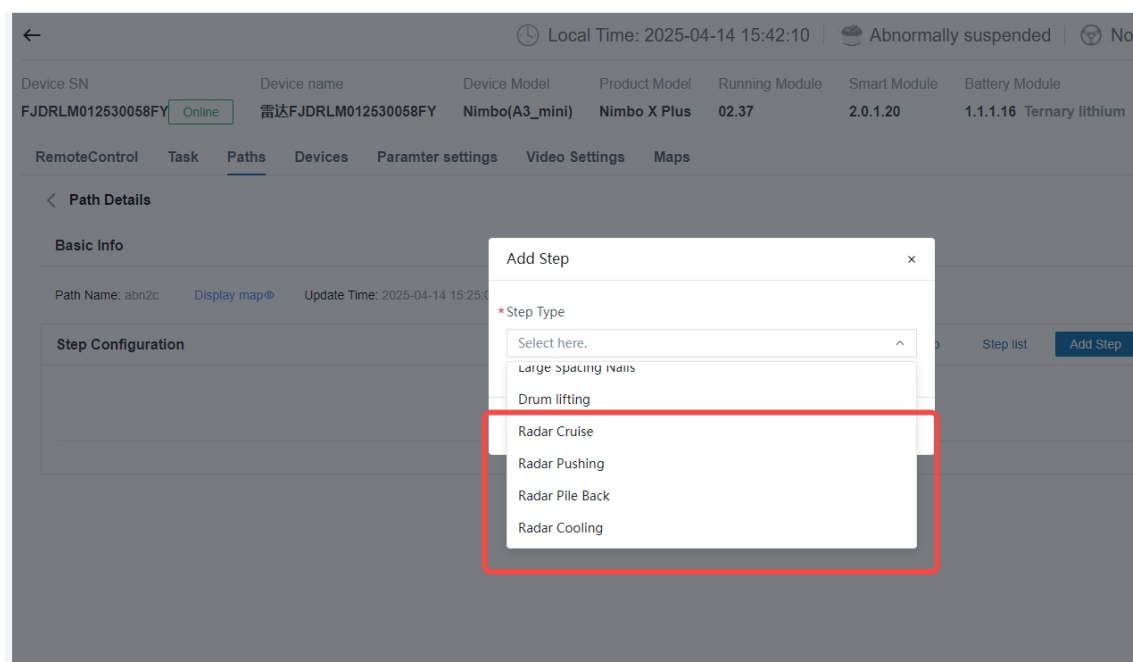
2. Configure Map Steps

Proximal map configuration

- Connect the machine WiFi, enter 10.33.68.254 in the browser;
- Configuration - Path Configuration - New Steps - Radar-specific steps can be added (radar cruising, radar pushing, radar pile removal, radar cooling) - Confirm.

Operation Platform Map Configuration

- Path Management - View - Add Steps - Radar-specific steps can be added (radar cruising, radar pushing, radar pile removal, radar cooling) - Confirm.



Radar cruise

Select the tracking method of the current node as needed, radar map, route Functional Button list, turning/walking speed

Radar thrust

Select the current node's stop function start and stop, tracking method, radar map, route Functional Button list, pushing baseline offset, entry navigation direction, radar escape start, radar escape angle, radar escape bar auto-

increase, anti-run opposite offset angle, turning/walking speed as needed.

Radar pile removal

Select the current node's retreat distance, radar map, and blower switch as needed.

Radar cooling

Select the cooling duration of the current node as needed.

8 Troubleshooting

Fault description	Possible reasons	Solution
Web page not connected to/disconnected from pusher	End point not connected to public Wi-Fi	• Enable end point Wi-Fi connection ▪ View end point Wi-Fi settings
	End point unconnected pusher	• Connect pusher using end point
	Pusher is turned off	• Start pusher
Pusher not moved	Pusher is turned off	• Start pusher ▪ Let the pusher enter the running state
	Route is blocked	• Remove obstacles
	Magnetic nails are demagnetized or destroyed	• Check and replace magnetic pins
	Low battery	• Manually operate the machine to the charging pile • Manually operate the machine to start charging
	The emergency stop switch has been pressed	• Reset emergency stop switch

Fault description	Possible reasons	Solution
The pusher swings or turns incorrectly	Gyroscope drift	• Replace the gyroscope
	The camera is not working properly	• Clean the camera • Test the whole machine
Pusher not running	No tasks issued	• Send tasks up and down the web
The pusher cannot be charged	The charger is not plugged in	• Turn on the charger power

If you cannot troubleshoot the problem according to the solutions in the table, or encounter other problems, please contact the dealer.

9 Installation and debugging

9.1 Patrol installation

- Patrol line deployment can be carried out by contacting local dealer technicians. After providing the design drawing of the pasture pushing channel, the engineer will carry out relevant patrol line design for you, including visual patrol line and magnetic nail patrol line. Deployment will be carried out by authorized technicians from Sveaverken.
- The location of the charging pile for the pusher: The charging pile is generally placed on one side of the entrance of the cattle farm, which will not interfere with other work of the cattle farm.
- Use the charging pile as the starting point of the pusher's working path; keep the deployed patrol line clean, especially the right-angled and T-shaped parts; keep the magnetic nails intact, embedded in the ground, to prevent damage and loss.

9.2 Charging pile installation

- Place the charger and charging pile in a ventilated, rain-proof, and dry place.
- The circular plug and square gray Anderson connector at the rear of the charger are respectively connected to the circular socket on the charging pile and the gray square structure.
- The bottom of the charging pile bracket can be fixed to the ground with expansion bolts.



Note:Due to laws and regulations in different regions, there are certain differences in the input voltage of the charger. Please confirm the specific technical parameters with the technical personnel of Sveaverken.

9.3 Debugging

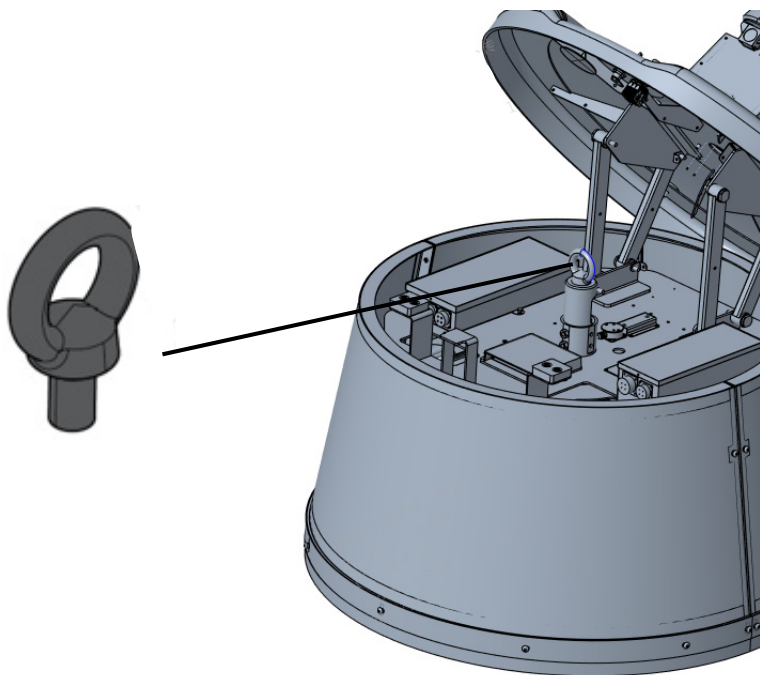
Plan the route and return to charge the pusher according to the web page.



Note:It must be installed and debugged by authorized technicians from Sveaverken!

9.4 Pusher loading and unloading

During the handling of the pusher, the lifting ring should be used for loading and unloading. After the handling is completed, the lifting ring should be removed and the top cover should be locked.



10 Maintenance

Preventive maintenance cycle table.

Maintenance tasks	Frequency			
	7 days	20 days	30 days	3 months
Check whether the body charging plate and charging pile charging plate are oxidized		▲		
Check if the machine is connected properly			▲	
Check if the magnetic nail is clean or damaged				▲
Check and keep the camera clean	▲			
Check if the operation warning light is working properly				▲
Check if the lighting can be turned on and off normally				▲
Test emergency stop switch for malfunction				▲
Check whether the pushing rubber is worn or damaged				▲
Check drive wheel				▲
Check universal wheel				▲



Note: Customers must adjust the maintenance inspection cycle according to the actual environment of the ranch and the actual operation of the pusher. If you cannot maintain it yourself, please contact the local dealer.

11 Spare parts list

Component name	Single unit usage (Unit: pieces)
Universal wheel assembly	1
Driving wheel	2
Drive shaft	2
Visual box	1
Sensor class	1
Fill the light	1
Contactor	3
Fuse	1
Fuse	1
Fill light bracket	1
Warning light	1
Walking drive motor	2
Magnetic navigation sensor	2
Gyroscope	1
Note: If you need spare parts, please contact your local dealer.	

12 Transport and storage

- Before transportation or storage, the power supply of the pusher should be disconnected.
- Ensure to handle with care during transportation to avoid damage to the pusher.
- During transportation, avoid collisions and squeezing.
- The pusher should be stored in a dry and ventilated environment with a temperature of 25 ± 3 °C and a humidity of $65 \pm 20\%$, avoiding direct sunlight.
- The pusher should be kept away from flammable and explosive materials and should not be mixed with metal objects.
- During the handling process of the pusher, lifting rings should be used for loading and unloading.
- If the device is stored for a long time, ensure that the battery level is around 50% before storage, and then charge it every two months to prevent the battery from being overdischarged and unable to be used normally.

13 Noise description

According to on-site tests, the noise generated by the machine during normal operation is 66.1dB, and the noise does not exceed 78dB.

14 Troubleshooting

Fault description	Possible reasons	Solution
Web page not connected to/disconnected from pusher	End point not connected to public Wi-Fi	• Enable end point Wi-Fi connection ▪ View end point Wi-Fi settings
	End point unconnected pusher	• Connect pusher using end point
	Pusher is turned off	• Start pusher
Pusher not moved	Pusher is turned off	• Start pusher ▪ Let the pusher enter the running state
	Route is blocked	• Remove obstacles
	Magnetic nails are demagnetized or destroyed	• Check and replace magnetic pins

Fault description	Possible reasons	Solution
	Low battery	- Manually operate the machine to the charging pile - Manually operate the machine to start charging
	The emergency stop switch has been pressed	Reset emergency stop switch
The pusher swings or turns incorrectly	Gyroscope drift	Replace the gyroscope
	The camera is not working properly	- Clean the camera - Test the whole machine
Pusher not running	No tasks issued	Send tasks up and down the web
The pusher cannot be charged	The charger is not plugged in	Turn on the charger power

If you cannot troubleshoot the problem according to the solutions in the table, or encounter other problems, please contact the dealer.

15 Waste disposal

This product contains metal materials and electronic components. Waste materials (including packaging materials, metal parts, and electronic components, etc.) should be sent to recycling centers or appropriate destruction sites. Waste disposal should be based on environmental protection principles and comply with local laws and regulations.

16 After-sales principle

- Any consequences caused by violating safety precautions shall be borne by the user.
- Use beyond the scope of machine operation conditions is considered incorrect use, and any consequences caused shall be borne by the user.
- Any consequences caused by human damage to the machine shall be borne by the user.

17 Manufacturer information

Manufacturer: SVEA(HK)LIMITED

Address: FLAT/RM520,5/F,CORE BUILDING 1,PH 1,1 SCIENCE PARK EAST AVE,SHA TIN,NT, HK, CHINA

Telephone: 70767979-000-05-22-9

