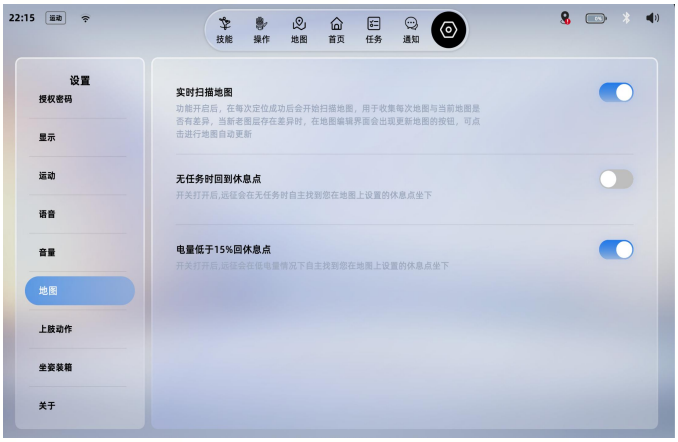
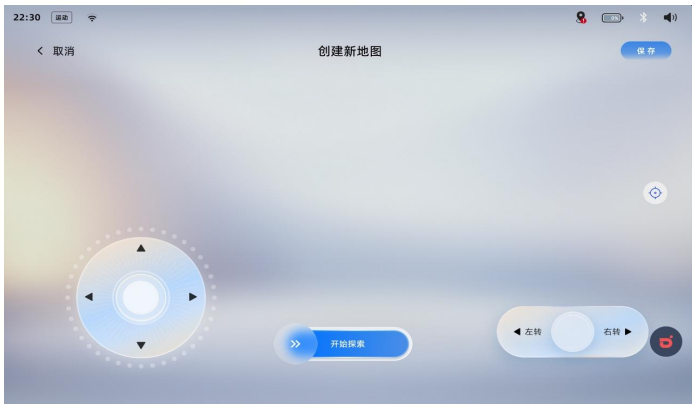
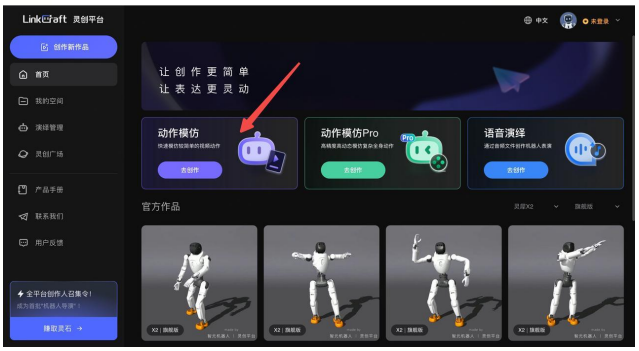
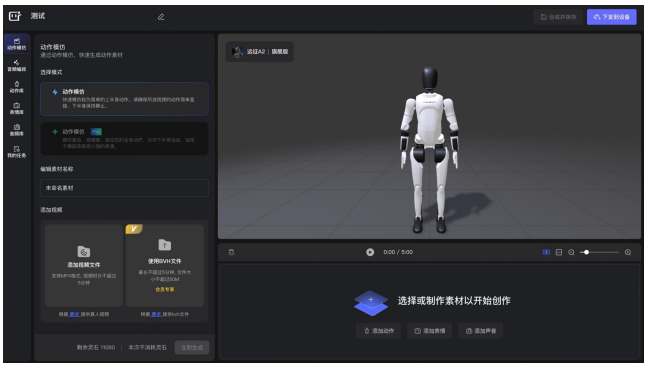
【V2.0】Agibot A2 Product Manual

1. Update Note

	Functional Module	Function Delivery List	Function Usage Instructions
		New Features ● **Recurring Task** ● **20 Countries Multilingual**	[Cyclic Task] On the task preview page, it supports setting tasks as recurring tasks, and waiting time can be set between recurring tasks 

		 [Supports 20 Languages] LinkSoul Platform supports configuring multilingual intelligent agents for A2, covering all 20 current language regions, with specific languages including: Chinese, English (US, United Kingdom, Singapore), German, French, Spanish, Japanese, Korean, Arabic, Italian, Portuguese, Thai, Russian, Malay, Indonesian, Vietnamese, Kazakh, Turkish 
Job Intelligence	**New Features** ● **Silicon-based Delivery**	**Remote QR Code Ordering and Item Delivery** 1. Deploy warehouse locations, order pickup points, and other key points within the venue to establish the robot store map. 2. Once the robot enters “Silicon-Based Delivery” mode, users can scan a QR code to order desired items, and the robot will accept the order. 3. The robot retrieves the ordered items and moves to a location near the user for item handover. **Place an order for item delivery via face-to-face voice** 1. In the "Silicon-based Delivery" mode, the robot is in a state of no remote orders and will be located at the standby point. 2. When a user places an order with the robot in person, the robot can then turn around and hand over the item to the user.
Sports	**New Features**	1. The A2 Ultra dance is: "Stellar Dreams"

Intelligence	• **Added 1 full-body dance - Star River Dreams** • **New Etiquette Added to Dance**	2. The A2 Lite dance: "Stellar Dreams" 3. Bow in respect before the dance begins and bow for curtain call after it ends.
	New Features • **Autonomously return to the rest point and sit down**	**Autonomously return to the rest point and sit down** (This feature requires you to purchase the matching chair and blanket) 1. Create a new rest point on the current map 2. Enable in Settings: Return to Rest Point on Low Battery or Go to Rest Point in Standby 3. As long as there is a sentence: "Yuanzheng, return to the rest point", standby exceeds the time you set, or the battery level is below 15%, the robot can return to the rest point. 4. After returning to the rest point, the robot will sit down autonomously. 5. You can stand up simply by saying "Yuanzheng, stand up" or clicking the one-click stand-up button on AimMaster. 
	• Autonomous Exploration and Mapping	**Autonomous Exploration and Mapping** 1. Go to the Mapping Page and click Explore 2. The robot will automatically explore the map 3. Please follow the robot, and you can manually control the robot to move and build a map when necessary 

Platform Access	**New Features** • **LinkCraft Platform**	**Customizable upper limb dance movements for A2 are now supported on the LinkCraft Platform!**  
	New Features • Data collection	**Supports the generation, collection, and upload of data acquisition tasks on the Genie Studio platform** 1. Create a data collection task from 0→1 and uniformly configure task labels 2. Supports using VR devices for teleoperation and collection 3. Supports data verification and one-click upload 
System software	**Performance optimization** • Intelligent charging and battery swapping reminder	**Intelligent charging and battery swapping reminder** After plugging in the charger, unplugging the battery pack, or installing the battery pack, there will be corresponding voice announcements and light changes for prompts.

2. Statement / Disclaimer

2.1 Safety Instructions

1. **Understand the Product**: Before using the robot, please carefully read the user manual to understand the robot's functions, operating methods, and safety precautions. **Only trained and qualified personnel are allowed to operate it.**

2. **Follow the usage requirements**: Ensure that the robot is used in a flat environment, avoiding excessively high or low temperatures, humid environments, steep slopes, surfaces with excessive elevation differences, fragile planes, and vibrating areas.

3. **Operating Space** : Ensure that the robot has sufficient operating space and avoid working in narrow and crowded environments to reduce the risk of collisions and crushing.

4. **Emergency Stop Button**: All robots are equipped with an emergency stop device. During operation, users must familiarize themselves with the location and usage of the emergency stop button to promptly stop the robot in case of an emergency. It should be noted that after using the emergency stop, the robot joints will enter a damped collapse state, so please do not use it when no emergency occurs or when the robot is not protected.

5. **Power Safety**: Before operation, ensure that all cables, plugs, and sockets are in good condition. Immediately disconnect the power supply when encountering abnormal situations (such as short circuits, overheating, etc.).

6. **Regular Inspection**: Regularly perform maintenance and inspections to ensure the normal operation of robot components such as joints, sensors, power supplies, etc., and avoid risks caused by aging or damage.

7. **Prevent misuse**: Ensure that the robot is not used in any improper, dangerous, or legally prohibited scenarios.

8. **Remote Control Usage**: Users please ensure that the remote control is in a readily accessible location.

Caution: For indoor use and storage only to reduce the risk of fire, electric shock, or injury.

2.2 Safety Guidelines

1. **Confirmation before startup** :
    a. **Check battery level** : Confirm that the battery has sufficient charge to complete the task.
    b. **Check the work area** : Ensure that there are no personnel or other obstacles in the work area, with special attention to areas near the moving parts of the robot.
    c. **Inspect machine components**: Check whether all components of the robot are in good condition, without damage or abnormalities.
    d. **Check the emergency button** : Test whether the emergency button is working properly.
    e. **Confirm System Status** : The operator shall confirm that the robot system is in normal condition and has completed self-check.

2. **Safety Distance** : Safety of the operating area: Physical fences must be installed to isolate the robot's operating area, and entry into the operating area by any personnel is prohibited to prevent accidental intrusion. Especially when the robot is performing high-speed actions, do not stand near the motion path (≥1.5m~2m).

Caution: During machine operation, the operator is responsible for ensuring that no one enters the operating area.

3. **Load and Operation**:

    a. Strictly adhere to the load limits of robot design to prevent overloading operations, so as to avoid damaging the robot or causing unsafe situations.

    b. When using the actuator, fixture, or other components of the robot, ensure that they match the object being operated on to avoid generating unnecessary pressure or stress.

4. **Prohibit direct intervention:** During the operation of the robot, direct intervention in its actions is strictly prohibited. If adjustment or manual intervention is required, it must be carried out after the robot has completely stopped and been powered off.

5. **Emergency Stop Measures**: When an emergency occurs or the robot loses control, immediately press the emergency stop button, and after powering off, check the equipment and the surrounding environment.

Caution: Using the emergency stop function will cause the robot joints to enter a damped collapse state. Use it only in emergency situations and ensure that the robot is in a safely supported state.

6. **Avoid Misoperation** : Ensure that all operators have received relevant training on robot use, understand how to operate correctly and handle emergencies, and prevent accidents caused by misoperation.

7. **Remote Operation Safety**:

    a. When using robots to develop remote operation functions, ensure that a secure network environment is used to prevent control failures caused by network outages or external intrusions.

    b. When remotely controlling, the operator must have real-time monitoring equipment to ensure full awareness of the robot and its surrounding environment.

    c. Operating the robot is prohibited when it is out of sight; remote operation requires the operator to be able to visually observe the robot.

8. **Fault Repair Report:** When a robot malfunctions, report it immediately to ensure timely maintenance of the equipment and safe operation.

9. **Safety Instructions for Transfer Robots:**

    a. Please turn off the power when moving the machine. Do not directly touch the laser and other sensors, otherwise it will affect performance.

    b. If you need to transport the machine by vehicle, please use packing straps, boxes, wooden boards, foam, etc. to pack and protect the machine to avoid unnecessary damage.

    Caution: There is a risk of crushing the robot body; protective equipment must be used when transferring the robot.

2.3 Privacy Policy

1. **Data Acquisition Scope:** The robot camera only temporarily captures image information within the necessary field of view when performing functions such as environmental perception and obstacle recognition, for real-time operational judgment (e.g., obstacle avoidance, path planning).

2. **Information Protection Measures:**

    a. Postback image data will be desensitized through techniques such as pixelation to remove information that can identify personal identity or specific scenarios.

    b. Data is only used for real-time computation, deleted immediately after processing, and not stored locally or in the cloud.

2.4 Maintenance and Management Guidelines

1. **Safety Warning** :

    a. **Power Off for Maintenance**: Before performing any maintenance or replacing components, be sure to completely turn off the power to ensure the device is in a safe, powered-off state.

    b. **Modification Prohibited**: Do not modify the robot or change its original design and configuration without authorization.

    c. **Professional Maintenance**: Do not disassemble the robot by yourself. If maintenance is required, please contact the professional maintenance personnel designated by the manufacturer.

2. **Maintenance and Upkeep**:

    a. **Regular Maintenance**: Regularly maintain the robot according to the manufacturer's (AgiBot) recommendations to ensure it is in optimal working condition.

    b. **Use Original Equipment Manufacturer (OEM) Spare Parts**: When replacing components, only use OEM spare parts specified by the manufacturer to ensure equipment performance and safety.

3. **Fault Handling** :

    a. **Fault Response** : If a fault occurs during the operation of the robot, immediately stop the operation and notify professional technicians to conduct inspections and repairs.

    b. **Unauthorized repair prohibited**: Do not disassemble or attempt to repair on your own to avoid further damage.

4. **Battery and Power Management** :

    a. **Safe Charging** : Do not disassemble the battery for charging; it must be connected to a power source for charging.

    b. **Charging Environment:** The robot uses batteries and needs to be charged in a safe and dry environment, avoiding humid and high-temperature environments.

    c. **Avoid overcharging** : Avoid connecting to the power source for an extended period to prevent the battery from overcharging or overheating and extend battery life.

    d. **Battery Replacement:** Batteries should only be replaced by professionals. Using a charger for one type of battery with another type may pose a fire risk.

    e. **Use only the removable power supply unit provided with the device**: Charge using only the removable power supply unit UY600L-W546080 provided with the device.

    f. **Battery Scrap Disposal:** Batteries must be removed and safely disposed of before scrapping.

5. **Software Management:**

a. **Regular Updates:**Regularly check and update the robot operating system and control software to ensure that vulnerabilities are fixed and security is enhanced.

Note: Following these instructions ensures the safe and efficient operation of the robot. If you have any questions, please contact the manufacturer or authorized service provider for support.

2.5 Get the secondary development manual

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3. Product Overview

3.1 Product Model

> **Model Query:** After the device is successfully connected, click the [About] option on the AimMaster settings interface to view the product model of the current device.

	Chinese	English
Brand Name	AgiBot Yuanzheng	AgiBot
Model	A2	A2

3.2 Packing List

3.2.1 Standard Configuration

The following items are all standard equipment for the AgiBot Yuanzheng A2 flagship model and do not require additional purchase

Name	Usage
Robot	Robot body, integrating interaction, movement, and operation into one, with 40 active degrees of freedom, 169 cm in height, and 69 kg in weight
Battery	Power the robot, which can be charged separately or charged while in use on the robot itself

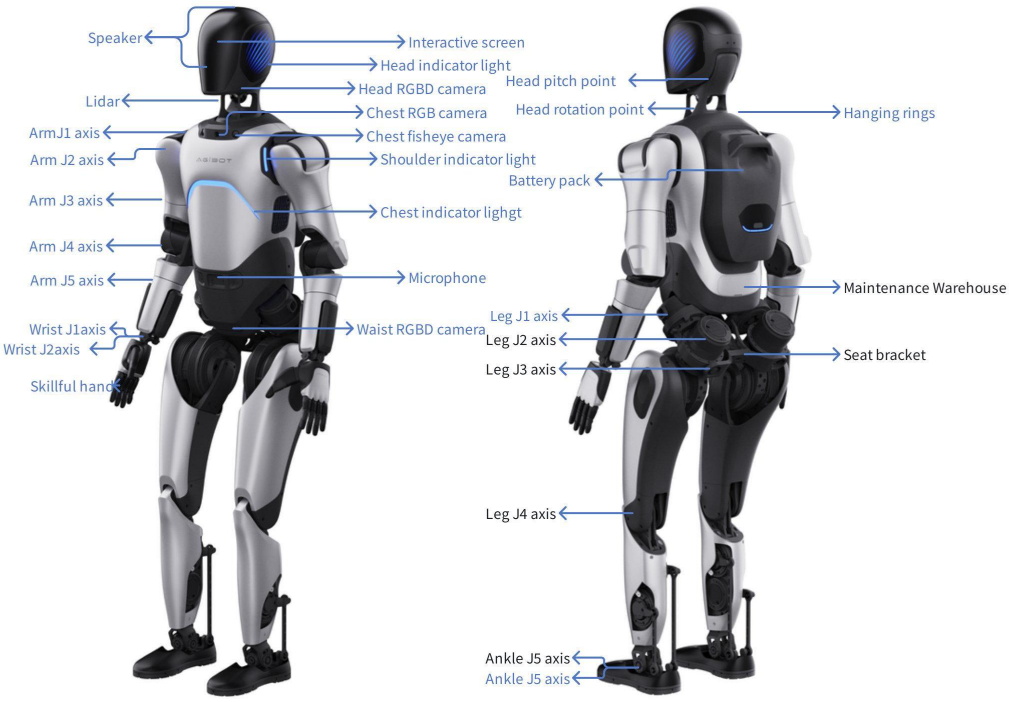
Remote Control	The control software is installed, enabling remote control of the robot, performing common robot settings, configuring the network, creating maps, manually executing tasks, switching voice tones, etc.
Emergency Stop	Power off the robot joints in an emergency
Charger	Charge the robot battery
External microphone	In noisy, open, or long-distance (>1.5m) environments, external microphones must be used for interaction
Shifting Machine	Used when unpacking, packing, long-term standby, or moving robots on terrain that robots cannot traverse

3.2.2 Optional

The following items are optional and can enhance the robot's user experience, requiring separate purchase

Name	Usage
Backup Battery	When the main battery is charging, it uses the backup battery to operate, allowing the robot to be plugged into the charger and support hot-swapping of batteries, enabling 7x24h uninterrupted operation
Chair	When the robot is on short-term standby or during exhibition breaks, it can sit on a chair, making it more aesthetically pleasing
VR + Controller	Record custom actions, create programs, and rapidly validate complex functions via remote operation.

3.3 Product Composition



3.4 Basic Parameters

Primary Classification	Secondary Classification	Entry	Specific content
Product Basic Information		Height	169cm
		Size	169(H)*75(W)*30(L)cm
		Net Weight	≈69kg
		Active Degree of Freedom	7*2dof for both arms, 6*2dof for both legs, 2dof for the head, 6*2dof for dexterous hands
Product Features	**Electrical Performance**	Endurance	Endurance time of whole-body force-controlled standing + voice broadcast: approximately 3h Endurance time of the robot walking on flat ground with humanoid gait: approximately 1.5h
		Battery Capacity	14.4Ah
		Charging Time	2h
		Charging Power	≤500W
		Charging Voltage	48V DC

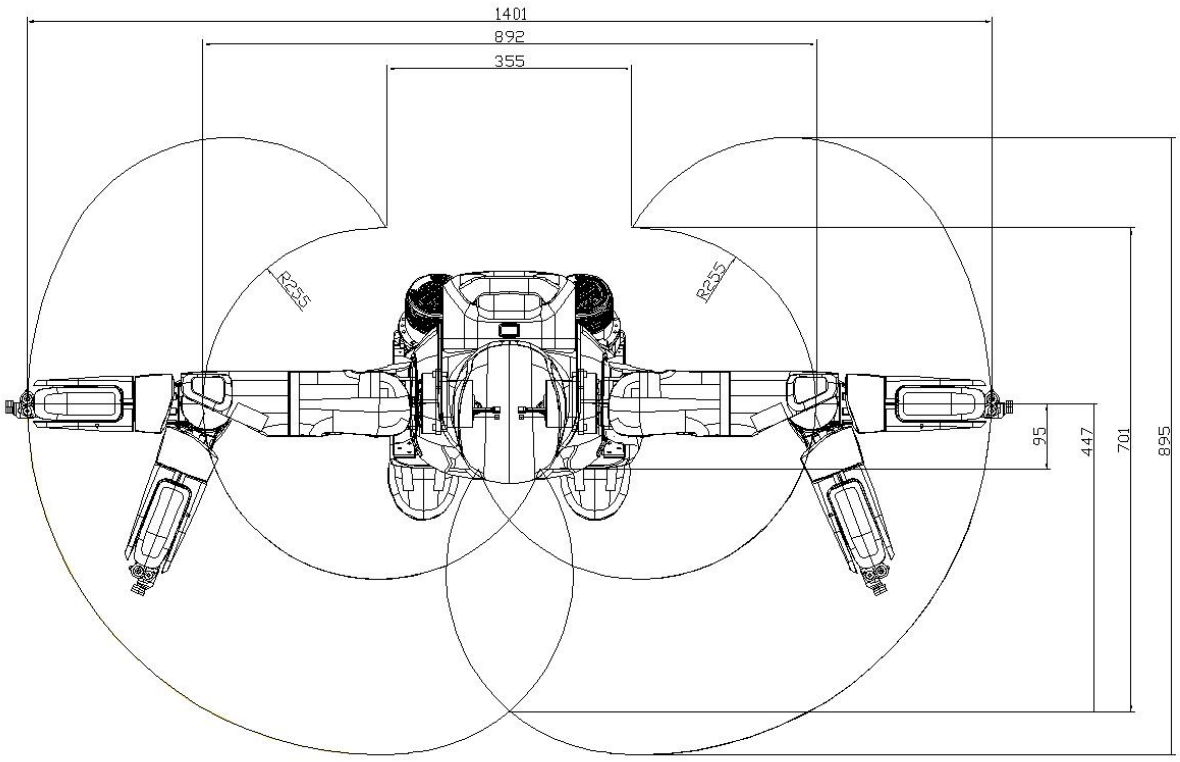
	Environmental adaptability	Working temperature and humidity	0 ~ 40℃, relative humidity 10% ~ 90%, no condensation
		Storage temperature and humidity	-20℃ ~ 70℃, relative humidity 10% ~ 90%, no condensation
		IP Rating	Joint Module: IP5X
	Site Adaptability	Minimum passing width	Currently, the minimum width for body remote control is >1m, and the minimum width for navigation is >2m
		Maximum obstacle crossing height	20mm
		Maximum operating gradient	8% (angle 4.57 degrees)
	Security	Arm collision perception	Support
		Maximum obstacle avoidance sensing distance	5m
		Minimum Obstacle Avoidance Sensing Height	30cm
	Operation and Interaction	Remote operation	Wireless Remote Control
		Interactive Screen	The facial interactive screen has an expression display function Overall module dimensions: 105.50 × 67.20 × 3.0 mm (including frame) Actual display area: 95.04 × 53.86 mm Screen size: 4.3 inches Screen resolution: 800 × 480 pixels Brightness: 500 cd/m² Contrast ratio: typical value 1500:1, minimum value 1000:1
		Microphone	Array microphones are used to collect ambient sounds for voice interaction, with the following

			parameters: Sensitivity: -38dBV/Pa Signal-to-Noise Ratio: 65dB
		Speaker	Dual 5W
		Indicator Light	Multi-color ambient light
Product Capability	**Perceptual Ability**	Environmental Perception	LiDAR: Used for collecting surrounding information and for mapping and navigation, with the following parameters: Range: 0.2 - 40 m @ 10% reflectivity, 0.2 - 70 m @ 80% reflectivity FOV：H：360, V：-7～52 Range Error: 2 cm @ 10 m RGBD Camera (Head) is used for Object Detection, with the following parameters: Depth map resolution: up to 1280x720, 640x480 Depth Detection Range: 0.3 ~ 10 m FOV：HFOV：65° ± 2°，VFOV：40° ± 1° RGB Camera (Chest) is used for Object Detection, with the following parameters: FOV：H196V154 Resolution: 1920Hx1536V RGBD Camera (Crotch) is used for Object Detection, with the following parameters: Depth map resolution: 640 x 400@5/10/15fps Depth Detection Range: 0.15 - 3m in Normal Energy Level Mode, 0.15 - 5m in High Energy Level Mode FOV：HFOV：RGB FOV：16:9：H86° V55° The fisheye camera (left/right side of the chest) is used for forward perception, with the following parameters: FOV：H196V154 Resolution: 1920H x 1536V

	Navigation Ability	Positioning Accuracy	±10cm，±10°
		Navigation Obstacle Avoidance	Supports real-time autonomous navigation and obstacle avoidance
	Mobility	Maximum walking Speed	1.2m/s
		Mobile Mode	Supports moving forward, turning left, and turning right
	IoT Capability	Communication Protocol	TCP、IP
		Communication Module	WiFi, Cellular Network
	Typical Parameters of Arm	Dexterous Hand Delivery Capability	Grip weight (palm down): <3kg Hook grip weight (palm up): <8kg
		Whole Machine (with Dexterous Hand) Maximum weight the arm can lift	2kg
		End linear velocity	1m/s
		Arm movement space	J1(Shoulder pitch）: ±170°
			J2(Shoulder roll): -30°~95°
			J3(Shoulder yaw): ±170°
			J4(Elbow pitch): -1°~118°
			J5(Wrist roll): ±170°
			J6(Wrist pitch): ±45°
			J7(Wrist yaw): ±30°

	Typical parameters of the leg	Leg/Head movement range (with some deviation)	J1(Hip roll):-37~40°
			J2(Hip yaw): ±75°
			J3(Hip pitch): -50°~110°
			J4(Knee pitch): -5°~140°
			J5(Ankle pitch): -30°~52°
			J6(Ankle roll): ±28°
	Typical parameters of the head	Headroom	Pitch Joint: ±23°
			Rotating joint: ±45°

3.5 Overall machine working space



4. Accessory Instruction

4.1 Flight Case

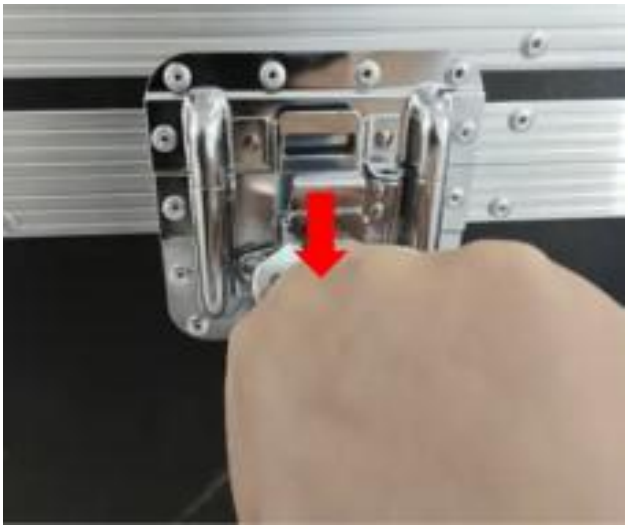
Length (cm)	Width (cm)	Height (cm)	Weight (kg)
183	85	65	129.6

1. There are two buckles on each side of the aviation case, totaling four buckles.

2. Push the buckle tab upward, then rotate the tab counterclockwise until the lock is fully raised.

3. Pull outward to open the buckle.

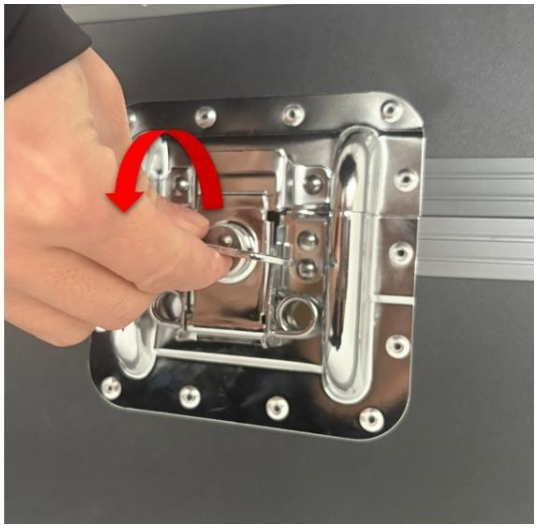
4. Two people stand at each end of the case, grasp the handles, and lift upward to open the lid of the aviation case.

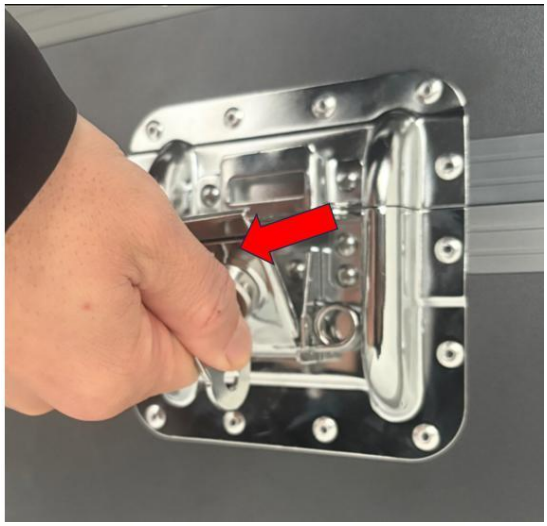


4.2 Sitting Position Packaging Box

Length（cm）	Width（cm）	Height（cm）	Weight（kg）
62	68	143	55

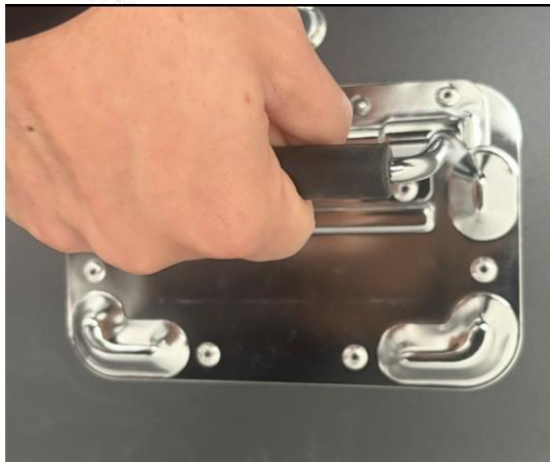
1. Slide the latch lever upward, then rotate it counterclockwise until the latch is fully released.	2. Pull outward to open the latch.





3. The packaging box has a total of two latches.

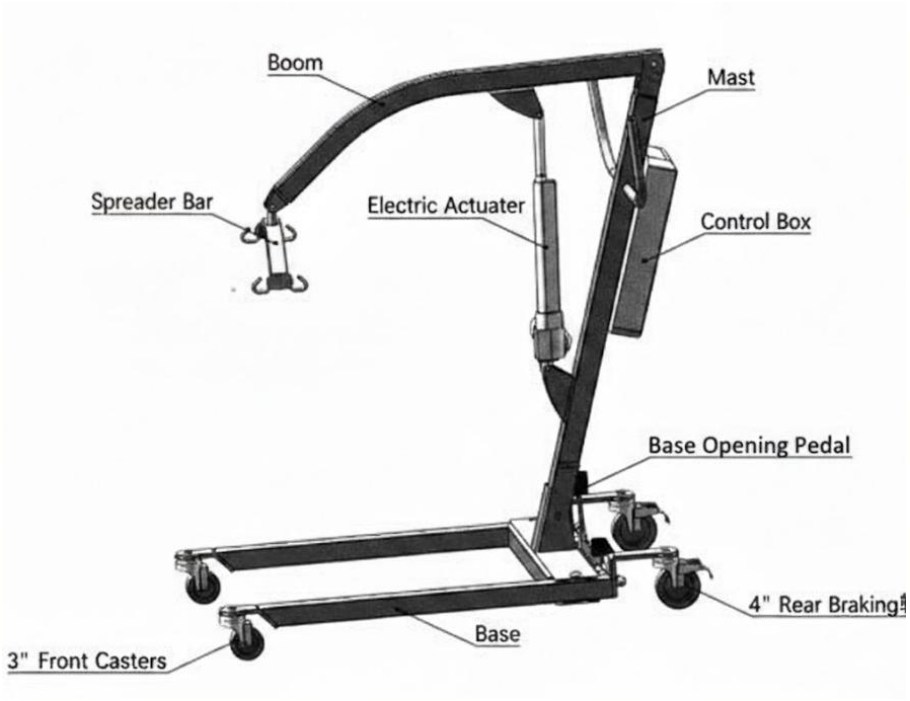
4. Use the four handles to lift the airline crate.



4.3 Shifting Machine

The shipping package for the transfer machine is a cardboard box as shown in the figure below, with dimensions of L(133)*W(67)*H(33) cm and weighing 45 kg. An art knife or scissors are required to open the box.

a. Panoramic view of the transfer machine



b. Schematic Diagram of Transfer Machine Parts

1. Remove the electric transfer machine assembly from the packaging inside the carton, as shown in Figure 1;

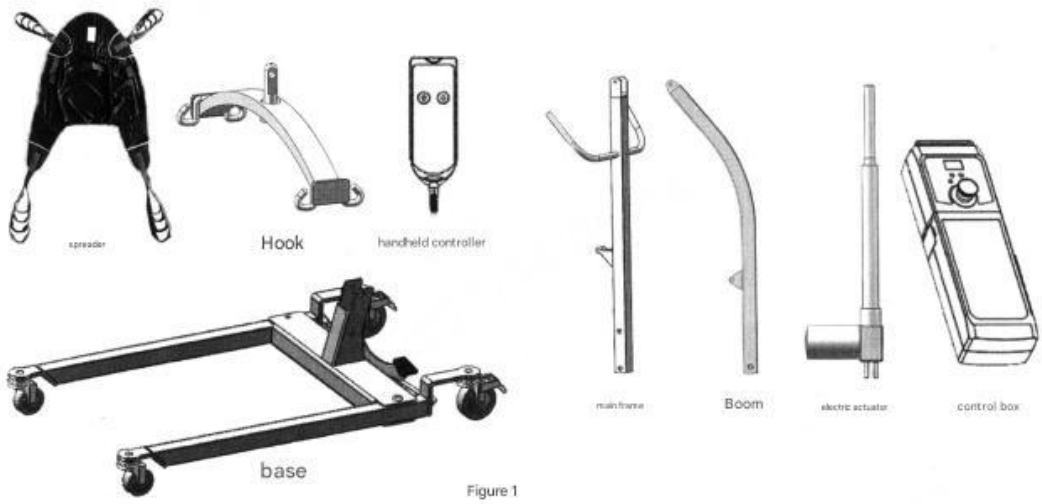


Figure 1

c. Install

2. Assemble all bolts and nuts according to Figure 2, and then assemble the electric push rod onto the main frame;

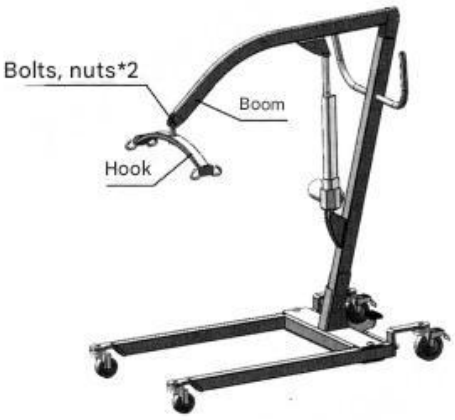
Figure 2

① Connect the main frame to the base and tighten the bolts and nuts (*4 pieces).

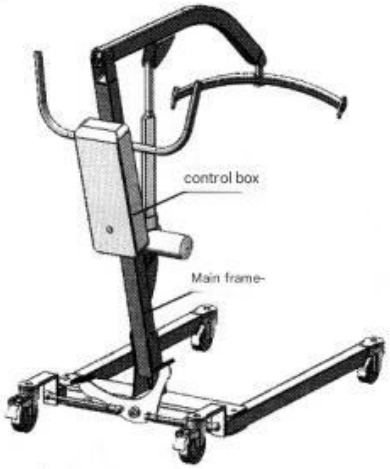
② Connect the boom to the main frame and tighten the bolts and nuts (2 pieces). Bolts and nuts *2

③ Connect the electric actuator to the main frame and boom, and tighten the bolts and nuts (4 pieces). Bolts and nuts *2

④ Connect the hook to the boom and tighten the bolts and nuts (2 pieces).

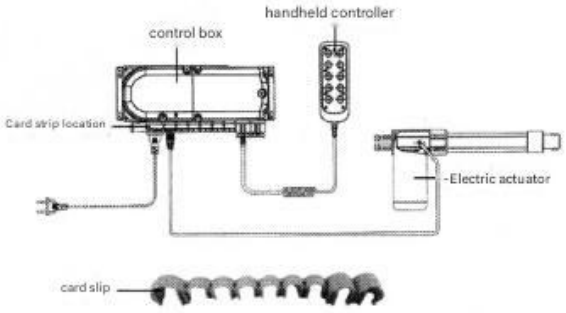


⑤ Hang the control box on the back of the main frame.



⑥ Connect the electric actuator and handheld controller plug to the control box.

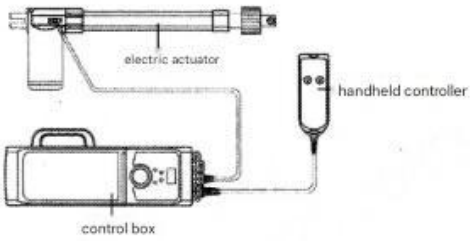
D01A: (Please remove the retaining clip before connecting. After all plugs are connected to the control box, then re-insert the retaining clip. Otherwise, abnormal contact will prevent the device from working.)



BHH-YWJ-D01A

⑦ Attach the lifting device to the hook.

D02A: (When charging, insert the power cord into the socket at the bottom of the control box. For some models, you need to open the small square on the left side of the control box, separate the battery from the control box, connect the power adapter and the battery interface, and plug it into the socket to charge.)



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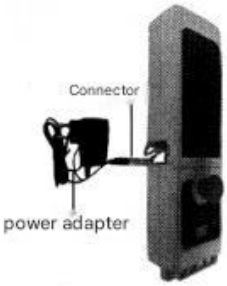


(2)

BHH-YWJ-D02A

After installation, check and ensure the following has been completed:

Whether the wheel brakes are normal;

Is the emergency stop device functioning properly? (Applicable to some models)

Are all bolts and nuts installed and tightened?

Does the handheld controller command correspond to the lifting action?

Does the power adapter indicator light stay on continuously when charging or connected to a power source?

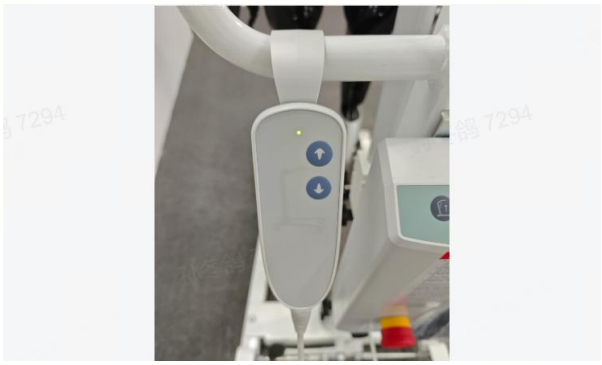
Can the emergency descent device function properly (manual and electric)? (Applicable to some models)

d. Control Box Operation

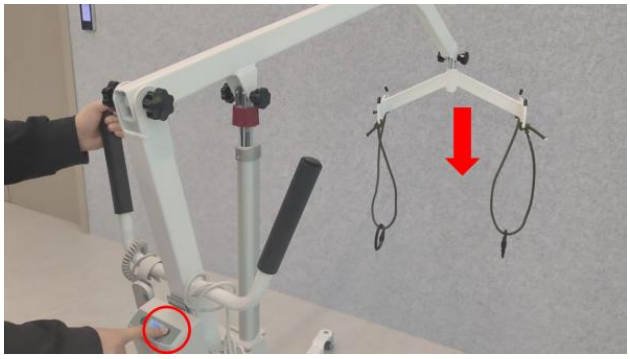
1. Emergency Stop: After pressing the emergency stop button, the height of the hoist boom of the transfer machine will be locked, and the lift button will be unavailable. If the	2. Release the emergency stop: Rotate the emergency stop button clockwise until the button pops up. The function of the lift button is restored.

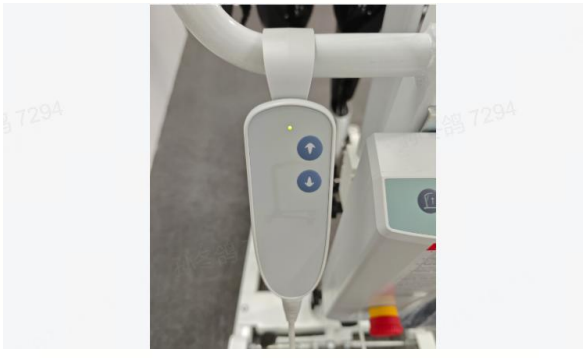
transfer machine loses power during use, the height of the hoist boom will also be locked.

3. Raise the boom: Operate the control box or manual controller, and continuously press the up button to continuously raise the boom.



4. Lower the boom: Operate the control box or manual controller, and continuously press the lower button to continuously lower the boom.

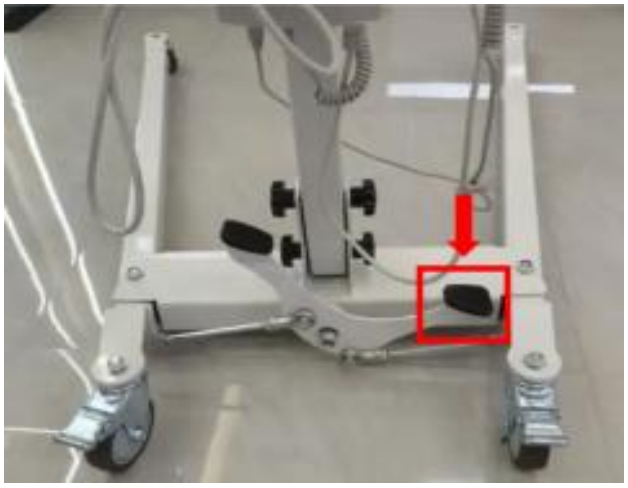


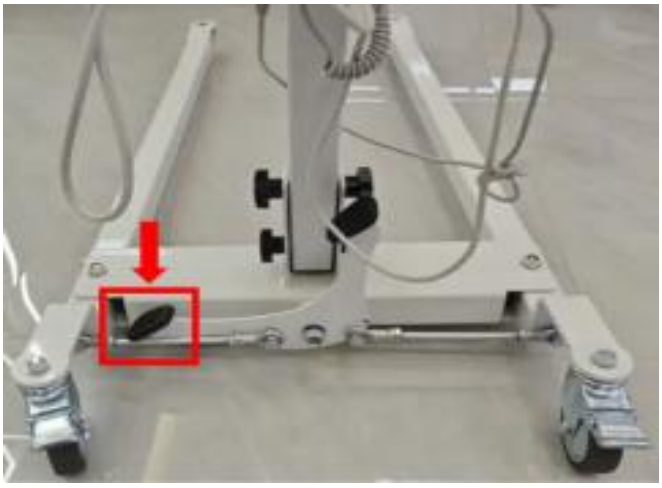


e. Base Operation

1. Expand the space of the transfer machine: Step on the right pedal to expand the space of the transfer machine. When the robot is operating with protection, it is necessary to expand the space.

2. Reduce the space of the shifting machine: Press the left pedal to reduce the space of the shifting machine. When moving or storing the robot for an extended period, it is recommended to reduce the space.





3. Wheel locking and unlocking of the transfer machine: The left wheel in the figure below is in the locked state; once locked, the transfer machine cannot be moved, and the wheels can be locked when it is left for a long time. The right wheel in the figure below is in the unlocked state; after unlocking, the transfer machine can be moved normally. In the locked state, step on the position and in the direction indicated by the orange arrow to unlock the wheels; in the unlocked state, step on the position and in the direction indicated by the red arrow to lock the wheels.

4. Shifter Charging: When the battery level drops to one bar (approximately 25%), the shifter needs to be charged. Connect the charging cable of the control box to a 220V/50Hz power supply for charging. During charging, the display will show a dynamic increase in battery level. It is strictly prohibited to recharge after the battery is completely depleted, as this may damage the battery and cause it to lose its ability to store electricity.

4.4 Remote Control

NO.	Name	Description
①	Identification Label	Please note the following two items of information: Robot SN Number: Check if the number matches before using the remote control Input current: Please note not to exceed the limit during charging
②	The right side of the remote control features a hollowed-out design	Convenient use of the emergency stop switch: Through this notch, you can turn the emergency stop switch on and off, check the battery level of the emergency stop switch, and charge the emergency stop switch
③	Remote control power on/off button	Long press to turn the remote control on/off
④	Remote control charging port	is located at the bottom of the remote control and is a Type-C interface

4.5 Emergency Stop

Number	Name	Description	Illustration
①	Identification Label	Please note the following two items on the label: a. Robot SN: The emergency stop switch is one-to-one compatible with the robot. When using it, please check whether it matches the robot number. b. Input current: When charging, be careful not to exceed the limit	
②	Power Switch	Long press to turn on/off the emergency stop switch	
③	Battery Indicator	After powering on, the indicator lights up, and the number of lit lights is related to the battery level	
④	Charging	Type-C charging port, used to charge the	

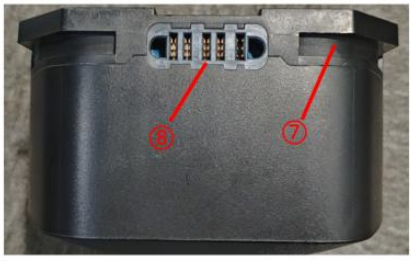
	socket	emergency stop switch	
⑤	Connection Status Indicator	After both the robot and the emergency stop switch are powered on, they will automatically connect, and the indicator light will turn green.	
		After the robot is powered off, it will disconnect, and the indicator light will turn red	
⑥	Emergency Stop Button	Pressing the button will cause the robot to enter an emergency stop state, with all body joints disabled. Please operate with caution. To release the emergency stop, rotate the button clockwise until it pops out. After releasing the emergency stop, the robot's head and upper limbs will perform a self-check again. Once the self-check passes, the machine can be used normally.	Normal state button height  Button height in emergency stop state 

4.6 **Battery**

正面

背面

顶部

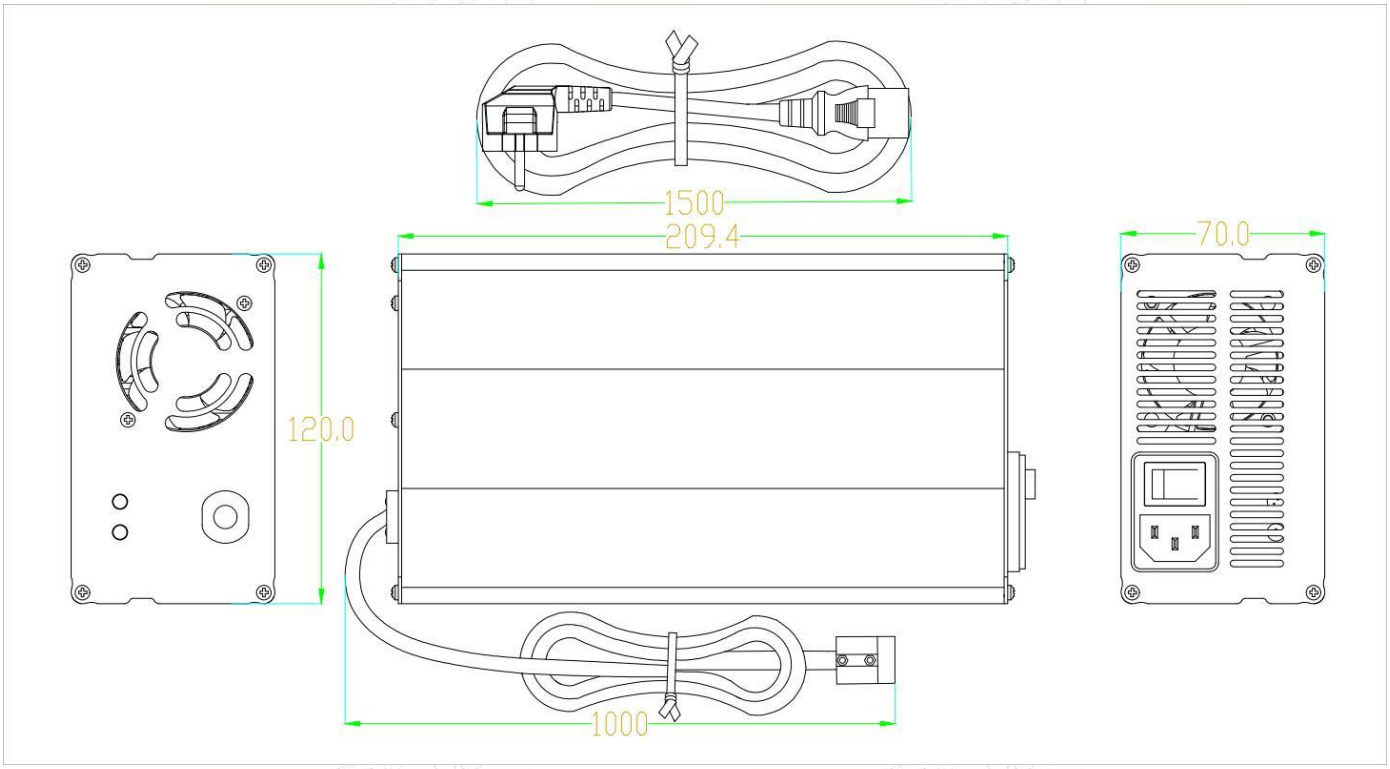


底部

Serial Number	Name	Description
①	Handle	Handheld position when temporarily carrying and moving batteries
②	Battery Level Display Button	When pressed, the power indicator light turns on
③	Power Indicator	There are a total of 4 indicator lights. After the battery level display button is pressed, the corresponding number of lights will light up according to the battery level, with each light corresponding to 25% of the battery level. When the battery level is above 25%, all lights will light up white; when the battery level is below 25%, only the first light will light up red, and the other lights will not light up.
④	buckle	When installing the battery, it gets stuck on the back of the robot to assist in stabilizing the battery
⑤	Battery charging port	Connect to a dedicated charger to charge the battery
⑥	Snap Button	When pressed, the buckle retracts, facilitating battery removal. When released, the buckle pops out and can be latched onto the back of the robot.
⑦	Card Slot	When installing the battery, it is stuck on the back of the robot to assist in stabilizing the battery

⑧	Power Supply Port	Installed on the back of the robot to power it

4.7 Charger



The housing is made of aluminum alloy, which is lightweight, durable, has good thermal conductivity, and weighs approximately 1.6kg (excluding AC input cable).

1. Precautions Before Use

   a. The charger contains high voltage, which may cause harm to the human body. If a malfunction occurs, please contact our company. Users and non-company professional maintenance personnel are strictly prohibited from opening the charger by themselves.

   b. Do not use the charger in a damp, wet, direct sunlight, or near a heat source.

   c. Chargers should be used in a dust-free and well-ventilated environment. When in use, do not block the air inlet and outlet, and leave at least 10 cm of space on both the air inlet and outlet sides.

   d. When in use, the charger should be kept away from children and prevent them from touching it.

   e. It is strictly prohibited to use or store flammable and explosive items near the charger.

   f. Do not directly rinse the charger with water when cleaning it. It is recommended to use a clean cloth dampened with a small amount of alcohol to wipe it.

2. Operating Instructions

   a. Please place the charger in a well-ventilated, dry area away from direct sunlight;

   b. Please first connect the battery to the DC output of the charger, with the battery (+) terminal connected to the output (+) terminal and the battery (-) terminal connected to the output (-) terminal; be sure not to connect the battery (+) terminal to the output (-) terminal, the battery (-) terminal to the

output (+) terminal, the battery (+) terminal to the battery (-) terminal, or the output (+) terminal to the output (-) terminal.

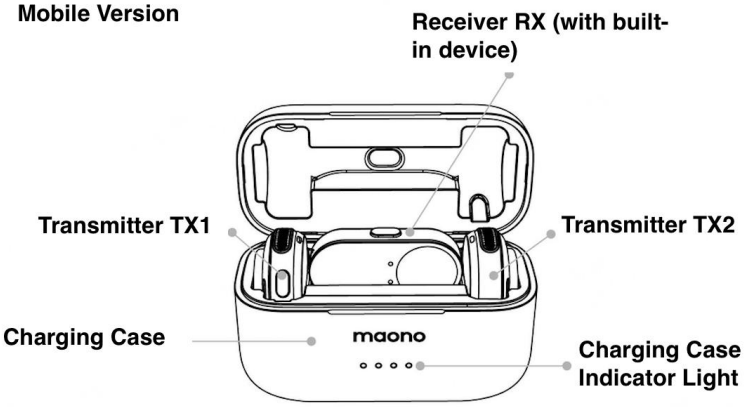
c. Connect the charger to AC and turn it on;

3. Indicator Light

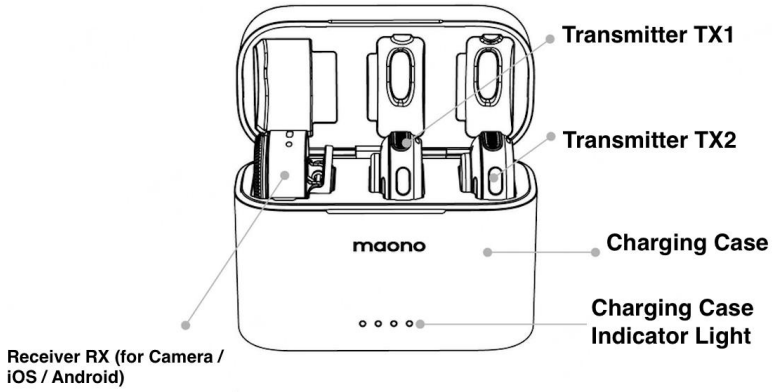
Model	Indicator light status	Charging status
Normal status	The green light is flashing	Charging standby mode
	The red light is constantly on	Charging
	The green light is constantly on	Abundant
Abnormal state	The red light flashes three times, then pauses; loop	Overvoltage protection state
	The red light flashes five times, then pauses; loop	Overheat protection state
	The red light flashes seven times, then pauses; loop	Overcurrent protection, shortcircuit protection
	The red light kept flashing	Reverse connection protection state

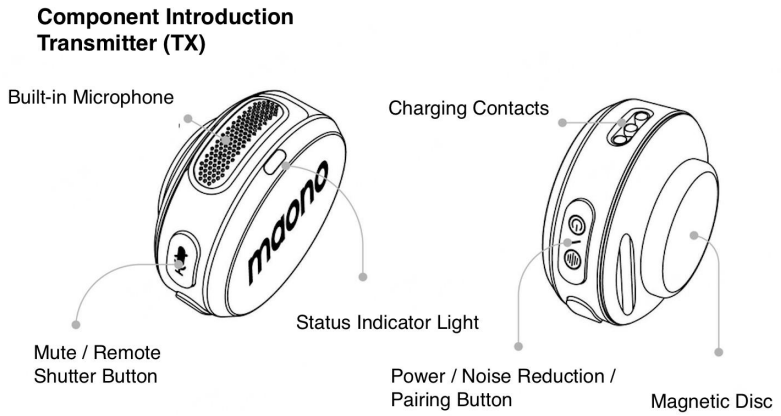
4.8 External microphone

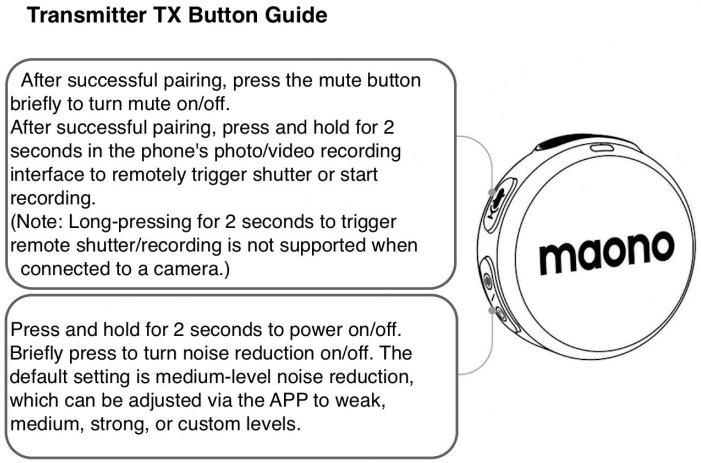
Mobile Version



Camera Version







TX Indicator Light Description for Transmitter

Indicator Light Status	Meaning and Function Description
TX status indicator light blue flashing	Power on but not paired; TX and RX are not conne
TX status indicator light blue steady on	This transmitter TX has successfully connected to
TX status indicator light green steady on	Noise reduction enabled
TX status indicator light red steady on	Transmitter mute mode enabled
During charging, TX status indicator light red steady on	Transmitter TX is charging
During charging, TX status indicator light green steady on	Transmitter TX is fully charged
TX status indicator light red slow blinking	Transmitter TX low battery
TX status indicator light orange slow blinking	Transmitter TX is upgrading

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Method for re-pairing the transmitter TX and receiver RX:

- Connect the receiver to your phone, then press and hold the pairing button on the receiver for 6 seconds.
- With the transmitter powered off, press and hold its pairing button for 6 seconds to enter pairing mode.
- During pairing, the status indicator light will flash blue.

- After successful pairing, the indicator light will turn solid blue.

Note: This method is applicable when the paired transmitter TX is lost, and a transmitter TX from another device is temporarily used to pair with the receiver RX inside the machine, but it requires disassembling the machine casing.

4.9 5G SIM Card Installation

1. Material Preparation

picture4.8-1：SIM Card Installation Location

2. After the robot is powered off, use an M3 hex wrench to remove the black cover plate within the red frame in Figure 4.8-1

3. After disassembly, it is as shown in Figure 4.8-4 (Note: See Figure 4.8-4 for the SIM card insertion direction; inserting in other directions will prevent insertion, and forceful insertion will damage the device and the SIM card)

4. After inserting the SIM card, it is shown in Figure 4.8-5 (if you want to remove it, press the SIM card and it will automatically pop out).

picture4.8-4：Remove the cover plate

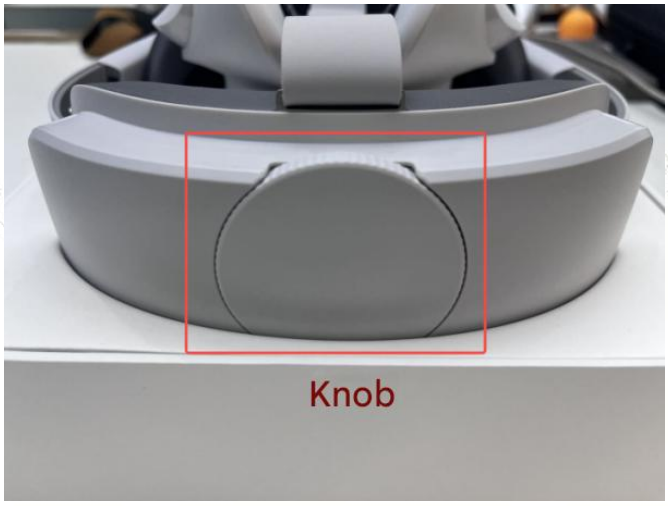
5. Reinstall the removed cover plate
6. When the robot is powered on, turning off Wi-Fi will automatically use the 5G cellular network

4.10 VR (Optional)

Currently, Yuanzheng A2 only supports remote operation using VR devices of the PICO Ultra4 model.

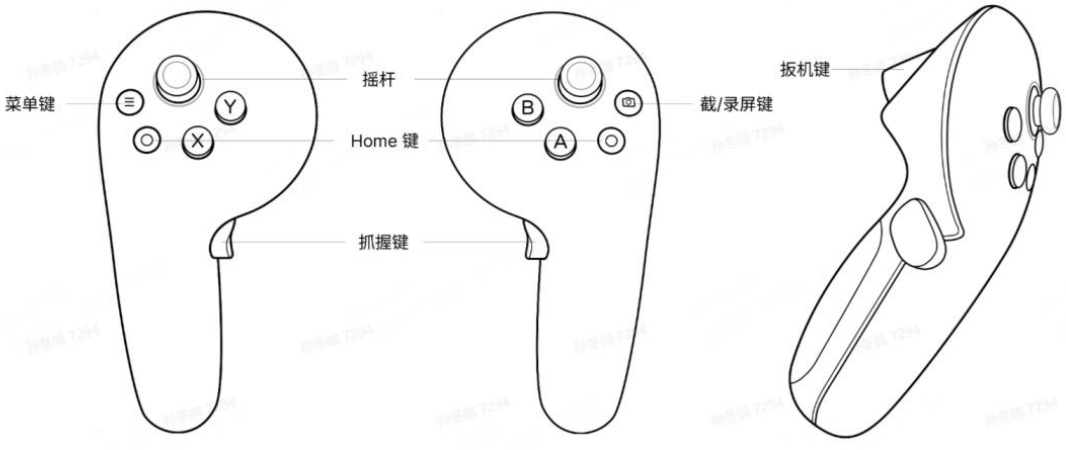
VR equipment consists of a VR headset + two controllers.

1. Headset

	
Long pressing the power button can turn the headset on or off. The volume adjustment button can adjust the volume level.	The can be rotated clockwise/counterclockwise, mainly used to adjust the size of the space in contact with the head when worn. After the glasses are worn on the head, adjust the to fit the operator's head.

2. The buttons on the controller are as follows:

After the device is powered on, the controller will emit a white ray. You can adjust the controller to point the ray at the position you need to operate, and then use the trigger button to perform operations similar to mouse clicks, drags, long presses, etc. The "click operation" in the subsequent remote operation documentation refers to: after the ray points at the target position, press the trigger button.



5. Unpacking and Packing

5.1 Unboxing

The robot extraction is recommended to be operated by 3 people, with at least 2 people required. The

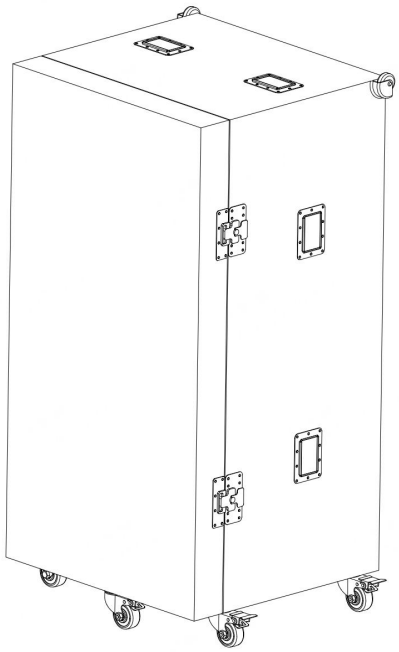
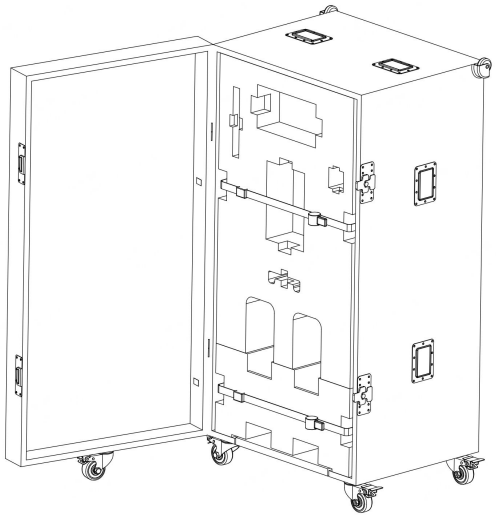
following describes how to extract the machine when there are only 2 people.

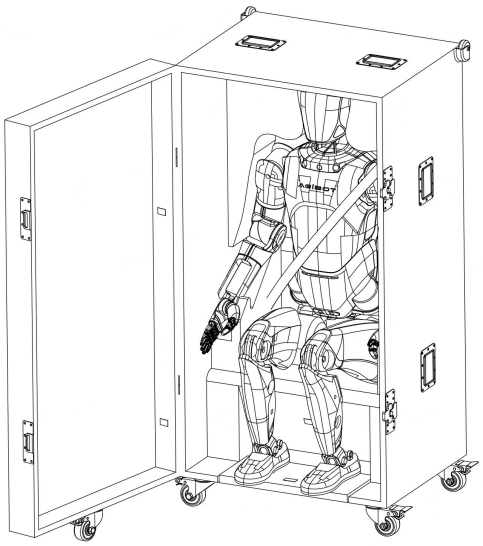
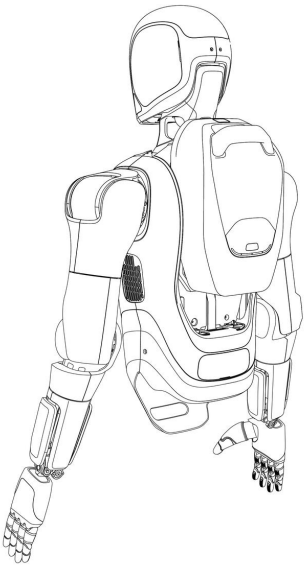
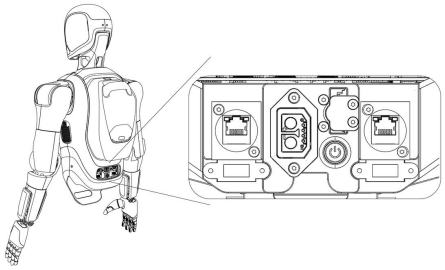
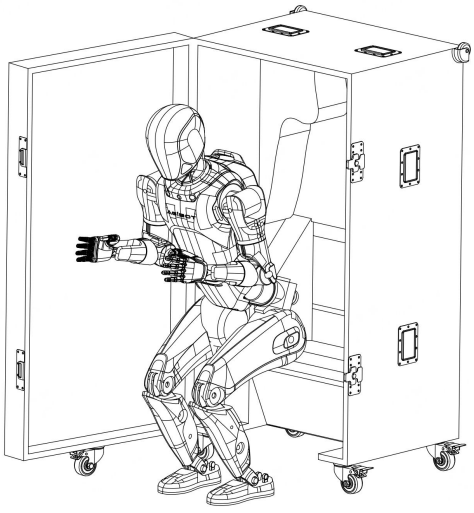
Note:

When adjusting the robot arm by external force, one should hold the upper limb shell of the robot, and it is strictly prohibited to pull the dexterous hand.

When lifting the lower limbs of the robot, do not insert your hands into the calf linkages to avoid being crushed.

a. Refer to the following method to remove the robot:

1. Place the box on a flat surface as shown in the illustration, lock the wheels of the box, open the box door, release the seat belt, and check the accessory list	2. Remove the accessories, set them aside for later use, remove the foam box, and inspect the robot body
	
3. Lift the robot's feet and open the bottom pedal of the box upward. Pull the robot's shoulders outward to tilt the robot's upper body forward	4. If the robot does not have a battery installed, please slowly insert the battery into the battery slot on the back of the robot from the outside in. Push it down all the way to the bottom until you hear a "click" sound, indicating that the battery is installed. After installation is complete, please

	press the battery gently again to confirm it is fully installed.
	
5. Do not unfasten your seatbelt, and press and hold the button on the back of the robot to turn it on	6. Take out the remote control and follow the startup steps to activate it
	

5.2 Packing

Robot packing is recommended to be operated by 3 people, with at least 2 people required. The following

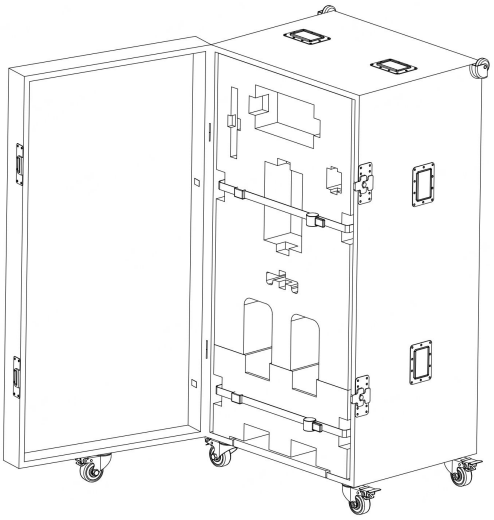
describes 3-person packing, while 2-person packing can use a handheld controller to operate the shifting machine.

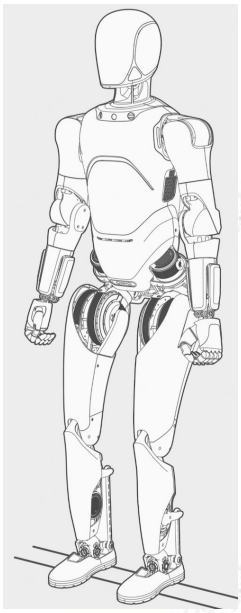
Note:

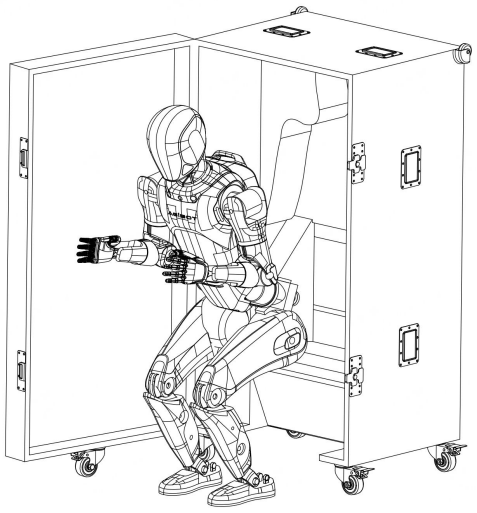
When adjusting the robot arm by external force, one should hold the upper limb housing of the robot, and it is strictly prohibited to pull the dexterous hand.

When lifting the lower limbs of the robot, do not insert your hands into the calf link to avoid being crushed.

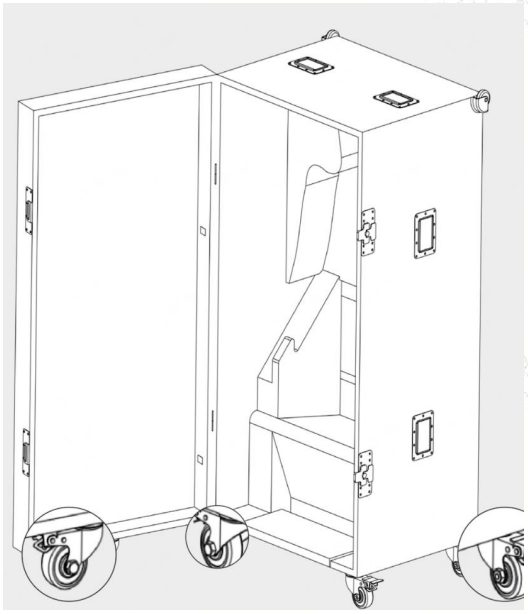
b. Refer to the following methods for packing:

1. Select sitting posture packing in the settings interface	2. Place the robot and the packing box on a flat surface, and hold the robot firmly throughout the process.
	
3. Move the packing box behind the robot, retract the footrest, and align the robot's rear feet with the lower edge of the box	4. Move the packing box behind the robot, with the robot closely attached to the chair surface. At this time, the robot is extremely easy to be pushed over, so please hold it carefully.

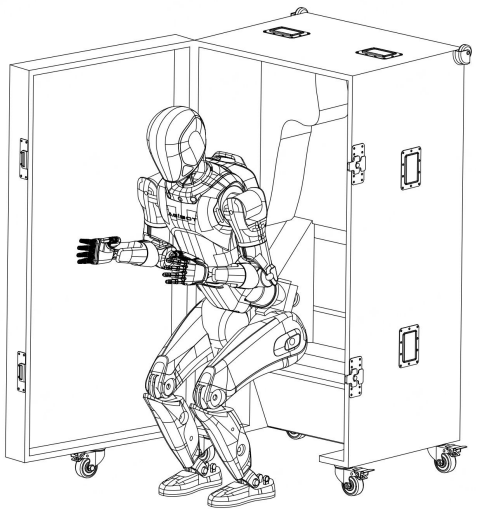




5. Lock the three wheels on the packing case



6. Push the robot backward into the box and fasten the seat belt



6. Function Instruction / Function Instruction

V2.0 Software Version Feature Demonstration Video/Feature Videos

Function Demonstration Video Feature Videos	语音操控全流程 Voice-Controlled Full Process	智能避障 Intelligent Obstacle Avoidance	边走边做动作 Performs Actions While Moving	客户端全新升级 Aimaster all-new upgrade	蓝牙音响 Bluetooth Speaker
	硅基送 Silicon-Based Delivery	七国语言 Seven Languages	全身舞蹈 Full-Body Dancing	行走提速 Increased Walking Speed	灵动问候&自定义问候 Lively Greetings & Personalized Greetings

6.1 Function Description List

1. Voice commands need to be used after being woken up
2. Button commands need to be used in conjunction with the Client - AimMaster

Module	Function Item	Instructions/Trigger Methods		Performance Effect		Precautions (Function Usage Boundary)
		Voice Command (User Langua	Button Command (User Remot	Display Content (What the user sees)	Effect Description (Qualitative/Quantitative description of what is seen)	

		ge Control Method)	e Control Mode)			
Interactive Intelligence	Wake up	1. "Yuanzheng Yuanzheng"	--	1. Expression automatically switches to the listening state 2. Respond with "I'm here" 3. Upper limb has no movement 4. No movement in the lower limbs	1. Response time <1s 2. Fixed term response, modification not supported	1. Only turn on or switch to the [Assisted Straight-Leg Standing State], supporting voice conversation and voice facial expression switching 2. After powering on and landing, it is not in the [Assisted Straight-Leg Standing State], and supports voice conversation chatting, facial expression switching, and upper limb movements 3. After powering on and landing, it is not in the [assisted straight-leg standing state], has accurate positioning, supports voice conversation and chatting, facial expression switching, upper limb movements, and lower limb mobility 4. Customizable wake word 5. External microphone scenario: a. Human-machine distance <30m b. The microphone should be 3cm to
	Interrupt	1. "Stop"	--	1. Expression remains unchanged 2. Answer "OK" 3. Up	1. Response time <1s 2. Fixed term response, modification not supported	

			per limb motion synchronous reset 4. No movement in lower limbs		5cm away from the mouth c. When the external microphone is turned on, if you need to chat with others, it is recommended to keep the microphone slightly farther away from the mouth, which can effectively reduce the robot's misrecognition. d. Only external microphones of the models specified by AgiBot are supported i. Model 1 and Model 2 cannot be used simultaneously ii. Model 1: depushengW4 USB Wireless Microphone iii. Model 2: Shank T5 Wireless Lapel Microphone Type-C Version iv. The external microphone of the Shanke T5 wireless lapel microphone Type-C version can be temporarily muted by the mute button on the microphone to effectively reduce the
End	1. "Exit"	--	1. Expression automatically switches to standby state 2. Directly exit the conversation without a reply 3. Upper limb motion synchronous reset 4. No movement in lower limbs	1. Response time <1s	
Dialogue	1. "Tell me about you	--	1. Expression automatically switche	1. Supports 7 languages: Chinese, English, French, German, Spanish, Japanese, Korean	

	(Multilingual)	rself" 2. "Today's weather" 3. "What's the news today?" 4. "What should I wear today?" 5. "What is in my hand?" 6. "What's next to you?"		s to normal state 2. Accurately answer user questions 3. Randomly call actions from the action library 4. No movement in the lower limbs	2. Supports multi-turn conversations, and can remember previous conversation content within a single wake-up session 3. Response time <2s 4. Supports 3 voice tones 5. After a single wake-up, it supports waiting up to 60 seconds at most (the delayed listening duration can be set in aimmaster). If a valid conversation occurs, the time will be automatically refreshed. 6. Accuracy of common commands: Comprehensive accuracy of speech recognition + semantic understanding > 95% 7. Supports interruption and termination, but does not support resuming from a breakpoint	robot's misidentification v. [Shanke T5 Wireless Lavalier Microphone Type-C Edition] The external microphone is small in size and easy to lose, so be sure to store it properly. 6. Built-in microphone scenario: a. Voice interaction needs to be carried out within a distance of 0.5m - 1.5m from the robot b. During the conversation, the face and mouth must not be covered 7. If the robot is restarted after plugging in an external microphone, the external microphone receiver needs to be unplugged and plugged in again after the restart; otherwise, the external microphone cannot be automatically connected. 8. Voice interaction may affect the robot's movement, please keep a safe distance 9. Network bandwidth requirements: Upload/download speed should be no less than 100Mbps, latency

	7. “Hello” 8. “Bonjour” 9. “Guten Tag" 10. “Hola” 11. "Hello" 12. "Hello"				<100ms, packet loss rate <1%, and remain stable, which can ensure the smoothness and stability of interaction. If the network fails to meet this standard, it may have a significant impact (you can try to measure the speed via your mobile phone: https://www.speedtest.cn/) 10. MultiModal Machine Learning (Image) Interaction a. Supported task types: i. Image description ii. Image-based Question Answering and Reasoning iii. Text-and-Image Conversation and Multi-Round Interaction iv. OCR Text Recognition (Optimal Distance ≤ 0.5m, and Font Size > 1) v. Scene and Object Recognition vi. Chart Analysis b. Distance range: i. Object Recognition/Sce
Singing	1. "Sing a song" 2. "Change the song" 3. "Sing a Chinese song" 4. "	--	1. Expression automatically switches to normal state 2. Chinese: [Jasmine Flower, Happy Birthday Song, Farewell; children: Twinkle	1. Supports specifying song names; if no song name is specified, it will play randomly from the song library: includes 7 Chinese songs and 5 English songs 2. Use the voice selected on the [Settings] page 3. All songs share the same timbre 4. Singing Duration: a. Chinese i. Jasmine Flower: 42s ii. Happy Birthday	

		Sing an English song" 5. "Sing xxx"(xxx is the song title)		Twinkle Little Star; rap: rap1, rap2, rap3] 3. 英文:【susanna, happybirthday; children: jinglebells; rap: rap1, rap2】 4. Randomly call actions from the action library 5. No movement in the lower limbs	Song: 57s iii. Little Star: 35s iv. rap1: 68s v. rap2: 107s vi. rap3: 182s b. English i. Susanna: 66s ii. Happybirthday: 44s iii. Jinglebells: 50s iv. rap1: 118s v. rap2: 131s 5. No risk of commercial copyright infringement 6. Supports interruption and termination, does not support continuation	ne Analysis: 1m ii. Optimal OCR distance: ≤ 0.5m c. Image size limit: The pixel size of a single image is between 256×256 and 4K d. Performance Boundary: i. Daily Scenarios, Common Object Recognition ii. Clear Charts and OCR iii. Basic Logical Reasoning iv. Indoor/Outdoor Normal White Light Scenario e. Identification Object Limitations: i. Person Face ID recognition supports ≤ 3 people ii. The maximum number of people that can be recognized at once by the personnel in front is 5. iii. Up to 5 items in front can be recognized at a time iv. Item recognition must
Lowerlim	1. "Turn left" 2. "	At the bottom left cor	1. Expression automatically switche	1. Minimum turning radius: 800mm 2. Minimum passing width: 1200mm (with obstacle avoidance.		

	b m ov e m e nt	Turn right" 3. "About face" 4. "Go forward" 5. "Walk backward " 6. "Go left" 7. "Go right"	ner of the <Home> interface of the Client, a joystick can be used for control	s to normal state 2. Answer "OK" 3. Upper limb anthropomorphic arm swing 4. Accurately perform lower limb movement according to user instructions	This prevents the robot from entering narrow passages to avoid the robot being unable to complete autonomous steering) 3. Remote control climbing ability: 8% (≈5°) 4. Braking distance: At maximum moving speed, the stopping distance is less than 1.7m 5. Walking surface: Supports flat terrain (such as tiles, carpets), does not support uneven terrain 6. When the button is slid and held in a certain direction, the robot translates in the corresponding direction. The distance the button is slid directly affects the robot's moving speed. The closer the button is to its initial position, the slower the robot moves; the farther it is, the faster the robot moves. 7. After releasing the movement button, the robot stops after adjusting its balance, with a 1 - 3 second delay. 8. Anti-accidental touch: The screen automatically locks	be within 1m, and the size must be ≥ 10cm×10cm

					when the robot's limbs remain motionless for 30 seconds, and can be unlocked by swiping the slider on the screen to the right.	
	Upper Limb Movements	1. "Dance" 2. "Triple Shot" 3. "Taijiquan" 4. "Bi Xin" 5. "Goodbye" 6. "Salute" 7. "Greeting" 8. "Wave with the	Client [Skills] Interface - [Actions] - Select Action - Slide Play	1. Expression automatically switches to normal state 2. Answer "OK" 3. Accurately perform upper limb movements according to user instructions 4. No movement in lower limbs	1. 12 voice skill interaction actions 2. The remaining actions are triggered by clicking on the remote control 3. Built-in Actions: A total of 92 upper limb interaction actions are supported (which can be viewed in the Client's [Interaction] - [Actions], not listed one by one)	

		left hand" 9. "Handshake" 10. "Like" 11. "Fist Bump" 12. "Biye"				
Expression Switching	--	Client [Skills] Interface - [Emoticons] - Select Emoticon - Slide to Play	1. Accurately switch expressions according to user instructions 2. No Reply 3. Upper limb has no movement 4. No movement in lower limbs	1. When not switching expressions, it will always maintain the current expression and play it in a loop 2. Built-in Emoticons: Hello, Dance, Heart Gesture, Bye, Heart Launch, Happy, Love You, Peace Sign, OK, General, Sad, Welcome, Thumbs Up, Wink, Starry Eyes, Shy, Query, a total of 17 emoticons		

Face Recognition	--	--	1. Expression automatically switches to normal state 2. Reply "Hello, xx" 3. Upper limb has no movement 4. No movement in lower limbs	1. The Knowledge Base performs face import, relying on the camera to recognize faces	1. Normal lighting in the indoor environment, with no obvious shadows on the face 2. The recommended distance between humans and machines is within 2.5m 3. The T3 model has a 60-degree forward visual angle, and the P1 model has a 100-degree forward visual angle for recognition 4. Client [Settings] Interface - [Voice] - [Welcome Greeting Switch] 5. ~~Within ten minutes, a second identification will not be performed on the same person~~ 6. Customizable greeting interval: For both acquaintance and stranger greetings, the interval duration can be set. The interval can be adjusted according to the actual application scenario. It can be opened in [LinkSoul Platform] - [Welcome Settings] 7. Greetings have no character limit and do not allow special characters such as 【#@%￥】
Stranger Recognition Greeting	--	[LinkSoul Platform] - [Welcome Settings] - [Stranger Welcome],	1. Expression automatically switches to normal state 2. Single-person scenario: "Hello, I'm really happy to meet you."	1. Stand within 2 meters directly in front of Yuanzheng A2 and face it for 1 second to trigger the greeting broadcast (recommended distance: 1.2 meters)	

			set a custom greeting	3. Multi-person scenario: "Hello, nice to meet everyone" 4. Upper limb has no movement 5. No movement in lower limbs		
	CustomGreeting	-	[LinkSoul Platform] - [Edit Agent] - [User Information], set exclusive welcome	1. Customize the narrative for greeting acquaintances and strangers		

			greetings based on different users			
	Dynamic Greeting	-	[LinkSoul Platform] - [Agent Center] - Click [Welcome Settings] - Enable Dynamic Greeting	1. The generative greeting experience based on MultiModal Machine Learning integrates perceived environmental information and associated topics, making it more dynamic and interesting		

	Dynamic Standby		[Dynamic Standby] The switch is turned on by default and can be set in Client [Settings] - [Upper Body Movement] - [Dynamic Standby]	1. Enhance the sense of agility in A2's standby state while reducing the risk of dexterous hand collisions, and only rotate the head		
	Full	1. "Tak	--	1. Voice	1. After waking up A2, simply speak the	--

	Process of Voice Control	e 5 steps forward" 2. "Turn left 90 degrees" 3. "Turn right 45 degrees" 4. "Give me a nod" 5. "Shake your head for me" 6. "Left Hand Sh		control A2 to turn around, walk, nod, and shake its head 2. Voice control A2: single hand or both hands making a peace sign, giving a thumbs up, waving, cheering 3. Voice navigation to the specified explanation point or start the explanation of the specified explanation task	voice command directly	

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exterous Hand Exhibition Area# for a presentation"

13. The task of "Using the Chinese version of the seventh-floor exhibition hall explanation" starts the

		explanation				
	Autonomous PPT flipping	--	Client [Task] Page - Open [Intelligent Linkage PPT] in the Basic Parameters Bar - Enter a valid server address - Open [Tu	1. During the explanation, the PPT automatically flips through pages according to the task settings	1. On the task configuration page, you can turn on the <Auto Flip PPT> switch to enable this function 2. After enabling this feature, fill in the IP address of the PPT correctly (the IP needs to be modified to the LAN IP of the host computer that plays the PPT and runs the PPT control program) 3. Turn on the <【PPT Page Flip at the Start of Broadcast】> switch below the broadcast copy to configure the specified page to which the PPT will be flipped	1. The user needs to prepare a local computer for playing PPTs, and the system currently requires Windows or macOS. Run the service program for PPT playback on the host computer, which provides services externally by listening on the local port 8081, and external parties control the PPT on the host computer through Get/Post requests. **The host computer needs to first open the PPT file to be played.** 2. Multi-software Compatibility: a. 支持 Mircosoft Powerpoint，WPS Office 和苹果 Keynote 3. Playback Control: a. Jump to the specified slide 4. System Requirements: a. Windows System: i. Operating System: Windows 7 and later versions ii. Required software: Mircosoft

			rn PPT Pages at the Start of Broadcast] below the broadcast copy			Powerpoint 2010 or later, or WPS Office 2016 or later b. macOS System: i. Operating System: macOS 10.13 or later ii. Required software: Mircosoft Powerpoint for Mac or Apple Keynote 5. Instructions for Use: a. Install the files, enable the host computer service, and ensure that the communication between the robot and the host computer is normal. 6. Execution Steps: a. Run the PPT playback control service program provided by AgiBot on the host computer. b. Open the PPT file to be displayed on the host computer, set the PPT presentation mode to "Manual", and start the presentation.
	Guided	1. "Go to the me	Client [Ma	1. Active Welcome 2. Aut	1. **Remote-controlled robots quickly create a floor plan of the exhibition hall**	1. Keep AimMaster on the new map creation interface, move the transfer machine or remote-controlled robot

	Tour	eting room" 2. "Go to the front desk" 3. "Go to the bathroom"	p] page - Create a new map - Enter the map name and [Save] - Click on the edited map - [Edit] in the top right corner - Click [Point] - Select [Ha	onomous Navigation 3. Intelligent Interaction 4. Route Explanation	a. Map Building: The robot's own sensors perceive the surrounding environment, while simultaneously calculating its own position in real-time and constructing an environmental map. b. Click the [Save] button, enter the map name, and save it. 2. **Complete the configuration of the explanation point in three steps** a. Methods of adding navigation points: recording and hand-drawing. Recording is suitable for situations where the direction and position of navigation points require high precision. Hand-drawing is suitable for situations where the direction and position of navigation points do not require particularly high	around the activity area of the venue for one lap, and ensure that all outlines of the venue and obstacles affecting the robot's movement have been recorded on the screen. 2. All saved maps can be edited in the **non-use state** . If the robot is using a map to perform an autonomous explanation task, you must wait for the task to end or manually end the task before editing. 3. Map Editing Function: a. Map file itself: supports operations such as map search, map selection, information viewing, deletion, renaming, etc. b. Basemap Information: Adjust the basemap to change the boundaries and obstacle outlines in the map c. Navigation Points: Supports adding, deleting, and editing navigation points 4. All created maps are located on the details page of the [Map] feature, with detailed information displayed in [Map Management] 5. Explanation Information Configuration

			nd-drawn]/[Record]-Click [Navigation Point]-Locate and save on the map Client [Task] page - Select the created task map - Complete the con		precision. b. Add commentary, actions, and expressions c. After the task is created, it is necessary to **fully configure the task content** so that the robot can complete the guided tour and explanation according to the task content. d. **The name of the navigation point must be consistent with the name of the voice command** i. Example: "Take me to the meeting room." The navigation point must be named "meeting room".	Verification a. The explanation points, broadcast text, actions, and expressions need to match. Currently, there is no verification capability. When configuring explanation information, it is recommended to manually debug and use text and actions that are more closely matched in duration. 6. Broadcast text does not support special characters a. Only Chinese, numbers, and English are supported; special characters are not supported. If special characters are configured, they will be automatically filtered. 7. Character count limit for the explanation text a. Due to the TTS limitation that the character length is 1024 bytes (equivalent to approximately 140 Chinese characters), if the text length of the current position is too long, a new set of information can be added

			tent - [Save] in the upper right corner			8. Edit Exhibition Hall Explanation Task Name a. The task name can be edited arbitrarily, but if you want to support voice invocation of the exhibition hall explanation task, you need to name the task as 【fixed_line_intro】, otherwise it cannot be invoked, and the interrupted explanation task cannot be resumed via voice. 9. Maximum obstacle avoidance sensing distance: 5m; Forward obstacle avoidance safety distance: 1.5m 10. Minimum recognizable obstacle: objects with a height > 30 cm and width > 20 cm, such as people, tables, and chairs 11. Note: There is a 0.5m blind zone around the robot, so safety must be ensured during use; obstacles should not be pure black, transparent, or mirror-like objects, otherwise there will be a risk of missed detection
	Exhibition Hall Tour Guide	1. "Start the exhibition hall tour" 2. "Pause Explanation" 3. "Continue the explanation" 4. "Stop	On the Client's [Task] page, select the corresponding task - Preview - Start Task (Voice Contr	1. Automatically switches expressions based on task settings 2. Can automatically broadcast voice according to task settings 3. Can automatically perform upper limb movem		

		Explanation"	ol/Manual) - Pause Task/Stop Task (Voice Control/Manual)	ents according to task settings 4. Can automatically navigate and avoid obstacles according to task settings		
	Timbre Switching	--	[LinkSoul Platform] Agent Center - My Agent - Click "Edit Agent" - Select Voice	1. Zhi Xiaofeng 2. Zhi Xiaoyuan 3. Zhi Xiaoliang	1. The two voices, Zhixiaofeng and Zhixiaoyuan, only support online voice announcements, require access to the external network, and will trigger the message "The network is a bit slow, please try again later" when there is no network. 2. Zhi Xiaoliang supports online-offline hybrid voice broadcast, automatically switching to offline mode when the network is poor. There will be some differences between online and offline voices, so it is recommended to use	1. After the switch is completed, restart for the changes to take effect.

		Tone		it only when the network environment is poor.	
Recurring Task	--	Client [Task Preview] Page - [Recurring Task] - [Set Task]	1. Supports setting tasks as recurring tasks 2. Waiting time can be set between loop tasks		
20-countryMultilingual	--	[LinkSoul Platform] Agent Center - My Agents - Click "Edit Agent" -	Supports configuring multilingual agents, covering all 20 current language regions	Specific languages include: Chinese, English (US, United Kingdom, Singapore), German, French, Spanish, Japanese, Korean, Arabic, Italian, Portuguese, Thai, Russian, Malay, Indonesian, Vietnamese, Kazakh, Turkish	

			Select Interaction Language			
Sports Intelligence	Anthropomorphic Fast Walking	--	Client [Settings] Page - [Settings] - [Motion] - [Speed Settings]	1. can be moved up, down, left, or right 2. can turn left or right	1. Maximum remote control walking speed1.2m/s (0.3m/s, 0.6m/s, 0.8m/s, 1.0m/s, 1.2m/s, 5 speed levels available) 2. Maximum speed of autonomous navigation walking0.8m/s (0.3m/s, 0.6m/s, 0.8m/s, 3 speed levels available)	1. Self-balancing a. When the anthropomorphic robot is walking or its upper limbs are moving, if the force exerted when hitting an obstacle exceeds 60N, there is a risk of losing balance and falling. During use, the robot must be prevented from falling. 2. Braking Distance: a. At maximum moving speed, the stopping distance is less than 1.7m
	Full Body Dance	--	Client [Skills] Interface - Talent - [Full Body Taij	1. Acceleration Moment 2. Awakening Moment 3. Galaxy Dreams	1. You can click to play the dance in the action list	1. **Only the A2 Refreshed Version is available for use** 2. The robot needs to first switch to the full-body dance state 3. A 2mX2m activity space needs to be reserved during the performance

			i] / [AccelerationMoment] / [AwakeningTime] / [StarRiverDreaming] SlidingPlay			
	Upperlimbactiveobstacleavoidanc	--	Client [Settings] Interface - [UpperLimb Actions] - [OpenSwitch]	--	1. During the process of interacting with the robot and giving explanations in the exhibition hall, it will actively stop hand movements when someone suddenly approaches	1. The upper limbs of this robot perform random movements. Within the social distancing (recommended ≥ 1 m), movement and speed limits have been set for adults; however, it does not guarantee avoidance of nearby children, pets, or static objects such as glass. 2. Please maintain a safety distance of ≥1 m from the robot. Children with a height of <140 cm must stay outside the safety line and be supervised by an adult. When the crowd is dense,

	e					please ask the staff to increase the safety distance.
	Stand up/Sit down	--	Left side of the Client [Home Page] interface - Pose Switch [Motion] / [Sit]	--	Please follow the voice prompts to operate on AimMaster. 1. Sit down: a. Please prepare the chairs in advance b. You need to place your hands on both sides of your body first to avoid injury c. Click the buttons in order to manually assist the robot to sit down d. Operating sequence: First, move the chair to touch the robot's legs ---- assist the robot to sit down 2. Stand up: a. Please follow the voice prompts to operate b. Click the buttons in order to manually assist the robot to stand up c. Operating sequence: Please push the	--

				robot forward to make it lean forward a bit, and then gradually stand up.	
Do actions while walking		Client [Home Page] Interface - Left Joystick Controls Walking Direction - Right Quick Window Sets Quick Actions		1. Normal walking state, with direction controllable in real-time via handle operation 2. During walking, any pre-set action in the [Actions] column can be executed	
Walk				1. Can walk to the set position (chair) independently and	

	to the rest point, sit down and stand up independently				complete standing up/sitting down 2. The process is fully automated, enabling zero-person operation and maintenance	
	VR Teleoperation	--	Client [Operation] Page - Switch to	--	1. Put on the VR glasses and configure the connection to A2 in the glasses. 2. Remote operation and mode switching can be enabled on AimMaster 3. Specific operation mode of VR waist-mounted	1. The Pico4 Ultra Enterprise, a brand designated by AgiBot, must be selected

			[Remote Operation] Mode - [Record New Action]		teleoperation: a. Pushing the joystick of the right-hand controller forward or backward can control squatting and standing up, with a maximum squat depth of 25 cm b. Pushing the joystick of the left-hand controller forward or backward can control the upper body to rotate to the sides (up to 30°), and it will return to its original position after releasing the joystick. c. Pushing the joystick of the left-hand controller forward or backward can control the pitch of the upper body (up to 30° of bending), and it will return to its original position after releasing the joystick.	
	Dance Etiqu	--	--	1. Bow in respect before the dance begins		

ete			and bow for curtain call after it ends.		
Autonomously return to the rest point and sit down	1. Yuanzheng, return to the rest point 2. Yuanzheng, stand up	Standby exceeds the set time or the battery level is below 15%		(This feature requires you to purchase the matching chair and blanket) 1. Create a new rest point on the current map 2. Enable in Settings: Return to Rest Point on Low Battery or Go to Rest Point in Standby 3. As long as there is a sentence: "Yuanzheng, return to the rest point", standby exceeds the time you set, or the battery level is below 15%, the robot can return to the rest point. 4. After returning to the rest point, the robot will sit down autonomously. 5. You can stand up simply by saying "Yuanzheng, stand up" or clicking the one-click stand-up button on the Client	
Auton	--	Client [Mappi	1. The robot will automat		

	omous Exploration and Mapping		ng] - Click Explore	ically explore the map 2. Please follow the robot, and you can remotely control the robot to move and build a map when necessary		
Job Intelligence	Auto Dispatch	--	Client [Operation] Page - Switch to [Auto Dispatch] Mode	1. Expression automatically switches to normal state 2. Pick up items on your own when you see them; voice recognition cannot identify specifie	1. Operate the robot via the remote control to grab the specified item (restricted to the allowlist) 2. Automated item grasping and delivery can be automatically completed using the Client or voice commands	1. **Environmental Boundary**: Desktop Height 95-100 cm 2. **Operating Precautions**: During the grabbing operation, do not operate in other remote control or web-based operation modes, otherwise there is a risk of the aircraft crashing 3. **Object Placement**: Please place within the range displayed on the Client 4. **Distance between the robot's abdominal shell and the desktop:**Approximately 20 cm 5. **Item**

				d items. 3. No movement in lower limbs		**Boundary:**Single item with a grasping weight not exceeding 600g 6. **Object Scope:**Opaque/Non-reflective Objects 7. **Item diameter**: 7-12cm spherical/blocky objects, or vertically placed cylindrical objects 8. **Allowlist for Grasping**: Vertically placed 330-500ml plastic water bottles, spherical/blocky fruits with an item diameter of 7-12cm, and soft dolls with an item diameter of 7-12cm 9. **Automatic Dispatching:** a. 【Environment】Place the robot and desktop as required. b. Entering automatic dispatch mode, the robot raises both hands. c. [Object Placement] Place the object to be grasped within the target range. d. Click Start, and the robot will grasp the target, deliver it, and release it with force sensing in the preset order. e. 【Grasping】There is a grasping confirmation step.

f. If the object is not grasped, the hand will lift up and then continue to attempt grasping; only after the object is grasped will it start to deliver.

g. [Delivery] The robot delivers the item (at this time, the robot will say: I've got the target, please take it. This is configurable.)

h. [Inductive Release]

i. After the delivery action is completed, when the robot senses someone taking an object, it will trigger the release of the grip.

ii. If no one picks up the object, the robot will wait for 40 seconds, and after that, it will automatically release and reset.

iii. The robot will cycle through grasping until all items within the range have been delivered.

i. [End] Press End, and the robot stops moving.

j. [Exit] Exit the

						automatic dispatch mode, and the robot's arms will lower. Note: In this function, voice interaction can be performed, where only voice conversation is conducted without performing related actions. In this function, there is currently no active obstacle avoidance for the upper limbs, and no collision detection (passive safety) is available. 10. **Voice control for grasping:** a. Client switches to job mode b. Set up the robot and the environment (table, allowlist object placement, etc.) c. Switch the robot to the operating mode d. Wake up the robot by voice and say: Get me a bottle of water/an apple/a doll, etc.
	Silicon-based	--	Robot power on - Attitud	Silicon-based Delivery	1. Deploy venue warehouse locations, order placement locations, etc., and establish a robot store map. 2. After the robot enters the "Silicon	1. Voice Order Delivery Items a. In the "Silicon-based Delivery" mode, the robot is in a state of having no remote orders and will be located at the

	Delivery		e switch [Motion Mode] - Click [Relocate] - [Auto Positioning] - Client [Operation] interface - Click [Silicon-based Delivery] - Click [Start] - Click		Delivery" mode, customers can scan the code to place an order for the desired items, and the robot will accept the order. 3. The robot picks up the ordered item, moves to a location near the user, and conducts item handover. **Remote QR code scanning for order placement and item delivery** 1. Deploy points such as venue warehouse points and order placement points, and establish a robot store map. 2. After the robot enters the "Silicon-based Delivery" mode, users can scan the code to place an order for the desired item, and the robot will accept the order. 3. The robot picks up the ordered item, moves to a location near the user, and conducts item handover. **Place an order for item delivery via face-to-face voice** 1. In the "Silicon-based Delivery" mode, the robot is in a state of no remote orders and will be	standby position. b. When a user places an order with the robot in person, the robot can then turn around and hand over the item to the user.

			[Confirm] to start executing the order		located at the standby point. 2. When a user places an order with the robot in person, the robot can then turn around and hand over the item to the user.	
	Interactive Game	--	Client [Operation] Page - [Three in a Row] - [Start Game]	1. Expression automatically switches to playing chess 2. There is interactive language (self-talk) during the chess game 3. Accurately perform item grasping and delivery according to user instructi	--	1. Desktop height: 98cm 2. The distance between the robot and the table is about 23 cm 3. Place the accessory desk mat on the table, align it with the edge of the table, and place the side with the red grid in front of the player 4. The chessboard is placed on the black Nine Blocks in the middle of the table mat 5. Place the green chess piece in the green grid and the red chess piece in the red grid

				ons 4. No movement in lower limbs		
Ontology/System	WIFI Connection	--	Client [Settings] Page - [Wi-Fi] Switch	--	--	
	5G Network Connection	--	Client [Settings] Page - [Mobile Network] - If an internal SIM card is inserted, it sho	--	--	

			ws that 5G network is enabled; if no SIM card is inserted, it shows "No SIM card inserted".			
	Bluetooth Speaker	--	Client [Settings] Page - [Bluetooth] - Select Paired		1. Can be paired and connected to external devices via Bluetooth, and the Bluetooth volume can be adjusted	

		Device			
OTA Function	--	Client [Settings] Page - [About] - [System Software Upgrade]	--	1. In the settings of Aimmaster, click Download, Install, and Upgrade to update the robot system version	--
Seated Posture Packaging	--	Client [Unboxing] Page - [PowerOn] - [Remote Control Connects	--	1. Seated packaging, one person can unpack/start up; easy to operate in 5 minutes, no crane required 2. Cooperate to assist in sitting down, standing up, efficiently use the robot in daily life, and enter standby mode	--

		to Robot]			
Battery Direct Charging	--	--	--	1. When the robot is connected to the charger, it supports directly charging the battery through the charger	1. Battery Life: Up to 3 hours per battery (hot-swappable battery replacement) 2. When hot-swapping the battery after the charger is connected, do not shake the robot to avoid power failure and falling due to insufficient charging power.
Hot Swap	--	--	--	1. When the robot is connected to the charger, it supports hot-swapping the battery, and the robot does not shut down during the hot-swapping process	
Low battery alarm	--	--	1. Broadcast "Low battery, please charge in time or maintain charging status before battery replacement" 2. Upper limb has no	1. This alarm is triggered when the battery level is below 15%.	--

				movement 3. No movement in lower limbs		
	Intelligent charging and battery swapping reminder	--	--	--	After plugging in the charger, unplugging the battery pack, or installing the battery pack, there will be corresponding voice announcements and light changes for prompts.	
Platform	LinkCraft Platfo	--	--	Supports customizing the upper limb dance movem		

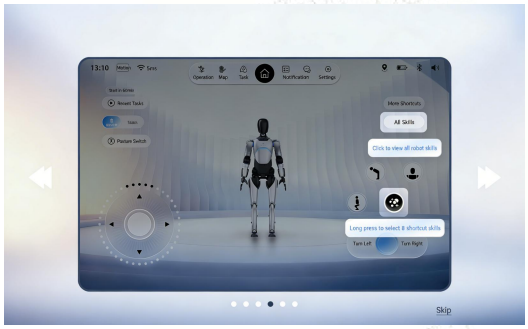
Access	rm			ents of A2 on the LinkCraft platform		
	Data Acquisition	--	--	Supports the creation, collection, and upload of data acquisition tasks on the Genie Studio platform	1. Create a data collection task from 0→1 and uniformly configure task labels 2. Supports using VR devices for data remote operation and collection 3. Supports data verification and one-click upload	

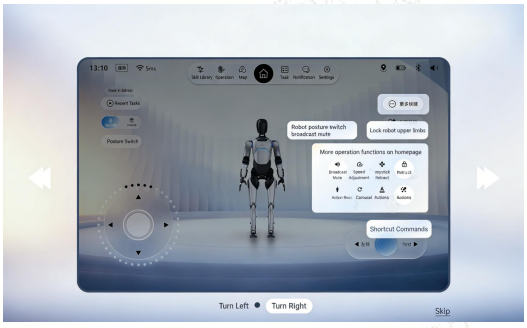
6.2 Instructions for Using Aim Master

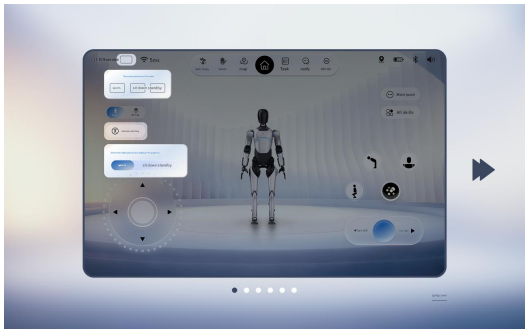
6.2.1.1 Preparatory work...

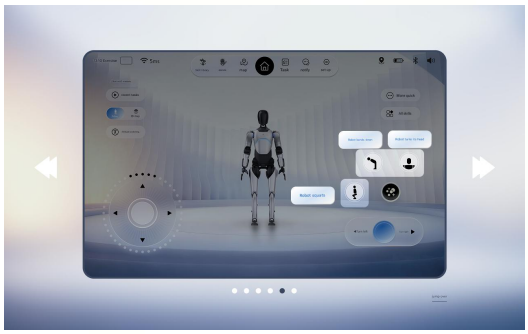
6.2.1.1.1 Newcomer Guide

A guidance page appears during the first upgrade





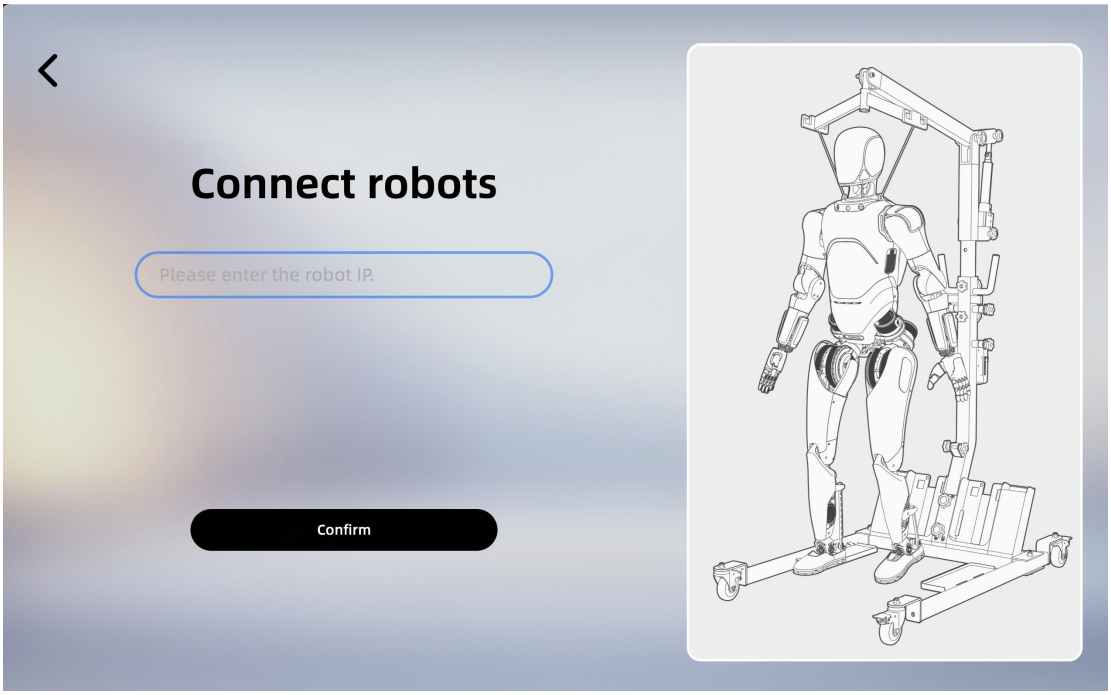




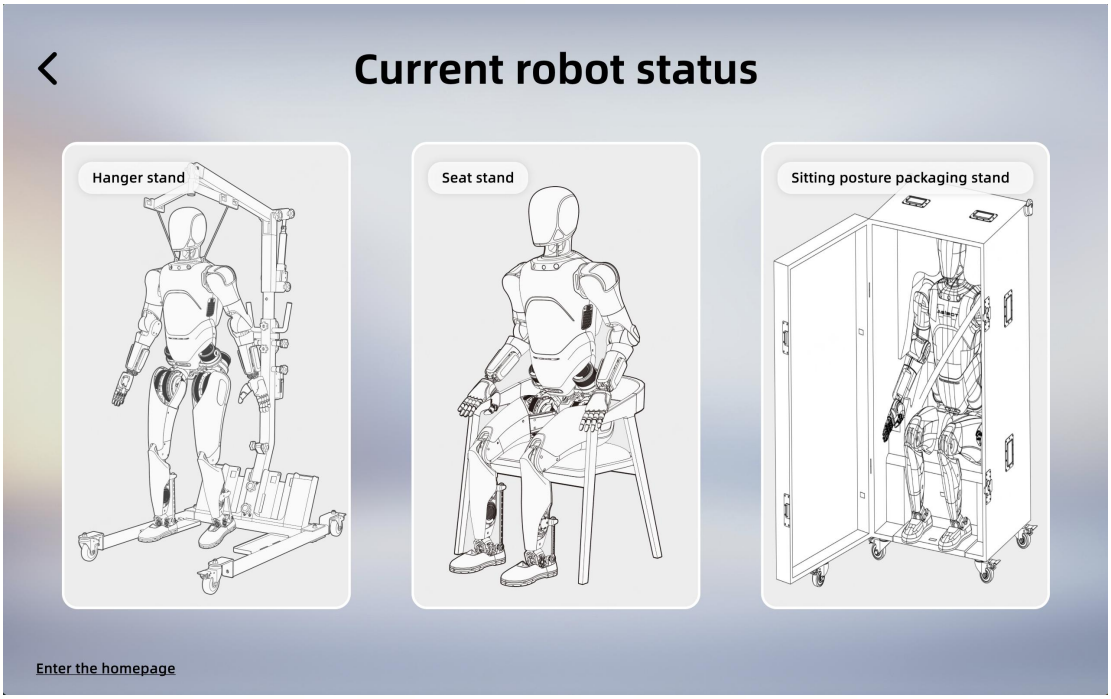
6.2.1.1.2 **Universal Guidance**

Select Robot Type

Connect to the robot via IP



6.2.1.1.2.1 Select the current robot status

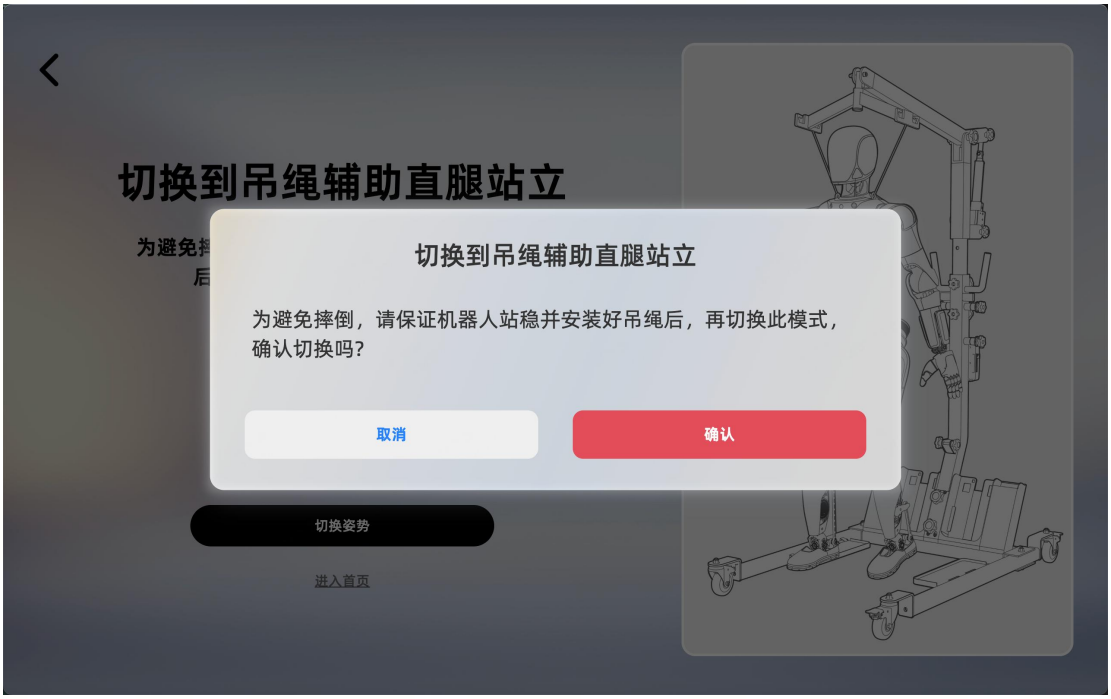


6.2.1.1.2.2 Hanger Standing

Install the rings, and click Next after installation is complete

Lift the robot, after lifting is completed, click Next

Posture Switch

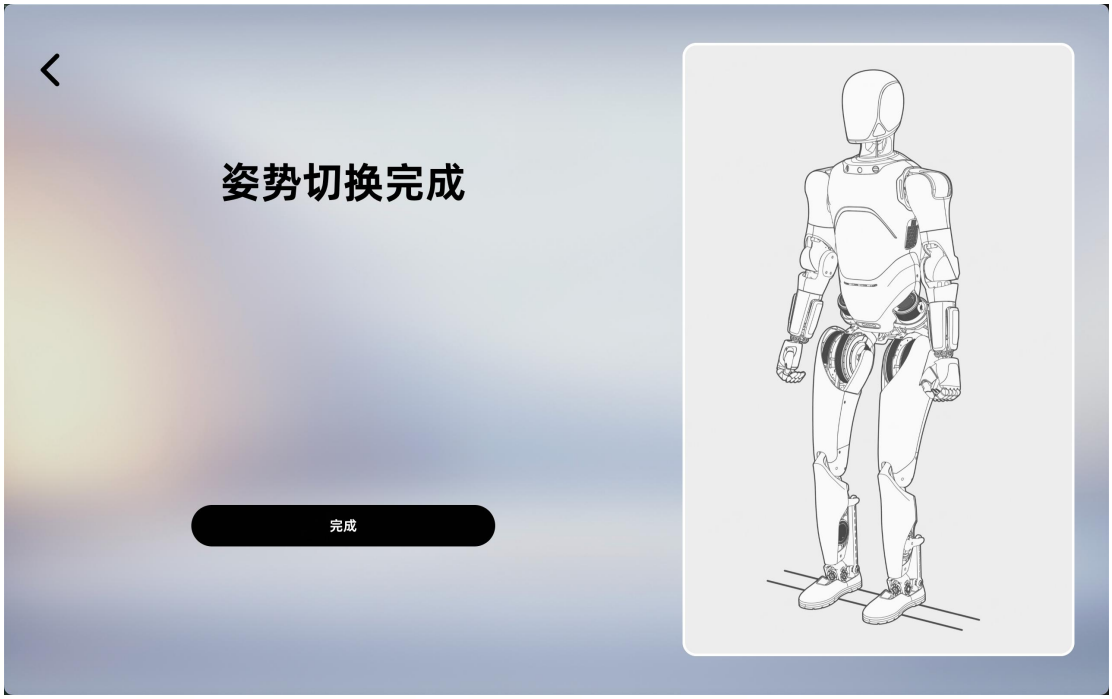


Posture switching completed

Descending Robot

Switch Pose

Switching posture completed



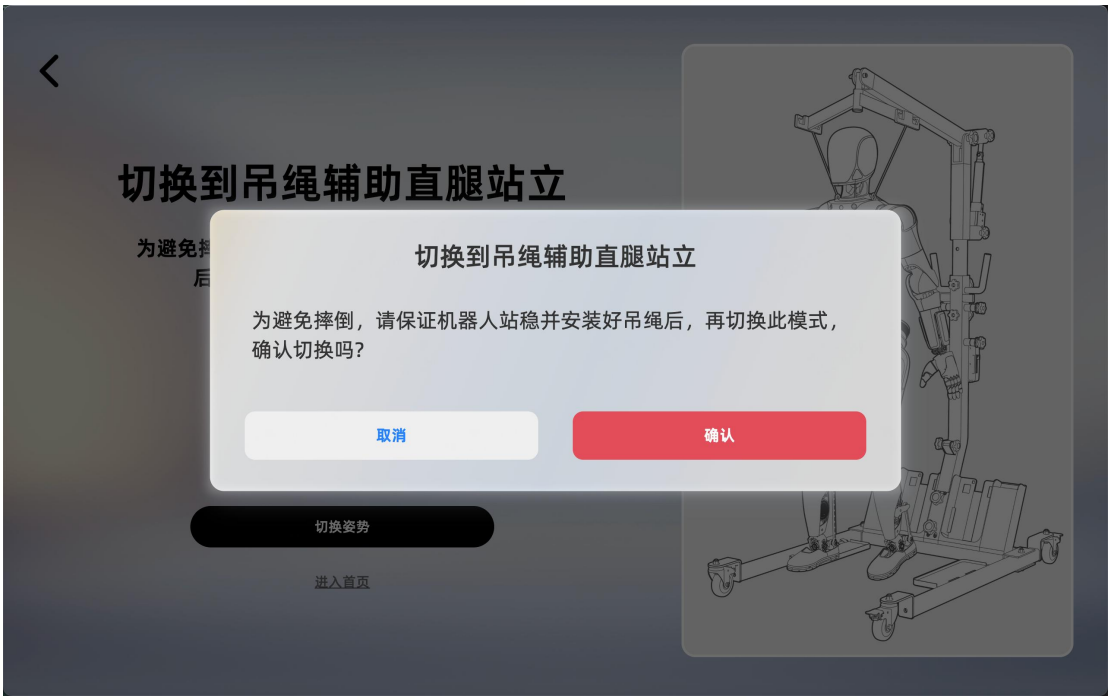
Click "Complete" to enter the home page

6.2.1.1.2.3 Chair frame sitting and standing (same as 1.2.4 sitting position packaging and standing up)

- Switch to standing posture (please note the prompt text on the reading interface)

- Switching Pose Confirmation

- Switch Pose Confirmation Popup

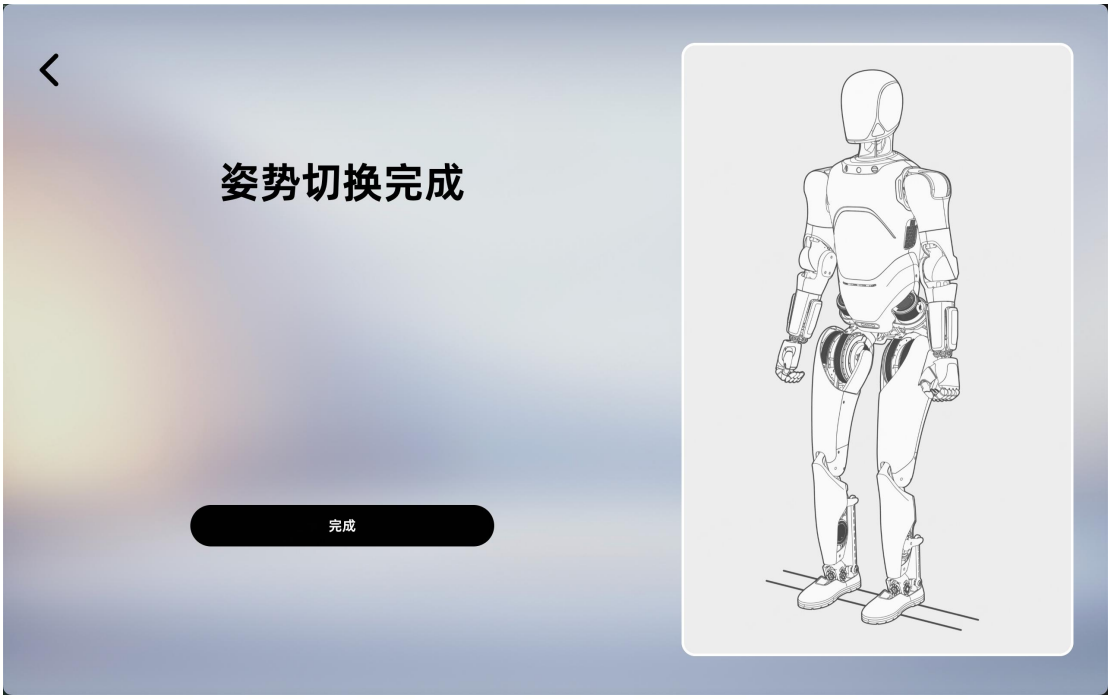


- Posture switching completed

- Switch to standing posture (please note the prompt text on the reading interface)

- Secondary confirmation for switching standing posture

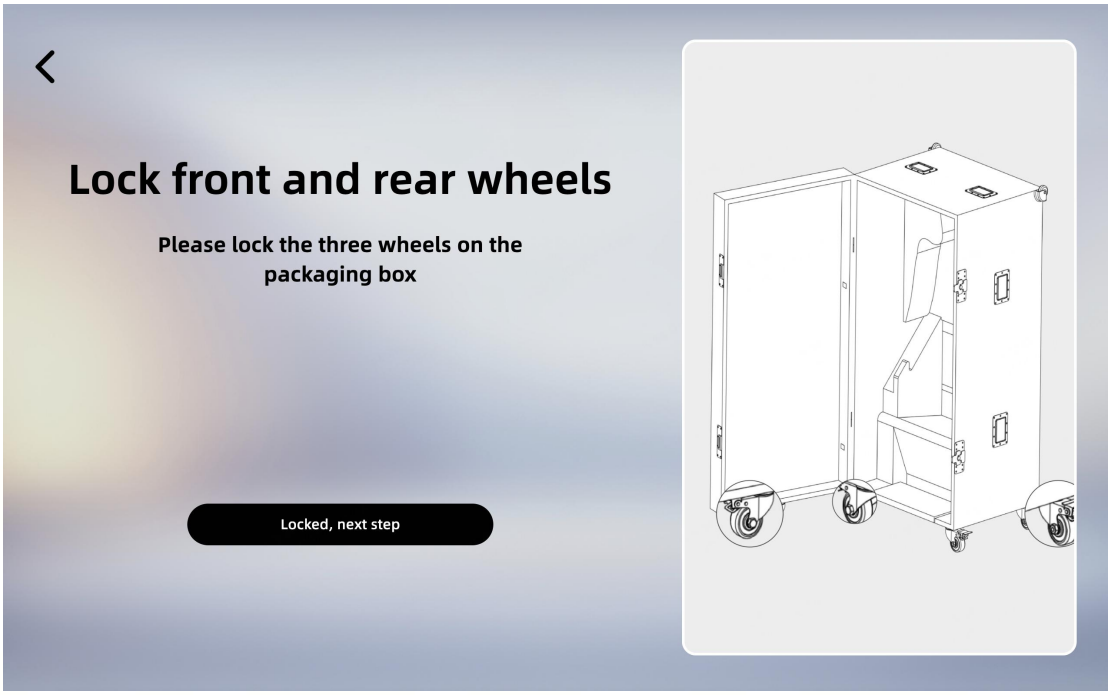
- Posture switching completed



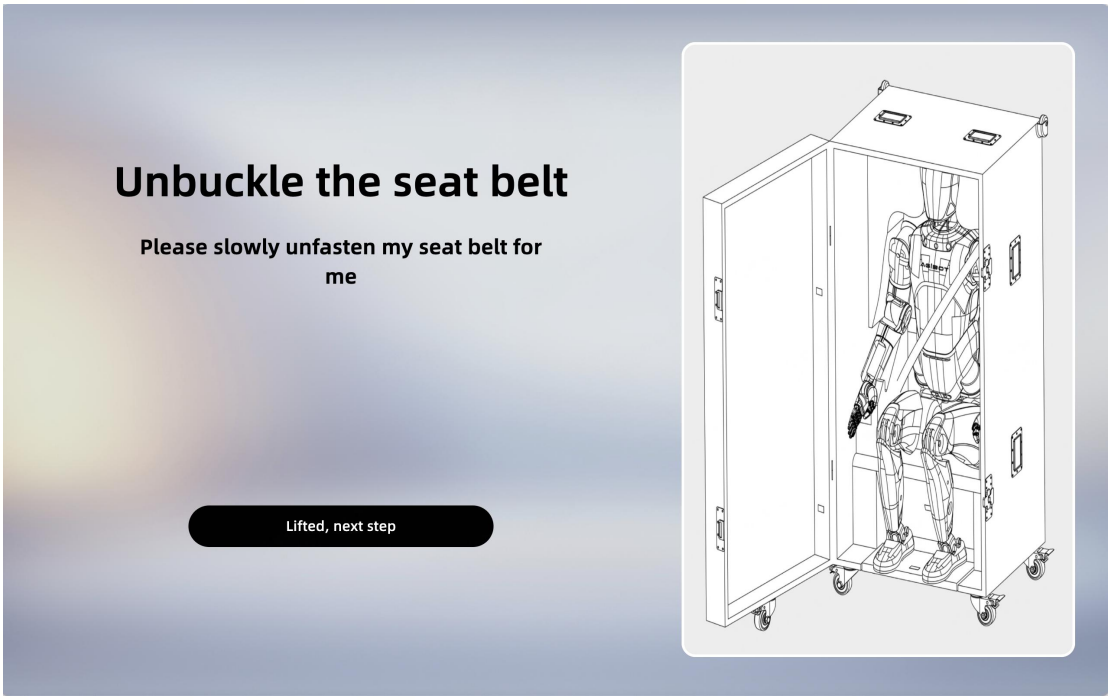
- Click "Complete" to enter the home page

6.2.1.1.2.4 Sitting posture packing and standing up

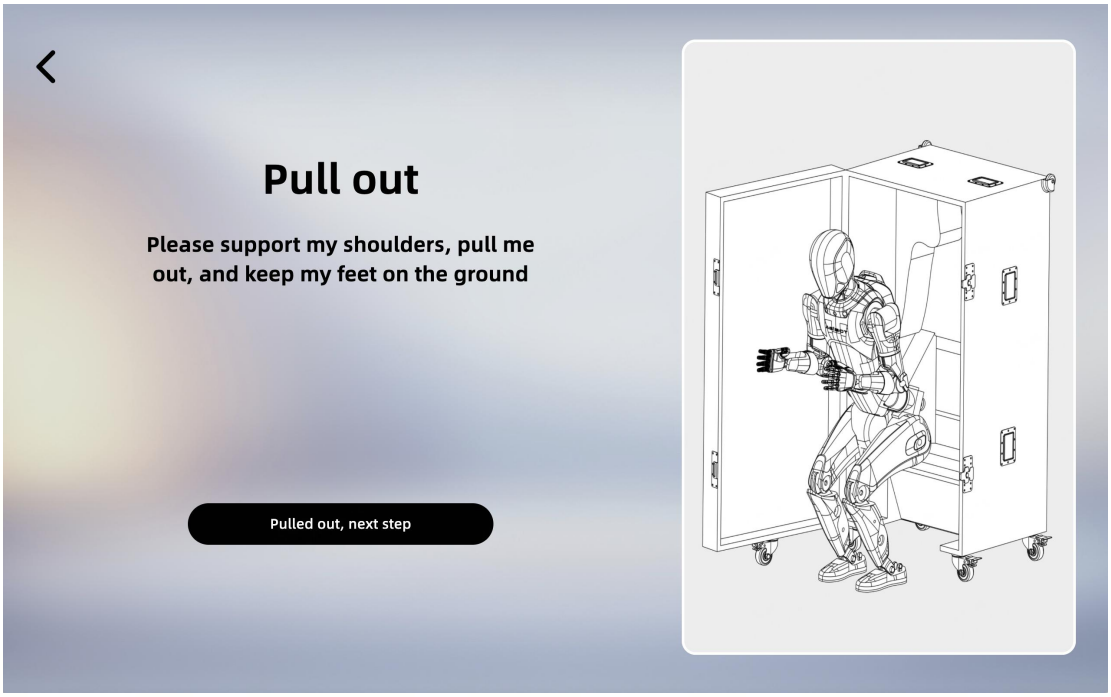
Lock the three wheels on the packing box, then click Next when done



Unfasten the robot's seatbelt and click Next



Hold the robot's shoulder, pull it outwards, stand firmly on the ground, and then click Next

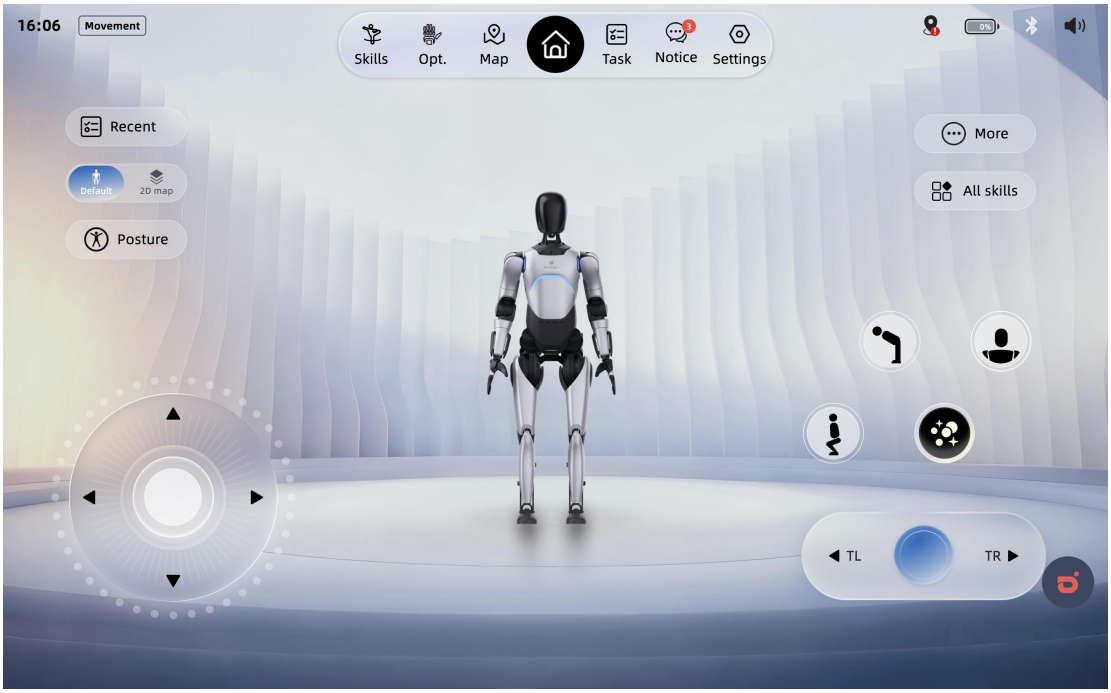


Release the brake and push the packing box away

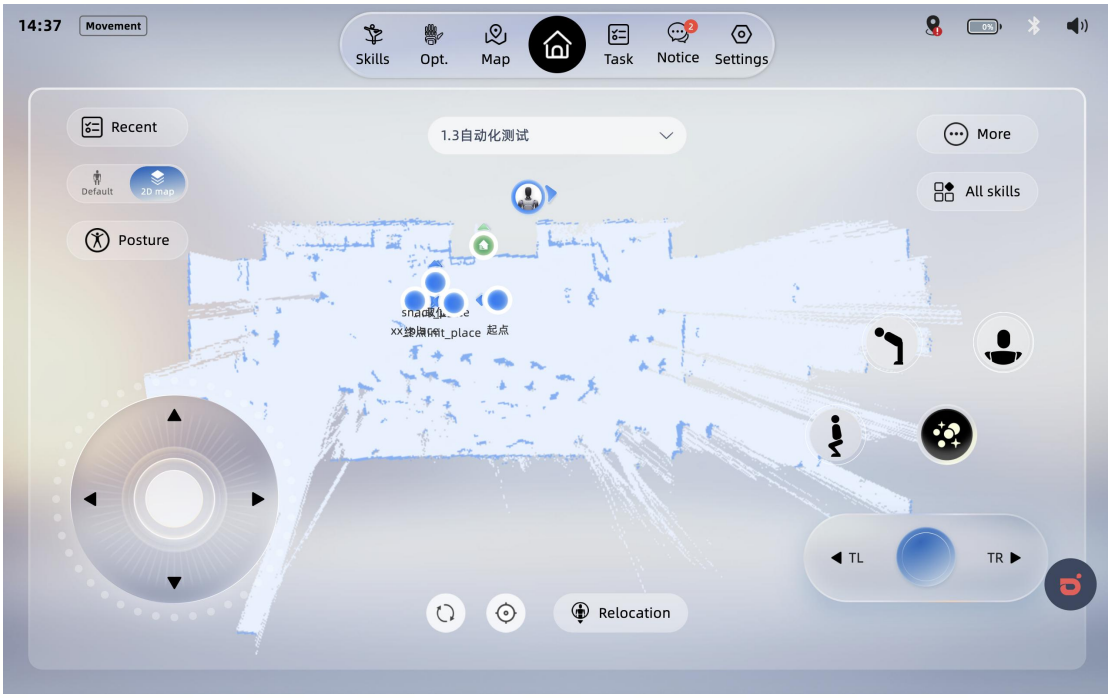
Posture switching completed, entering the home page.

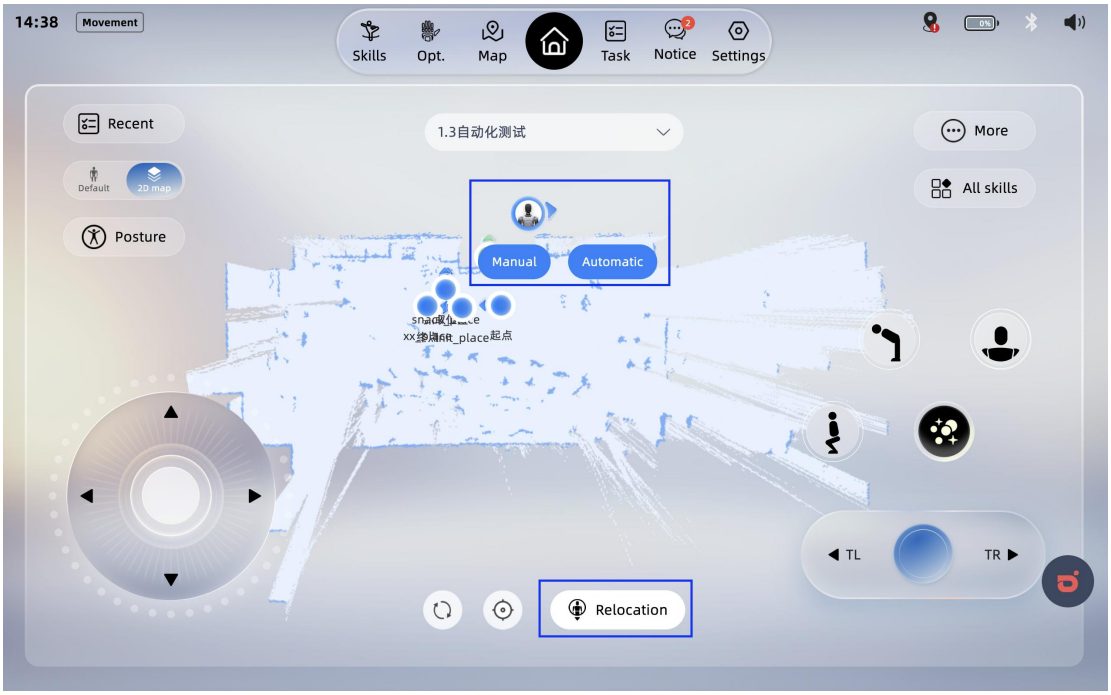
6.2.1.2 Home Page Instructions

6.2.1.2.1.1 Basic Page

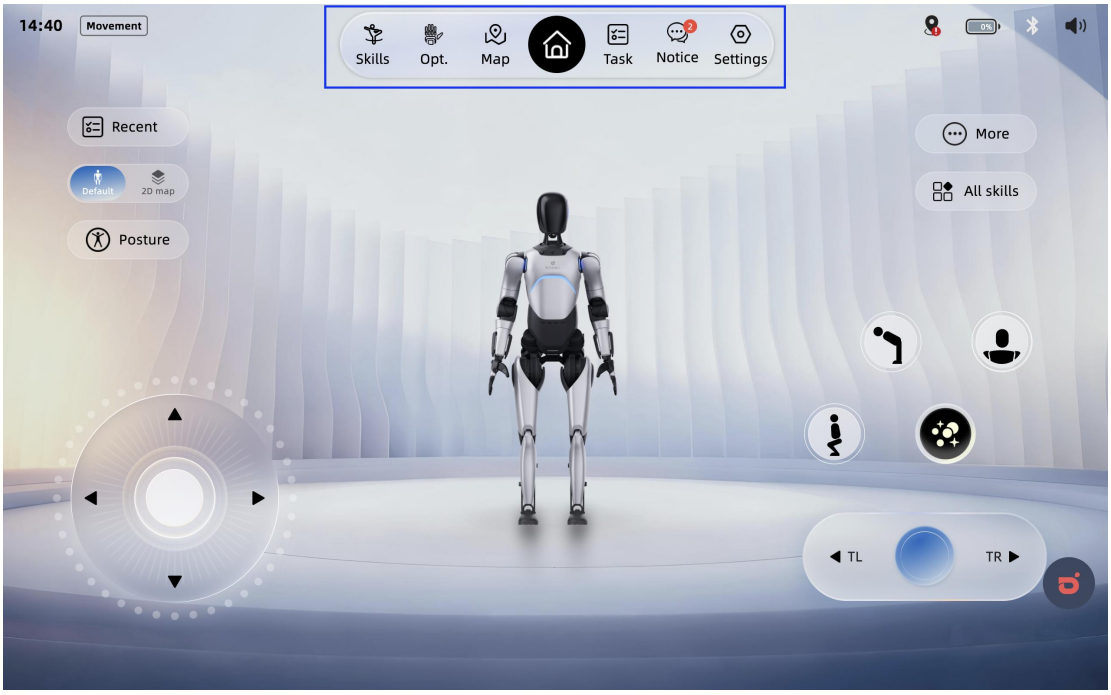


- 2D Map Mode



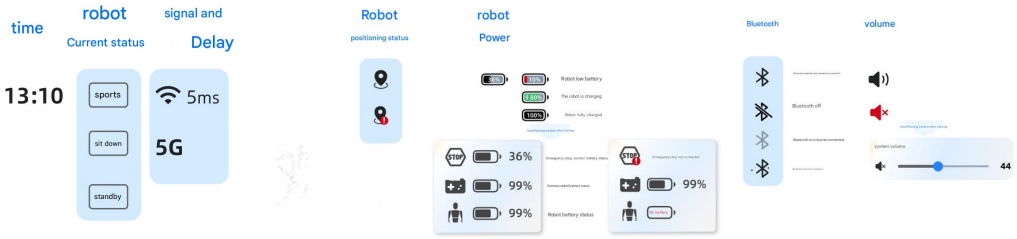


6.2.1.2.1.2 [Tab Bar]



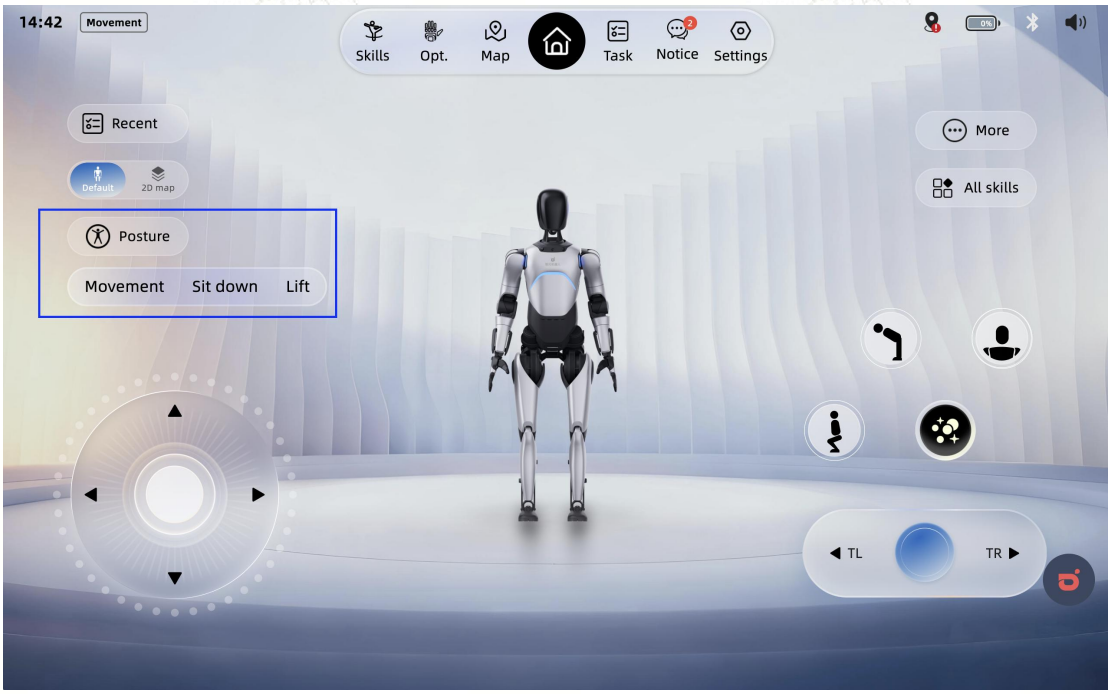
6.2.1.2.1.3 [Status Bar]

- **Left**is the delay parameter for time, the robot's current state, and the signal Wi-Fi or 5G connection signal
- **On the right** are the robot's positioning status, battery level, Bluetooth, and volume

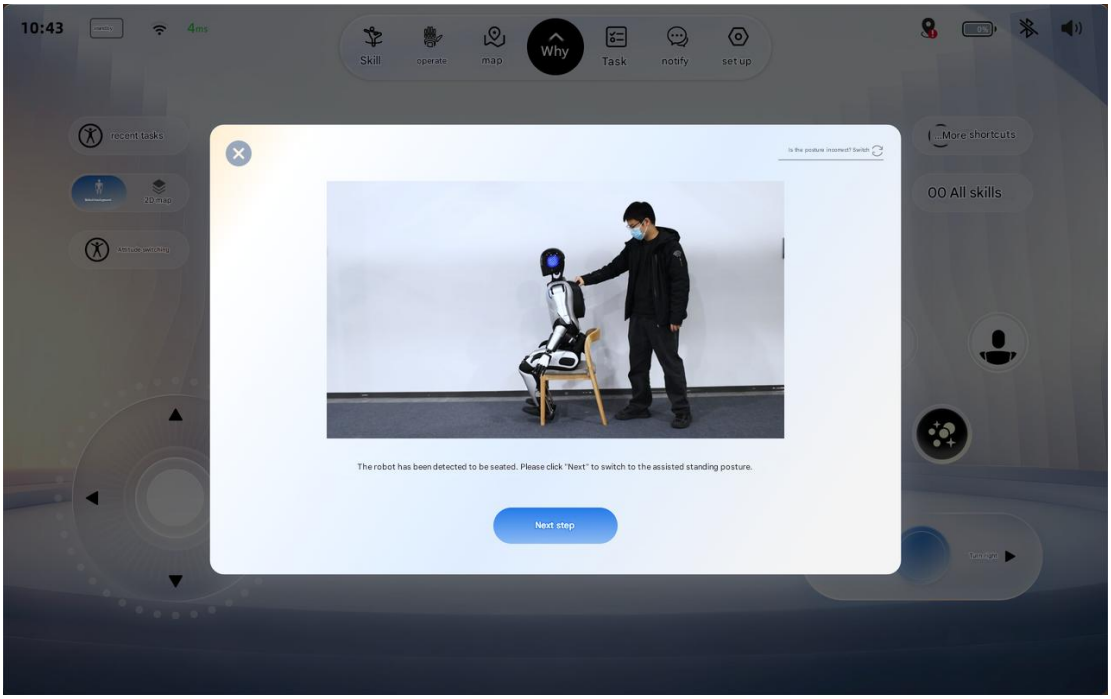


6.2.1.2.1.4 **[Posture Switch]**

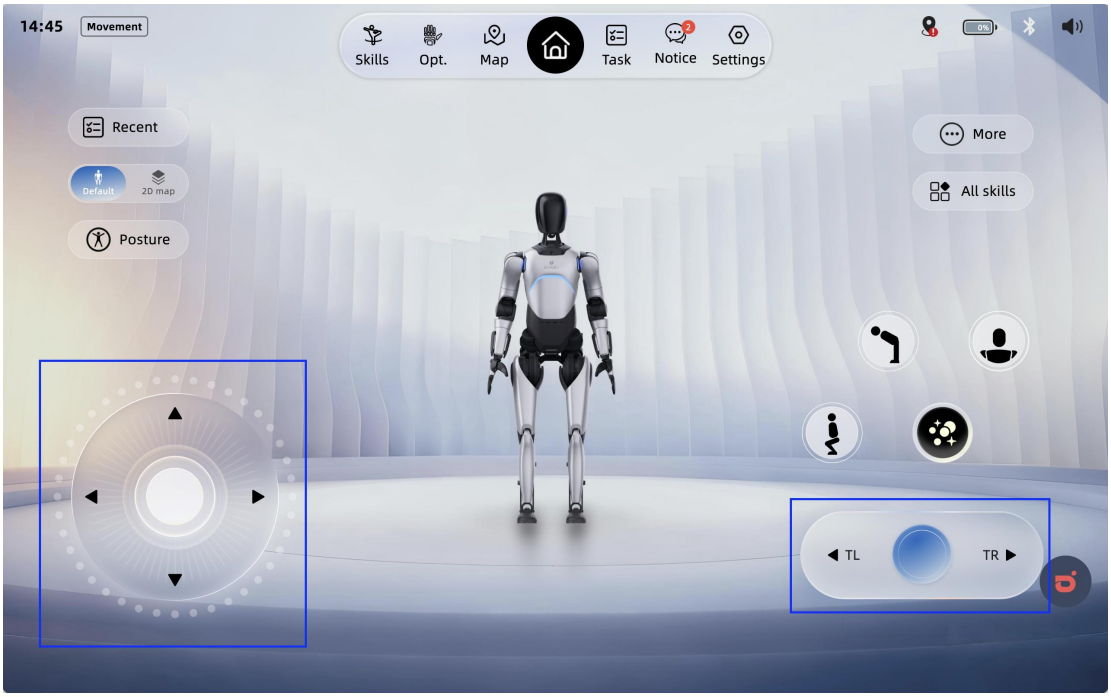
- Click [Posture Switch]



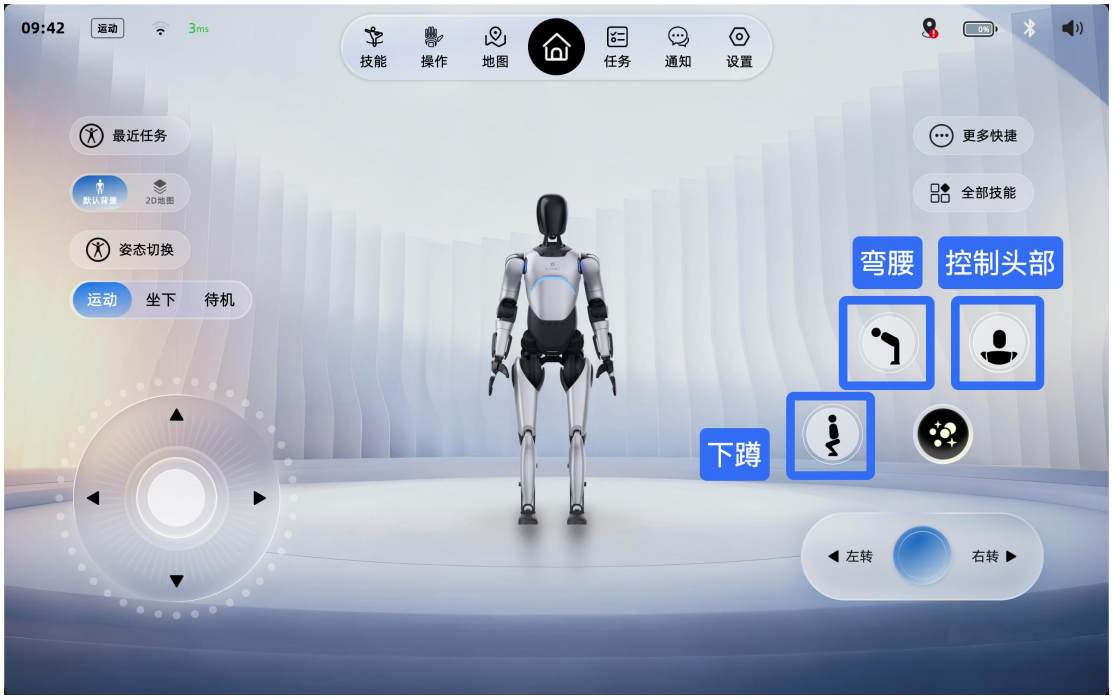
- Switch the attitude mode according to the pop-up window



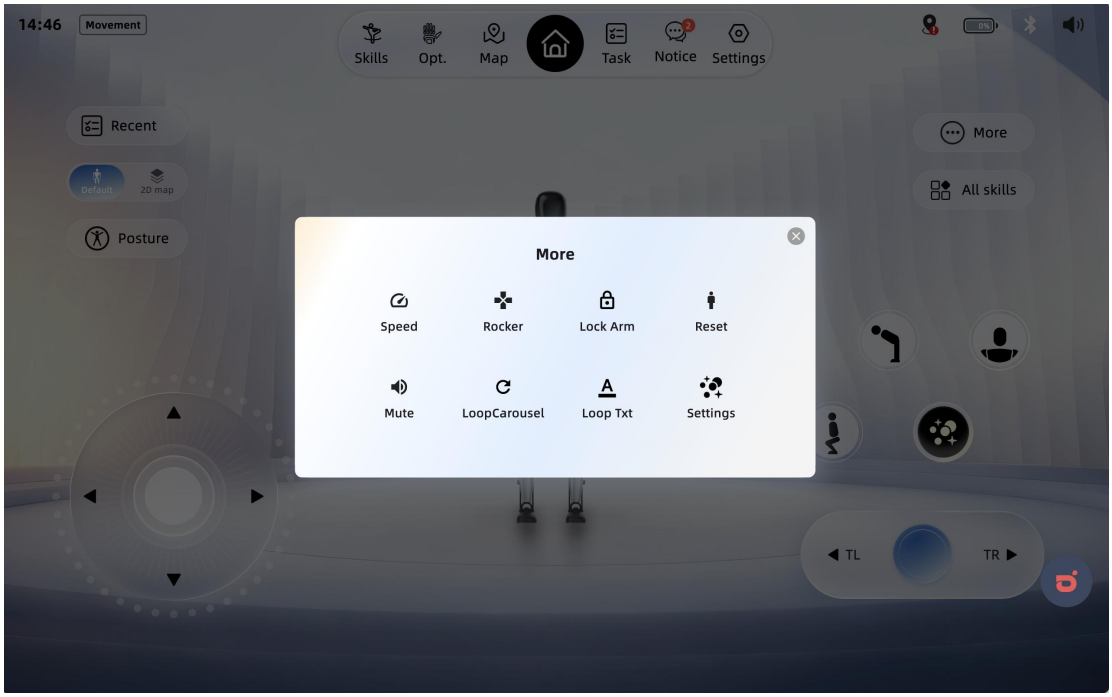
6.2.1.2.1.5 [Operation Wheel]



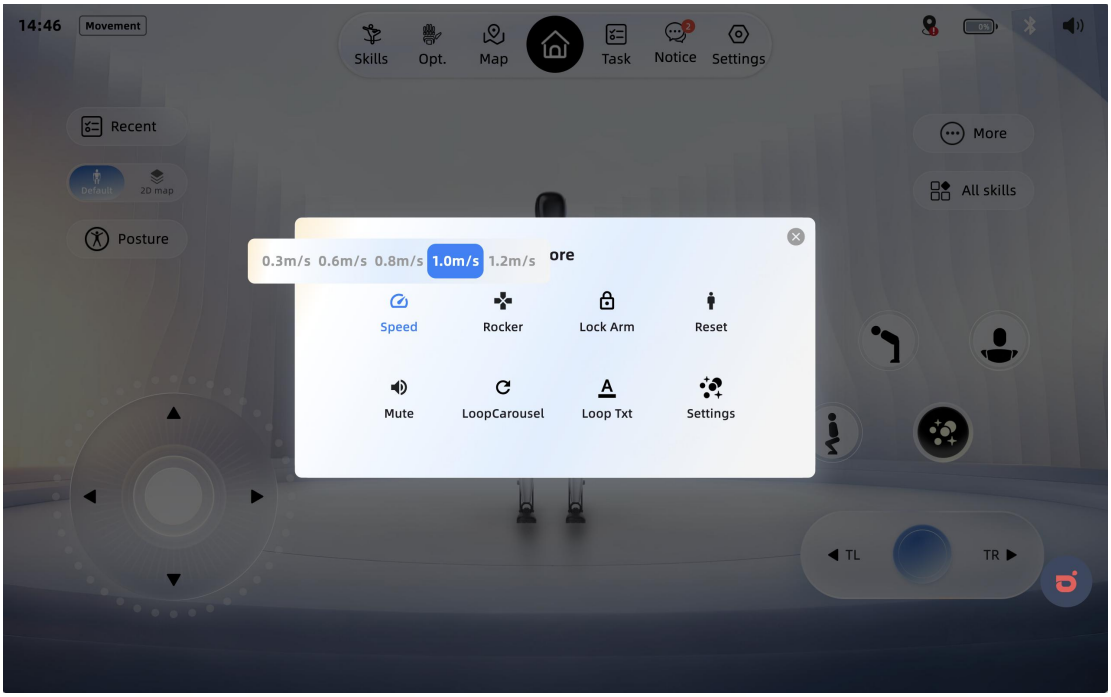
6.2.1.2.1.6 Head rotation, squatting, bending over



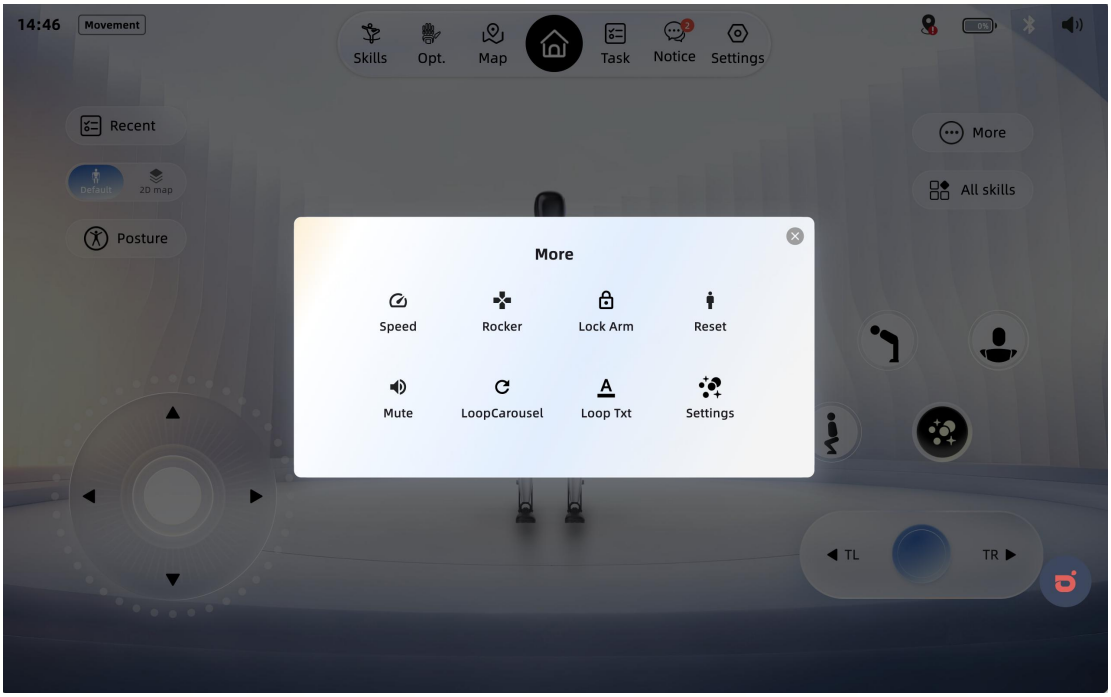
6.2.1.2.1.7 [More Shortcuts]



6.2.1.2.1.7.1 More - Speed Adjustment

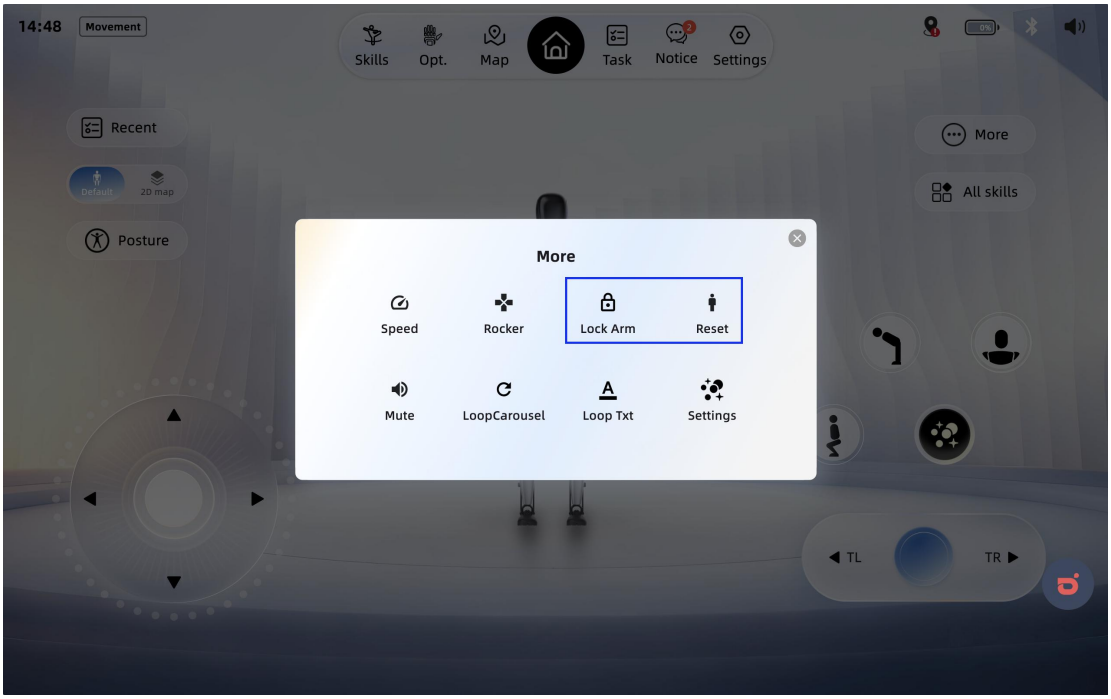


6.2.1.2.1.7.2 More - Joystick Retracted



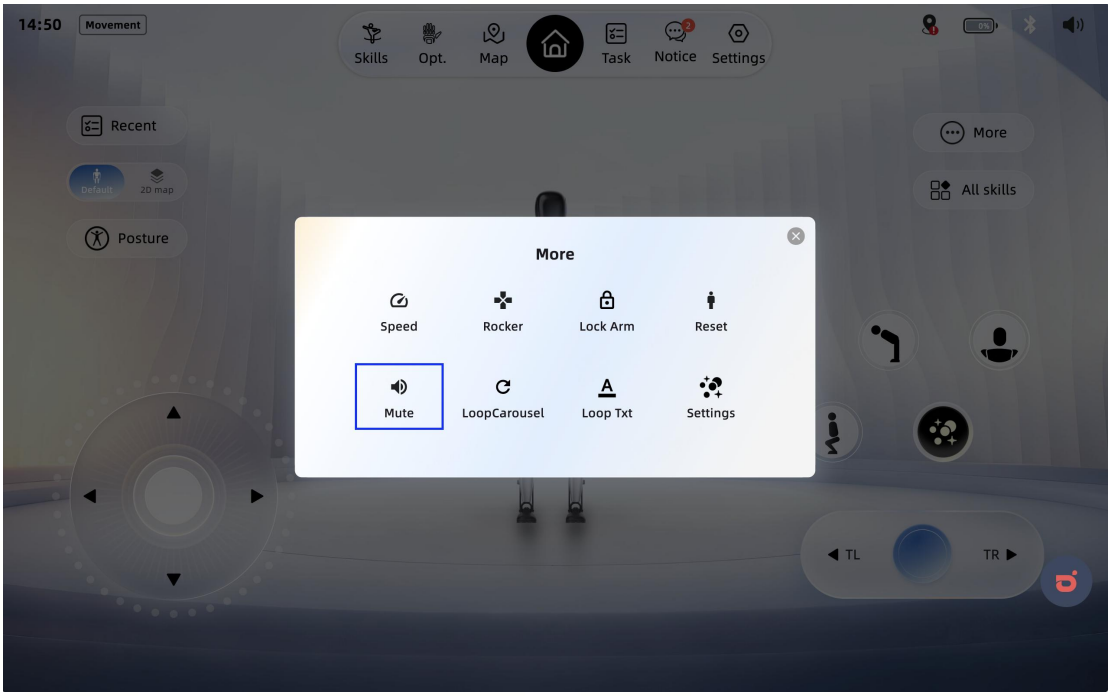
6.2.1.2.1.7.3 More - Lock Upper Limb - Action Reset

- Click [Lock Upper Limbs], and the upper limb movements will be locked
- Click [Action Reset] to restore the state, and the upper limb lock is cancelled

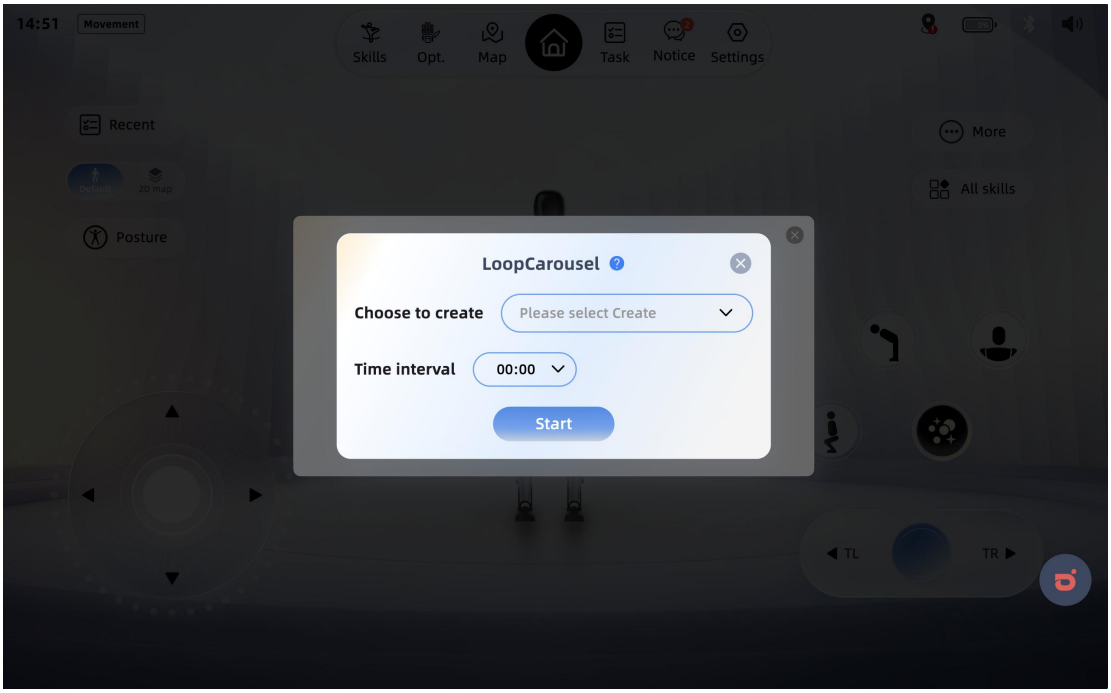


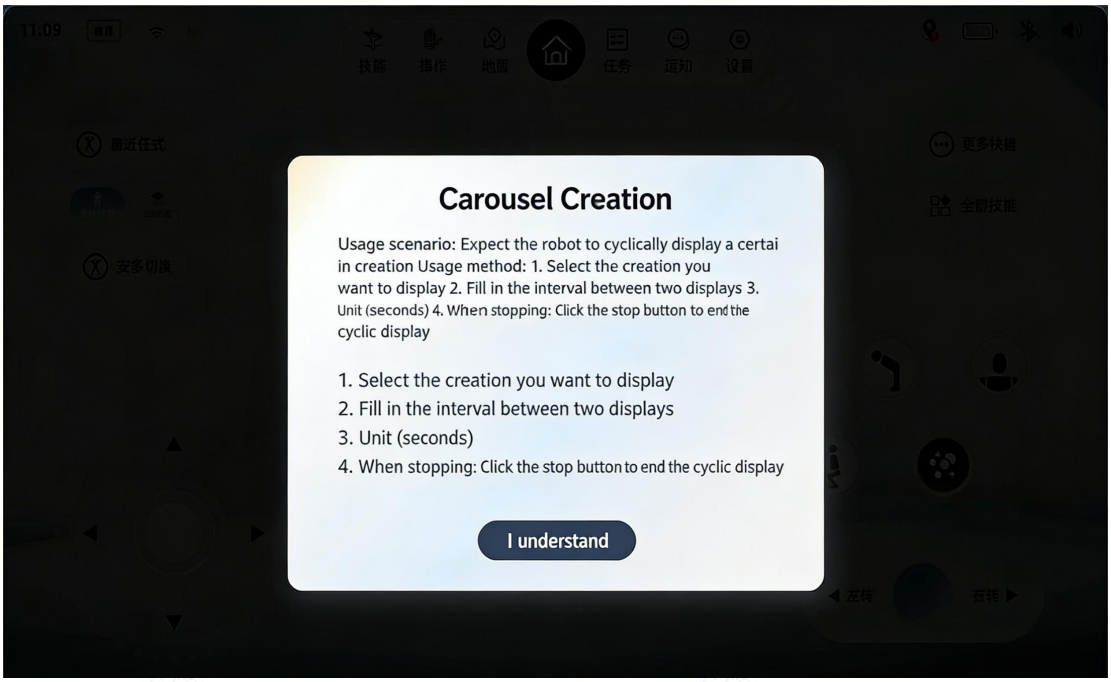
6.2.1.2.1.7.4 **4More - Mute Announcement**

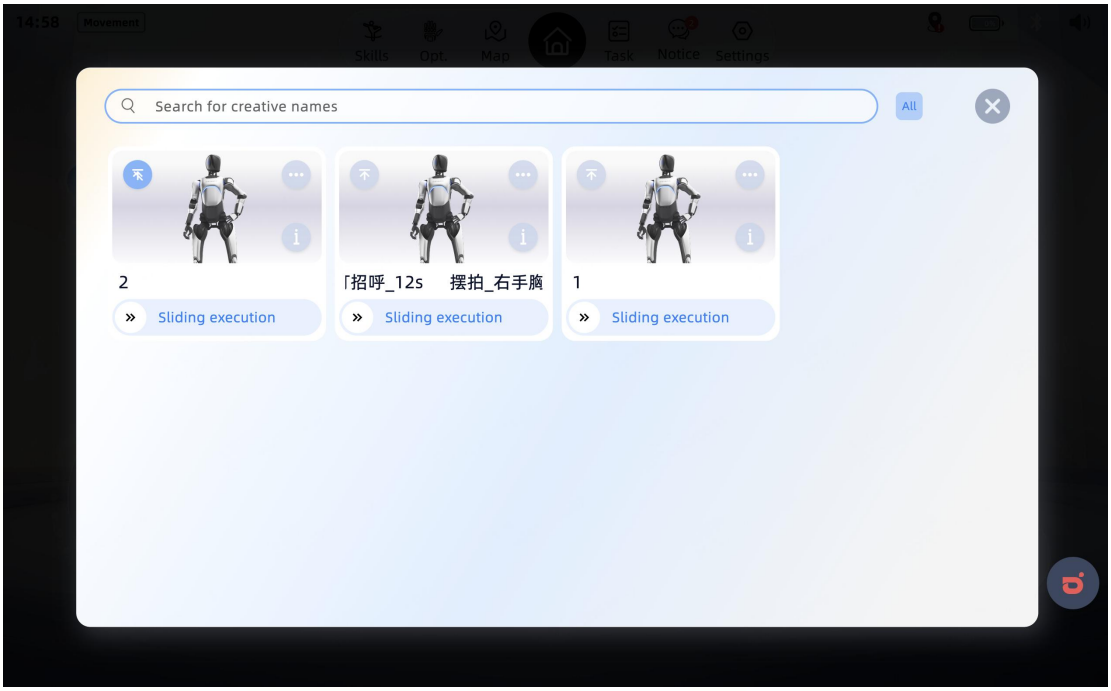
- The broadcast voice for robot state switching, rather than the overall volume of the robot



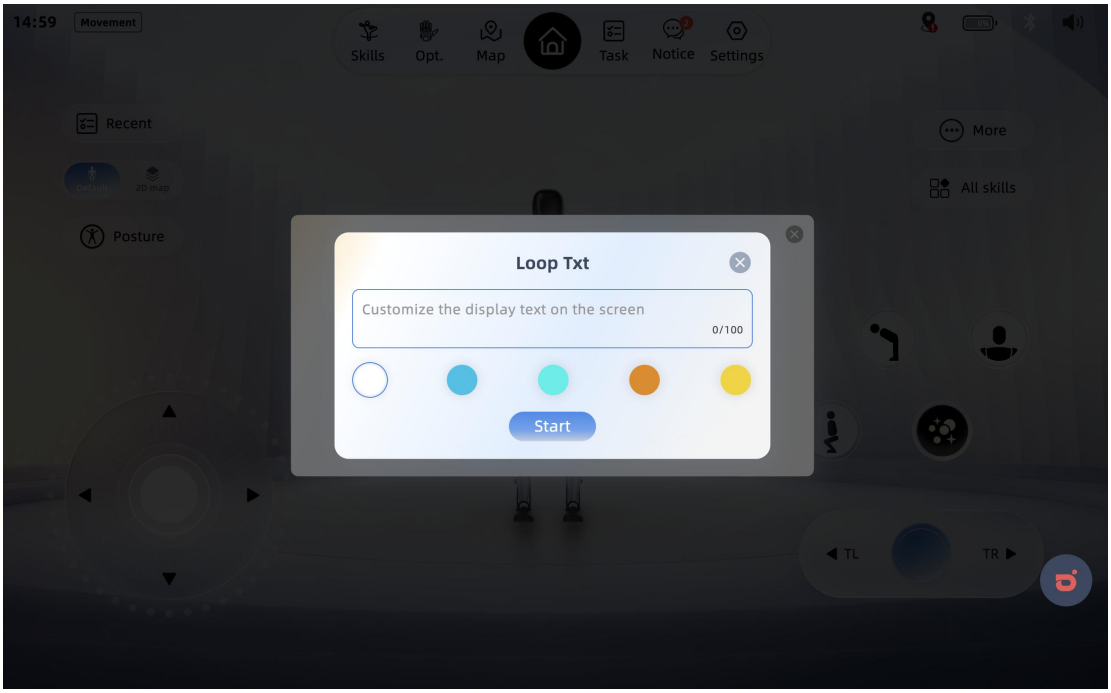
6.2.1.2.1.7.5 **More - Carousel Creation**





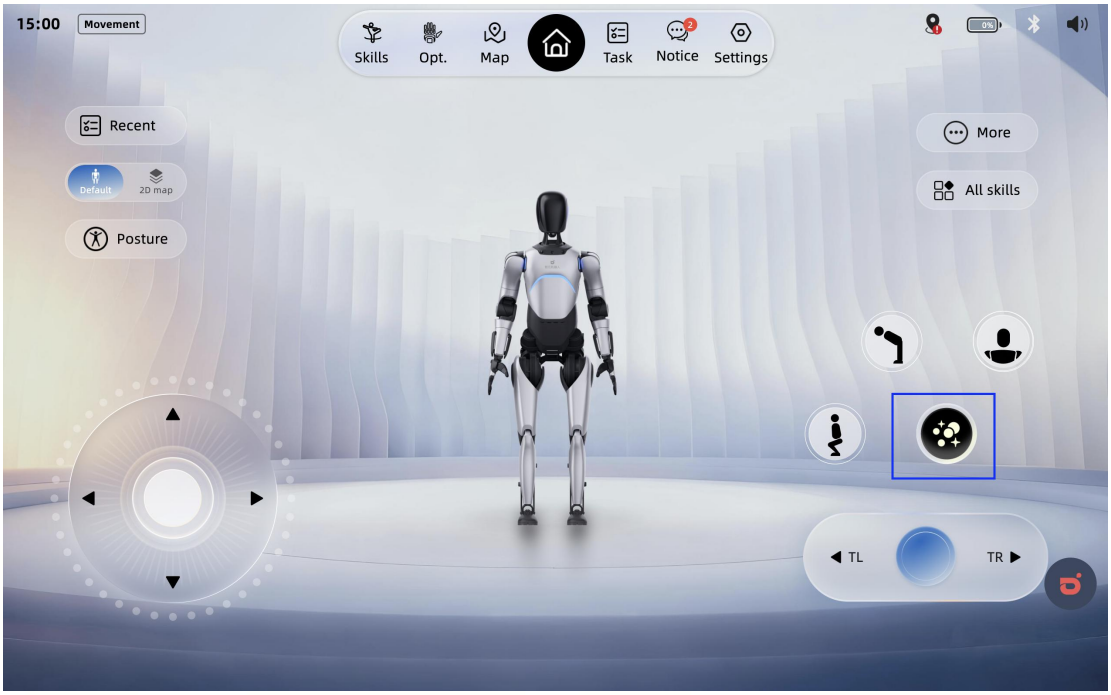


6.2.1.2.1.7.6 More - Carousel Text



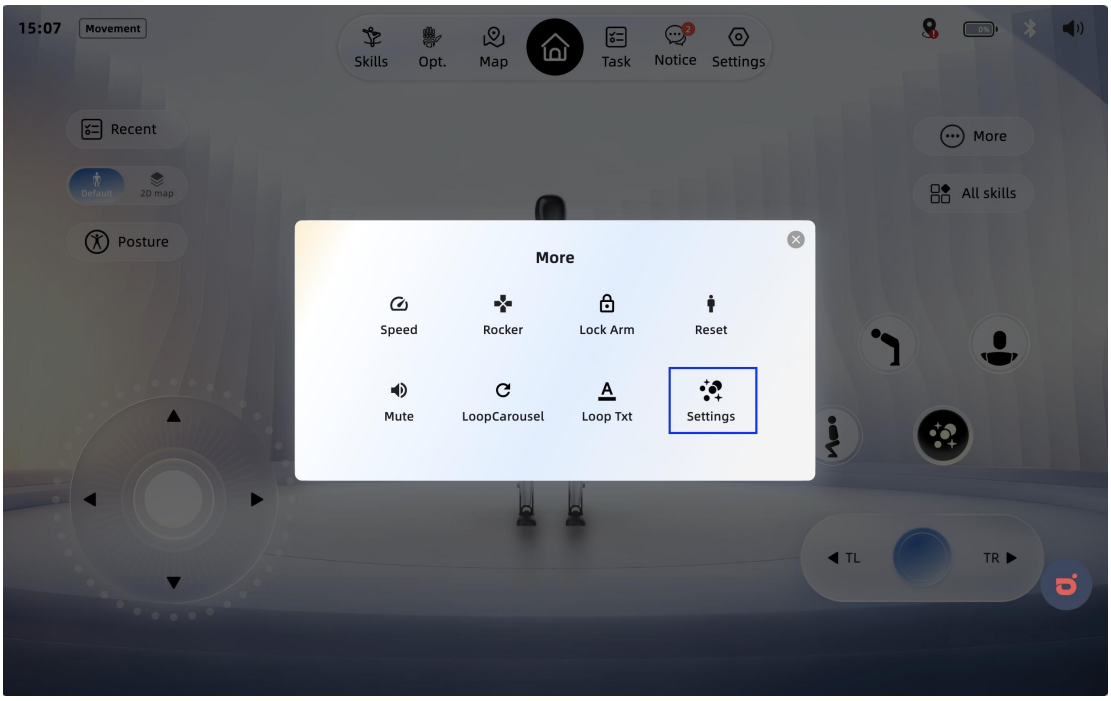
6.2.1.2.1.8 **[Quick Command]**

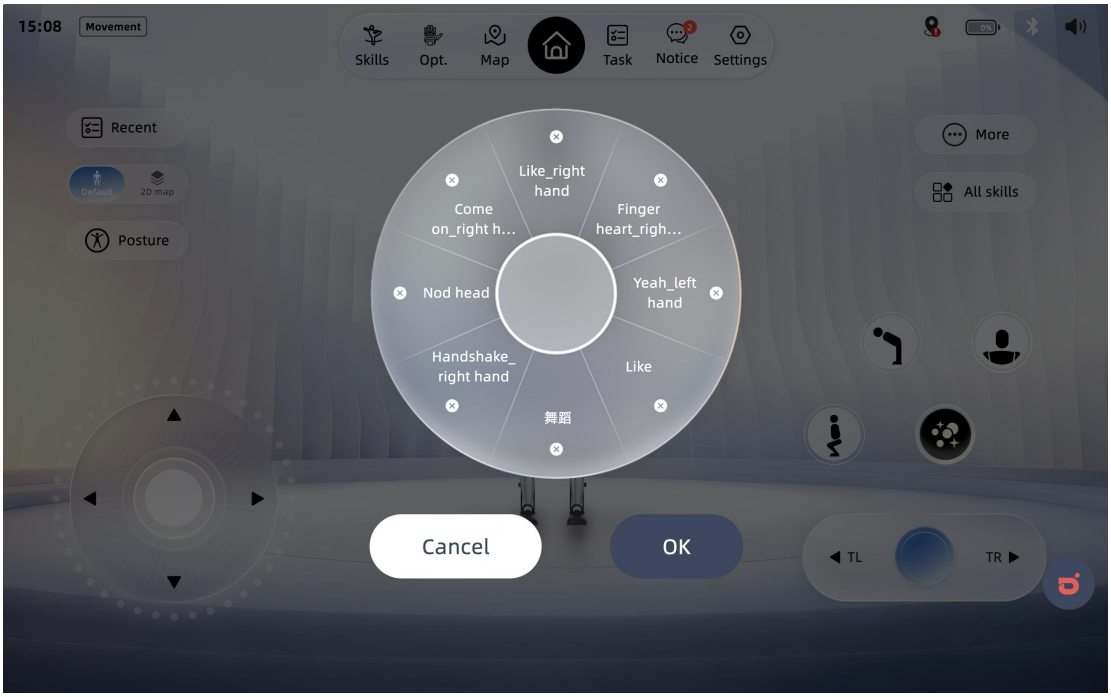
- Long press the button



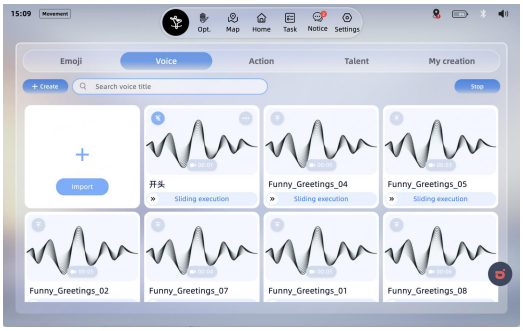
- Slide and Release Quick Skill

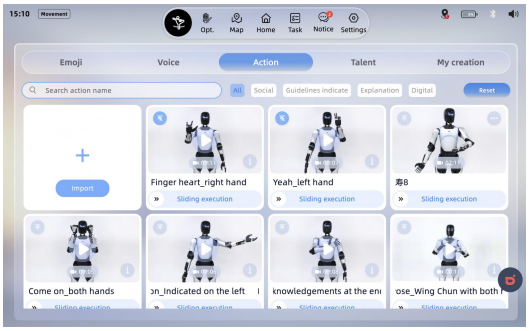
6.2.1.2.1.8.1 【Shortcut】Settings

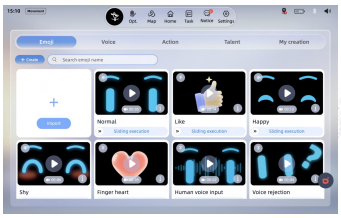


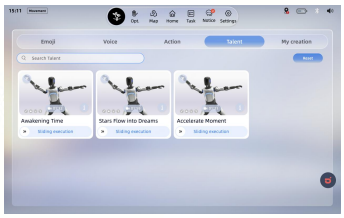


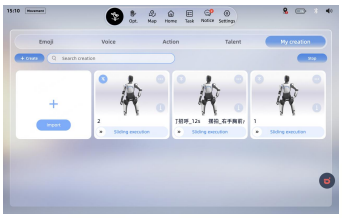
Supports quick settings for expressions, actions, voice, and my creations







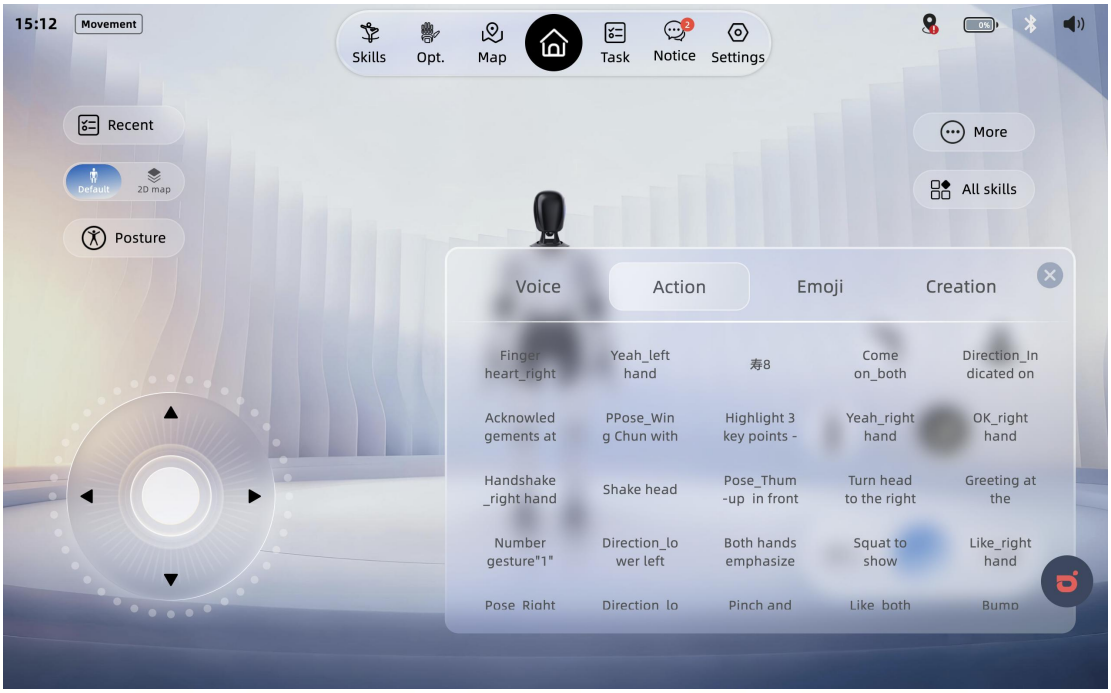




6.2.1.2.1.9 **[All Skills]**

Supports left joystick operation for **performing actions while walking.**

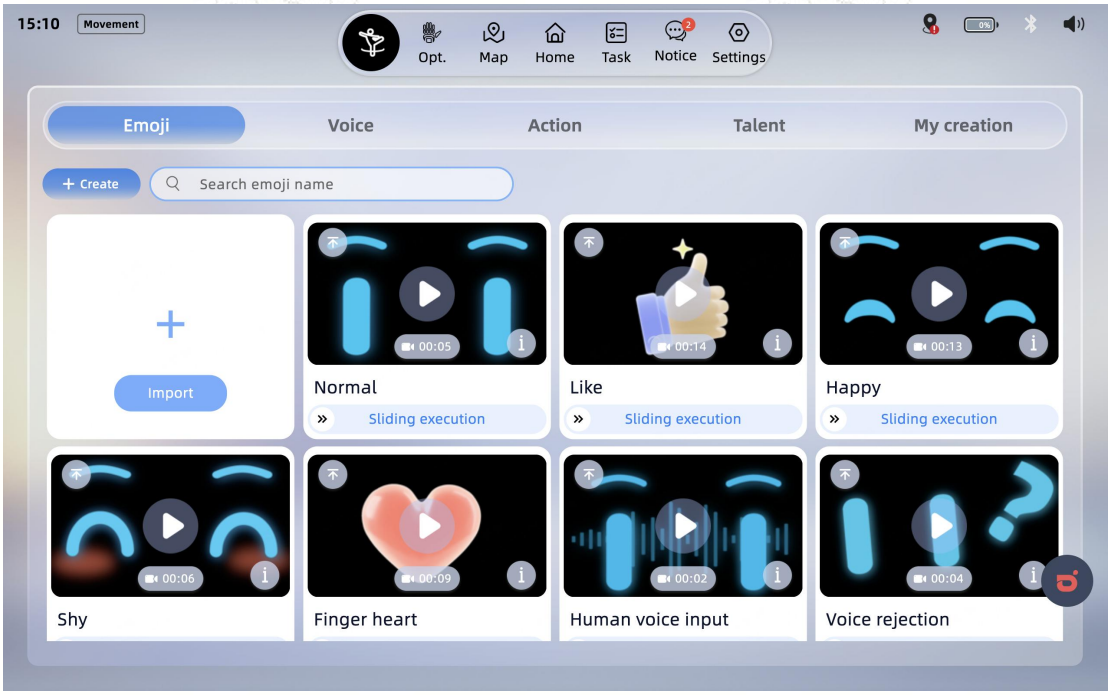
Supports **expressions, actions, voices, and my creations** for quick operations.



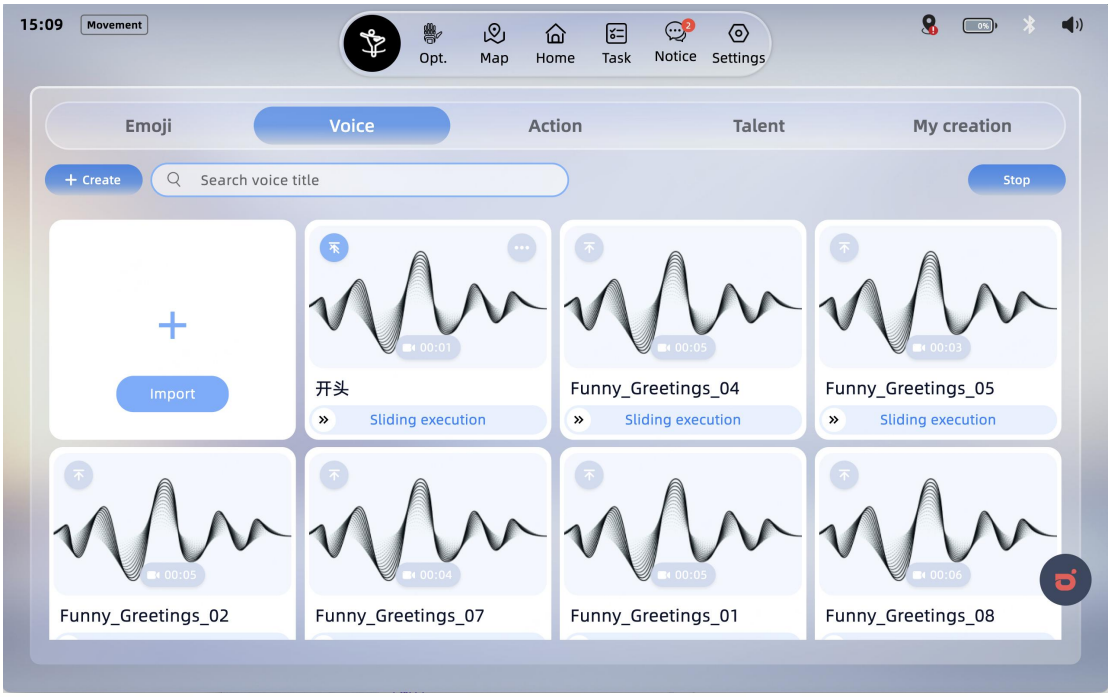
Introduction to the Main Interface

6.2.1.2.2 【Skill Library】 Page

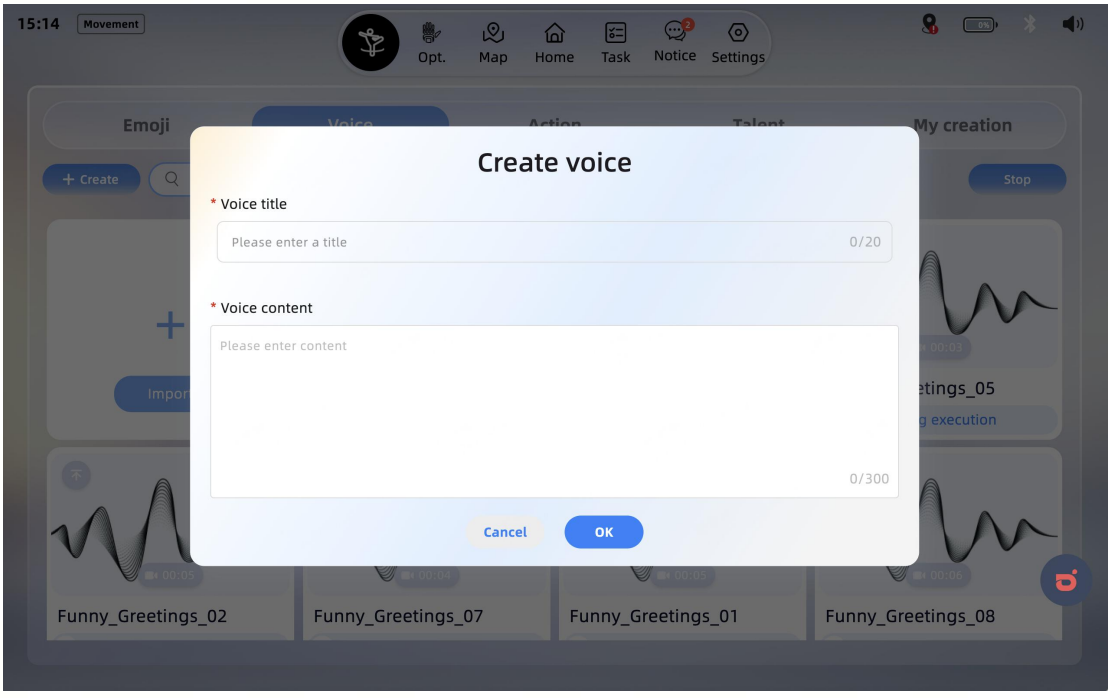
6.2.1.2.2.1 Skill Library - Emoji List



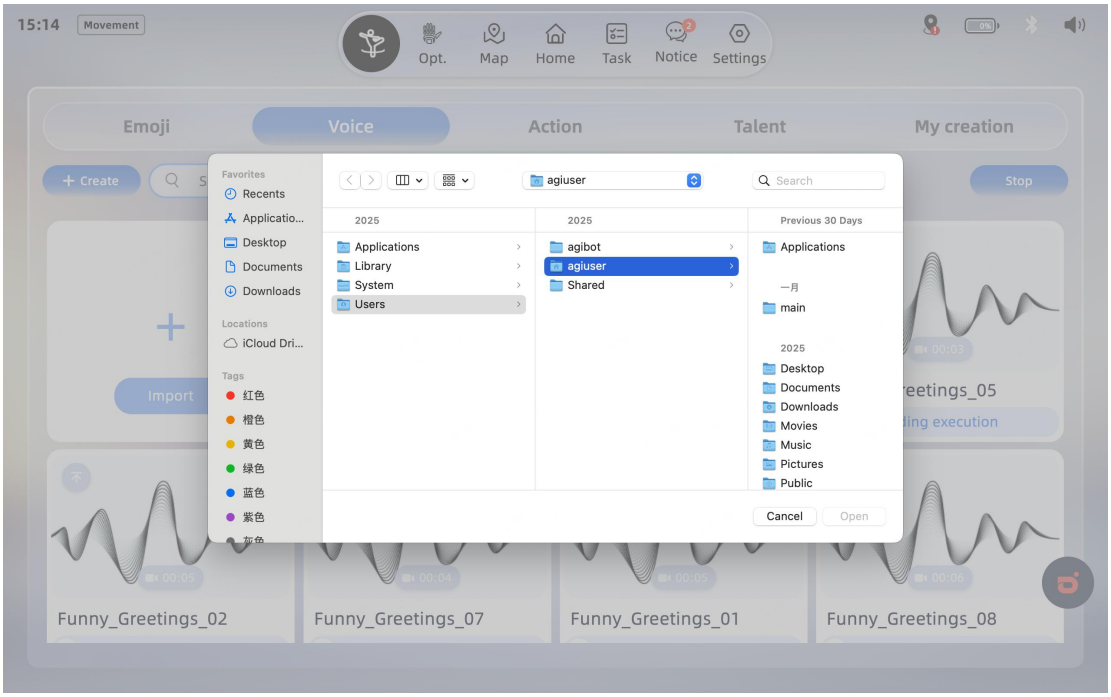
6.2.1.2.2.2 Skill Library - Voice List



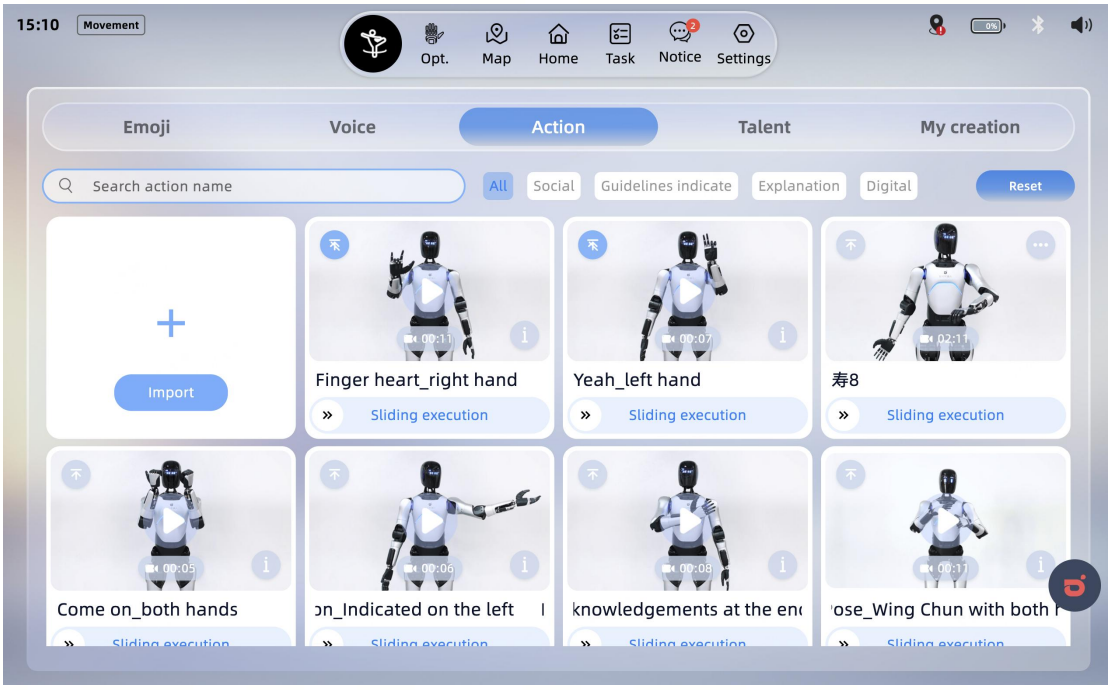
【Voice New】Entry



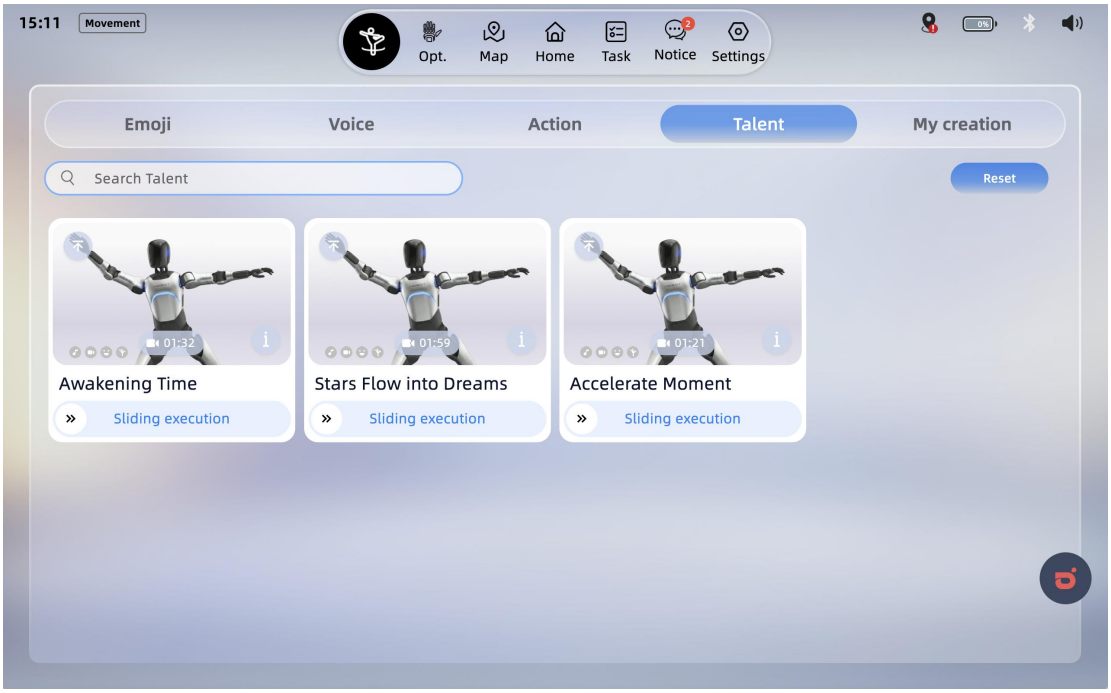
【Voice Import】Entry



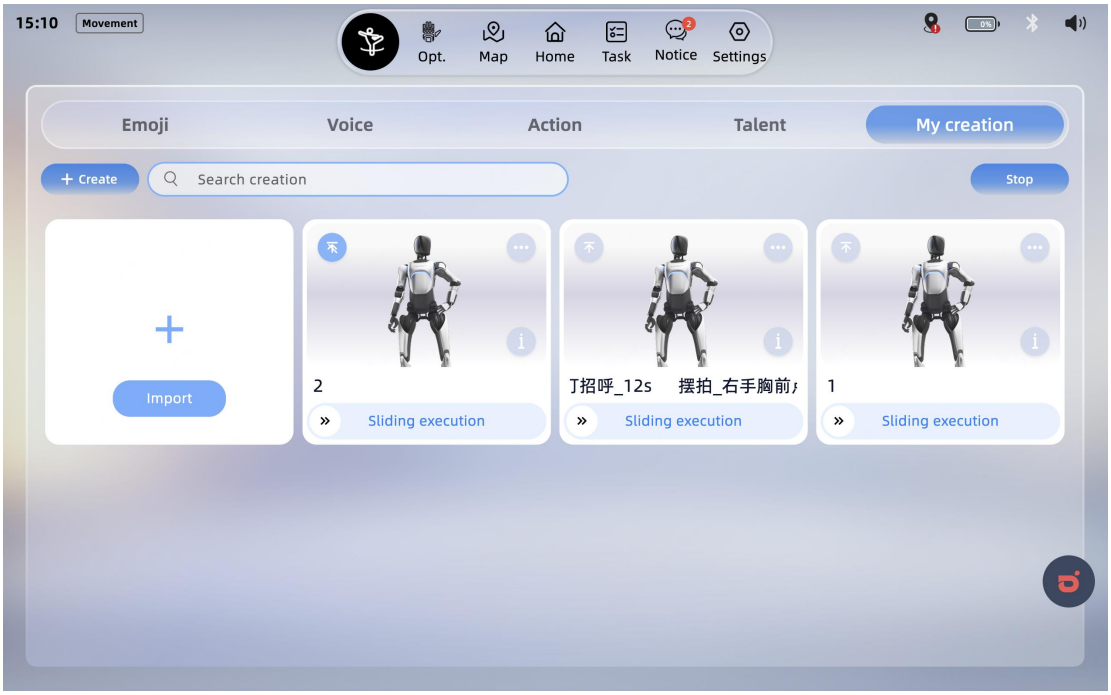
6.2.1.2.2.3 Skill Library - Action List



6.2.1.2.2.4 Skill Library - Talent List

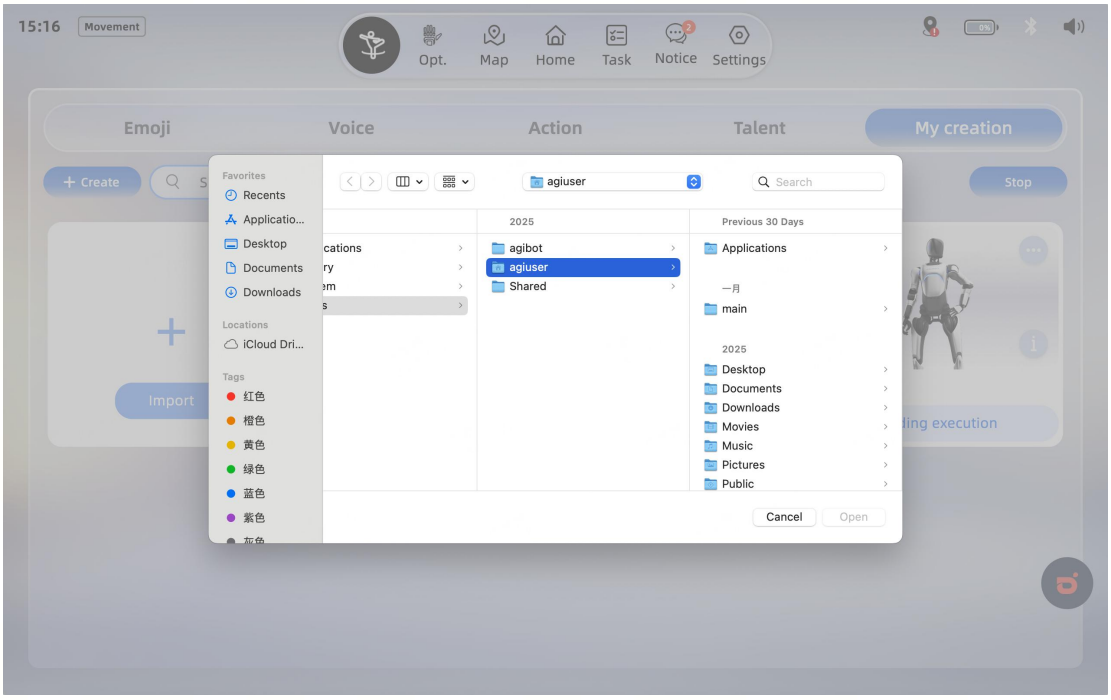


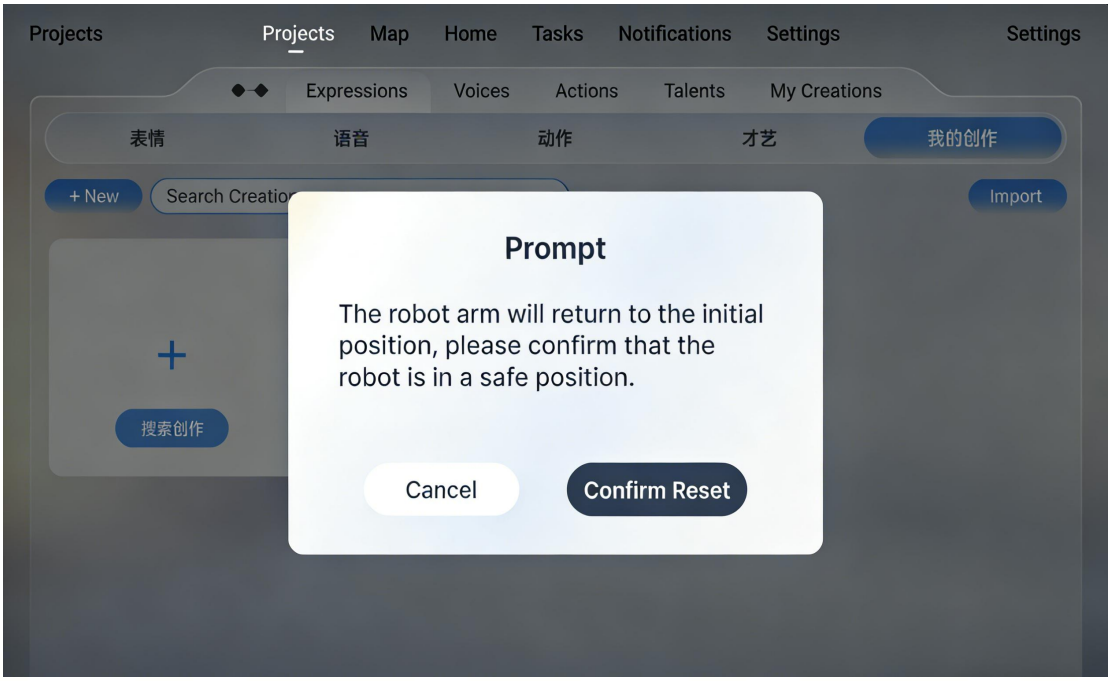
6.2.1.2.2.5 Skill Library - My Creation List



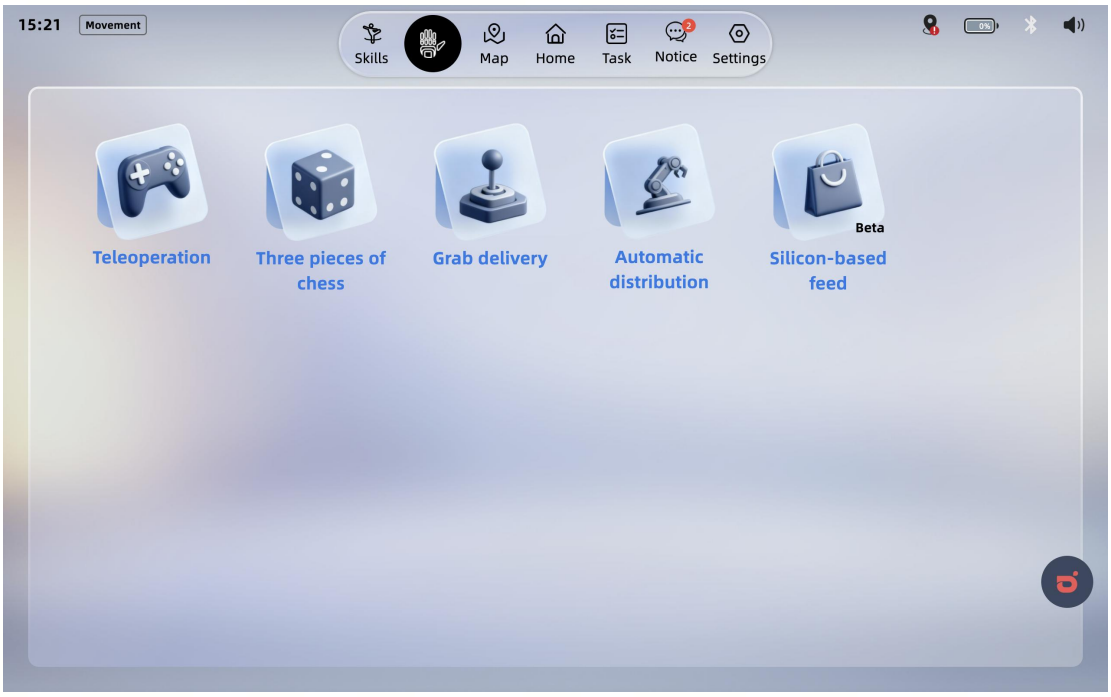
【New】Entry

【Import】Entry

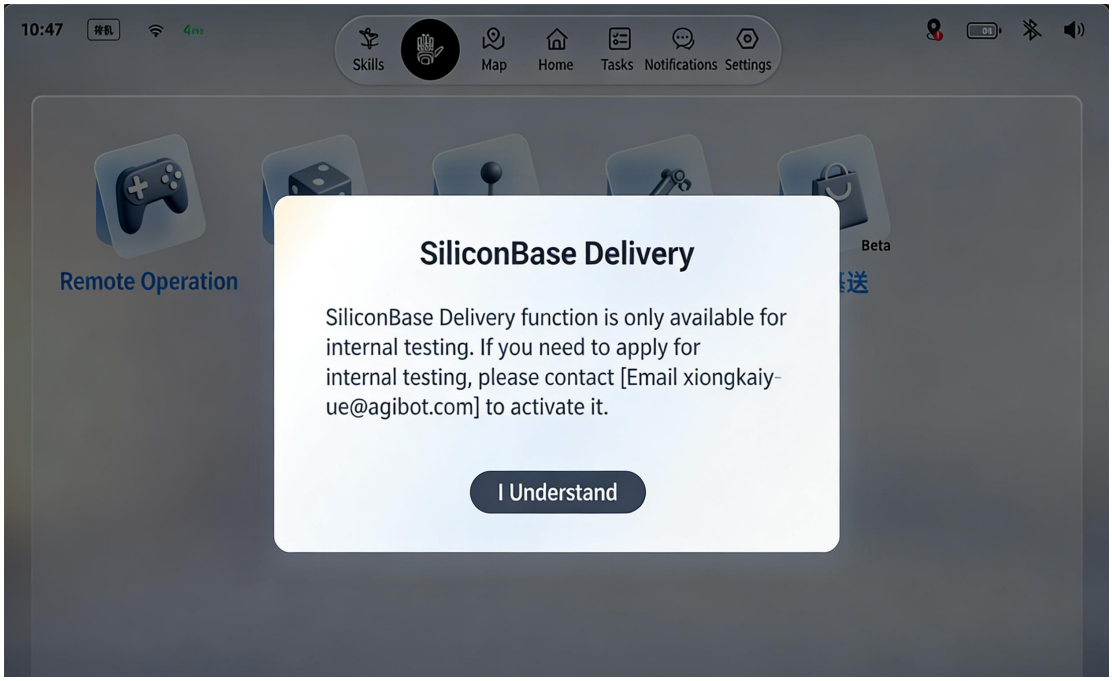


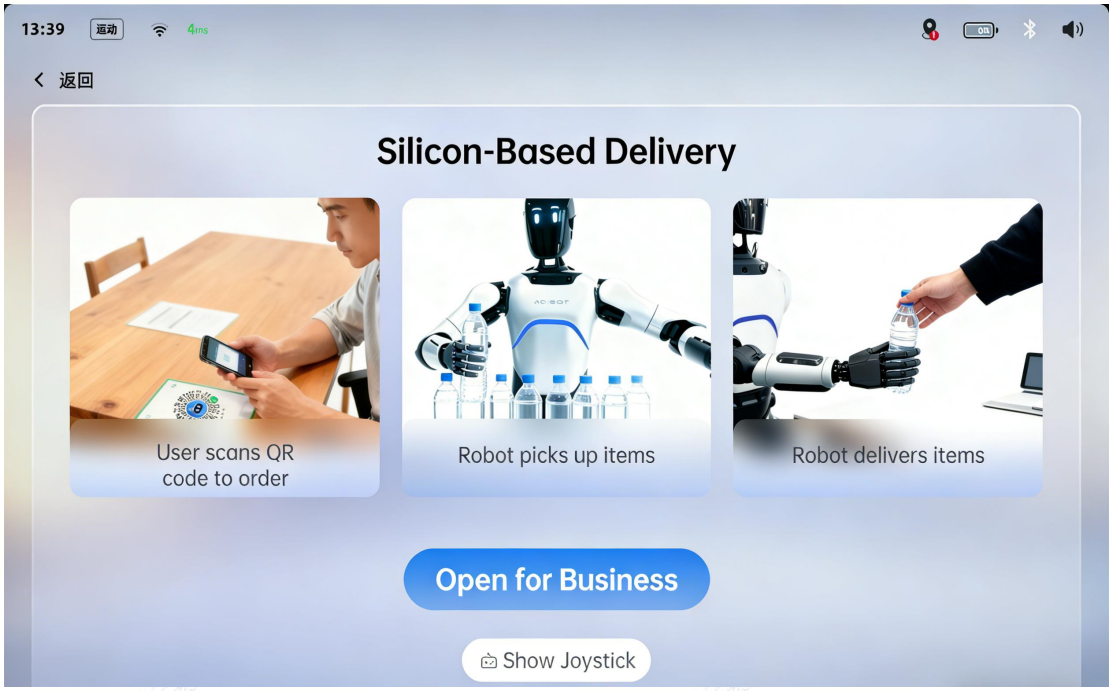


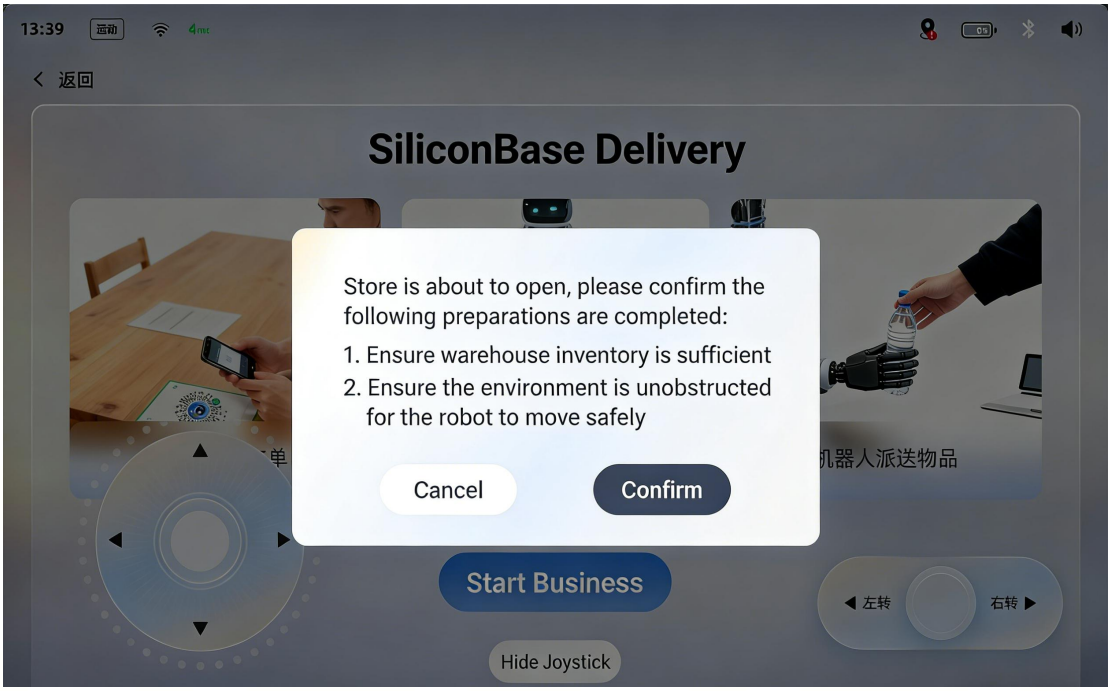
6.2.1.2.3 【Operation】Page

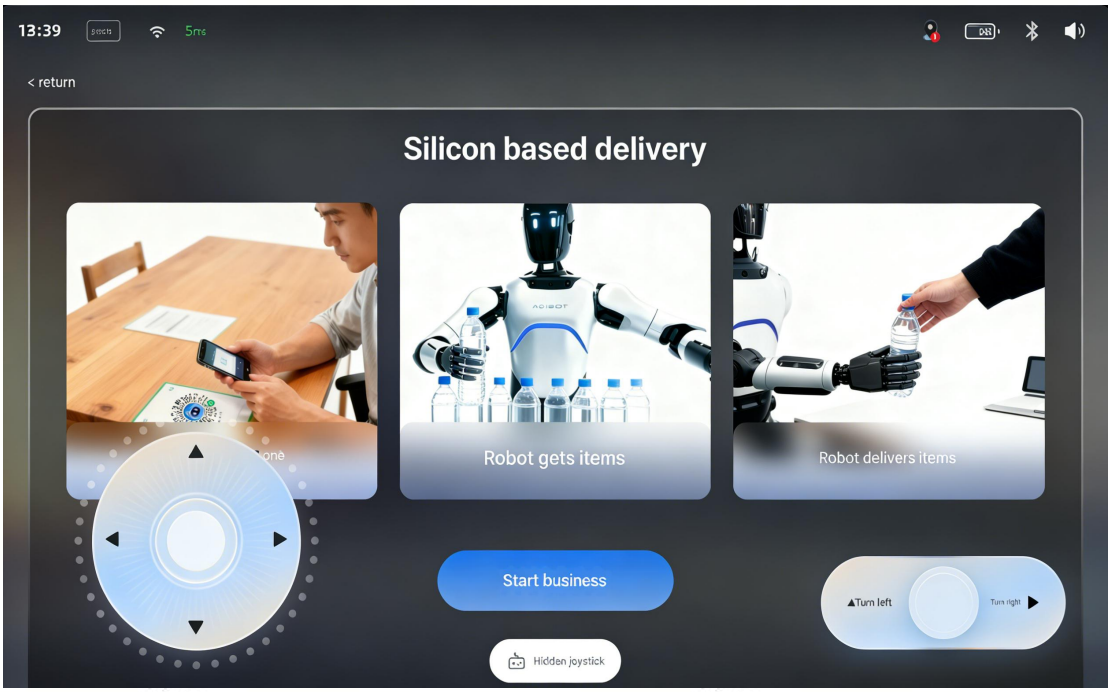


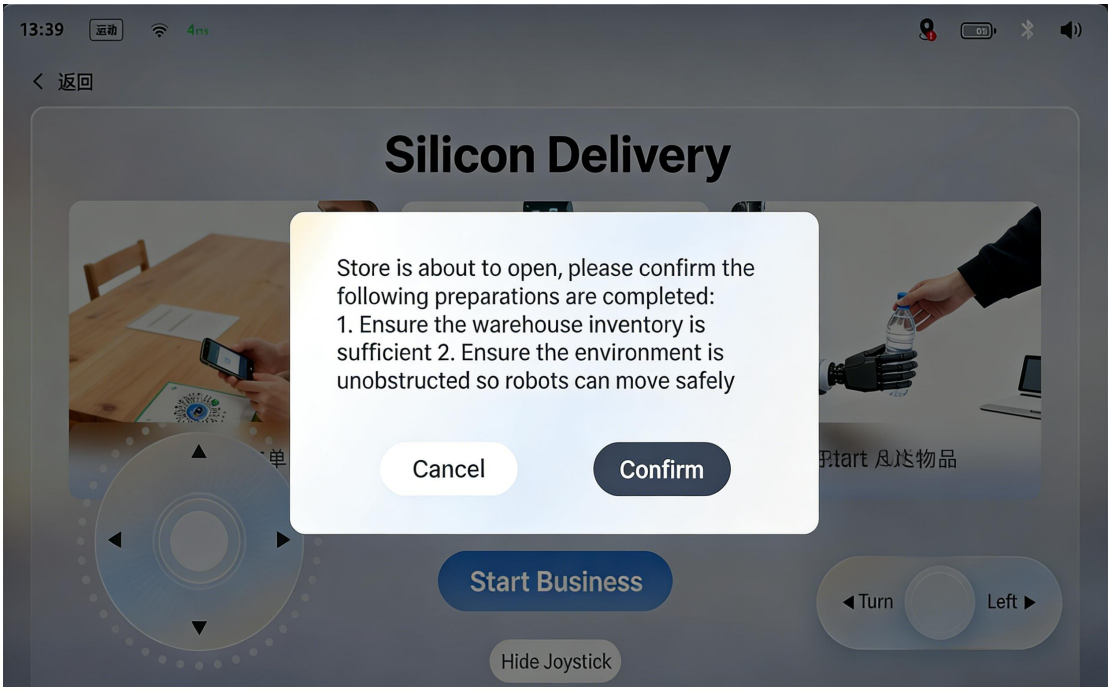
6.2.1.2.3.1 Operation - Silicon-based Delivery

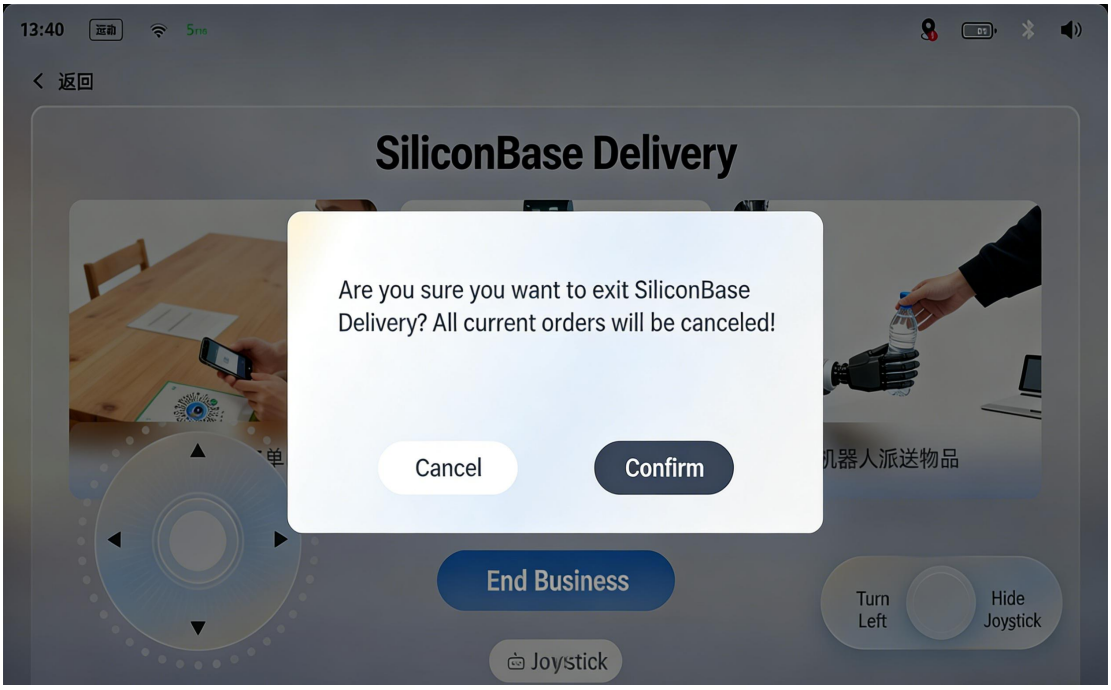




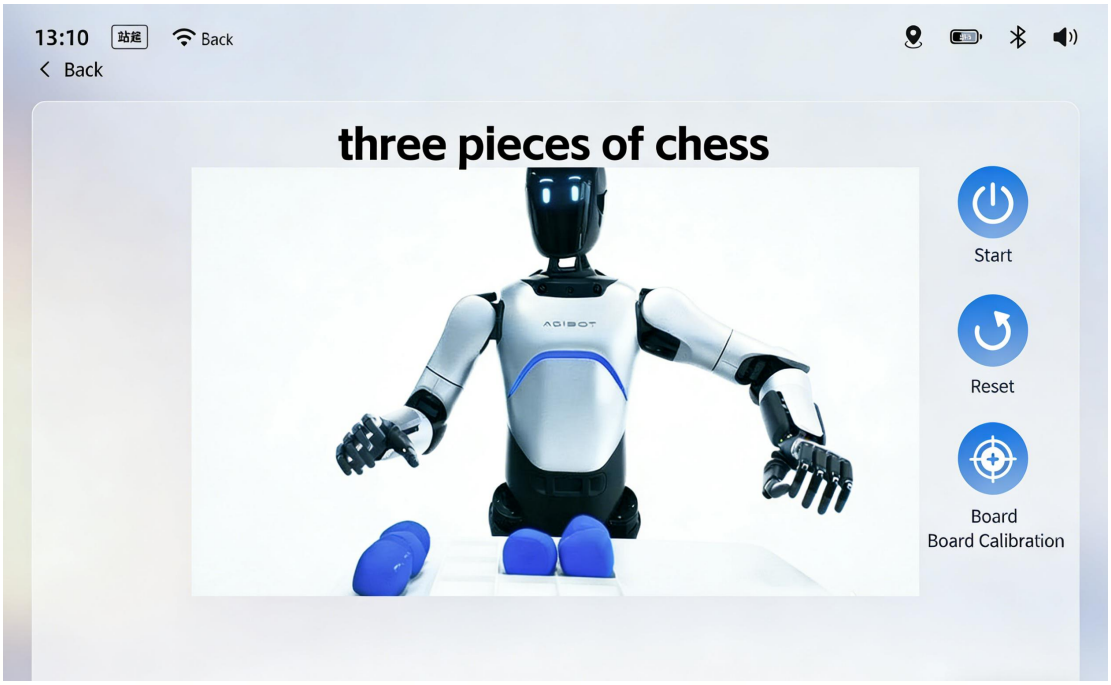


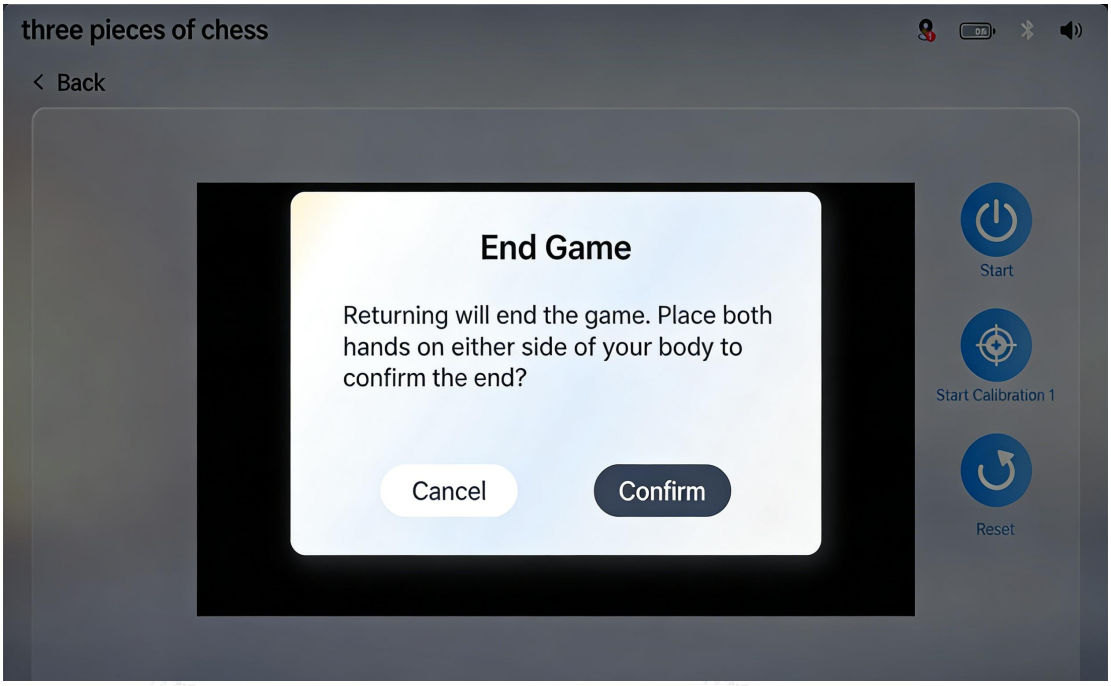






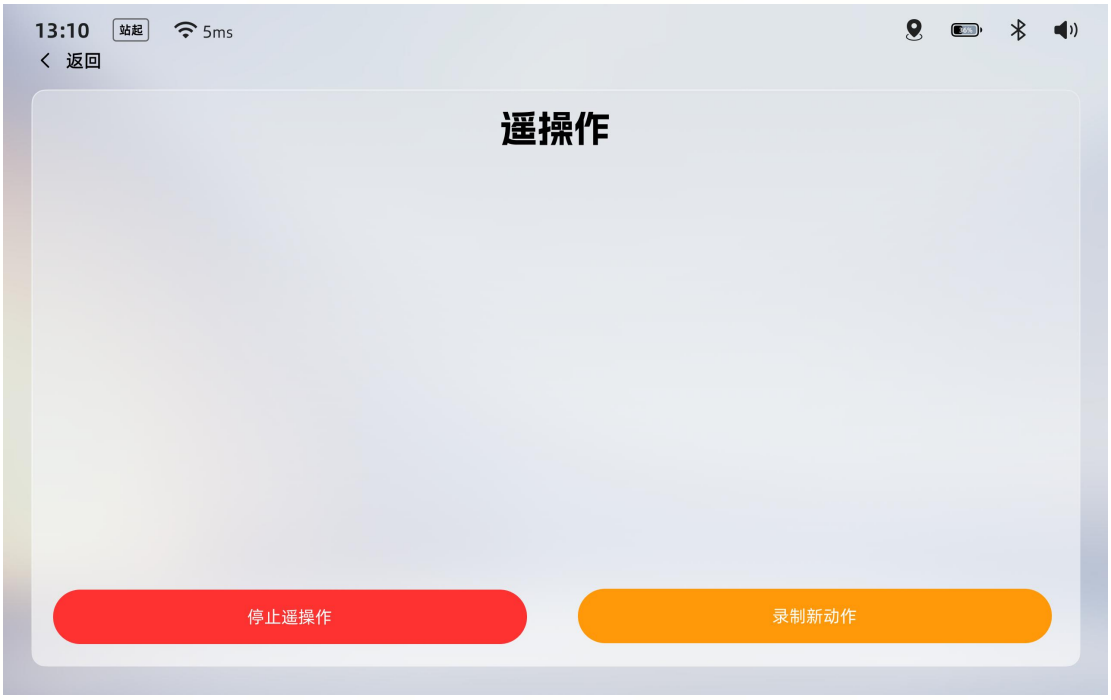
6.2.1.2.3.2 Operation - Tic Tac Toe





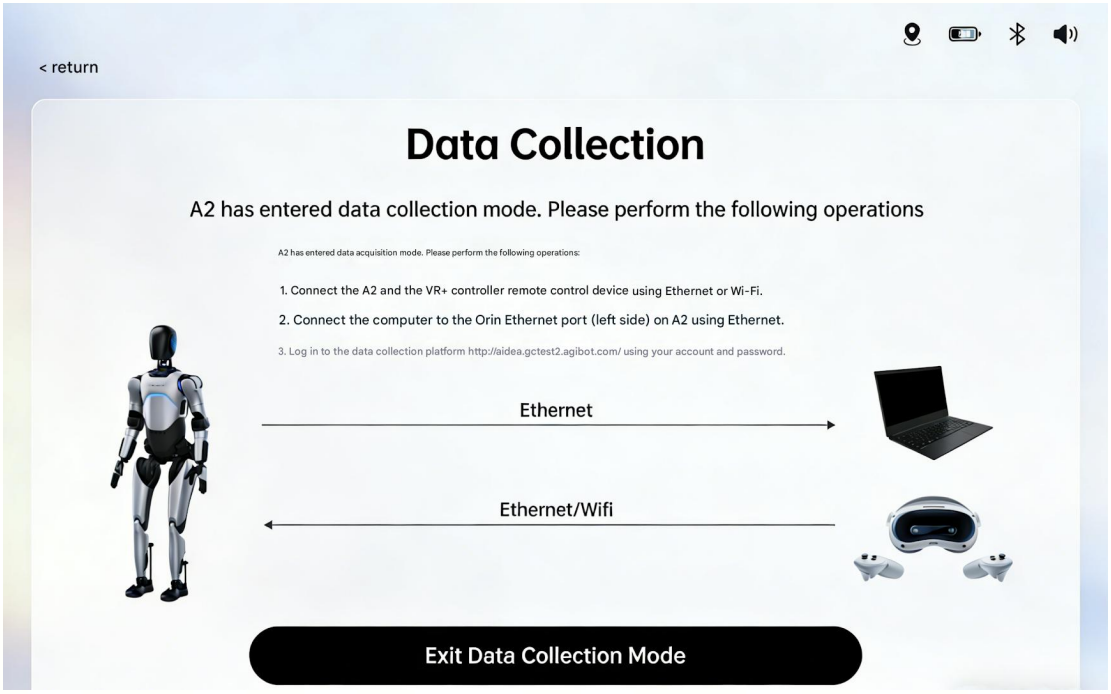
6.2.1.2.3.3 Operation - Automatic Dispatching

6.2.1.2.3.4 Operation - Teleoperation



6.2.1.2.3.5 Operation - Grasp and Delivery

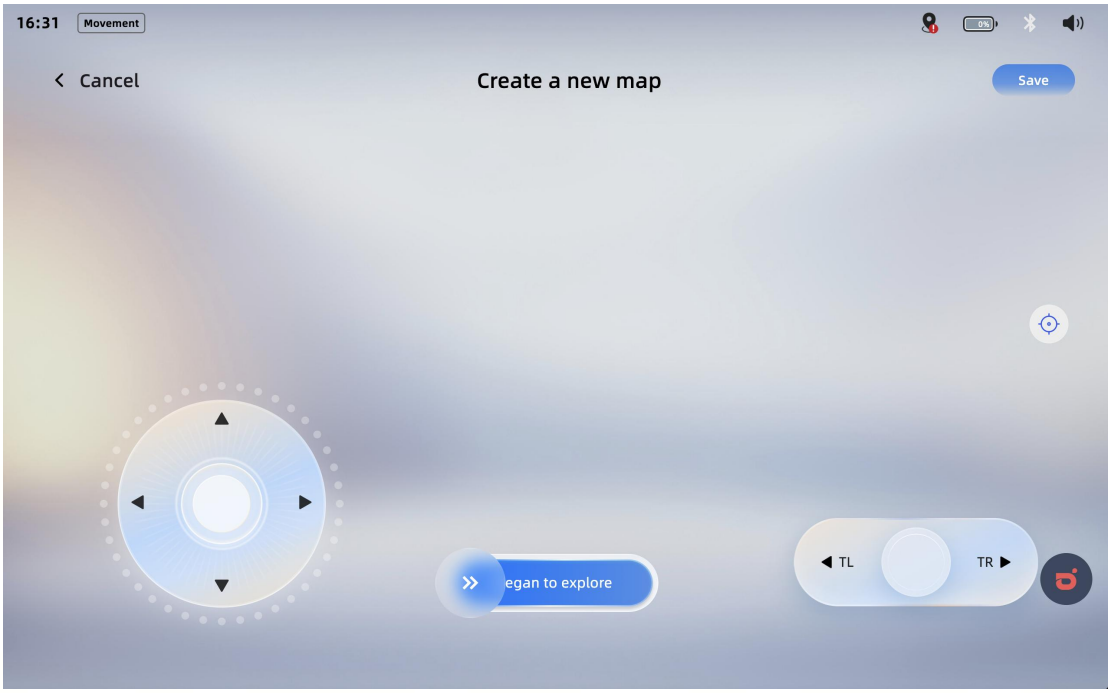
6.2.1.2.3.6 Operation - Data Acquisition



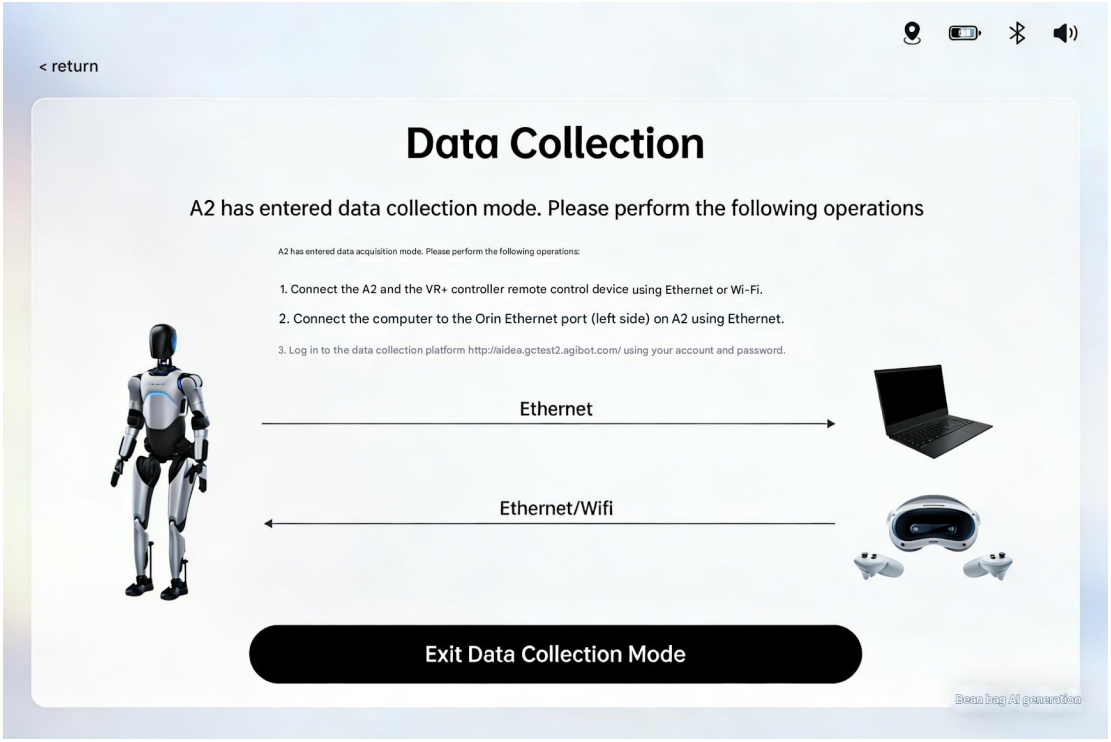
6.2.1.3 Task and Map Creation

6.2.1.3.1 【Map】 Page

6.2.1.3.1.1 Create New Map

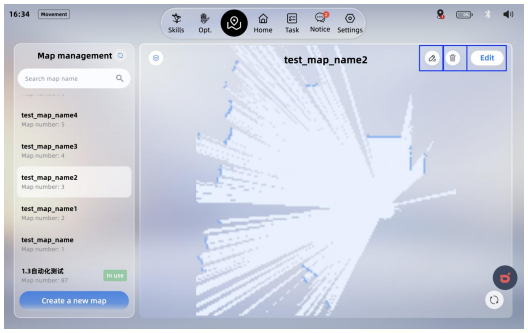


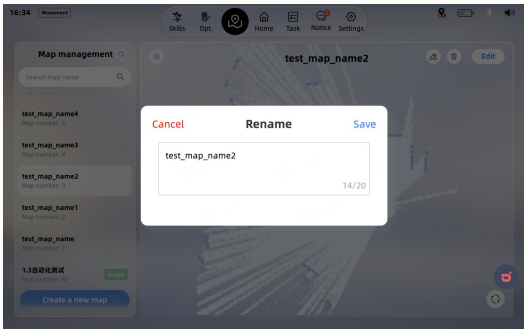
6.2.1.3.1.2 Map List Editing



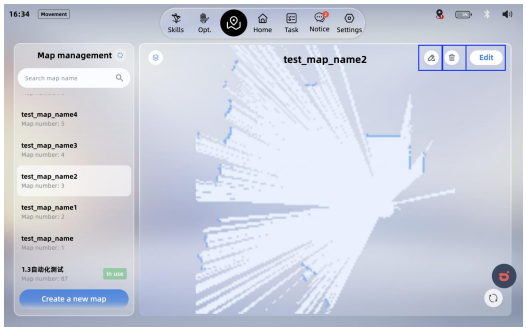
- Layer Status

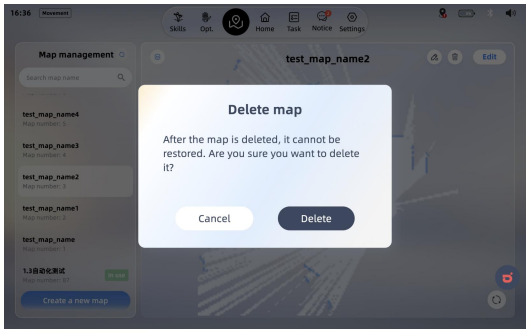
- Rename Map



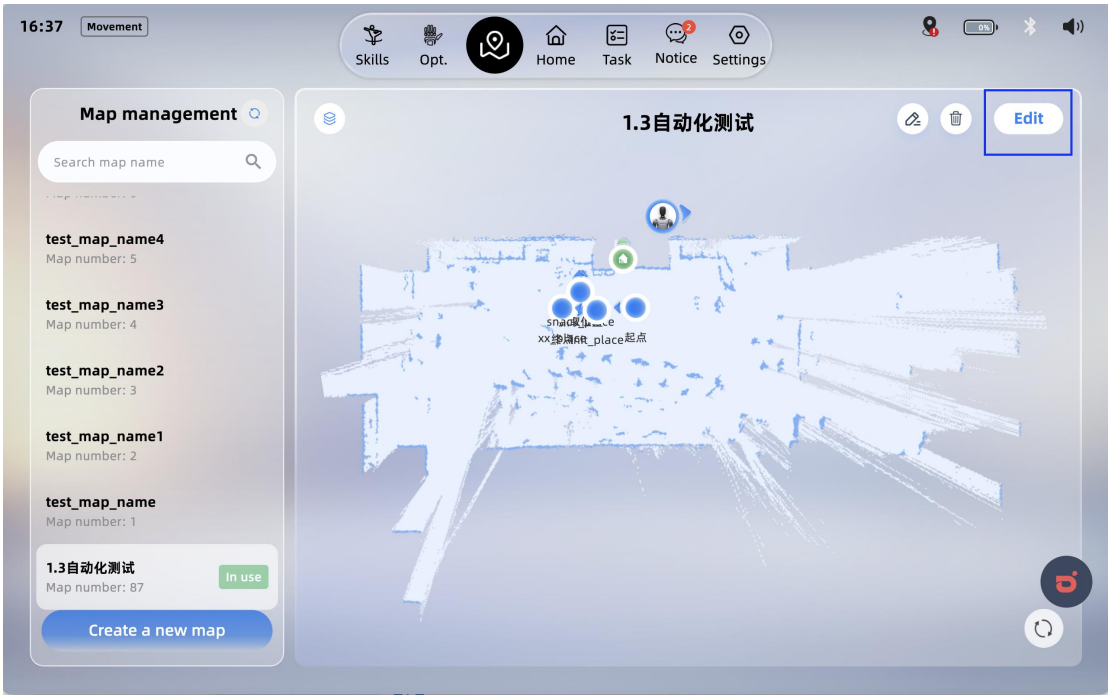


- Delete Map

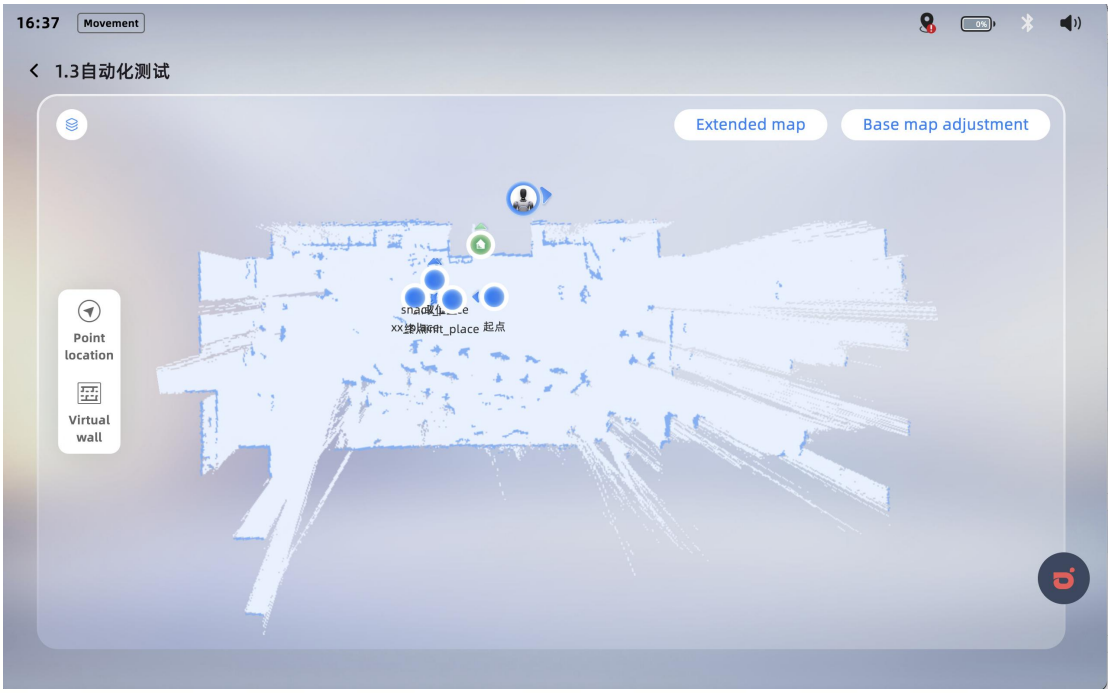




6.2.1.3.1.3 **Edit Map**

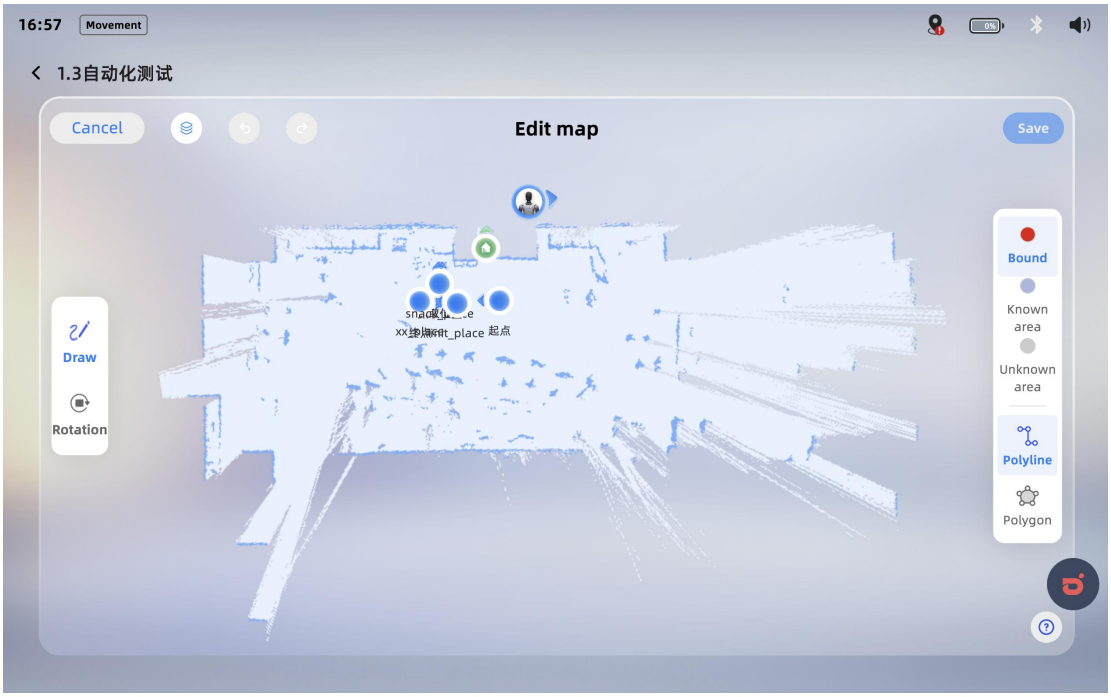


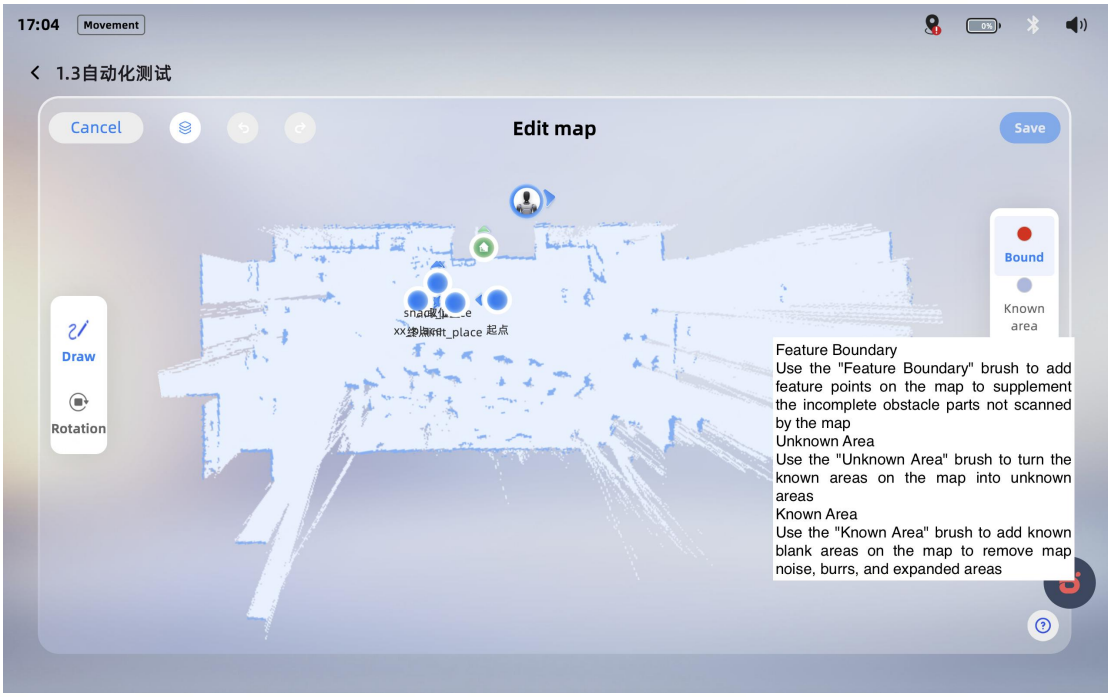
6.2.1.3.1.4 Edit Map - Basemap Adjustment



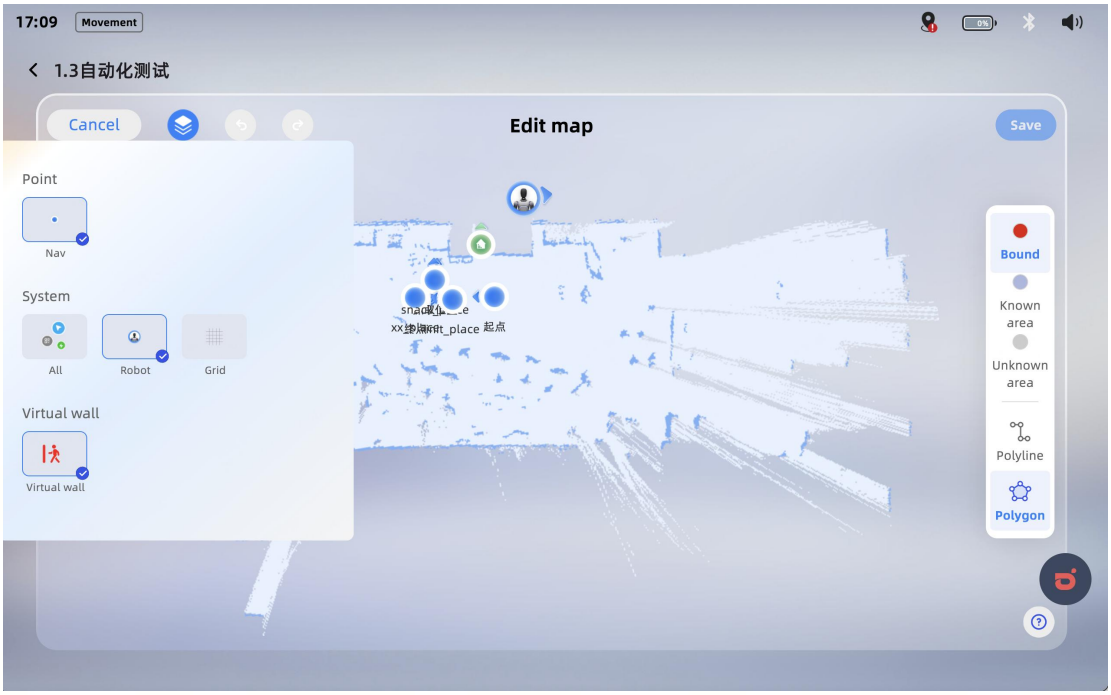
6.2.1.3.1.4.1 Base Map Adjustment - Hand-drawn

- Modify [Known Region]
- Modify [Unknown Area]
- Modify [Feature Boundary]

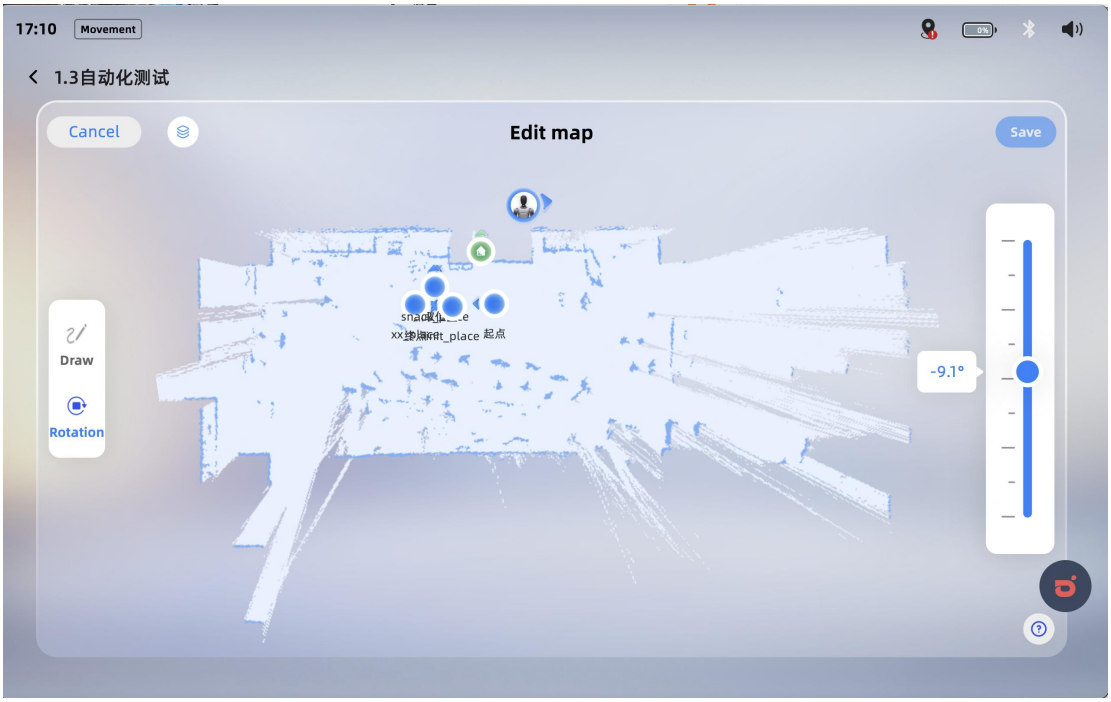




- Current Layer Status Display



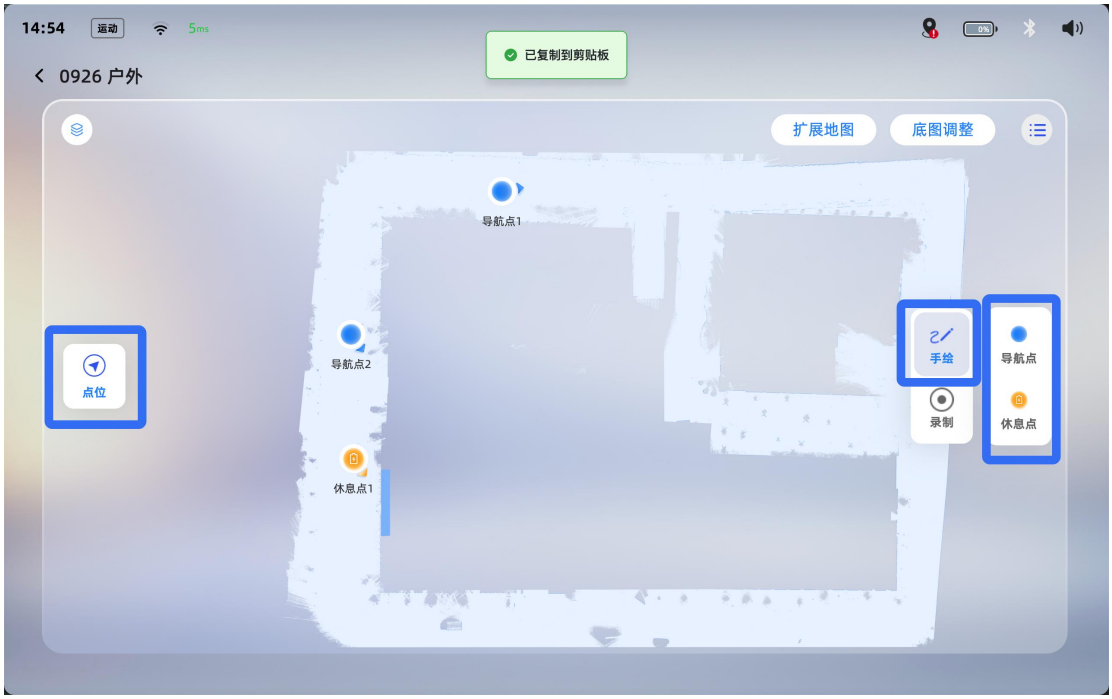
6.2.1.3.1.4.2 Base Map Adjustment - Rotation



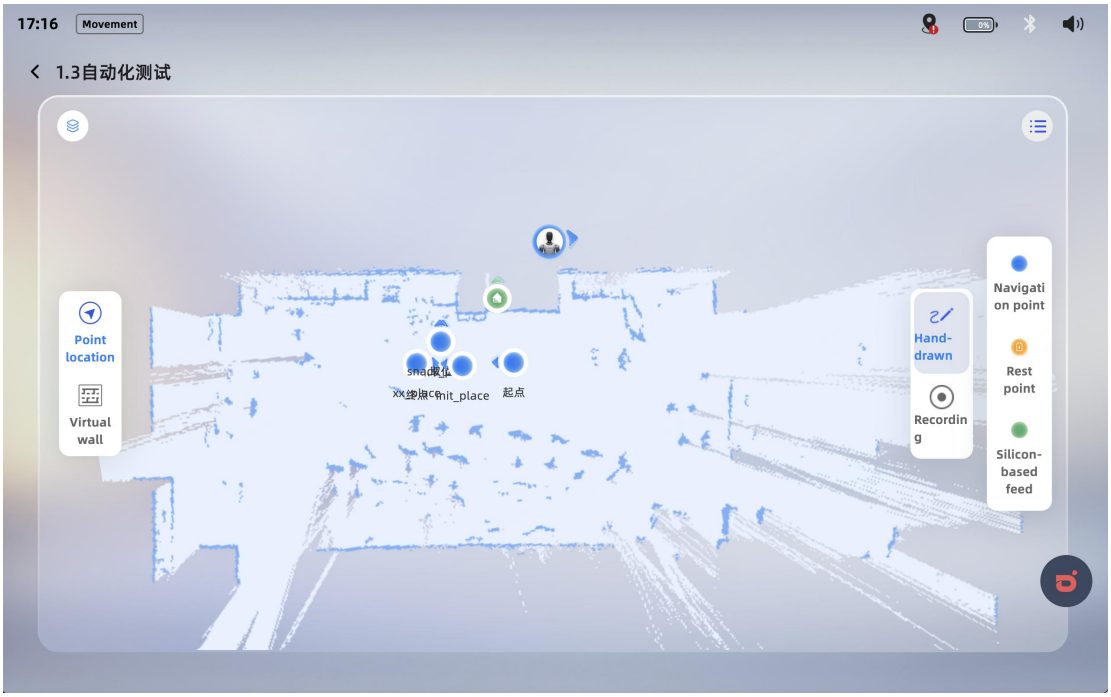
- Save Base Map

6.2.1.3.2 Navigation Point Setting

6.2.1.3.2.1 Hand-drawn Navigation Point

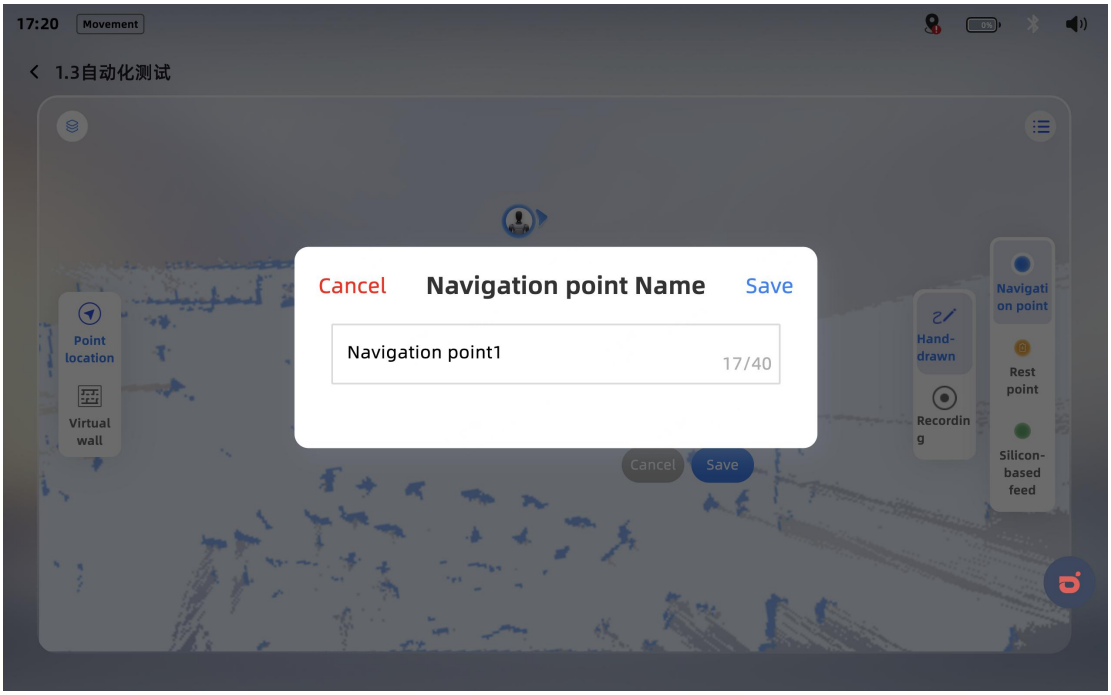


- Hand-drawn markers for [Navigation Point] or [Rest Point]



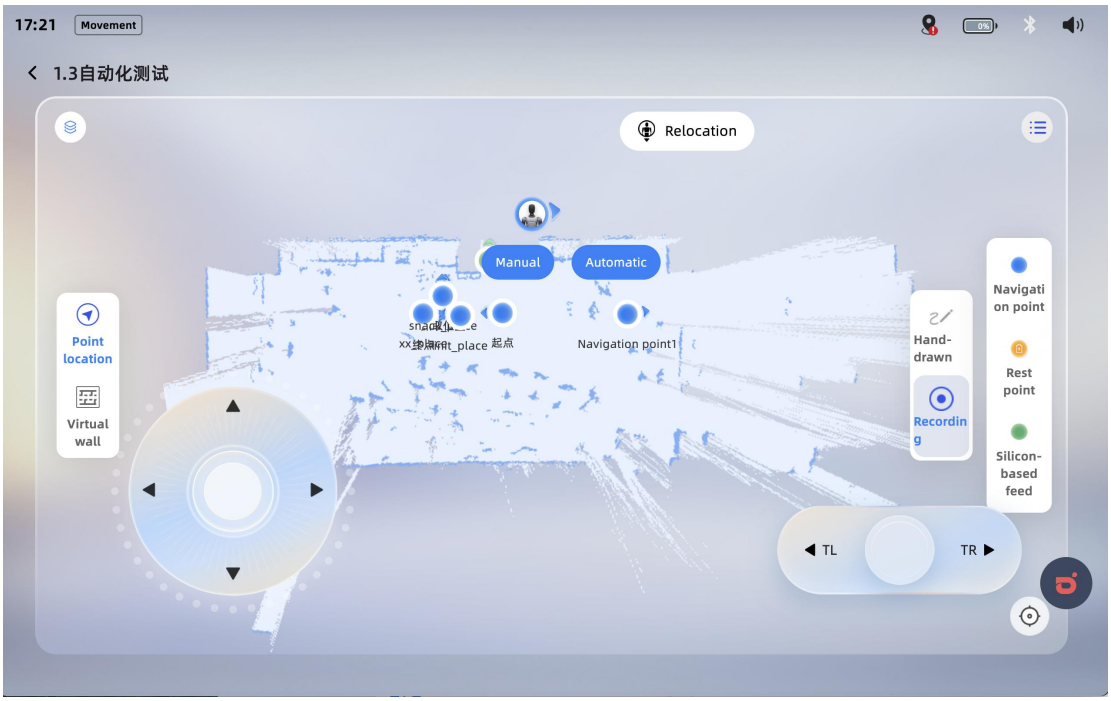
- Mark points in the known area and select the robot's orientation

- Click Save, and the [Navigation Point Naming] pop-up window will appear

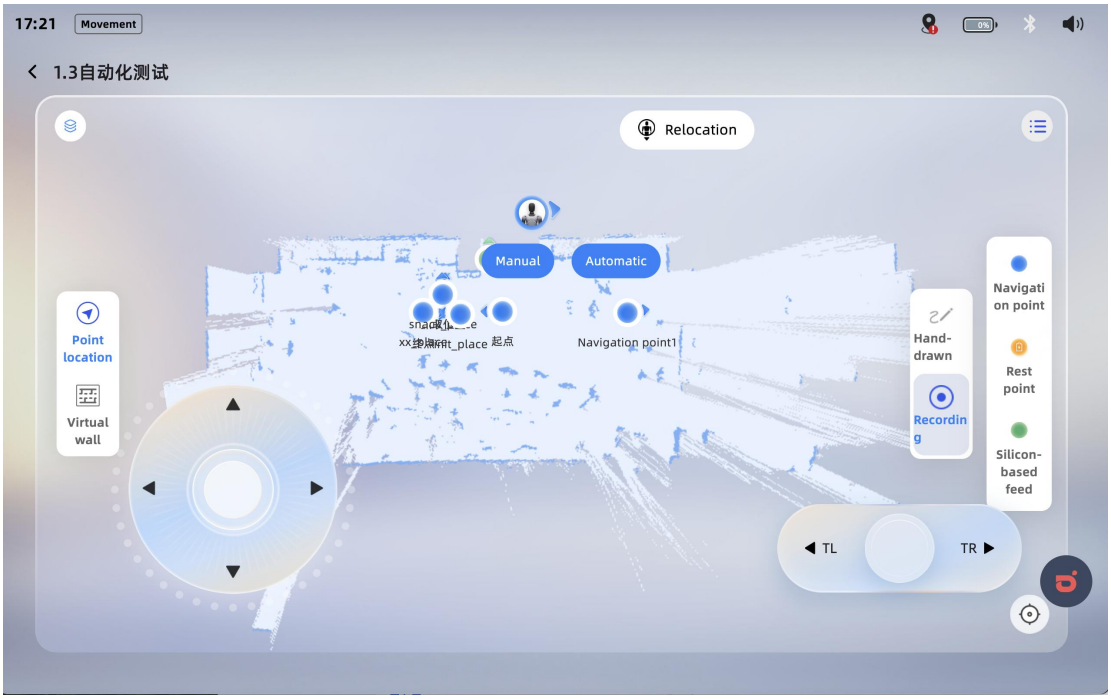


- And so on, hand-draw more navigation points

6.2.1.3.2.2 **Record Navigation Point**

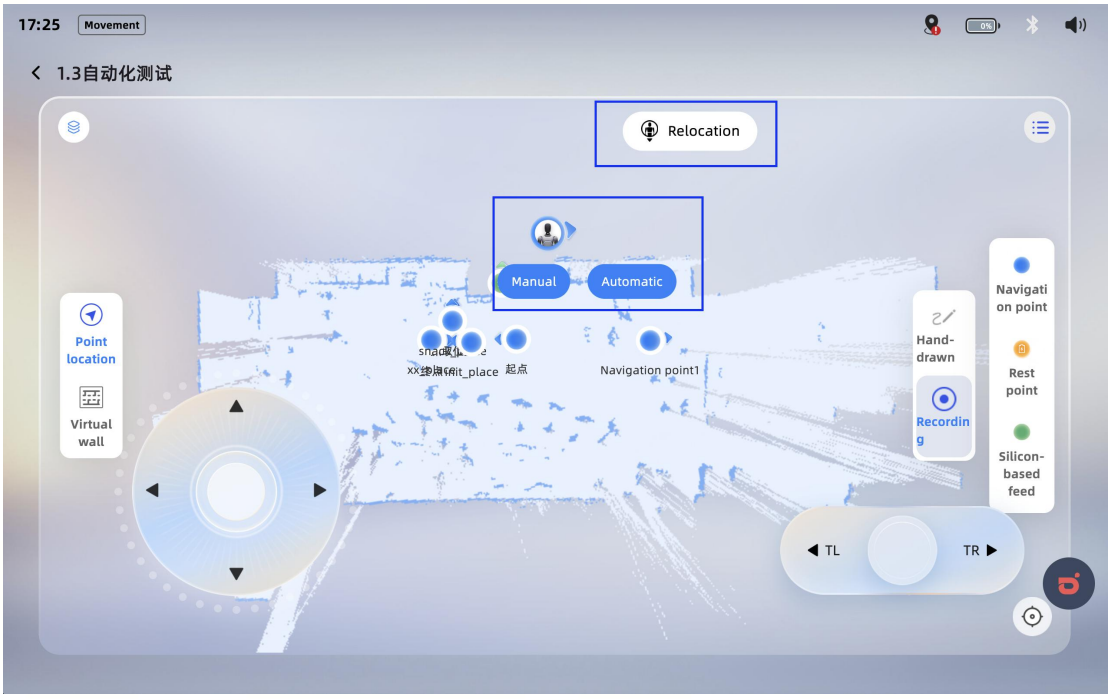


- After successful positioning, click the marker, same as [Hand-drawn Point]



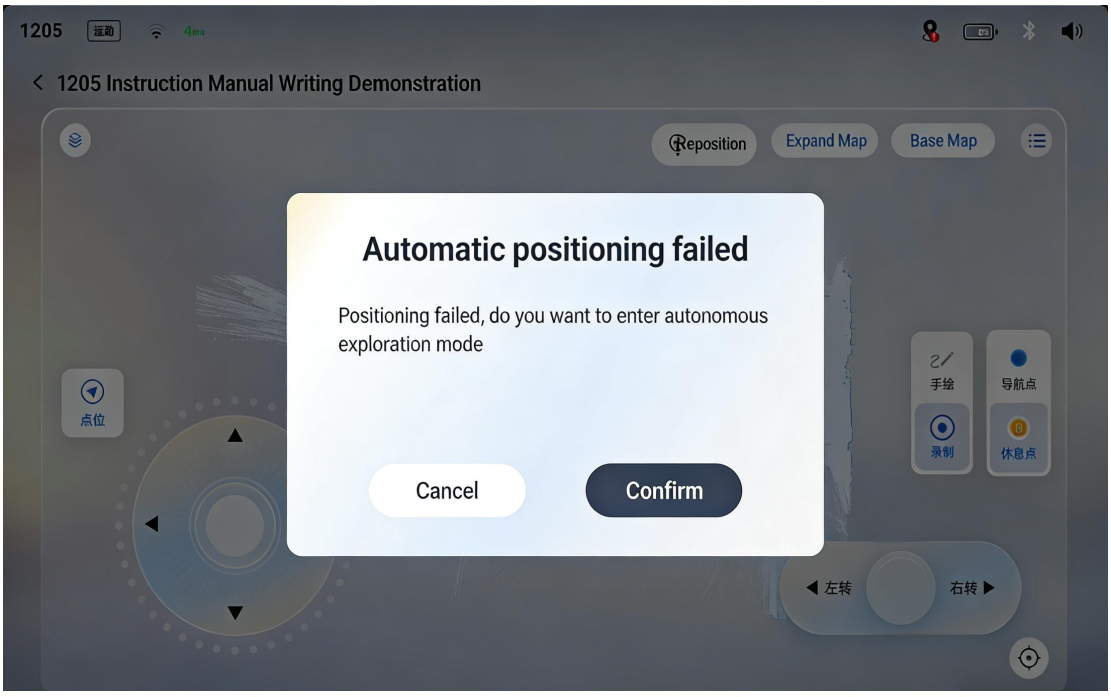
6.2.1.3.2.3 **Relocation**

- Current positioning is abnormal and requires repositioning

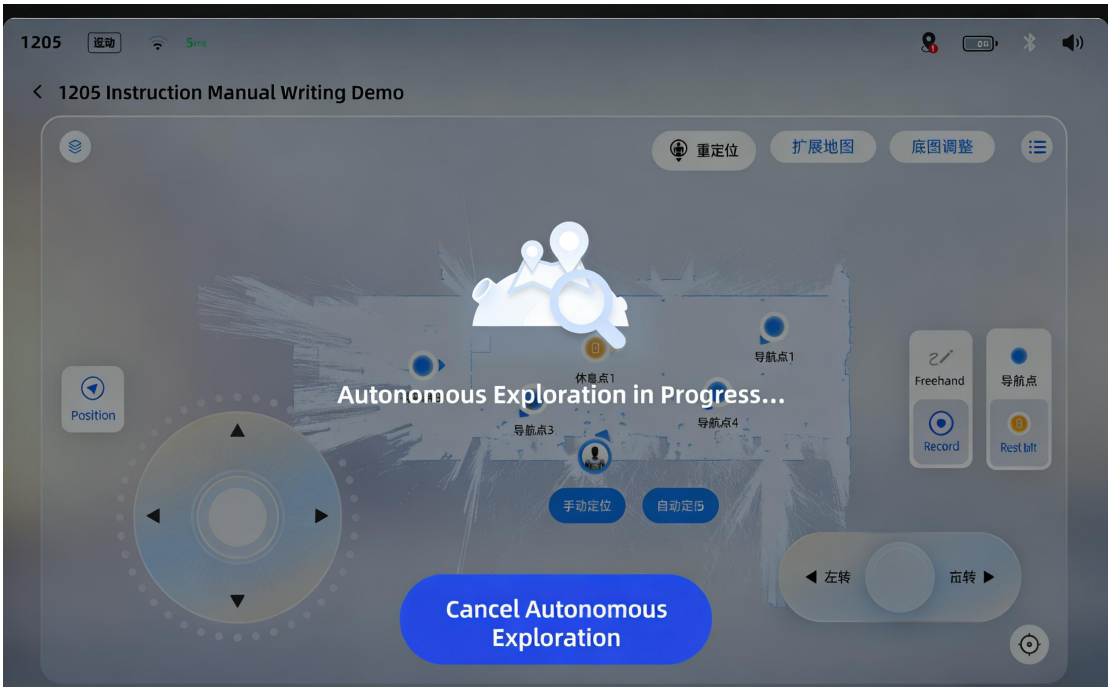


- Locating...

- Positioning failed, entering autonomous exploration mode

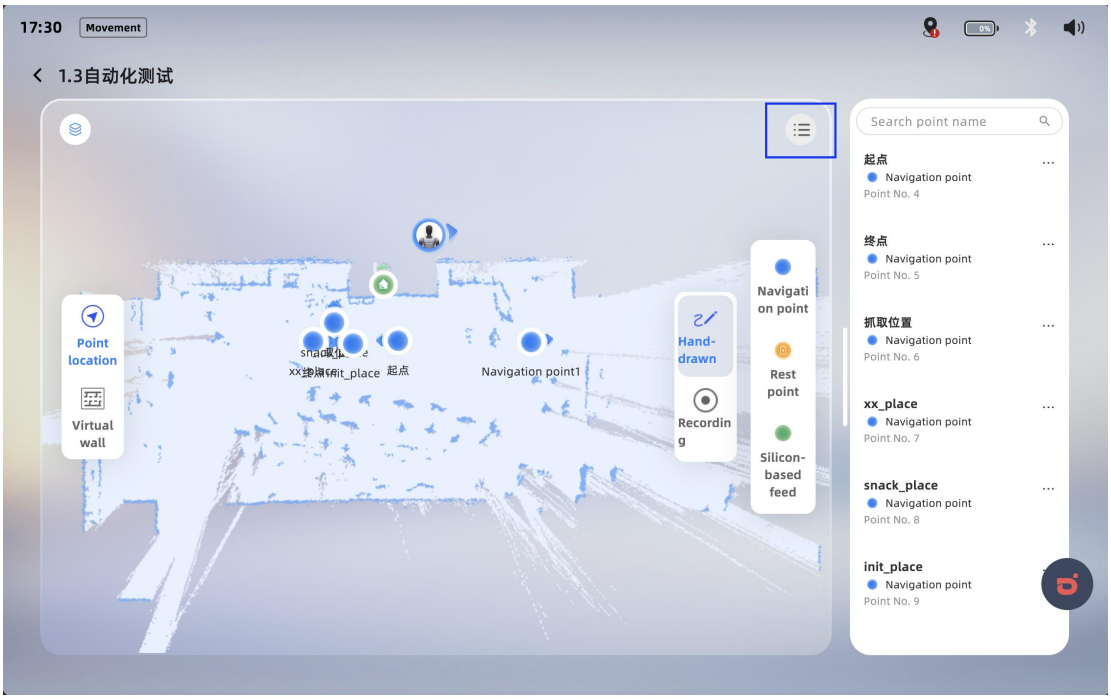


- Cancel Independent Exploration

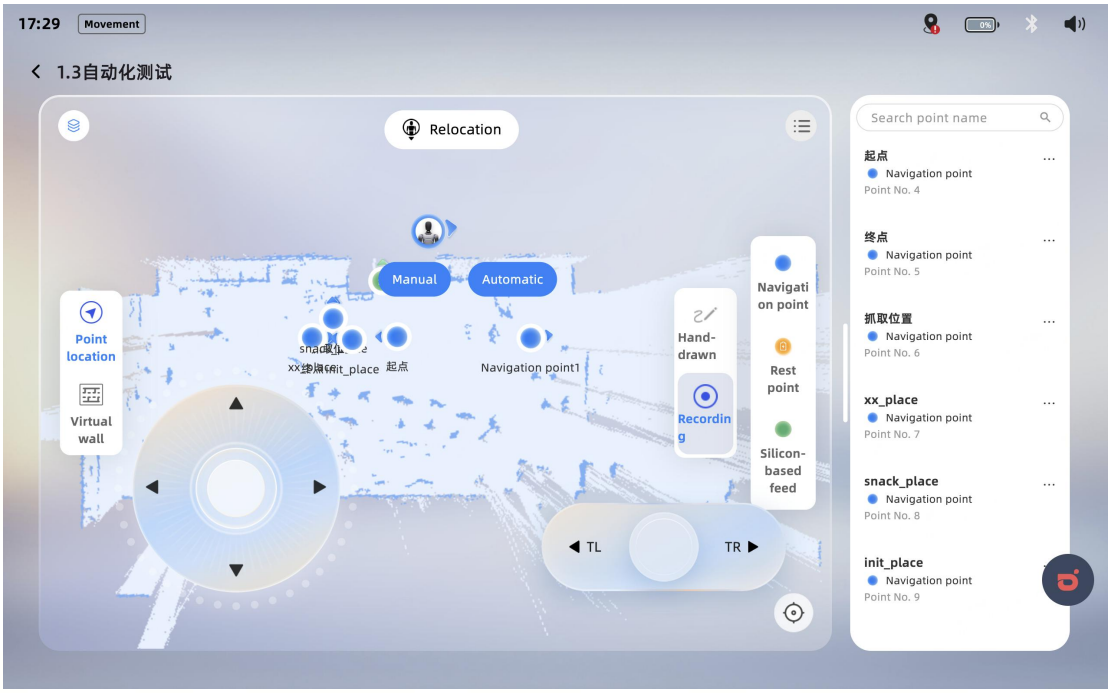


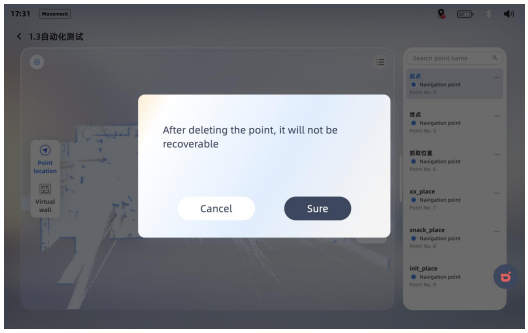
6.2.1.3.2.4 **Edit Navigation Point**

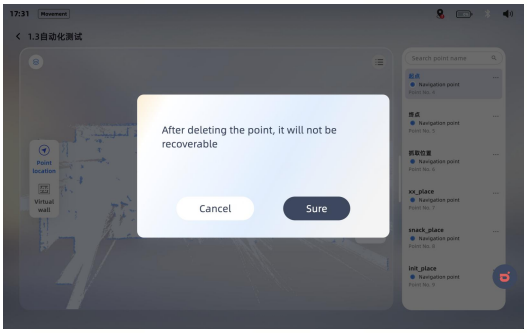
- View All Navigation Points



- 【Rename】【Confirm】Delete Navigation Point







6.2.1.3.3 【Task】 Interface

- All Task Lists
- Filter the list based on the map

- Pin, Copy Task, Delete Task

- Preview Task

- The point turns blue according to the progress of the subtask

- Click to enter Task [Edit]

6.2.1.3.3.1 **[Edit] Task**

6.2.1.3.3.2 Create a new task

6.2.1.3.3.2.1 Add Subtask

- Insertion Point Subtask Type

6.2.1.3.3.2.1.1 Insert [Content Explanation]

- When inserting [Content Explanation], you can select multiple [Accompanying Actions] and 1 [Accompanying Expression]

○ When inserting [Content Explanation], you can select multiple [Accompanying Actions] and 1 [Accompanying Expression]

6.2.1.3.3.2.1.2 Insert [Independent Action]

6.2.1.3.3.2.1.3 Insert [Linked Peripheral]

6.2.1.3.3.2.1.4 Insert [Talent Show]

6.2.1.3.3.2.1.5 Insert [PPT Page Turn]

6.2.1.3.3.2.1.6 Insert [Wait in Place]

6.2.1.3.3.3 Add Point

6.2.1.3.3.4 Add interlude announcements

- Supports [Text Synthesis] and [Audio File]

6.2.1.3.4 Task Editing Workflow Instructions

Due to frequent use in exhibition hall explanations, it has been reorganized for easier understanding

The establishment of tasks needs to be edited based on specific **navigation points on the map** .

1. If there is no map, [Create New Map] - [Draw Navigation Points] - [Create Task] - Based on**Navigation Points**Edit**Tasks for Different Points**]

2. Existing Map [<Create Task>] - [<Based on **Navigation Points** Edit **Tasks for Different Points**]

6.2.1.3.4.1 Create a new map

- Create a new map
- Use remote control to scan images
- Edit Map & Rename

6.2.1.3.4.2 Create a new task

- Click the [Task] module from the navigation bar, then click Create New Task
- The task has functions of preview, edit, pin, copy, and delete

Step 1: Edit the task name

Task names can be defined as needed

Step 2: Task Type Selection

Select the task type as needed, and the following is a basic introduction to the task types

- Route Explanation Task: Customize the number of points, with an upper limit of 99 points after version 1.3;

Step 3: Task Map Selection

Add the created task map. If not created, please refer to the [Map] page - Create New Map.

6.2.1.3.4.3 **Edit the route explanation task**

- Step 1: Add an explanation point

Add the navigation point to be edited according to the pop-up prompt.

- Step 2: Add sub-tasks (including content explanation, independent actions, PPT page turning, talent shows, peripheral device linkage, and waiting in place)

Add a subtask according to the pop-up prompt.

- Step 3: Save Information

After all information has been edited, click Save in the top right corner.

6.2.1.3.4.4 **Task Preview and Execution**

- Step 1: Click the preview button on the task list interface.

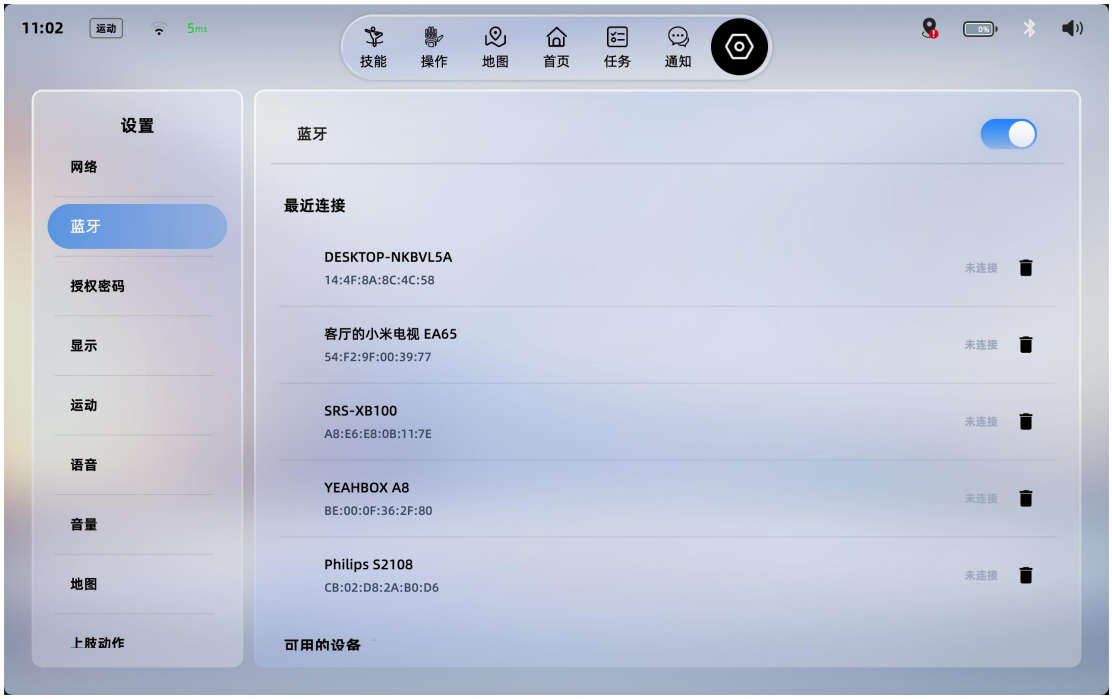
The preview interface can be clicked to enter the task editing interface.

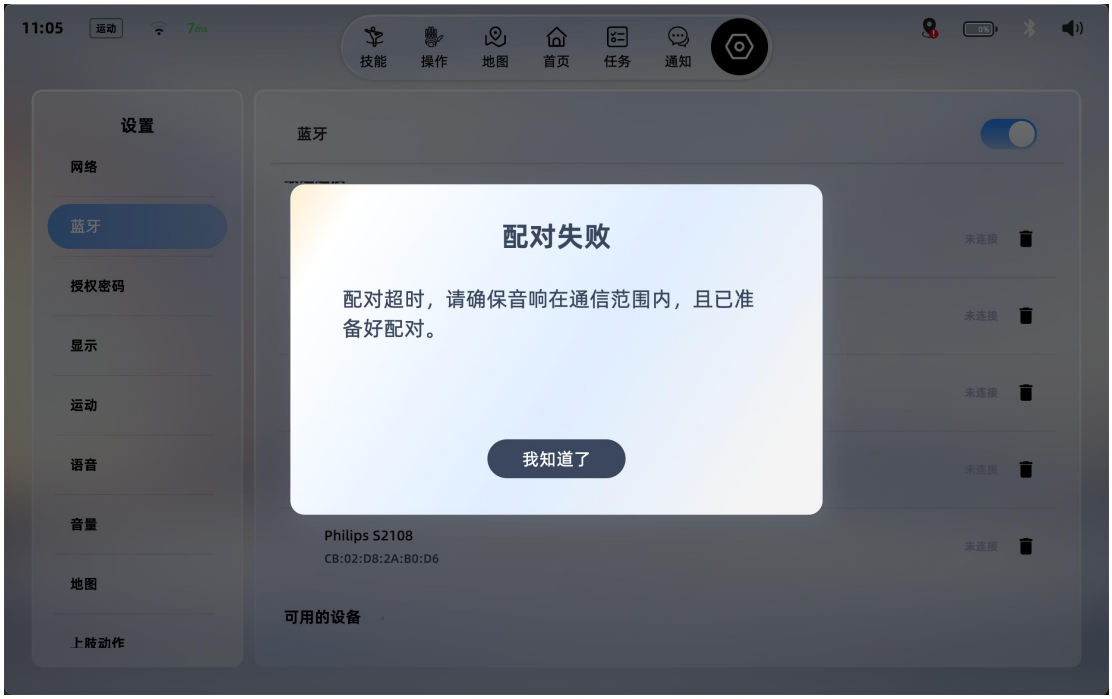
Click [Start Task] to start the task. Completed tasks turn blue according to the progress of the task.

6.2.1.4 Settings Page

- Network

- Bluetooth

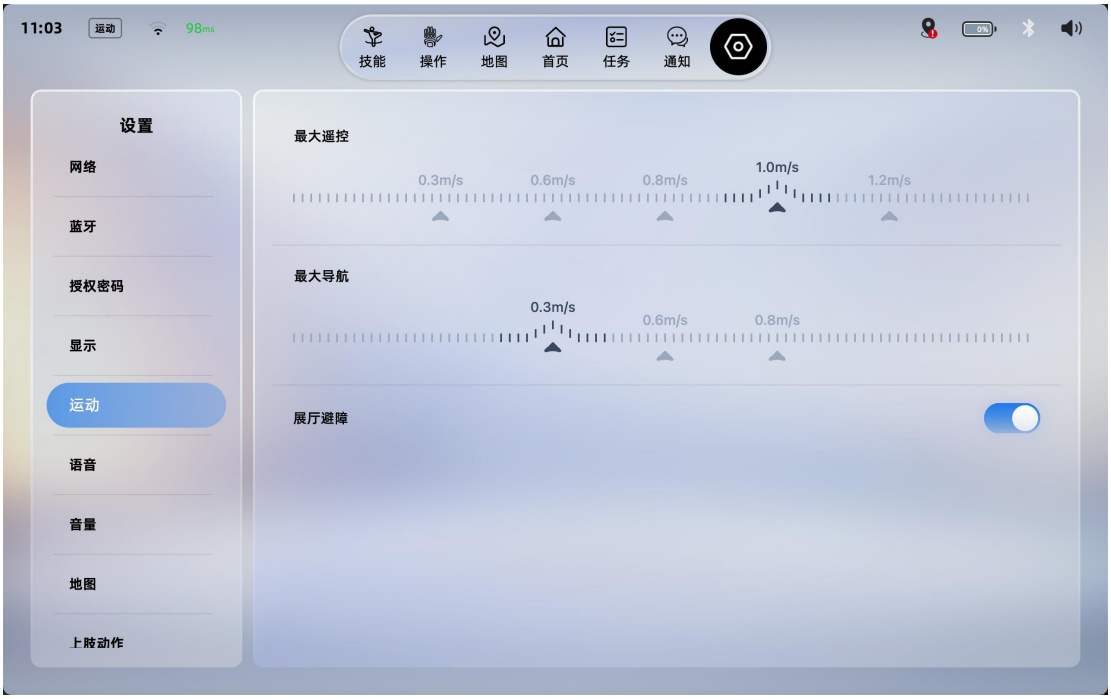




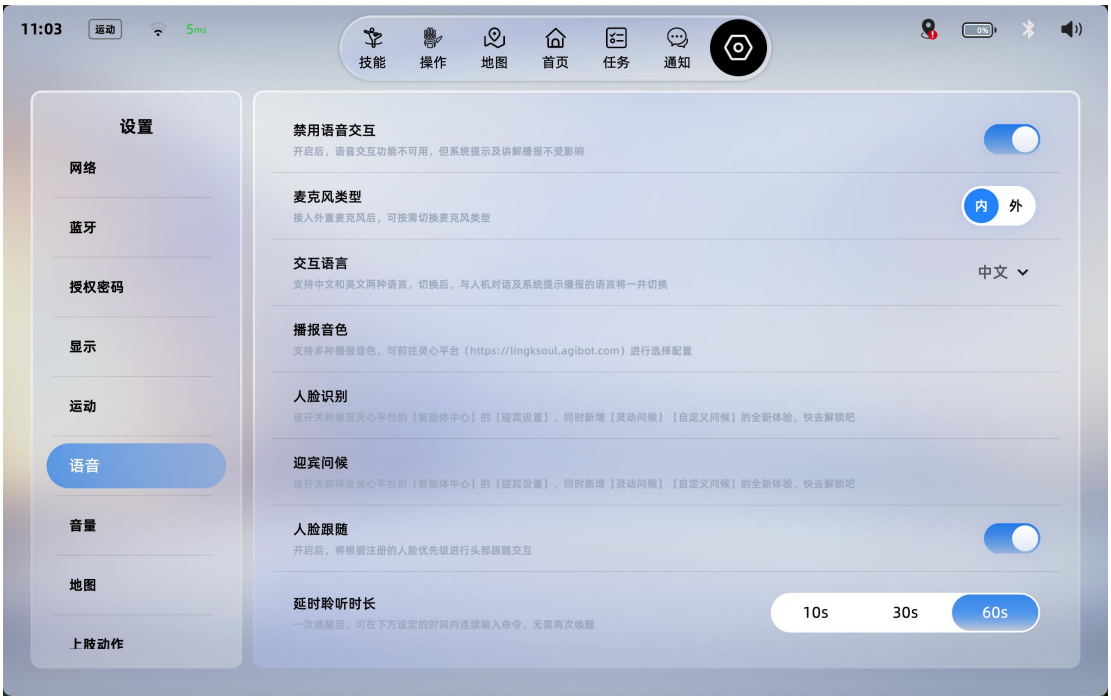
- Authorization Password

- Show

- Movement



- Voice



- Volume

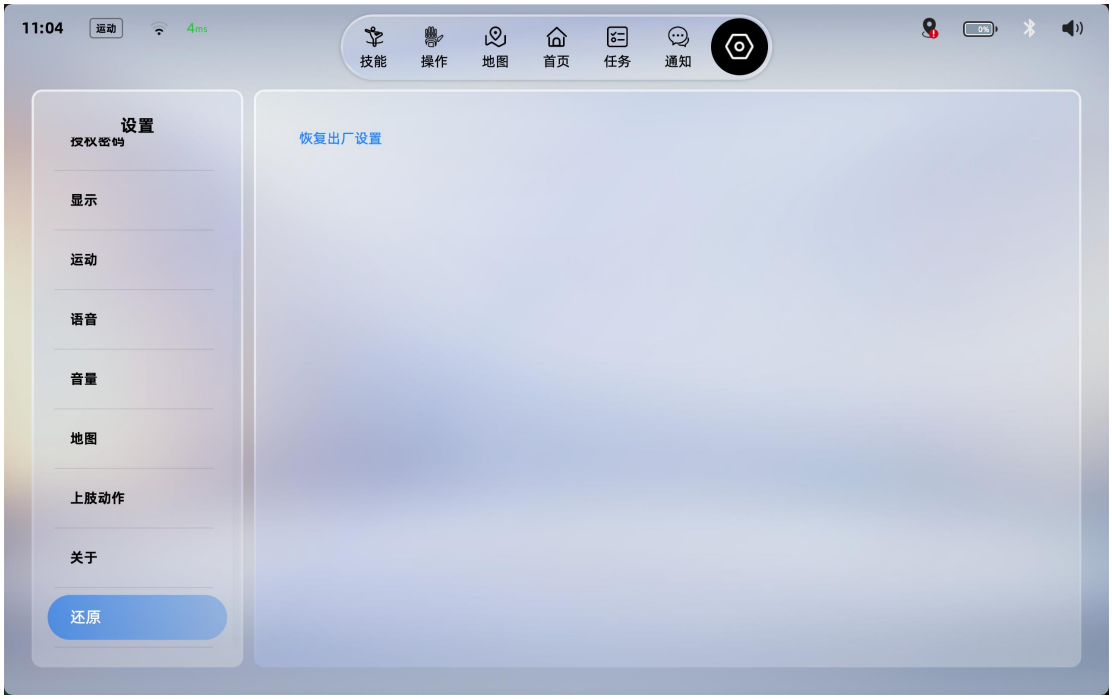
After a successful Bluetooth connection, Bluetooth volume adjustment can be displayed here

- Map

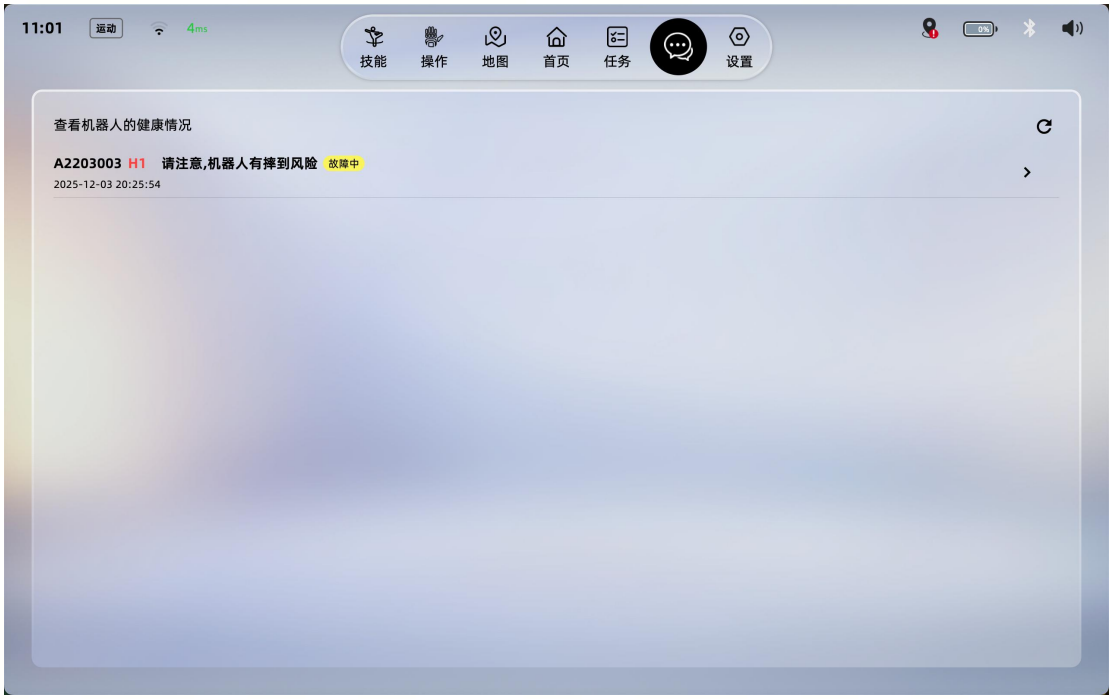
- Upper Limb Movements

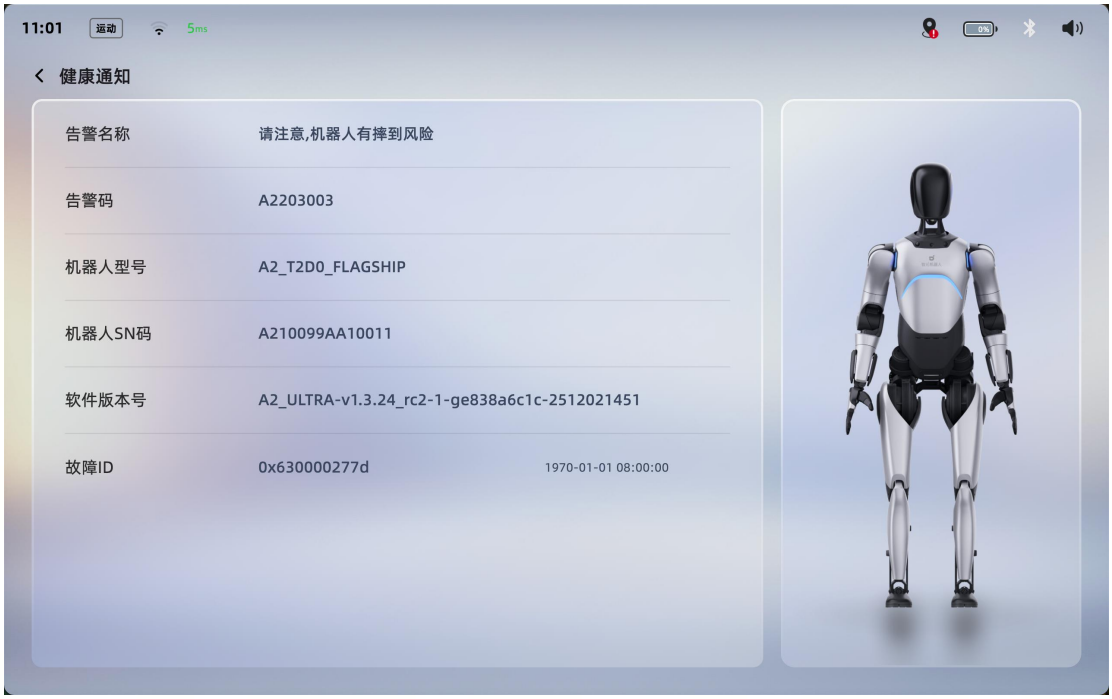
- About

- Restore



6.2.1.5 Notice





6.3 VR Teleoperation Instruction Manual

6.3.1 Safety Instructions

a. **Operator Requirements**

- Understand basic robot control knowledge, including the principles of teleoperation, human-machine collaborative control, and the emergency stop operation procedure.**Unauthorized personnel are strictly prohibited from contacting or operating the robot.**Operation authority should be controlled, and task information for each operation should be recorded.

b. **Environment and Equipment Inspection**

- Please **ensure that the robot operating environment is open, clean, and obstacle-free**, and keep it away from flammable, explosive, toxic, and other dangerous goods. Operating the robot in environments with moisture, smoke, dust, or strong electromagnetic interference is prohibited.
- Please **check if the power status, communication connection, and joint self-check** have passed. If there are any abnormalities, do not force the operation.

c. **Safety Operation Discipline**

- When operating, please firmly hold the handle and focus on the control interface,**avoid being distracted while operating**or performing other tasks to prevent the robot from behaving uncontrollably. It is recommended that another safety officer be present to assist with observation,**ensuring that there are no obstacles around the operator.**
- After the task is completed, please immediately disconnect the teleoperation connection and set the robot to the safe standby state, **to avoid accidental touch or misoperation.**
- Keep a safe distance,**do not touch**the moving parts of the robot (such as arms, legs, fingers, etc.).

d. **Emergency handling**

- If the robot exhibits abnormal behavior (such as continuous shaking, abnormal heating, joint locking, etc.), please immediately press the **emergency stop button or cut off the power** , and please contact the after-sales engineer.
- When the robot is performing a task, please **do not unplug the power supply or restart the system midway** to avoid damaging data or causing hardware abnormalities.

e. **Protective Measures**

- Operating the robot must turn on the fault monitoring system and the emergency stop system to ensure that it can **interrupt execution immediately when a risk occurs.**
- Teleoperation control must be carried out in a physical space where humans and machines are separated, ensuring that the operator and the robot are not in the same enclosed space,**to avoid accidental collisions.**

6.3.2 Effect Display

效果展示

遥操作实景实拍

[final_teleop1.mp4] [final_teleop2.mp4]

6.3.3 Hardware List

	Item	Quantity	Picture	Item	Quantity	Picture
Product Package	Pico 4 Ultra Enterprise VR headset	1		Shifting Machine	1	

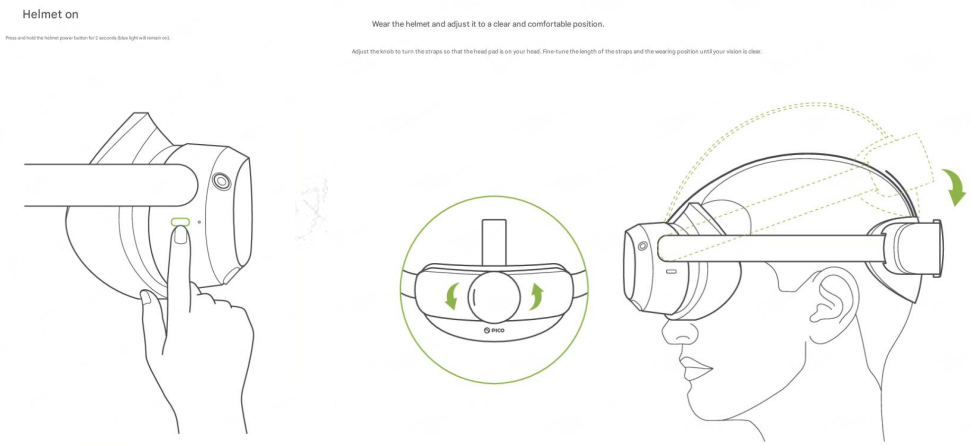
Supporting Hardware	VR controller	2 pieces (1 pair)		Router	1	
	A2 Yuanzheng Humanoid robot	1		Type-C to RJ45 Network debugging cable	1	
Prepare on your own	laptop (Only supports Linux systems)	1		Power Bank	1	

6.3.4 VR Device User Guide

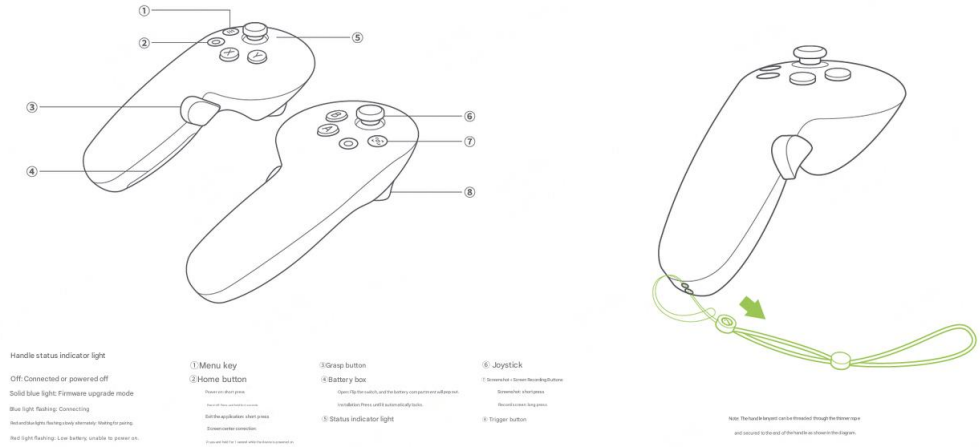
[Pico4 Ultra 企业版 VR.mp4]

Pico4 Ultra企业版VR

6.3.4.1 Hardware Wear and Use



VR headset



VR Controller

6.3.4.2 Software Startup and Usage

Please watch the following video to familiarize yourself with the interface and interaction logic of the TeleXperience APP in VR:

[IOTeleXperienceAPP 介绍.mp4]

Detailed Steps (Text Version):

a. Click the Wi-Fi icon in the bottom right corner within VR to enter network settings, **then connect to a Wi-Fi network with internet access.**

b. Click on the resource library in the bottom left corner, then click on **IO TeleXperience APP** to enter.

c. Click on the default six layout arrangements below **Camera Window** to adjust the window layout.

d. Click " **immersion** " to enter Immersion Mode, drag the dot on the slider to adjust the distance of the image window, and click " **Exit** " to exit Immersion Mode.

e. After use, press the Home button on the controller, a prompt window will pop up, click the Exit button to exit TeleXperience.

6.3.5 Connection and Configuration

6.3.5.1 Connect to the router and find the IP

6.3.5.2 Select the connection method

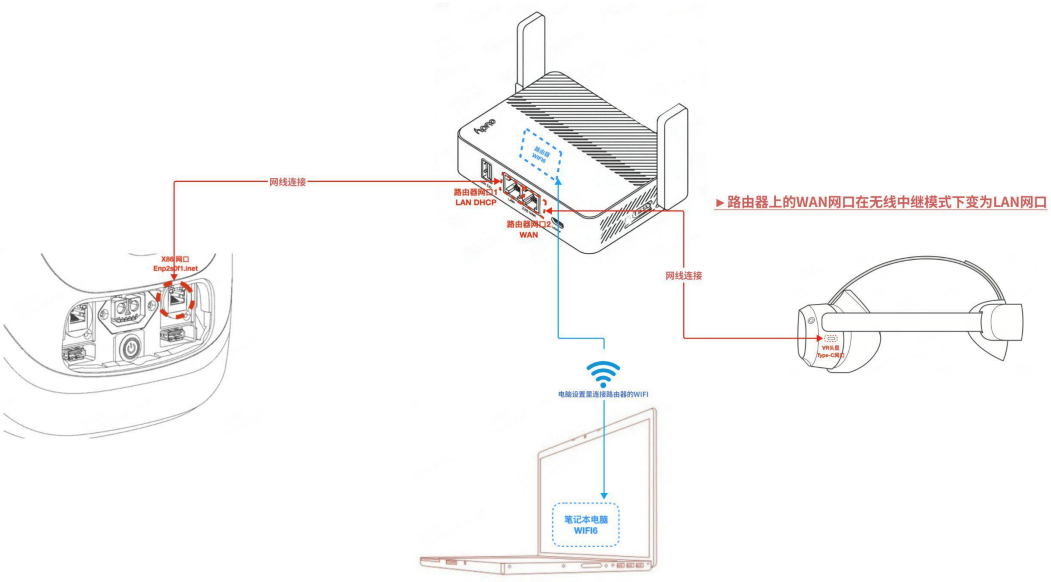
In pure VR rocking operation, there are two connection methods, and users can choose according to their actual needs.

a. "Wired connection" is less affected by network environment, but has more operation steps; **to ensure the effect of remote operation, it is recommended to use** .

b. "Wireless connection" is greatly affected by the WIFI network environment, but it is simple to operate and convenient to use.

6.3.5.2.1 Wired connection

Network Topology Diagram



Set the router to repeater mode

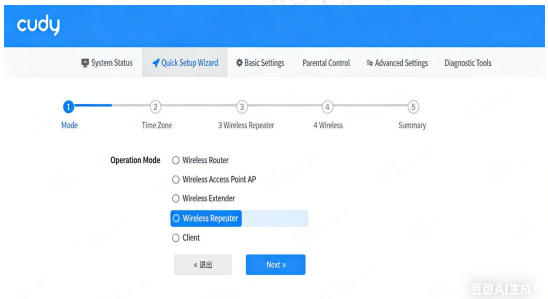
Only need to configure the router to repeater mode when using a wired connection for the first time. Once the configuration is successful, you can **skip** this step and directly find the IP of A2

- Connect to the Cudy router using a computer, with the Wi-Fi network name Cudy-xxxx / Cudy-xxxx-5G
- Enter the management page, open http://192.168.10.1 in the browser Password: Cudy-xxxx

The password for the Cudy backstage management page is Cudy-xxxx, do not change the password

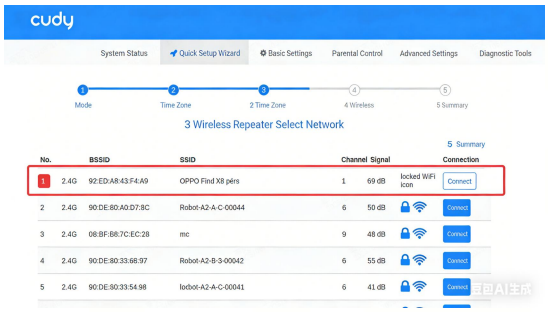
If you cannot log in to the management backend, you can reset Cudy (the RESET button on the side of the device)

- Click**Quick Setup Wizard** to connect to the network:



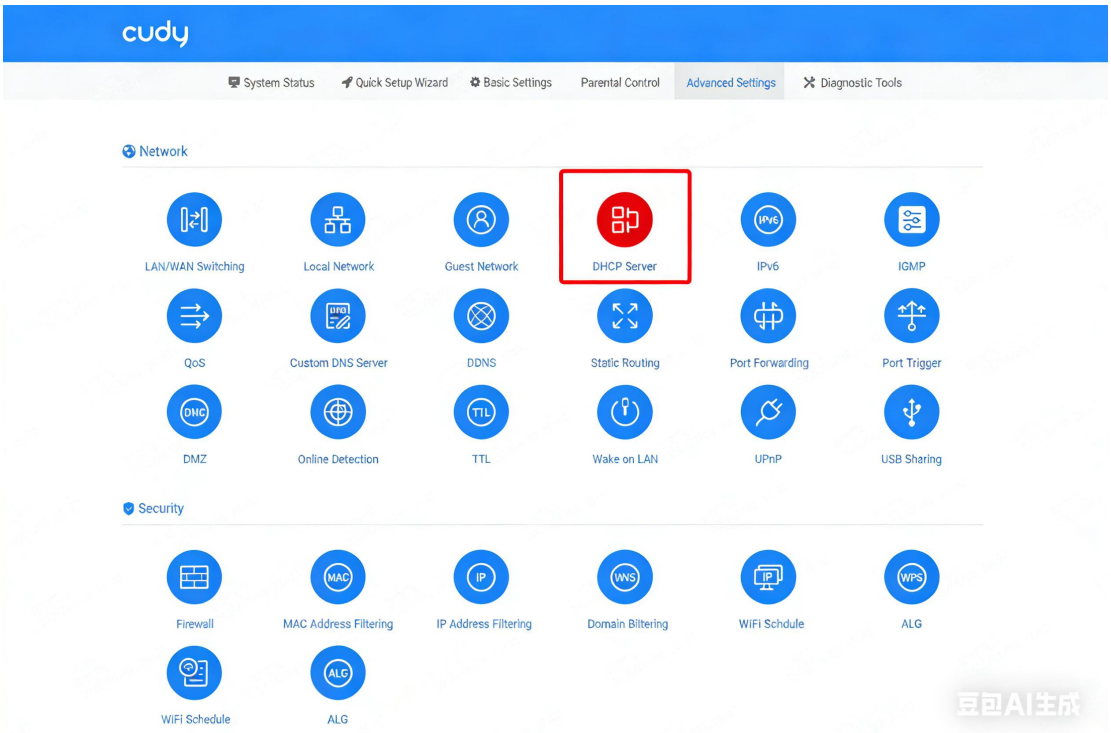
Connect Cudy to the network (it is recommended to use your phone to turn on a hotspot for connection)

Select Wireless Repeater Mode



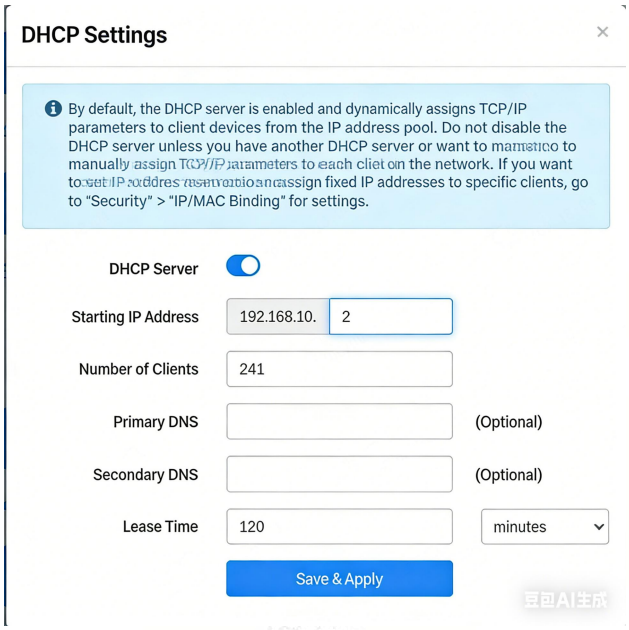
After connecting to the hotspot, follow the sequential instructions, click "Next", and then "Save & Apply".

- Click**Advanced Settings -- DHCP**, configure the network segment:

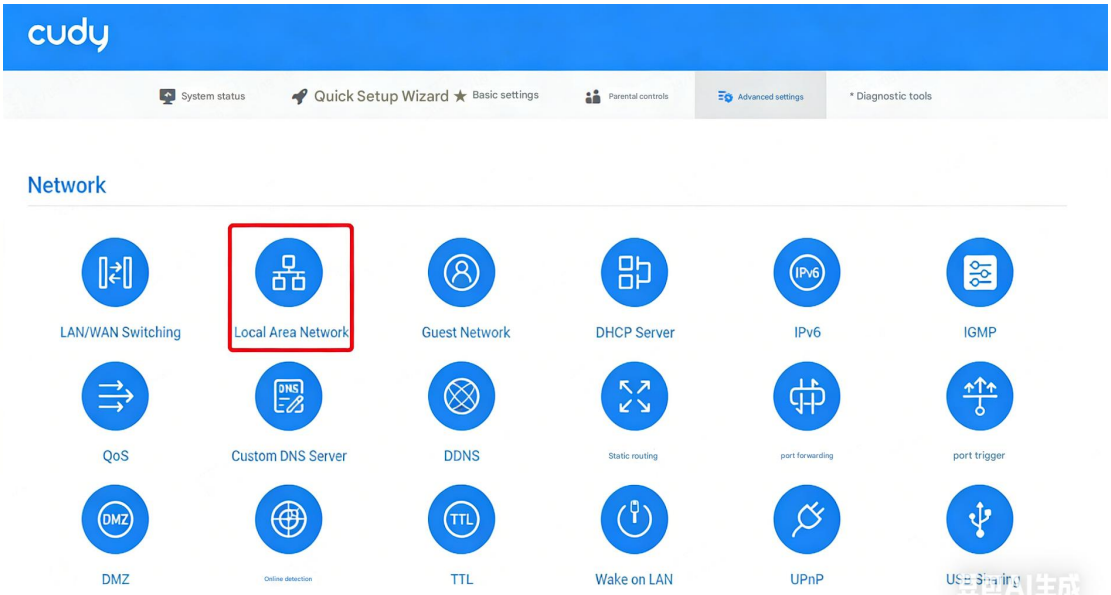


DHCP

DHCP Configuration Network Segment: 2

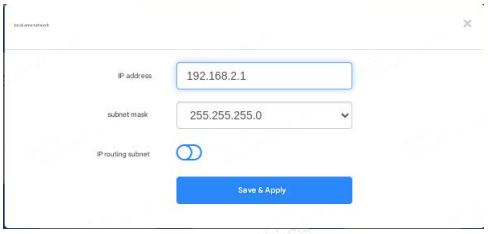


- Click**Advanced Settings -- LAN**, and configure the IP:



Configure LAN IP

IP is configured as 192.168.2.1



- After completing the configuration, the Cudy TR3000 will automatically restart. The new management page address is http://192.168.2.1

Find the IP of A2

- **Connect VR to Router**

Enter the VR control center to turn off the WIFI connection, plug the Type-C connector of the data cable into the VR headset, and plug the RJ45 connector into the LAN port of the router:

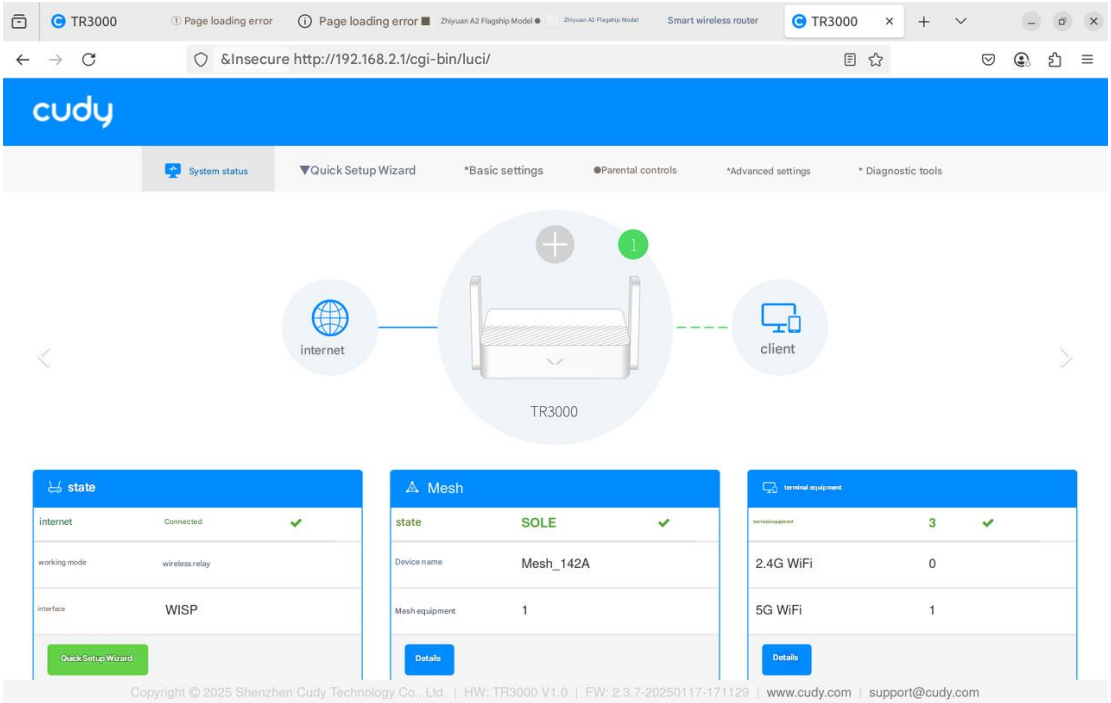
VR Type-C to Ethernet Port Cable Connection Method

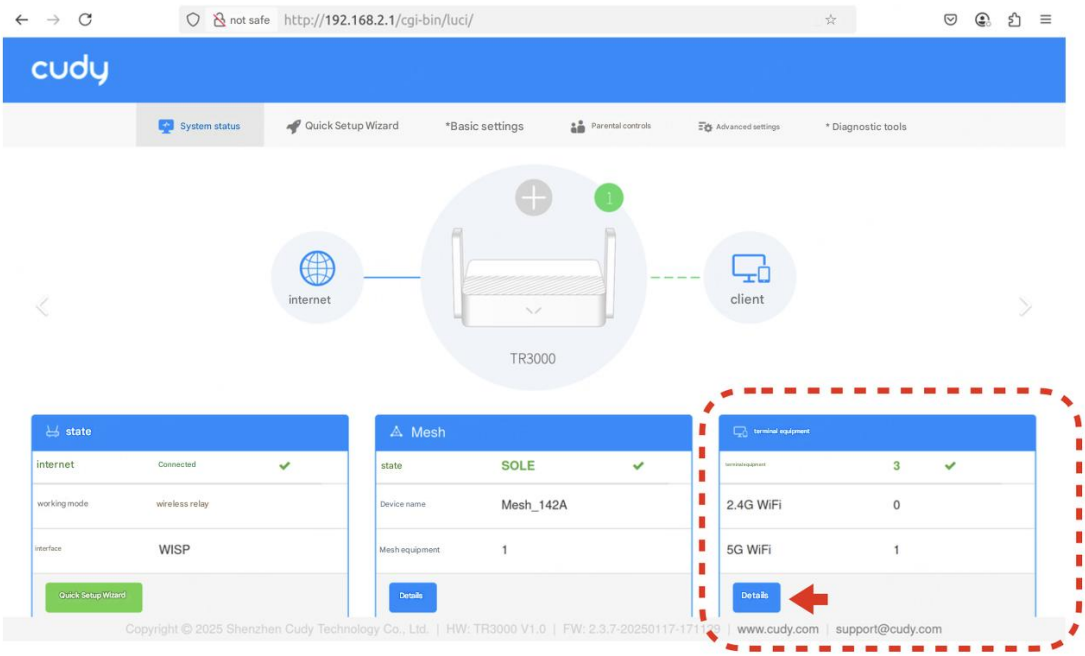
- **The laptop connects to the router**

In the VR headset, there is no IP display window. You need to connect a laptop to the router's WIFI to find the IP Address of A2. The connection diagram is shown in Figure 5-1.

- **Log in to the router gateway**

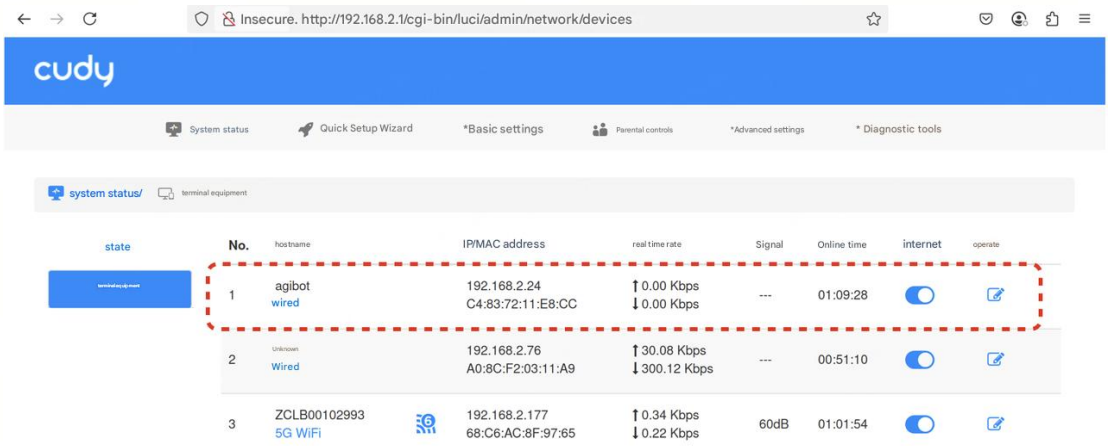
Enter the routing gateway http://192.168.2.1 in the browser to access the management page:

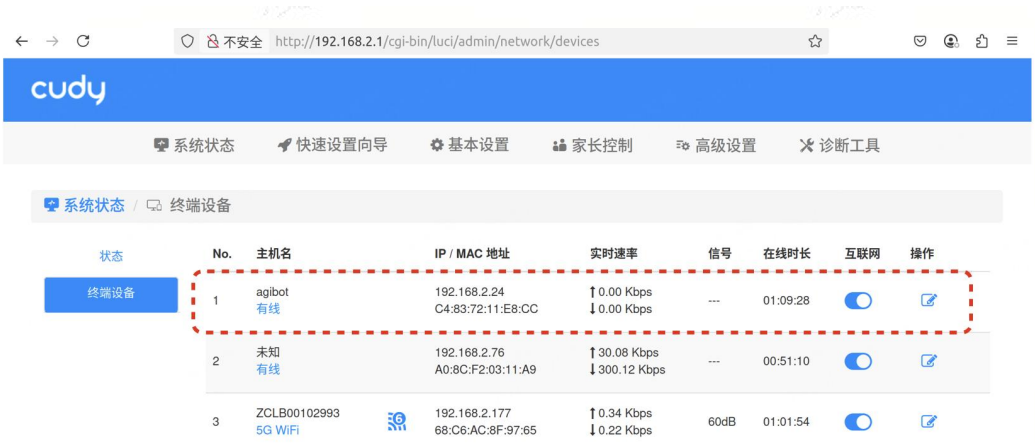




Find the IP Address of A2

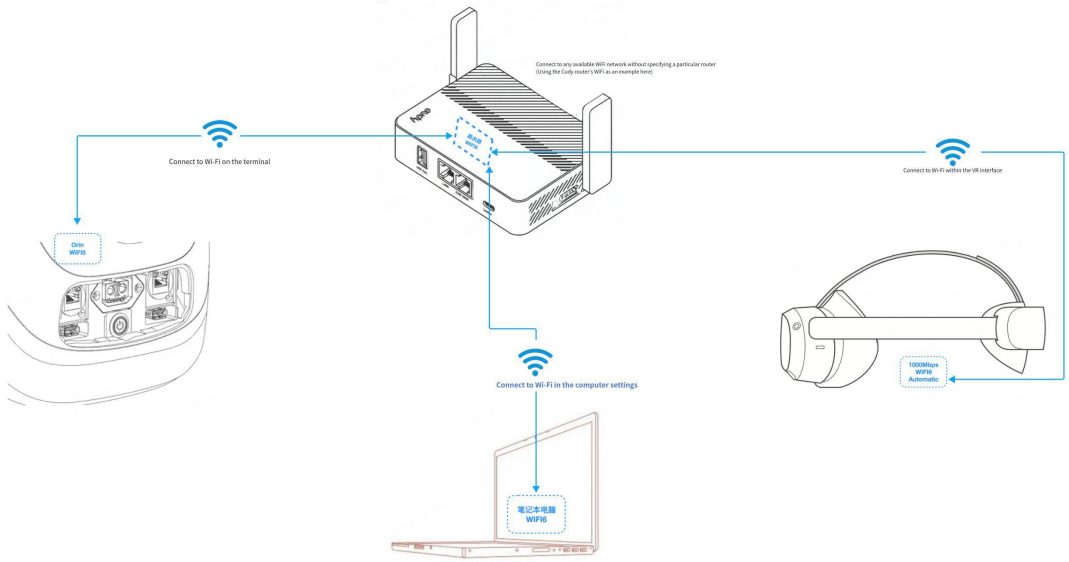
Locate the terminal device, click into the details. Click on the terminal device under Status, and the IP Address corresponding to the hostname "Agibot":





6.3.5.2.2 **Wireless Connection**

Network Topology Diagram:



VR Connect to Network

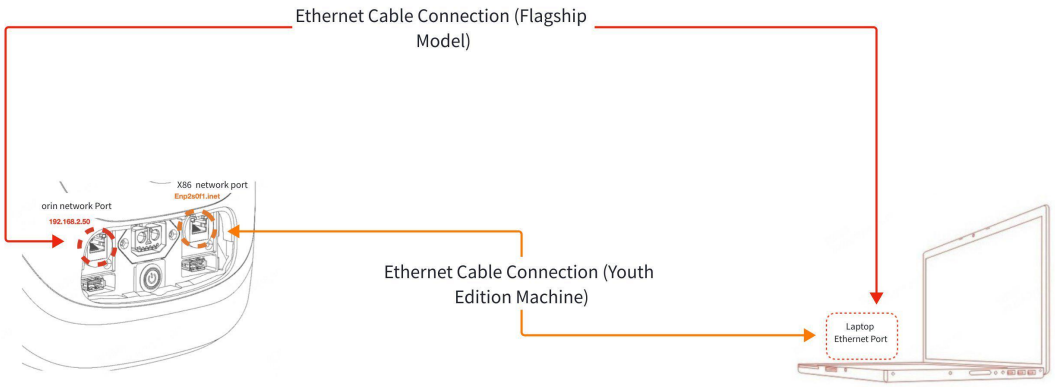
Enter the VR control center, turn on the WIFI connection, click on the WIFI name of the router you want to connect to, and enter the WIFI password to connect:

network connection

[lianjie .mp4]

Find the IP Address of A2

- **Connect the network port of A2 to the network port of the computer using a network cable** (connection diagram is as follows):



- **On a laptop, modify network connection settings**:

  To ensure normal communication, the Orin wired interface of the device has been preconfigured with a static IP address of 192.168.2.50. If you need to connect via the terminal, please follow the steps below:

  i. Manually set the Ethernet IPv4 Address of the computer to any IP within the 192.168.2.0/24 network segment (e.g., 192.168.2.51).

  ii. Accessible after configuration is completed.

  iii. Press [Alt+Ctrl+T] to open the terminal, use the ssh command to remotely log in to orin, then jump to x86, and open the network connection settings:

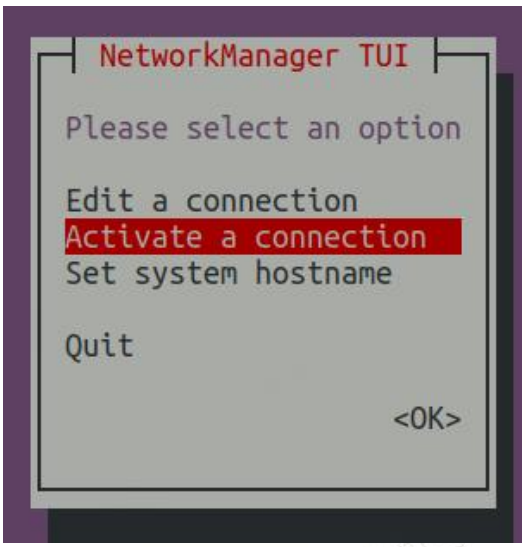
```
Plain Text
ssh agi@192.168.2.50  #Wired connection, remotely access orin from the laptop
ssh agi@192.168.100.100  #Remote Access to X86
sudo nmtui  #Open the network connection settings and connect to the corresponding network.
```

Check if the local computer's IP address has changed to 192.168.2.xx. If there is no change, unplug and plug in the network cable to refresh it.

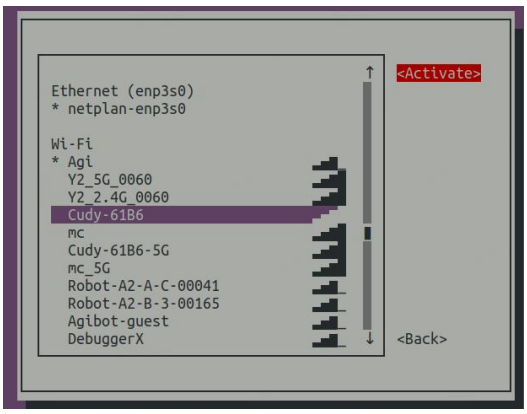
After using the ssh command, the English text "Do you want to proceed with the next operation?" will be displayed. Enter "yes", and the connection password is "1".

The Youth Edition machine is directly connected to the computer and x86 via Ethernet cable, and the ssh command in the above Code Block can be directly used `ssh agi@192.168.2.50` to jump to x86

- **Select "Activate a connection" to connect to the corresponding network port**:



Select Activate a connection

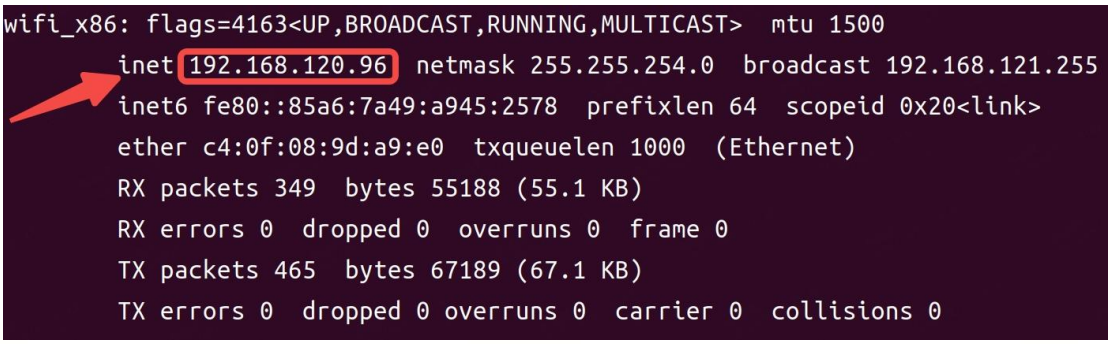


Simply select the desired Wi-Fi or hotspot and enter the password.

After the connection is completed, click "back" on the interface or press "esc" on the keyboard to return to the terminal.

- **Check the network port IP. The IP Address of the P1 machine is wifi_x86.inet, and the IP Addresses of the T3 and Youth Edition machines are wlp4s0.inet. Look up the IP Address corresponding to the required machine. Enter in the computer terminal**:

```
Plain Text
ifconfig #Viewing the IP Address on the Robot x86 Terminal [The following image shows an example of finding the IP address for the P1 machine]
```



6.3.5.2.3 Adjust to "Pure VR" mode (can be skipped)

A2 Teleoperation has three modes to choose from: IO_VR, IO_MOCAP, and VR, corresponding to Debugging, Motion Capture Suit & VR, and Pure VR modes respectively.

The factory settings default to "Pure VR" mode, in which case this

section can be skipped. If it is not in "Pure VR" mode, adjustments can be made according to the following operating sequence.

- Remotely access x86 using the found IP Address of A2:

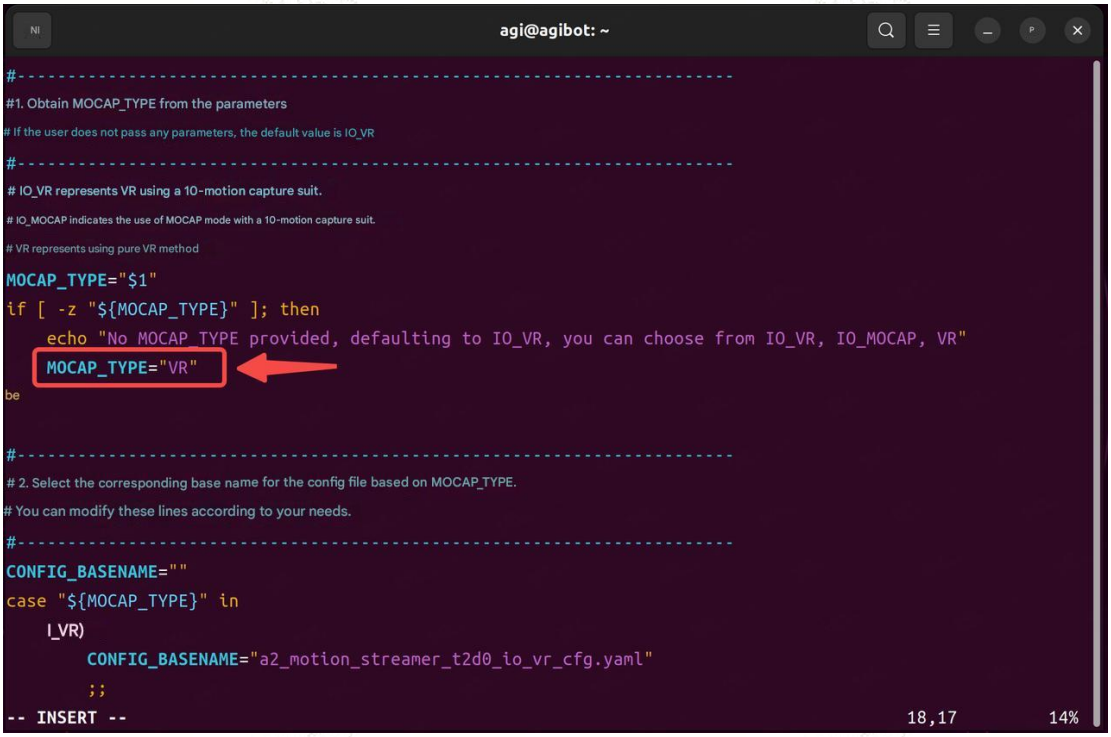
  On your laptop, open the terminal and enter:

```
Plain Text
ssh agi@192.168.xxxx.xxxxx  #远程进入 x86(IP 地址为此前无线/有线连接步骤里查找到的 A2 的 IP)
```

  Enter "yes", then enter the password "1".

- Open the start_a2_motion_streamer.sh file and find the location of the MOCAP_TYPE mode

```
Plain Text
vim /agibot/software/v0/scripts/motion_streamer/start_a2_motion_streamer.sh
```



- In the terminal interface, locate the configuration item that needs to be modified, and enter `i` to enter Insert Mode. As shown in the figure below, at this time, the bottom of the terminal will display `-- INSERT --`, indicating that you have entered the editing state:

- After completing the editing, please press the ESC key to exit the editing mode, then enter:wq and press the Enter key to save the changes and exit.

6.3.5.2.4 Fill in the IP Address of A2

Please watch the following video to learn how to start the TeleXperience-Agibot APP:

VR upload

[启动 VR 程序 TeleXperience-Agibot.mp4]

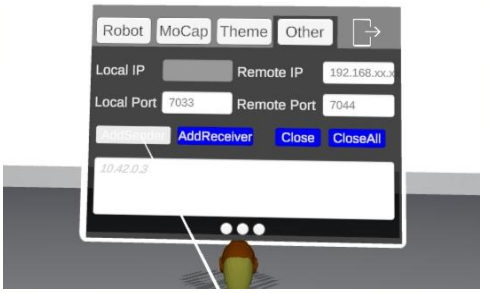
Detailed Steps (Text Version):

a. Launch the TeleXperience-Agibot application in VR.

b. Click the Settings button (gear icon) in the lower left corner of the main menu.

c. On the middle settings interface, click "Other", click the rightmost position of the three dots below, and enter the following parameters in the pop-up window:

- Remote IP: Enter the IP address of the A2 robot's x86 industrial computer connected to the router (i.e., the IP address of A2 found in the previous step)
- Local Port: Fill in 7033, indicating the data receiving port of the VR terminal
- Remote Port: Fill in 56640, indicating the data receiving port of the A2 end



d. Click "AddSender" after completing the form.

e. Click the exit button in the upper right corner.

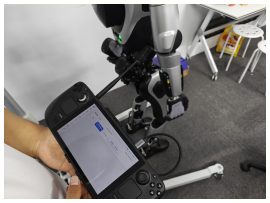
6.3.6 Start teleoperation

6.3.6.1 Switch to standby attitude

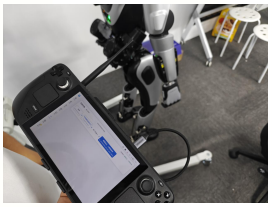
○ **Enter the teleoperation mode through the AimMaster interface: switch to the "Straight Leg - Teleoperation" function**

Open AimMaster, click Toolbox in the left sidebar, select "Straight Leg - Teleoperation" in the function switch, follow the prompts to operate, and switch to the state of "Straight Leg Standing, Upper Limbs Performing Movements" (RL_LOCOMOTION_ARM_EXT_JOINT_SERVO)

Straight Leg - Teleoperation



Standing with straight legs assisted by a hanging rope



Stand with straight legs and perform movements with the upper limbs

If the current version of AimMaster is not in the "sling-assisted straight-leg standing" state after one-click connection, it is necessary to first switch to the enabled state.

Danger:

Before switching from "standing on straight legs with sling assistance" to

"standing on straight legs while performing upper limb movements", please ensure that the robot is firmly placed on the ground. Otherwise, the robot may experience leg swinging and twitching in the air, which could damage the leg motors or harm the operator.

6.3.6.2 VR Teleoperation

Teleoperation Principle: After enabling arm following, capture the displacement **increment** of the VR controller as input to the A2 robot.

During VR teleoperation, the controller must be kept within the field of view of the headset camera, avoiding operations such as turning the head, spreading hands to the side of the body, and wearing fluffy and heavy clothing. Otherwise, it may cause the controller to lose its position, leading to unsafe actions such as sudden arm teleportation.

6.3.6.2.1 Calibration and Reset

- **Calibration:** After each time you put on the VR again, you need to long press the home button on the right VR controller for 5 seconds to reset the perspective inside the VR and **reset the robot model inside the VR to the front**. Then press the VR joystick simultaneously to start teleoperation in the see-through mode.

Failure to calibrate will result in the robot being laggy or inconsistent in following human movements.

- **Reset:** Before each teleoperation, please reset the left and right arms of the robot first.
  - When the poses of the human arm and the robot arm are the same, start teleoperation following.

Danger:

- When using VR mode for teleoperation, please ensure that the VR controller is in the front area of the VR headset and is not blocked. Otherwise, the loss of controller position may cause the robotic arm to quickly move outside the boundary range or collide, and in severe cases, it may cause injury to personnel.

6.3.6.2.2 VR controller button layout

f. **Basic Key Mapping**

Function	VR controller	Function	VR controller
Left Arm Reset	Long press the Ⓧ key	Right arm reset	Long press the A button

Enter transparent mode	Press the left and right joysticks simultaneously	[Calibration] Reset VR View	Long press the right home button

g. **Common Keybindings**

Function	VR controller	Function	VR controller
Left Arm Follow	Hold down the left side trigger	Right arm follow	Hold down the right side trigger
Forward and Backward	Left joystick forward and backward	Left Shift Right Shift	Left joystick left and right
Rotate in place	Right joystick left and right	Left and right dexterous hands grip tightly	Hold down the left and right index finger triggers

h. **Advanced Keybindings (Control Waist and Legs)**

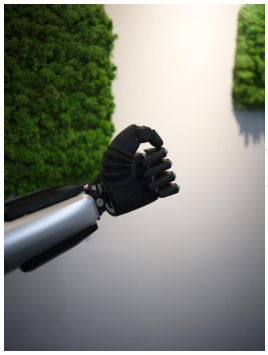
To enable the advanced key layout, you need to firstpress the right joystick. At this time, the left joystick no longer controls movement but instead controls the waist. If you press the right joystick again, it will switch back to the mode where the left joystick controls movement.

Function	VR controller	Function	VR controller
Leg standing up and squatting down	Right Joystick Forward/Backward	Twist the waist left, then right	Left Stick Left/Right
Forward lean of the waist	Push the left joystick forward		

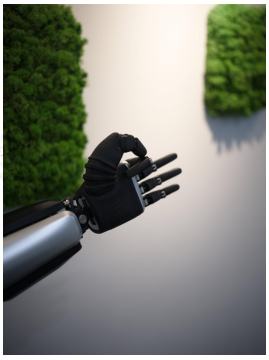
i. **Combination Key**

Function	VR controller	Function	VR controller
Switch the posture of the left thumb	Long press the Ⓨ key	Switch the posture of the right thumb	Long press the B button
Switch to left hand gesture	Left front trigger + Ⓨ button	Switch to right-hand gesture	Right front trigger + Ⓑ button

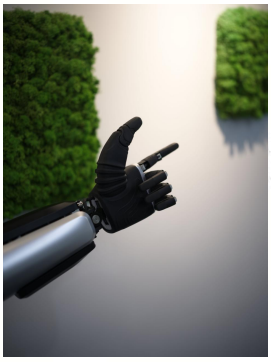
- The robot now supports three gestures: "grip", "pinch", and "point":



Hold



Pinch



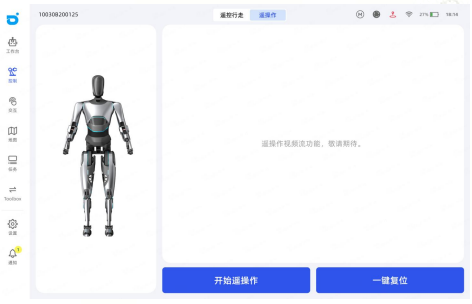
refers to

6.3.6.2.3 **Start teleoperation**

- Click "Control" on the left sidebar of AimMaster, click "Teleoperation" directly above, and enter the teleoperation main interface shown in the figure below.

- Click "Start Teleoperation", and after the 5-second countdown ends, the page will enter the teleoperation sub-interface (full-screen mode), where the operation control state cannot be switched.

- Click "Stop Teleoperation" to exit to the initial page.



Teleoperation Main Interface

Teleoperation Subinterface

Danger:

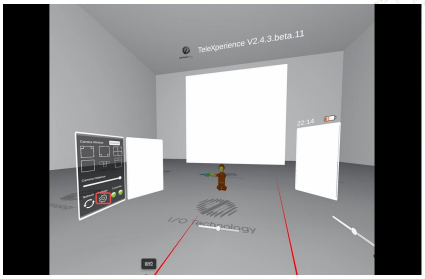
- In the current version of the teleoperation mode, the robotic arm does not have force control capabilities, and collision detection is turned off by default. Please be vigilant about the distance between the robot and the external environment to avoid possible collisions.

- After completing the teleoperation task, first switch from "standing with straight legs and moving upper limbs" back to "standing with straight legs assisted by suspension ropes", and then hoist the robot. Otherwise, the robot may swing its legs and twitch in the air, damaging the leg motors or injuring the operator.

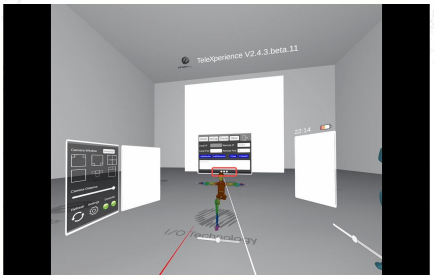
6.3.6.2.4 VR End Video Stream

a. Ensure that you have entered the teleoperation mode in AimMaster and turned on the camera.

b. Configure video stream:

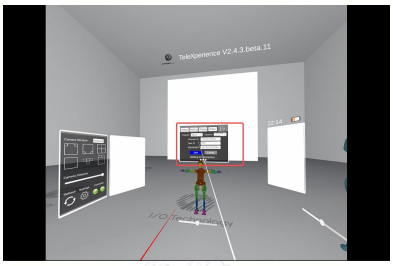


Enter the TeleXperience app and click on the settings in the bottom left corner



Click the origin navigation at the bottom of the settings page and select the leftmost origin

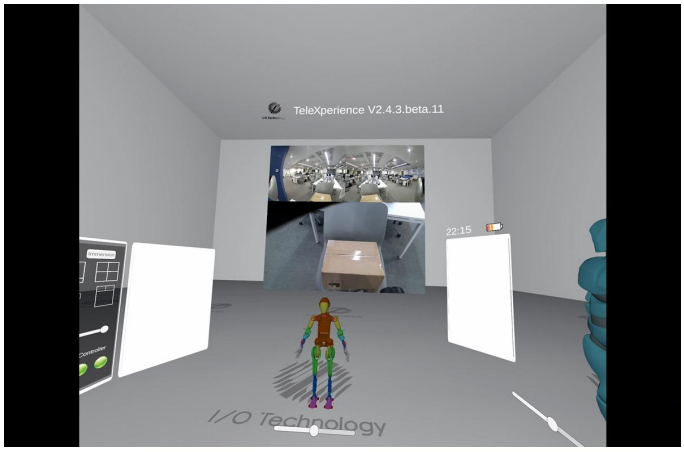
c. Fill in the configuration information:



- Select Protocol `Agora` (Internet connection) or `LanRTC` (local connection) (the connection method must be consistent with the one enabled in A2)
- **(Required)** Camera selects Fish+RealSense
- **(Required)**Fill in the A2 SN number for Channel Id. Example:`A2xxxxx`
- **(Optional)**User Id can use the default value (1001 cannot be filled in)
- **(Optional, required for local connection)**Fill in the IP of A2 accessible by VR for SignalingUrl. Example: `192.168.6x.xxx:5000` `192.168.2.50:5000`

d. Click the **Join** button to join the channel

e. View the images transmitted by the robot and use the VR controller to control the robot



6.3.6.3 **Action Recording**

a. Enter the teleoperation page and start recording the required actions

Click "Start Teleoperation"

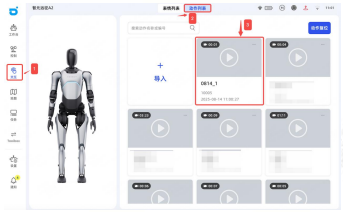
Click "Record New Action"

b. After recording is completed, stop action recording and save the action

Click "Stop Action Recording"

Fill in the name and description to create this action

c. Click "Interaction" in the left menu, select "Action List" at the top, and you can find the newly created action on the page below



- Duplicate naming is not allowed
- The maximum duration of action recording is 30 minutes
- No remote operation action detected for 5 minutes, automatically exiting action recording
- During the process of initiating remote operation, it is not allowed to switch the operation and control state via voice