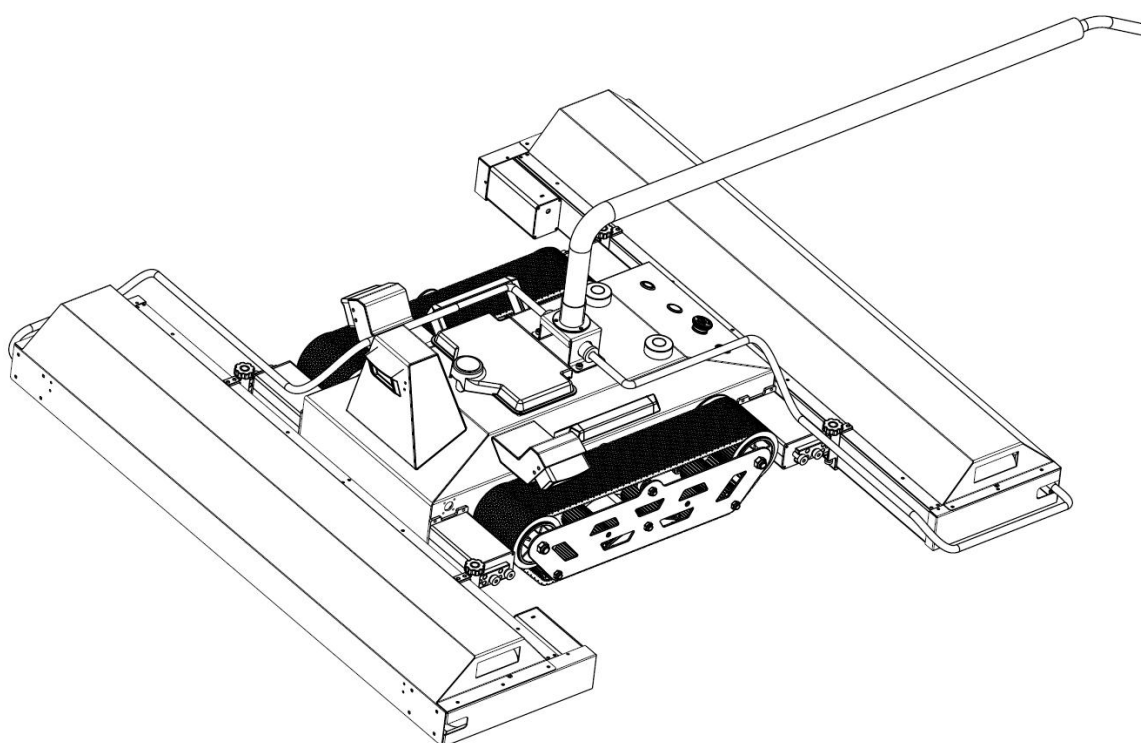




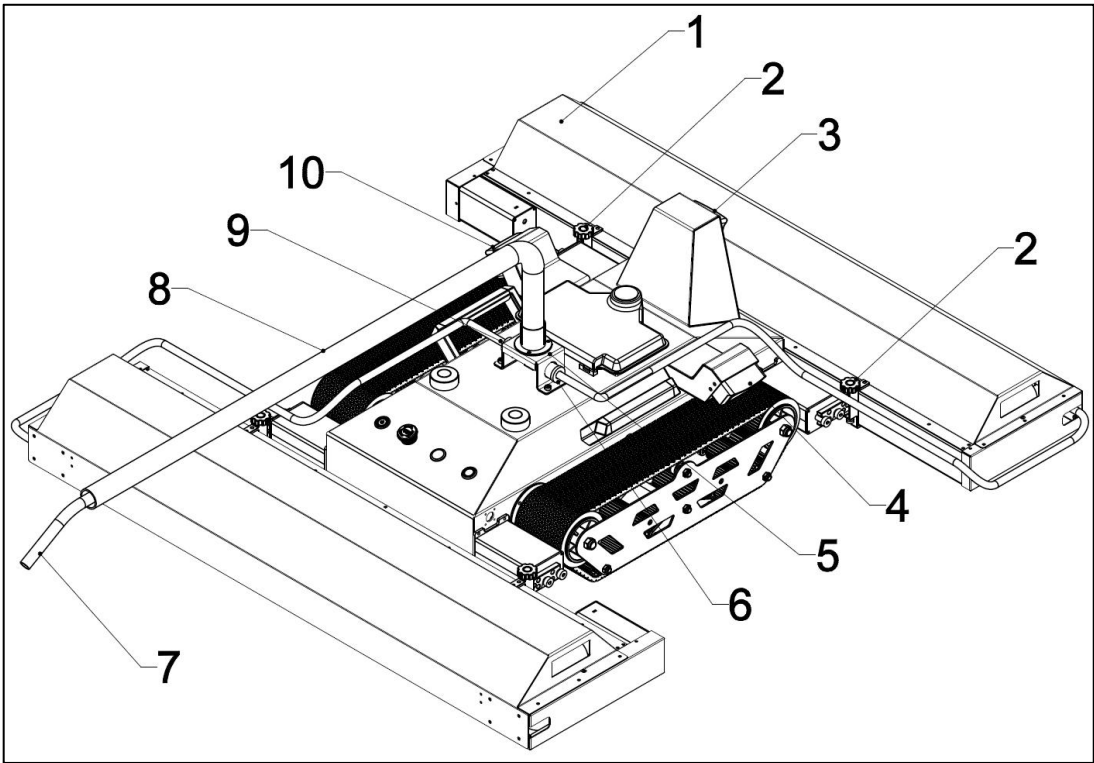
Mamibot Solar Panel Robotic Cleaner

SolarWalker S2 User Manual

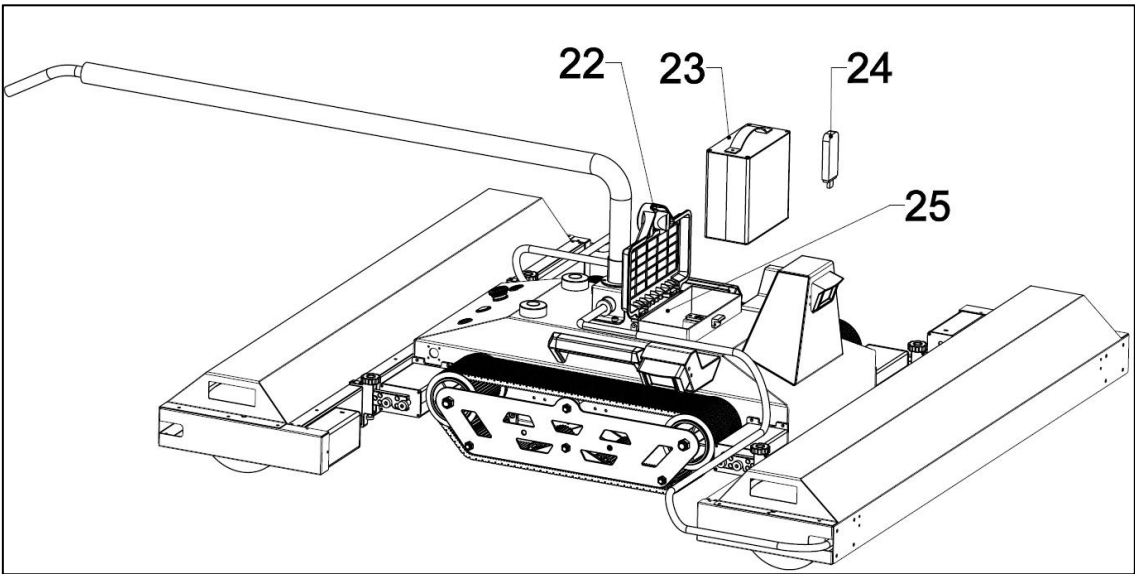


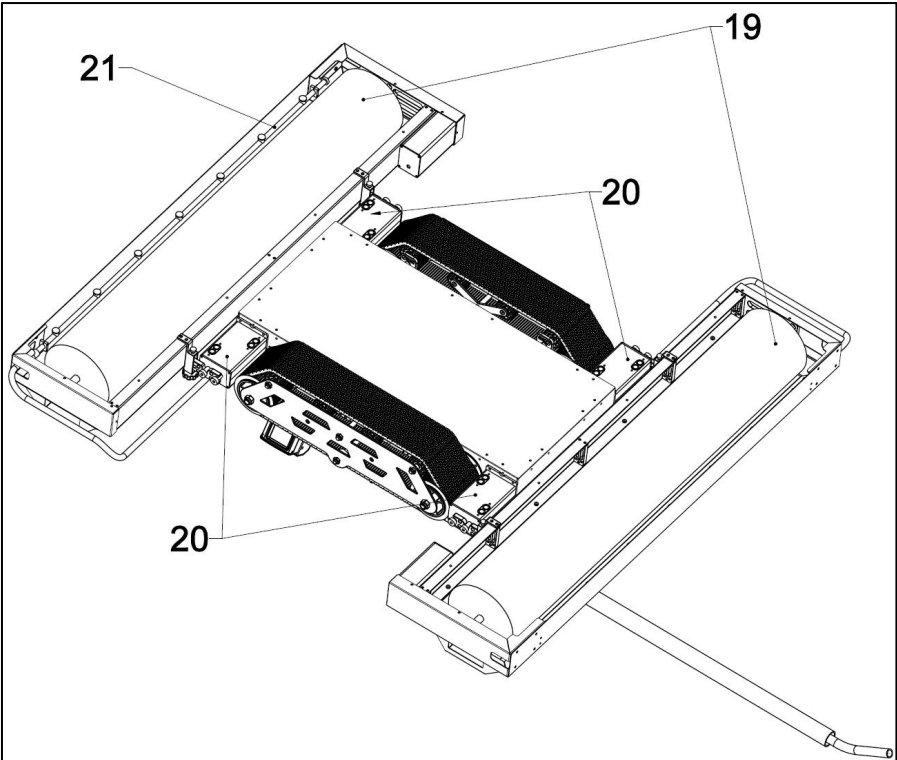
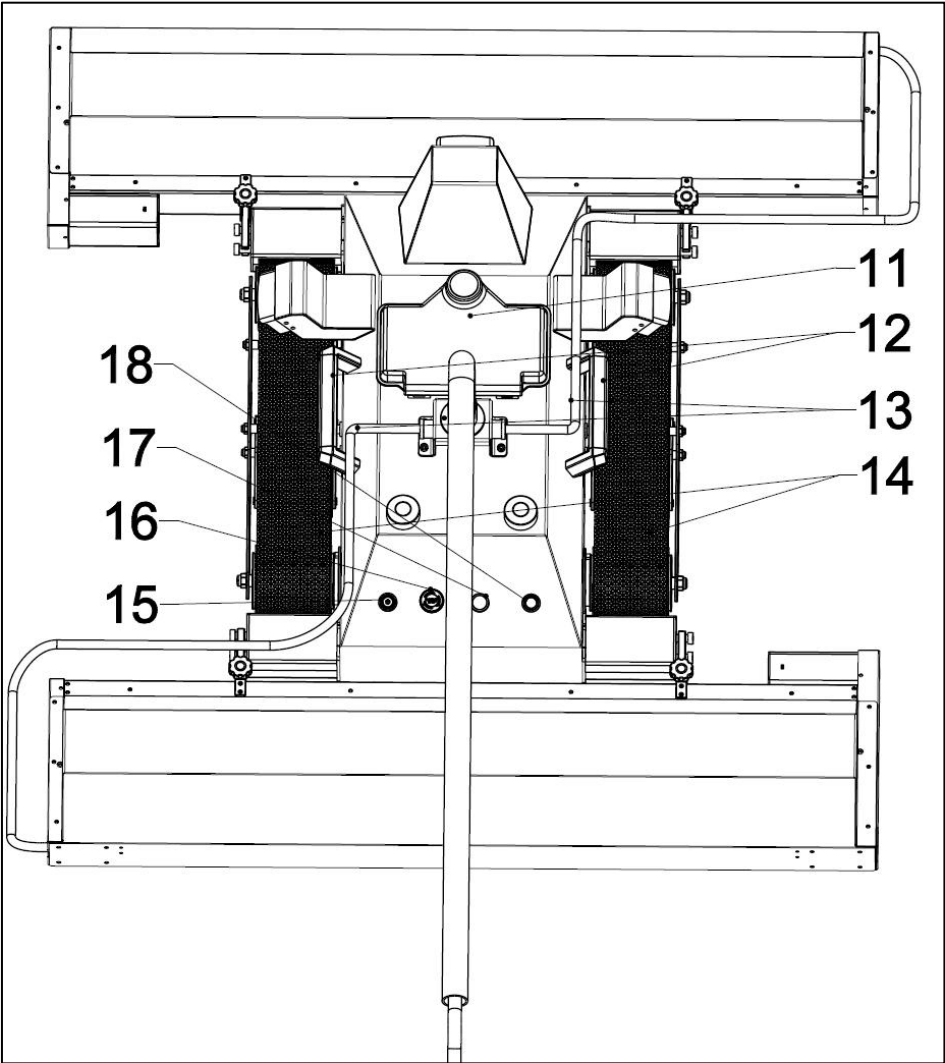
Read the manual carefully before operation

1. To know the robot and parts



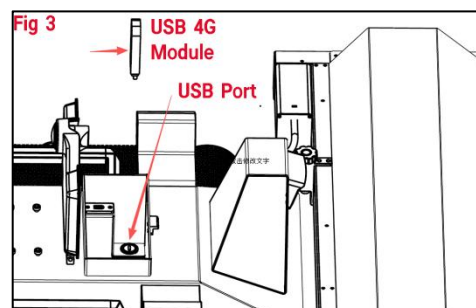
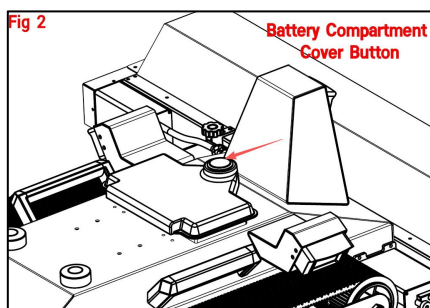
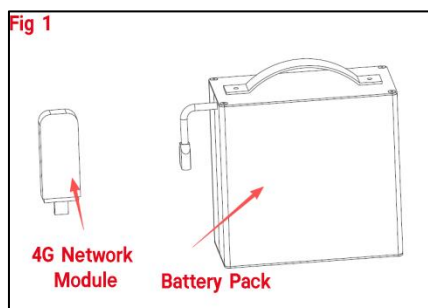
1. Roller Brush Set	2. Height Adjustment Knob	3. Front Camera	4. Right Camera
5. Watering Support Frame	6. Water Hose Fitting (Front)	7. Water Pipe (User-supplied)	8. Support Tube
9. Water Hose Fitting (Back)	10. Left Camera		





11. Battery Compartment Cover	12. Handle	13. Roller Brush Water Pipe	14. Driving Belt
15. Power On/Off Button	16. Emergency Stop Button	17. Indicator Light	18. Start Button
19. Brush Bristles	20. Anti-falling Sensors	21. Water Sprayer with Multi Nozzles	22. Battery Compartment Cover Button
23. Battery Pack	24. 4G Network Module (USB type, User-supplied Sim Card)		

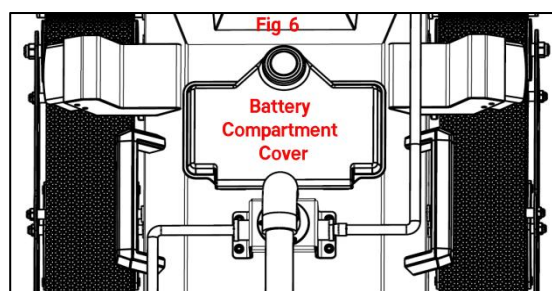
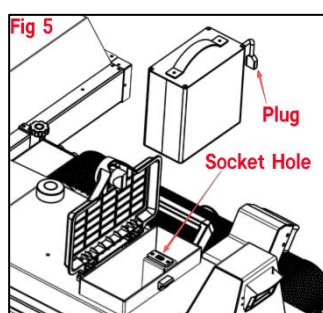
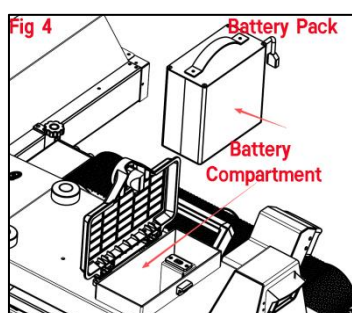
2. Installation of Battery Pack and 4G Network Module



Take out the battery pack. Install the sim card into the 4G Network Module (sim card should be prepared by user) [Fig 1]

Press the round button to release the battery compartment cover, open the cover.
[Fig 2]

Insert the 4G module into the port, make sure it's properly installed.
[Fig 3]

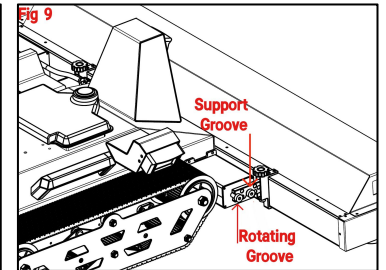
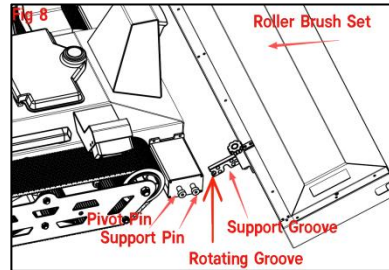
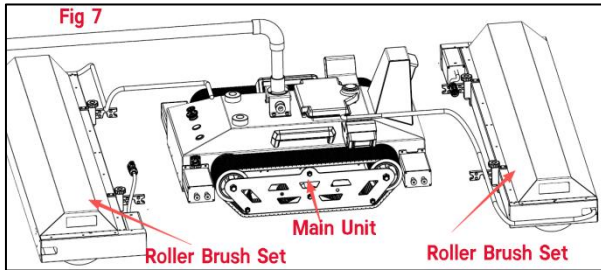


Lift the battery pack handle and lower the battery vertically into the compartment, align the terminal end toward the socket. [Fig 4]

Align the battery's terminal plug and connect it to the socket.
[Fig 5]

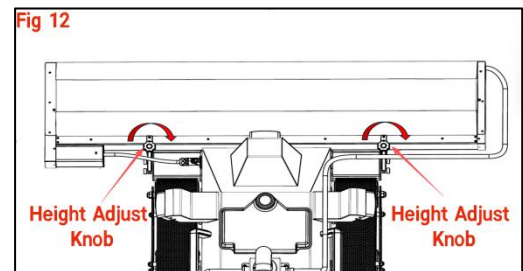
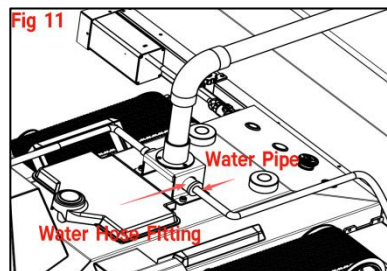
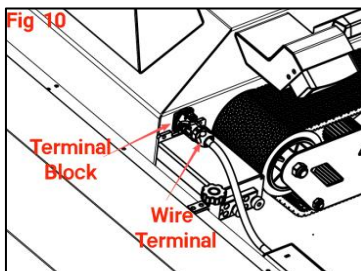
Close the cover and press the button to lock it. Switch on the Power Button to check if the power supply is On.
[Fig 6]

3. Installation of Roller Brush Sets and Height Adjustment



Place the main unit on the panel, and position the roller brush assembly in front of the main unit. [Fig 7]

Refer to [Fig 8], Pivot Pin/Support Pin, Rotating Groove and Support Groove. Lift the roller brush and tilt 30-45 degrees, insert the rotating groove to the pivot pin, lay down the roller brush set, make sure the brush set is installed properly. [Fig 9]

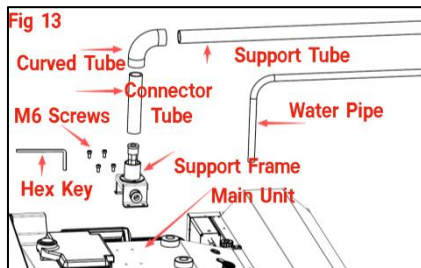


Align the wire terminal to the terminal block and insert it terminal to the bottom until hearing a 'Click' sound. [Fig 10]

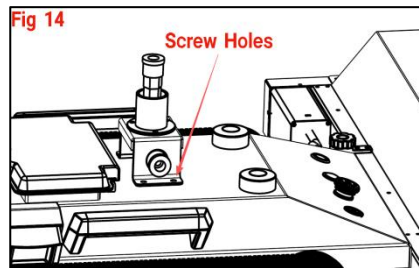
Connect the water pipe to the water hose fitting until hearing a 'Click' sound, make sure it's tightly connected. [Fig 11]

The height of the roller brush can be adjusted. Rotate the knob in clockwise direction to lower the brush, in anti-clockwise direction to raise the brush. [Fig 12]

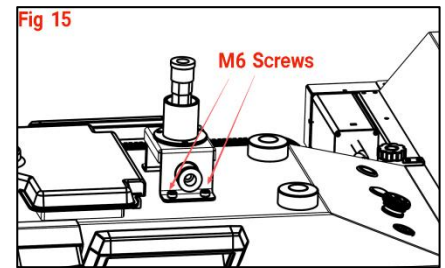
4. Watering Set Installation



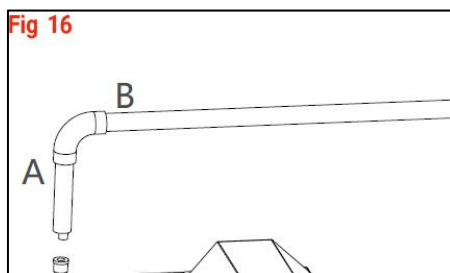
Take out all parts including the watering support frame, M6 screws, hex key, curved tube, connector tube, support tube, and water pipe. [Fig 13]



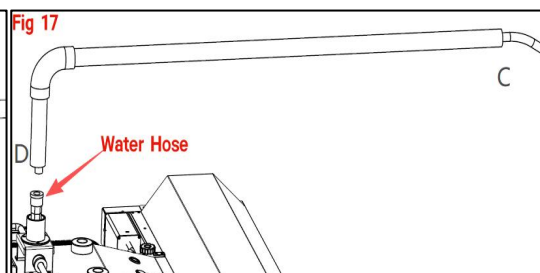
Align the watering support frame to the top of the robot, insert the 4 M6 properly. [Fig 14]



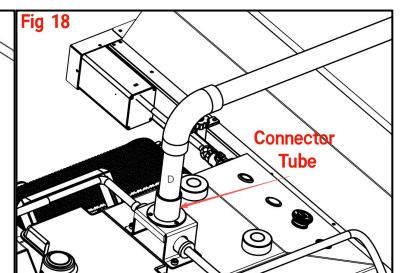
Use the hex key to tighten the 4 M6 screws, make sure all the screws are properly installed. [Fig 15]



Connect all the tubes, including the curved tube, support tube, and connector tube, make sure every joint is tightly installed. [Fig 16]

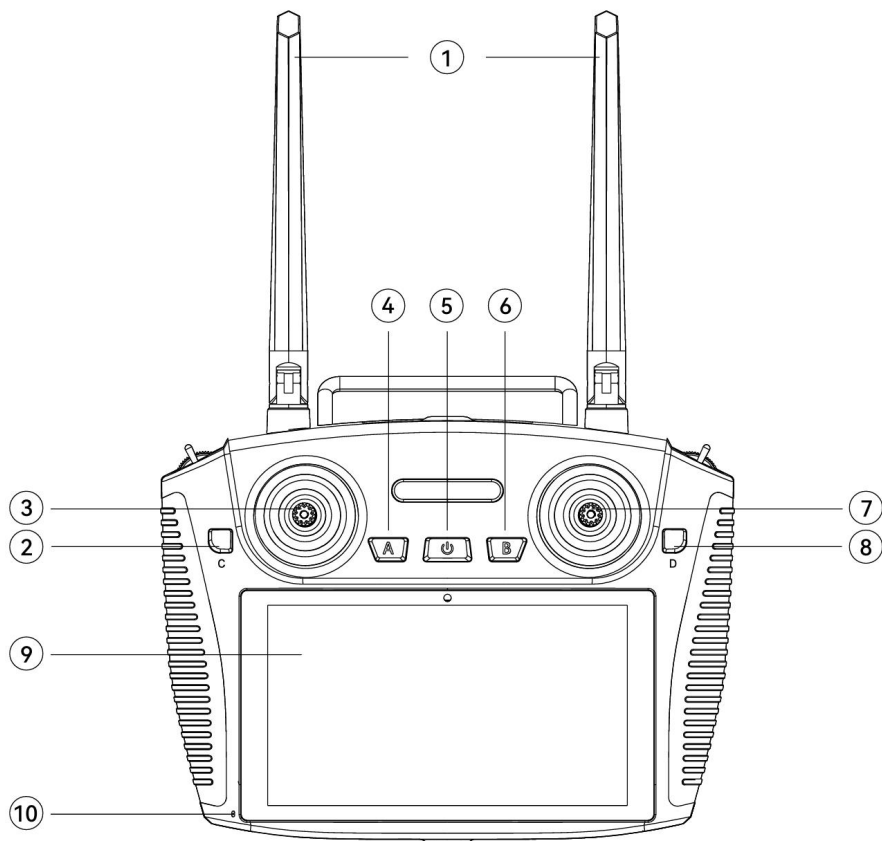


Insert the 4in (inner diameter 12mm) water pipe from end C to end D, connect the water pipe to the hose tight. [Fig 17]

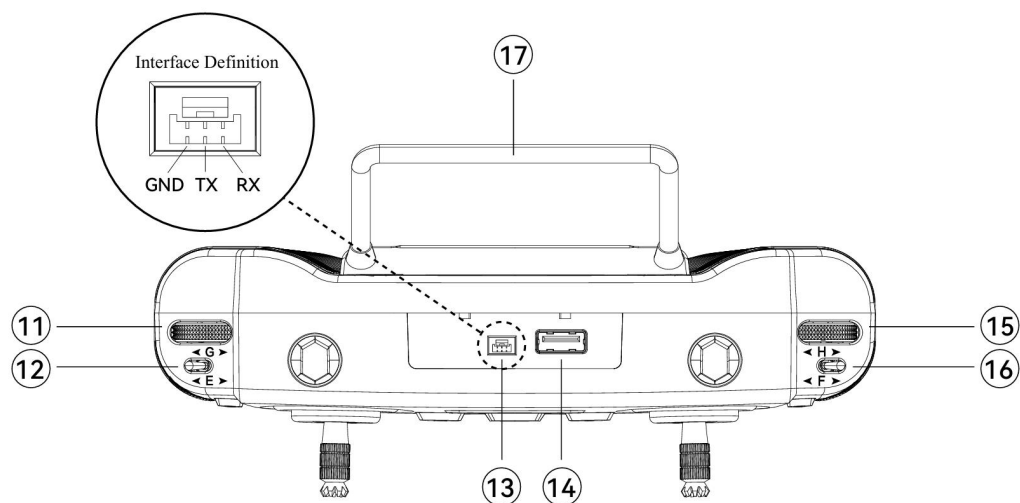


Insert end D of the connector tube to the watering support frame, pull the water pipe to check if it can rotate smoothly. Connect the water pipe to water source. Check for water leakage in the water circuit. After ensuring there is no leakage, you can start the water washing. [Fig 18]

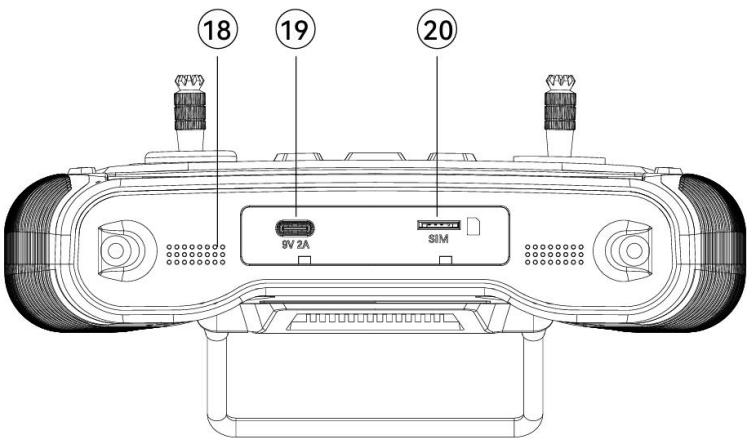
5. To Know the Remote Control



S.N.	Function/Descriptions	S.N.	Function/Descriptions
1	2.4G/5.8G 4dB Antenna	6	Reserved (No-use)
2	Reserved (No-use)	7	Right Rocker(Left/Right direction)
3	Left Rocker (Up/down: forward/backward)	8	Reserved (No-use)
4	Reserved (No-use)	9	LCD Screen
5	Power On/Off Button	10	MIC (No-use)



S.N.	Function/descriptions	S.N.	Function/descriptions
11	Control Dial G(No-use)	15	Control Dial H(No-use)
12	Control Pole E (Middle: AutoMode; Left/Right: Manual Mode)	16	Control Pole F(No-use)
13	PPM Output (No-use)	17	Handle
14	Upgrading Port (No-use)		



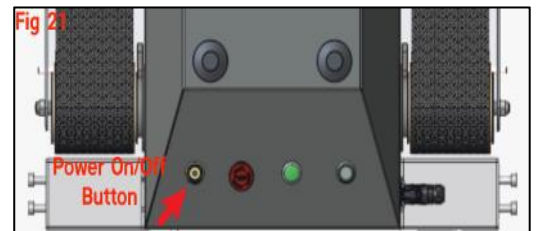
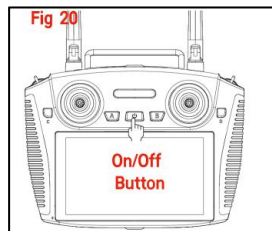
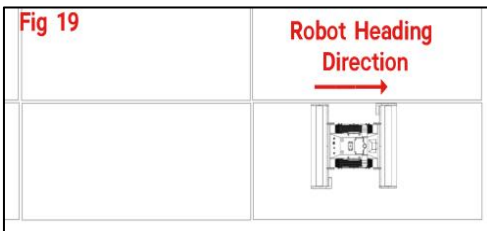
S.N.	Function/Descriptions	S.N.	Function/Descriptions
18	Speaker	20	SIM Card Slot
19	TYPE-C (charging)		

- There are 2 rockers on the remote control:
- The left rocker controls the robot's forward/backward movement via its up/down direction.
- The right rocker controls the robot's left/right turning via its left/right direction; it can be used in

combination with the left rocker during operation.

- The up/down direction of the right rocker controls the robot's locking and unlocking functions. The SolarWalker is in the locked state by default. After the SolarWalker is turned on, when the yellow indicator light appears, push the right rocker upward for 2 seconds to unlock it. When the SolarWalker is not in use, push the right rocker downward for 2 seconds to lock it.
- The mode switching gear only takes effect when the robot is unlocked. In manual mode, the robot remains stationary by default; in automatic mode, the SolarWalker starts operating directly.

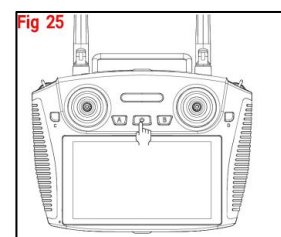
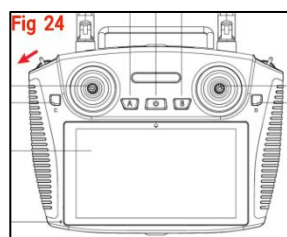
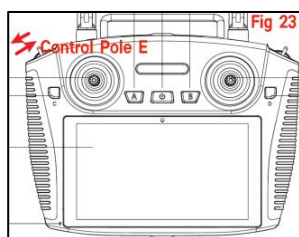
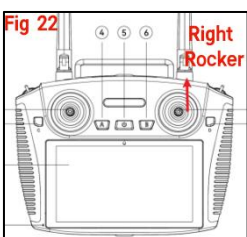
6. How to Use Fast Guidings



Place the robot: Place the robot on the photovoltaic panel to be cleaned, install the water pipe connector, and attach the roller brush. For the **automatic** mode, turn the robot head toward the right, and position the SolarWalker at a safe distance of one SolarWalker body from both the right edge and the lower edge of the array boundary. [Fig 19]

Turn on the remote control: Press the Switch button of the remote control for 2 seconds to turn it on. [Fig 20]

Turn on the robot and start self-check: Press the Power button of the robot, and wait for 16 seconds. The robot starts self-check. The indicator light runs in Yellow means self-check is finished. [Fig 21]



Unlock the robot: Push the Right Rocker upward for 2 seconds, until hearing a 'beep' sound, it means the robot is unlocked. The indicator light turns to Blue. [Fig 22]

Choose Full Automatic Mode/Manual Controlling Mode via the remote:

Auto Mode Switch: If switching to automatic mode for operation, ensure that the last state of the remote control's mode gear was manual mode. In automatic mode, the robot will operate independently, and the indicator light will turn green—at this point, the remote control's rockers will be inactive. When switching to manual mode, the SolarWalker will stop operating and enter manual mode. Before starting automatic mode, you need to confirm the pre-operation parameter settings on the remote control's APP; for details, refer to the APP usage section.

Switch to Auto Mode: Switch the Control Pole E to **Left or Right**, it enters **Manual Mode**, then switch it again to **Middle position**, the robot enters **Auto Mode**. [Fig 23]

Manual Mode Switch: When switching the SolarWalker to manual mode for operation, the indicator light will turn sky blue. Operate the robot by using the 2 rockers on the remote control to perform actions such as forward movement, backward movement, left turning, and right turning.

The up/down direction of the left rocker controls the SolarWalker's forward/backward movement. The right rocker controls the SolarWalker's left turning/right turning. [Fig 24]

Turn off the robot: Firstly, press the Power On/Off button of the robot to switch it off. Press the remote control On/Off button for 2 seconds to switch off the remote control. [Fig 25]

***Attention

- When operating the robot to move on photovoltaic panels in manual mode, control the SolarWalker to move within the safe area. It is strictly prohibited to go beyond the array boundary to prevent the SolarWalker from falling.
- The recommended distance for operating the SolarWalker with the remote control shall not exceed 25 meters.
- Each remote control is one-to-one paired with a specific SolarWalker unit. Before using the remote control, confirm that it is correctly matched with the target SolarWalker.

Manual Cleaning

The robot supports dry brush/wet wash operations in manual mode. The specific operating procedures are as follows:

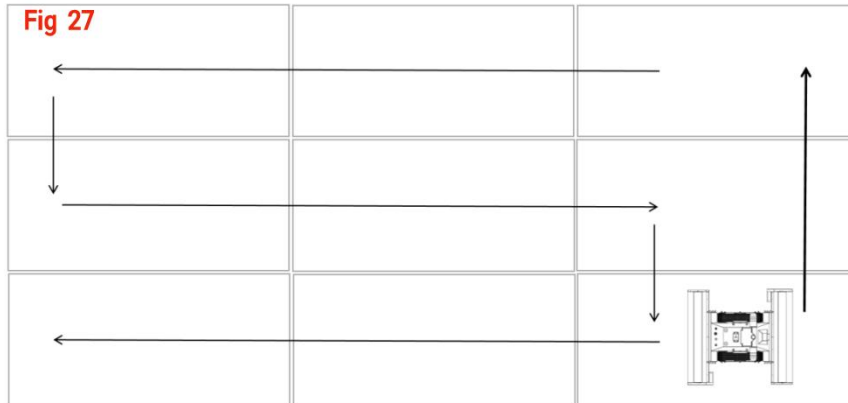
1. Place the SolarWalker on the photovoltaic array to be cleaned.
2. Rotate the emergency stop button clockwise until it is in the released state.
3. Press and hold the remote control's power button for 2 seconds to turn on the remote control.
4. Press the SolarWalker's power switch. After a self-check period of 16-20 seconds, the SolarWalker's indicator light will turn yellow.
5. Push the right rocker on the remote control upward and hold it for 2 seconds to unlock the SolarWalker.
6. Operate the SolarWalker using the 2 rockers on the remote control to perform actions such as forward movement, backward movement, left turning, and right turning:
7. The up/down direction of the left rocker controls the SolarWalker's forward/backward movement.
8. The left/right direction of the right rocker controls the SolarWalker's left turning/right turning.
9. During operation, you can enable the FPV mode in the APP for remote control. The supported operation distance in open areas is 200 meters, but for safety purpose, please limit it within 25 meters.
10. After the operation is completed, press the power switch to turn off the SolarWalker.

Auto Cleaning

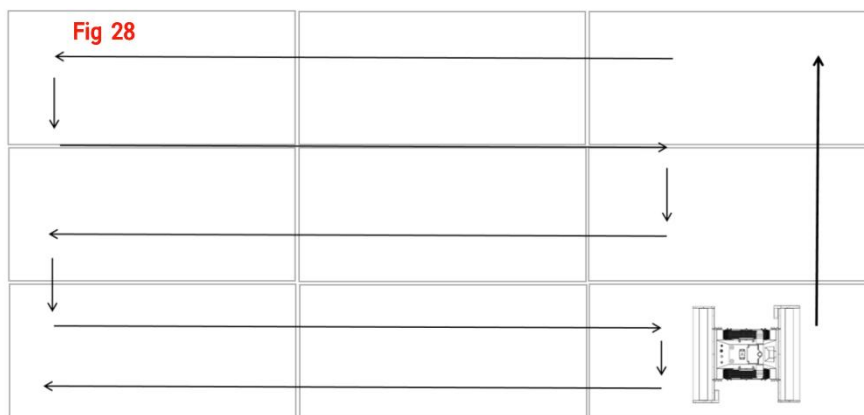
The SolarWalker supports wet/dry cleaning in Auto Mode:

❖ Horizontal Cleaning Path:

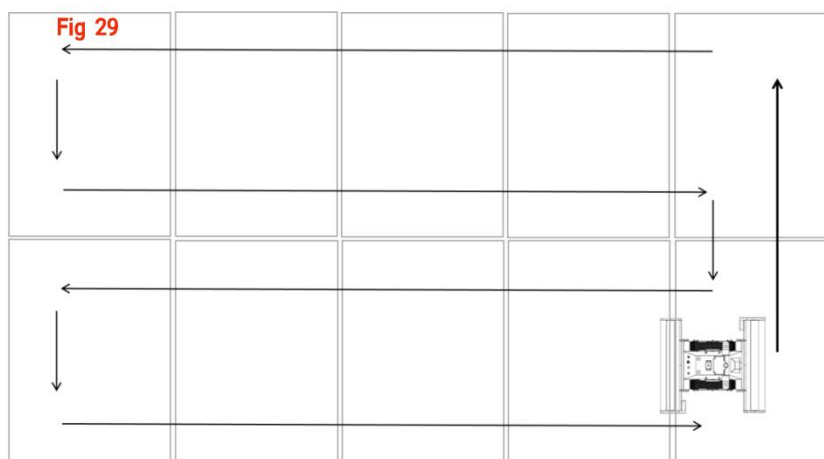
- ❖ The length of the roller brush is at least 10 cm longer than the width of the photovoltaic panel. [Fig 26]



- ❖ The length of the roller brush is shorter than the width of the photovoltaic panel. [Fig 27]



- ❖ **Vertical Cleaning Path:** [Fig 29]



Setting Up Steps: (Note: The arrangement shown in the figure is for demonstration purposes only; there is no restriction on the number of vertical rows or columns in actual cleaning)

1. Place the SolarWalker at the starting position of the photovoltaic array to be cleaned, with the front of the SolarWalker facing right. The SolarWalker only needs to maintain a safety distance of one SolarWalker body length from the right edge and lower edge of the array boundary.
2. Rotate the emergency stop button clockwise until it is in the released state.
3. Press and hold the remote control's power button for 2 seconds to turn on the remote control.

4. Press the power switch; after the SolarWalker undergoes a 16-20 second self-check, the SolarWalker's indicator light will turn yellow.
5. Open the app on the remote control, go to the settings interface, and set parameters such as roller brush length, panel length and width, and single/double roller brushes. This step is very important, as the automatic mode will perform operations based on these parameters.
6. Push the right rocker on the remote control upward and hold it for 2 seconds to unlock the SolarWalker.
7. Toggle the mode switch button on the remote control from manual mode to automatic mode, and the SolarWalker will start automatic cleaning.
8. The cleaning path is as shown in the figure. Considering the different widths of components and different lengths of roller brushes, the SolarWalker may adjust the cleaning path.
9. After the SolarWalker completes the cleaning of the entire panel, it will stop at the end of the cleaning path and be manually moved to other arrays. You can carry the robot to other arrays for continuous cleaning.

7. Emergency Stop

In cases involving safety risks or other emergency faults during SolarWalker operation, press the emergency stop switch. The emergency stop light will illuminate, and the SolarWalker will stop immediately.

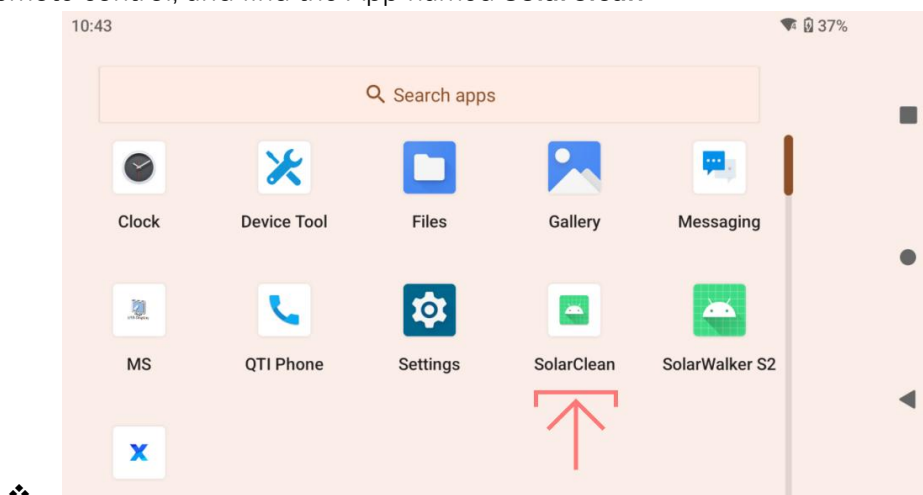
To release the emergency stop switch: Turn the emergency stop switch clockwise until it pops up and resets. Meanwhile, the SolarWalker needs to be restarted to resume operation.

8. Troubleshooting

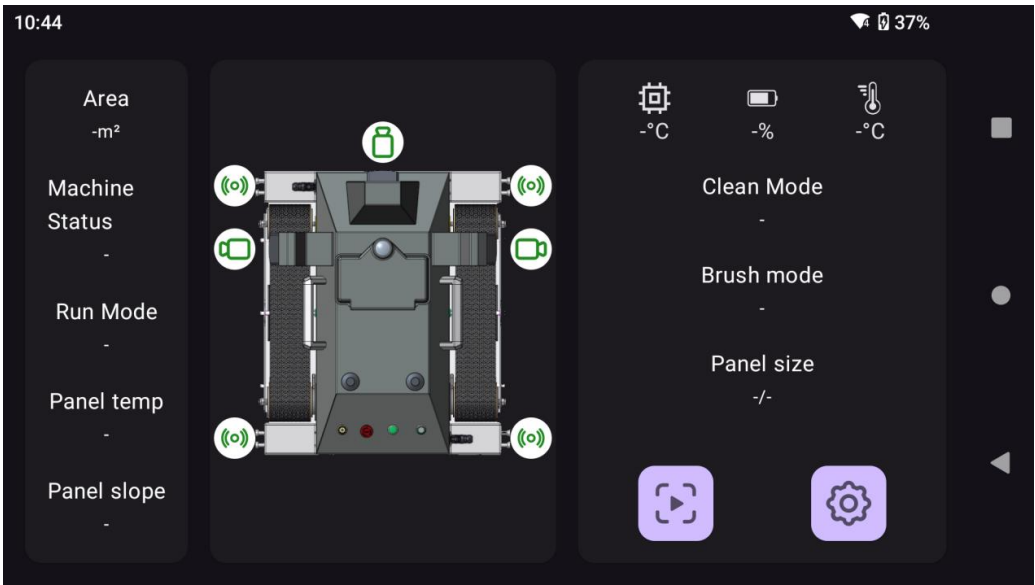
Faults	Possible Reason	Solution
Flash Red Light	Low Power	Recharge the battery or replace a new battery

9. APP Using

- ❖ Turn on the remote control, and find the App named **SolarClean**



Interface Page [Fig 31] You can set up the parameters at this page.

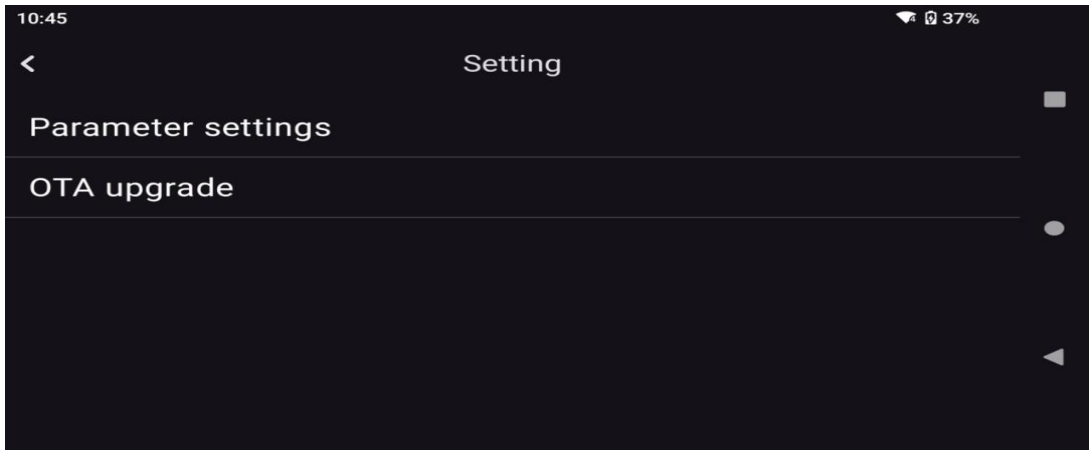


FPV Mode

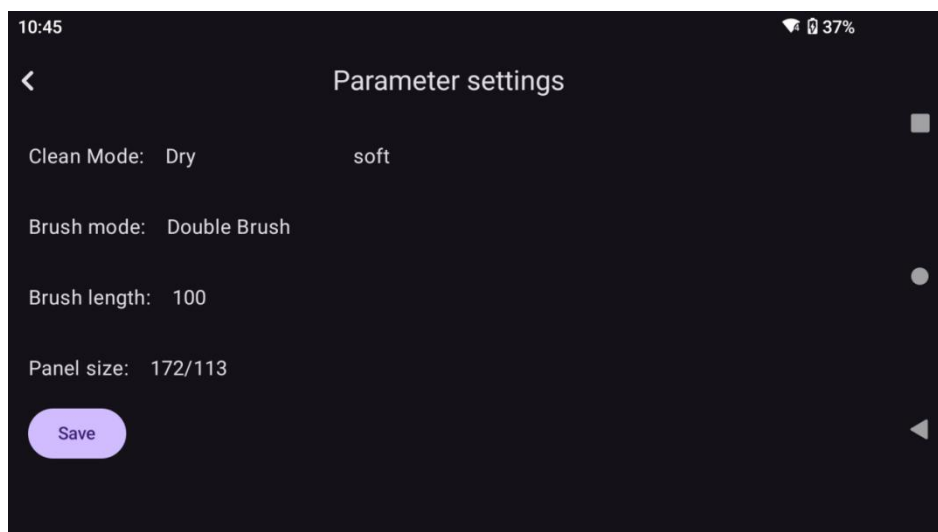
When entering FPV mode, you can turn the FPV navigation line prompt on/off via the settings button. With the FPV navigation line prompt enabled, when operating the equipment in manual mode, you only need to ensure the photovoltaic panel stays within the red line to prevent the equipment from falling.



Settings Page



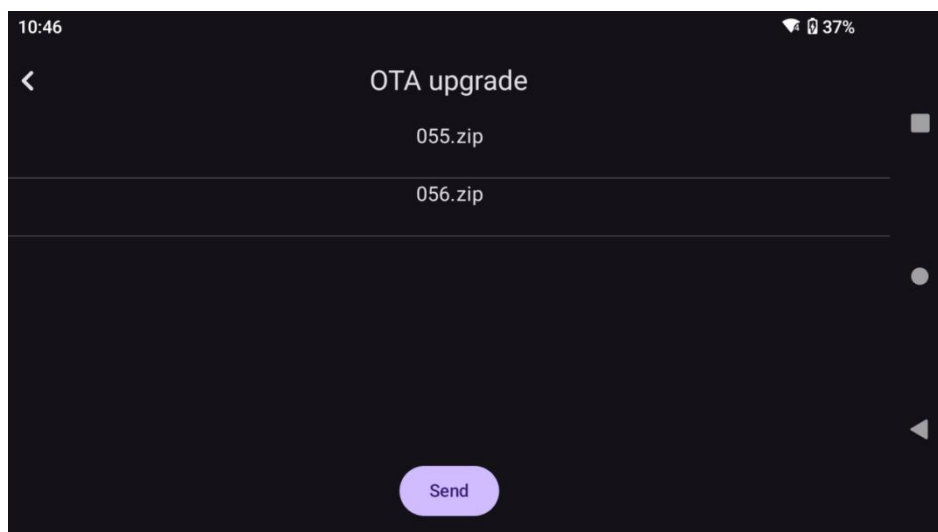
For Automatic Cleaning Mode, set up the parameters according to your solar panels and installation site.



Each configuration item has a drop-down box for selection. After confirming the selection, press the save button to confirm. At this point, you will enter the equipment interaction interface and confirm that the editable area displays the current configuration. If the parameters are consistent, it indicates that the parameters have been set to the SolarWalker; otherwise, you need to check whether the remote control has been connected to the SolarWalker.

OTA Upgrading

Perform the SolarWalker's OTA upgrade on the OTA upgrade interface. Enter the three digital password "999" and connect to WiFi (as shown by the network icon in the upper right corner of the figure below) to access the interface. Select the appropriate version from the listed OTA package list and press the "Send" button to start the upgrade. During the OTA upgrade, the SolarWalker needs to be plugged into a 4G network module for internet access.



Attention:

During the OTA upgrade, ensure both the remote control and the SolarWalker are successfully connected to the

internet. The OTA upgrade is divided into two steps:

- (1) Insert the 4G network module with a USB port into the USB interface inside the SolarWalker's battery compartment, and ensure the SolarWalker connects to the internet after being turned on.
- (2) Turn on the remote control and connect it to the internet, then open the App to enter the OTA upgrade page (refer to the APP OTA Upgrade section for specific steps) and select the appropriate version to confirm the upgrade.
- (3) Downloads the OTA package for your SolarWalker: This step is generally completed within 30 seconds, with the specific time depending on the SolarWalker's network; a timeout occurs after 1 minute.
- (4) Restart the SolarWalker for upgrade: After the SolarWalker successfully downloads the OTA package, the remote control will receive a message and prompt to restart the SolarWalker for upgrade. At this point, restart the robot to enter the upgrade mode.
- (5) Within 1 minute, the App will return a prompt of either "Upgrade Failed" or "Restart SolarWalker for Upgrade". If the prompt is "Upgrade Failed", please confirm the SolarWalker has successfully connected to the internet and you can continue the upgrade. If the prompt is "Restart SolarWalker for Upgrade", you can directly restart the device to enter the upgrade mode.
- (6) After the SolarWalker enters the upgrade mode, the indicator light will turn light red and flash continuously, and this process lasts for about 70 seconds. When you hear three "beep-beep-beep" sounds from the buzzer, it means the upgrade is successful. After a successful upgrade, the SolarWalker can be used normally. If the upgrade fails, you can try upgrading again.