ROBOOTER

BBR-QP-BOX-01, Rev.VF1.0

ROBOOTER E40

Instruction Manual

Shanghai Bangbang Robotics Co., LTD.

Preface

Dear Customer,

Thank you for choosing our electric wheelchair.

The Robooter E40 Product Manual is a comprehensive guide designed to offer you in-depth details about the product, its operational guidelines, and after-sales service information pertaining to the electric wheelchair.

We urge you to go through the Robooter E40 Product Manual before its utilization to ensure its correct operation and maintenance. The material enclosed in this manual is safeguarded by patent rights and copyright laws. It is prohibited to reproduce any part or the entirety of this manual's content without the express written consent of Shanghai Bangbang Robotics Co., LTD.

Kindly note that the information contained within this manual might undergo changes without prior intimation. For the most recent updates and information regarding the equipment, we recommend visiting the official Robooter website.

Once again, thank you for your trust in our product. We hope it serves you well.

Sincerely,

Shanghai Bangbang Robotics Co., LTD.

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1.1 Safety Symbols and Description

Warning

- The presence of this sign signifies potentially hazardous situations that, if ignored, could result in severe injury.

Caution

- The presence of this sign indicates hazardous situations that, if disregarded, may result in mild or moderate injuries and material damage.

1.2 Applicable Range of this Product

- This product is designed to assist individuals, including the disabled, elderly, and those with limited mobility, who experience difficulty walking

1.3 Indication for Use

- The Electric Wheelchair (Robooter E40), Model name: BBR-E40-01, is designed to provide both outdoor and indoor mobility for individuals limited to a seated position who are capable of operating a powered wheelchair.

1.4 Contraindications for Product Use

Warning

- This product is not suitable for individuals with cognitive or mental health conditions that might cause temporary or permanent impairment of attention or judgment.

Warning

- Maintain a distance of at least 6 inches (15 cm) between this medical device and magnetically sensitive medical devices, such as cochlear implants, neurostimulators, stents, and shunts.

1.5 Precautions for Electrical Safety

Caution

The Electric Wheelchair complies with ISO 7176-9 Climatic Test standards.

- This test confirms that the electric wheelchair provides users or their attendants sufficient time to move it out of the rain and to a safe location. Please observe the following precautions to ensure safety and longevity:

- Avoid operating the electric wheelchair during thunderstorms.
- Do not leave the electric wheelchair exposed to heavy rain.
- Do not store the electric wheelchair in damp or wet areas for extended periods.
- Refrain from cleaning the electric wheelchair with an automatic car wash.
- Exposure to direct rain, smog, or humid air can lead to electrical and mechanical malfunctions or cause the wheelchair to rust.

1.6 Product Use Conditions

Caution

- **Environmental Temperature:** -10°C to 50°C.
- **Relative Humidity:** Between 20% and 95%.
- **Atmospheric Pressure:** 70kpa to 110kpa.
- **Electromagnetic Interference:** The environment should be free of strong electromagnetic interference.

The safety belt is provided as a safety feature. It ensures that users remain securely seated and are not thrust forward when the Electric Wheelchair comes to a stop. Always use the safety belt to ensure the utmost safety during operation.

1.7 Disposal Considerations

Caution

- In accordance with local laws and regulations, your product must be treated separately from domestic waste. Please dispose of it at the designated recycling point in your area. Recycling helps reduce waste, benefiting our environment.

1.8 Precautions During Operation

(1) Driving On Slopes

This Electric Wheelchair has passed test requirements for climbing slopes not exceeding 9° with a load of 330 lbs. DO NOT attempt to climb any slope exceeding 9°. While reversing on a slope, please ensure to slow down your electric wheelchair. DO NOT reverse on a slope exceeding 10°. Additionally, during reversing, please use extreme caution. The ability to climb a slope and the driving distance are affected by battery and local factors, such as (but not limited to): the users body weight, topographical conditions (for example, grass, gravel, uneven surfaces), hill gradients, battery life and service life, extreme temperature conditions, and the usage and weight of the fitting, etc.

(2) Braking

The Electric Wheelchair will stop within several seconds. When it brakes, please ensure that you are sitting properly and holding the handrail.
Note: The electromagnetic brake will not engage immediately; it will activate after the wheel rotates for a half cycle.

(4) Emergency braking

In the event of a critical situation or unexpected movement, press the power switch key to make the Electric Wheelchair stop.

Please be aware that frequent use of the emergency brake may lead to motor faults that can interfere with the normal operation of your Electric Wheelchair.

Important Note: Although this emergency brake is effective, it should not be used under normal conditions.

(5) Use of Mobile Phone
For your safety, it is crucial to adhere to the following guidelines regarding the use of the mobile application with the electric wheelchair:

Do Not Drive Using the Mobile Application: Under no circumstances should the mobile application be used to drive the electric wheelchair. This function is not supported and attempting to do so can lead to serious accidents.

Maintain Awareness of Road Conditions: Even when utilizing the mobile application for its intended uses, always stay aware of your surroundings and road conditions to prevent accidents.

Emergency Use: In case of any unexpected movement or critical situation, be prepared to press the power switch key to halt the electric wheelchair immediately.

Failure to follow these guidelines can result in severe injuries or damage. Always prioritize safety by using the mobile application responsibly and as intended.

(6) Seat Usage in Vehicles:
The electric wheelchair is not designed to serve as a seat in a moving vehicle.

(7) Speed Variability:
The vehicle's speed may fluctuate depending on tire pressure, the terrain, environment, and battery power.

(8) Unauthorized Modifications:
Any alterations or modifications not explicitly approved by the responsible party could nullify the user's authority to operate this equipment.

(9) Antenna and Transmitter Guidelines:
This transmitter should neither be co-located nor operate simultaneously with any other antenna or transmitter.

(10) Traffic Rules:
Always adhere to local traffic regulations while operating the electric wheelchair.

1.8 Specific Warnings (Please Read Carefully)

Warning

To ensure your safety and the longevity of the electric wheelchair, please adhere to the following guidelines:

Dangerous Driving Operations: Avoid snake driving, high-speed sharp turns, or any other risky driving maneuvers. These could cause the electric wheelchair to tilt and result in injury.

Escalators: Do not use the electric wheelchair on escalators, as this can increase injury risk.

Road Safety:

- Do not drive in motor vehicle lanes or non-pedestrian areas.
- Refrain from driving on slippery surfaces such as water, oil, or ice to prevent loss of control.
- Avoid obstacles or ditches greater than 40mm in height. They may lead to personal injury.

Driving Posture and Movements:

- Avoid sudden bends or reversing at high speeds.
- Do not carry passengers.
- Ensure all fasteners, connectors, and detachable parts are secure before operation.

Maintenance and Repair: Do not attempt to repair any part of the electric wheelchair without proper authorization.

Operating State:

- Ensure the brakes are engaged before mounting.
- Do not operate under conditions that may impair your judgment, such as after consuming alcohol, drugs, or certain medications.
- Avoid using the electric wheelchair if you're feeling unwell or if your vision is impaired.

Legal Liability: We are not responsible for injuries caused by violations of local or international laws or regulations.

Operating Posture:

- Ensure you're seated correctly before using any functions.
- Keep your feet within the pedal area.
- Do not stand on the electric wheelchair.

Slopes:

- Avoid inclines greater than 9°.
- Be cautious when releasing the control system on a slope; the wheelchair might roll back slightly before the brake engages.

Inspect Electrical Connections: Always check all electrical connections to ensure safety and reliability before use.

Wiring Modifications: Do not disconnect, alter, or modify any installed wiring harness components on the electric wheelchair.

Battery Specifications: Use only specifiedbatteries for the wheelchair. Avoid unqualified batteries such as non-recyclable lead-acid types or batteries from other manufacturers.

Battery Information: Before any installation, thoroughly read all details related to batteries and their chargers.

Seat Precautions: The electric wheelchair is not designed to be secured as a seat in a moving vehicle.

FCC Compliance: This device is in line with Part 15 of the FCC Rules, which mandates:

- The device should not cause harmful interference.
- The device must accept any interference received, inclusive of interference that may lead to undesired operation.

Class B Device: This equipment conforms to the limits for a Class B digital device, according to Part 15 of the FCC Rules. These parameters are set to provide a reasonable safeguard against harmful interference within residential installations. However, note that:

- If interference with radio or TV reception occurs (which you can ascertain by turning the equipment on and off), take corrective measures such as:
    - Reorienting or relocating the receiving antenna.
    - Increasing the separation between the device and the receiver.
    - Plugging the equipment into a different circuit from the receiver.
- For advanced troubleshooting, it's recommended to consult your dealer

Non-compliance: Not adhering to the above-stated guidelines could lead to unforeseen damages to the equipment or surroundings.

1.9 Excerpts from EMC-related Guidelines & Statements in Manufacturer's Accompanying Documents

EMI Compliance Table(Table 1)

Phenomenon	Compliance	Electromagnetic environment
RF emissions	CISPR 11 Group 1,Class B	Home healthcare environment
Harmonic distortion	IEC61000-3-2 Class A	Home healthcare environment
Voltage fluctuations and flicker	IEC61000-3-3 Compliance	Home healthcare environment

Table 1-Emission

EMS Compliance Table (Table2-5)

Phenomenon	Basic EMC standard	Immunity test levels
		Home healthcare environment
Electrostatic Discharge	IEC 61000-4-2	±8kV contact ±2kV,±4kV,±8kV,±15kV air
Radiated RF EM field	IEC 61000-4-3	20V/m 26MHz-2.5GHz 80% AM at 1kHz 10V/m 80MHz-2.7GHz 80% AM at 1kHz
Proximity fields From RD Wireless communications equipment	IEC 61000-4-3	Refer to table 3
Rated power Frequency Magnetic fields	IEC 61000-4-8	30A/m 50Hz or 60Hz

Table 2-Enclosure Port

Test Frequency (MHz)	Band (MHz)	Immunity test levels Home healthcare environment
385	380-390	Pulse modulation 18Hz, 27V/m
450	430-470	FM, ±5kHz deviation 18Hz sine,28V/m
710	704-787	Pulse modulation 217 Hz sine, 28V/m
745		
780		
810	800-960	Pulse modulation 18Hz sine, 28V/m
870		
930		
1720	1700-1990	Pulse modulation 217Hz sine, 28V/m
1845		
1970		
5785		

Table 3 – Proximity fields from RF wireless communications equipment

	Standard	Home healthcare environment
Electrical fast Transients/burst	IEC 61000-4-4	±2KV 100kHz repetition frequency
Surges Line-to-line	IEC 61000-4-5	±0.5kV, ±1kV
Conducted Disturbances Induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands and amateur radio bands Between 0.15MHz and 80MHz 80%AM at 1kHz
Voltage dips	IEC 61000-4-11	0% U_T;0.5 cycle At 0°,45°,90°135°,180°,225°,270° and 315°
		0% U_T; 1 cycle and 70% U_T;25/30 cycles Single phase: at 0°
Voltage interruptions	IEC 61000-4-11	0% U_T; 25/30 cycles U_T=rated input Voltage

Table 4 – Input a.c. power port

Phenomenon	Basic EMCstandard	Immunity test levels
		Home healthcare environment
Conducted disturbances induced by RF fields	IEC61000-4-6	3V.0.15MHz-80MHz6V in ISM bands and amateur radiobands between 0.15MHz and 80MHz 80%AM at 1kHz

Table 5 – Signal input/output parts port

Cable	Max. cable length, Shielded/unshielded		Number	Cable classification
AC Power Line	1.8M	Unshielded	1 Set	AC Power
DC Power Line(USB Cable)	0.95M	Unshielded	1 Set	DC Power

Table 6-Cable information

2.1 Product Features & Functions

DC Brushless Deceleration Motor: This acts as the fundamental component powering the electric wheelchair's drive mechanism.

Upper Controller: This specialized upper controller facilitates the motor's operation. Using an independent joystick control, the following movements can be achieved:

- Forward movement
- Differential turning
- Low-speed reversing

Folding Mechanism: The wheelchair is equipped with a feature that allows for easy folding and unfolding.

Automatic Shutdown: If left unoperated for 30 minutes, the wheelchair will shut down automatically to conserve energy. Via the app terminal, users can select between an automatic 30-minute shutdown or choose to disable this feature.

Cruise Control Mode: By pressing the "speed ∧" button for 3 seconds, users can activate the cruise control mode. The front joystick then assumes control over this mode.

Novice Mode: Accessible by clicking the "Fn" button, this mode is designed for beginners. Upon activation, a voice prompt announces, "Enter the novice mode," and the mode's icon is displayed on the screen. Within this mode, users have the option to select between first and second gears, with the speed gear being limited to 2.

2.2 Main Structure of the Product

Figure 2.2.1

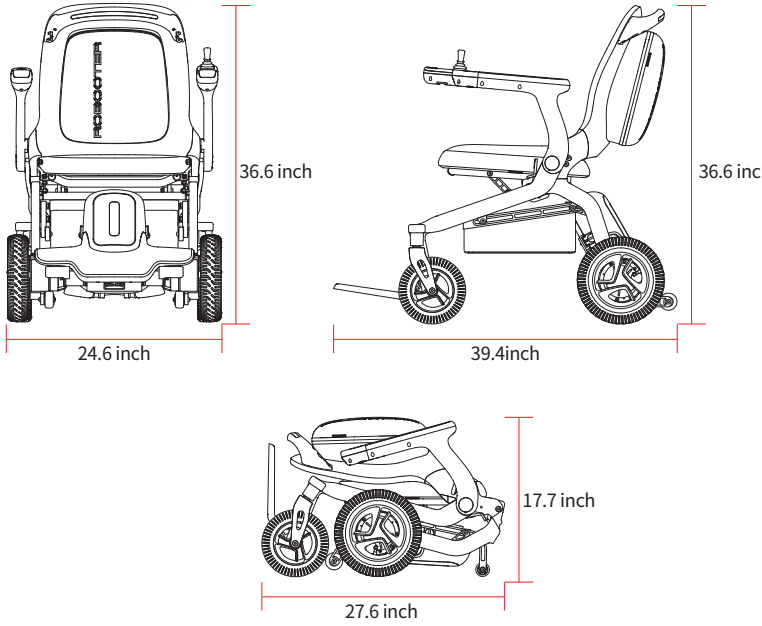


Figure 2.2.2

2.3 Technical Specifications

Common name	Powered wheelchair
Product model	BBR- E40-01
the type class of the wheelchair: Class A, Class B or Class C	Class A
Folding mode	Manual folding
Maximum speed	8 km/h
Maximum barrier height	1.6 inch
Maximum crossing ditch width	4 inch
Minimum turning radius	17.7 inch
Total weight	59.5 lbs
Battery number	1
Battery weight	7.5 lbs
Specifications of front and rear wheels	8-inch front wheel, 10-inch rear wheel
Maximum load	330 lbs
Battery capacity	20Ah
Overall dimension (length * width * height)	39.4*24.6*36.6 inch
Folding shape dimension (length * width * height)	27.6*24.6*17.7 inch
Seat wide	18 inch
Theoretical driving distance	14.3 mile
Bearing capacity of the storage basket:	⩽11 lbs
the minimum width of corridor in which the wheelchair can be turned to face the opposite direction	70.9 inch
the rated slope, expressed in degrees	9°
the type(s) of tyres that can be used on the wheelchair	Pneumatic rubber tires; PU tires
if the wheelchair can be dismantled or has any removable parts, the mass of the heaviest part	51.8 lbs
Overall length with legrest	39.4 lnch
Static stability downhill	9°
Static stability uphill	9°
Static stability sideways	9°
Dynamic stability uphill	9°
Minimum braking distance from max speed	39.4 inch
Footrest to seat distance	15.7 inch
Leg to seat surface angle	100°
Armrest to seat distance	9.1inch
Front location of armrest structure	21.7 inch
Waterproof grade	IPX4

Table 2.3

2.4 Storage Conditions

Temperature Conditions: Store the packaged Electric wheelchair in a temperature range of -40°C to 60° C.

Humidity: Ensure the relative humidity does not surpass 95%.

Atmospheric Pressure: The suitable atmospheric pressure for storage is between 56-146kPa.

Environment: The storage room should be free from harmful gases that might cause corrosion. Make sure the area has proper ventilation.

Stacking: When the Electric wheelchair is in its packaged state, avoid pressing or stacking other items on top of it. If stacking is necessary, do not stack more than three packages high.

Protection from External Elements: Avoid storing the Electric wheelchair near heat sources or in direct sunlight for extended periods.

Long-Term Storage: If you plan to store the Electric wheelchair for an extended time:

- Fully charge the battery before turning off the power switch.
- If the Electric wheelchair remains in storage for over a month, ensure it is fully charged before continuing storage or using it.


Handrail
Upper controller
Backpack
Headlamp
Backrest component
Seat component
Folded switch
Battery box
Brake
Pedal plate
Anti-rollover wheel
Omni-directional wheel
Storage basket
Driving motor wheel

Figure 3.1

4.1 Notice for Use

- Please carefully read the Product Manual before use and check whether the parts are in good condition to ensure your safety;
- When the electric wheelchair is operated for the first time, level and hard ground shall be selected as soon as possible to ensure that your sounding area has no barrier or pedestrian;
- Do not remove the motor and the upper controller by yourself. If replacement is required, please purchase the original parts from the authorized agent;
- If the electric wheelchair is artificially modified, the use of non-original parts will be exempted from the warranty liability;
- Do not give the electric wheelchair to minors or other people who are not suitable for the electric wheelchair;
- Do not overload (the maximum load of the electric wheelchair is 330 lbs); the electric wheelchair is limited to 1 person;
- Make sure that the electric wheelchair is already fully expanded;
- Make sure that you have fastened the electric wheelchair seat belt;
- When you sit correctly in the electric wheelchair and gently push the upper controller rocker, the electric wheelchair will move forward, back, turn left or turn right; The electric wheelchair will be stopped after the release. Practice this basic function until you are skilled;
- During steering, please clear the barriers nearby;
- Please obey the traffic rules and drive in the non-motorized lane to ensure the safety of you and others. Please drive slowly and Do not take others;
- When the electric wheelchair is operated in a relatively harsh environment (e.g., when entering or turning), the electric wheelchair should be operated slowly. It is recommended to minimize to the lowest speed of the electric wheelchair in harsh environments;
- Check whether the electric wheelchair is in good condition, such as whether the performance is normal;
- The electric wheelchair will automatically shut down if being idled for 30 minutes;

- When using an electric wheelchair, avoid being close to a radio transmitter, high-power handheld radio transmitter or receiver;
- Any error or improvement in the Product Manual will be specified in the new specification. We may launch new products to meet the market needs at any time. If there is any difference between the relevant functional description and performance and this manual, the specific products and relevant supplementary instructions shall prevail, and it will not be stated in this manual;

4.2 Expanding and Folding of the Electric Wheelchair

4.2.1 Expanding and Folding Operation Mode

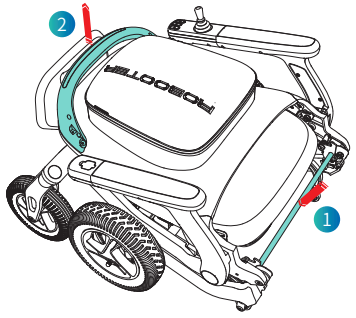


Figure 4.2.1.1

Expanding operation mode: When manually expanding the electric wheelchair, please press the folding switch with one hand (position 1 in Figure 4.2.1.1) and pull the armrest up with the other hand (position 2 in Figure 4.2.1.1) until the electric wheelchair is fully expanded;

Figure 4.2.1.2

Folding operation mode: When manually folding the electric wheelchair, please press the folding switch with one hand (position 1 in Figure 4.2.1.2) and pull the armrest up with the other hand (position 2 in Figure 4.2.1.2) until the electric wheelchair is fully folded;

Remarks: Before folding the electric wheelchair, empty the items in the storage basket to prevent damage.

4.2.2 Anti-clamp

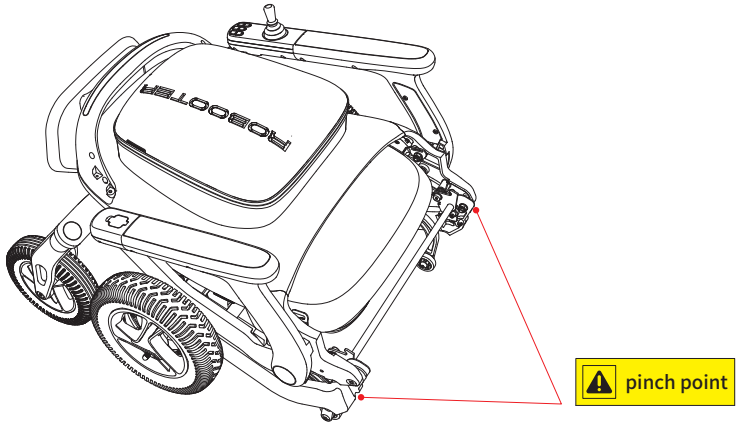


Figure 4.2.2

Note: During the folding/expanding steps, **DO NOT** contact the position indicated in the anti-clamp section;

4.3 Upper Controller

4.3.1 Introduction to the Upper Controller

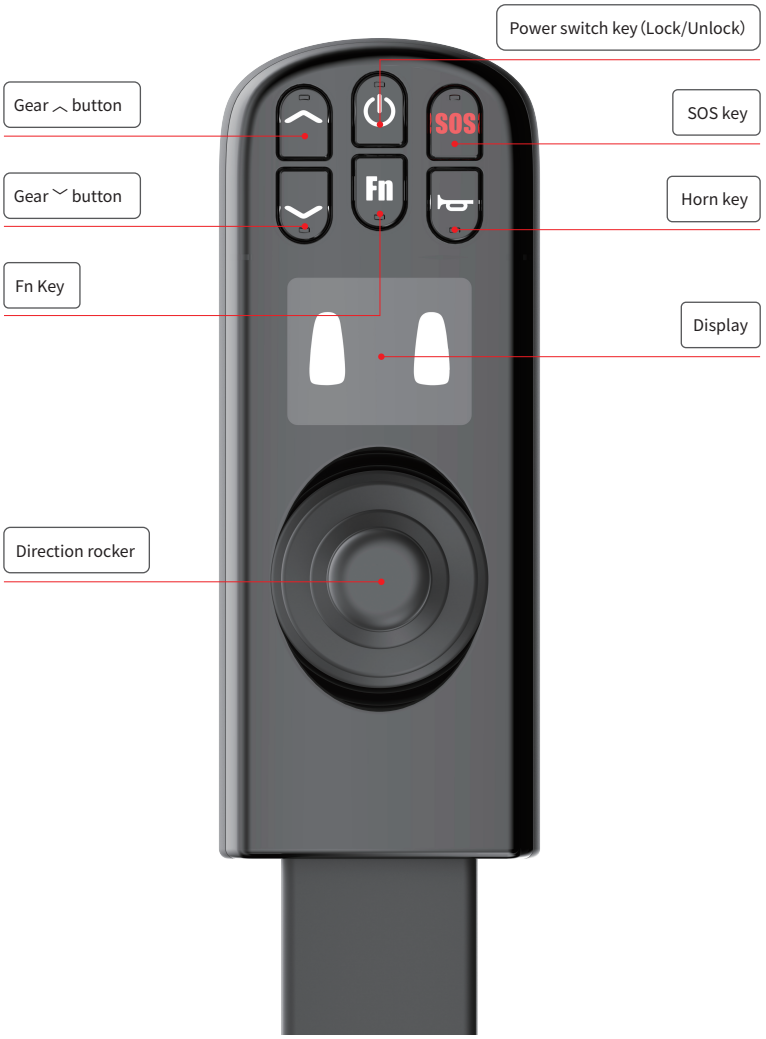


Figure 4.3.1

4.3.2 Function Description of the Upper Controller

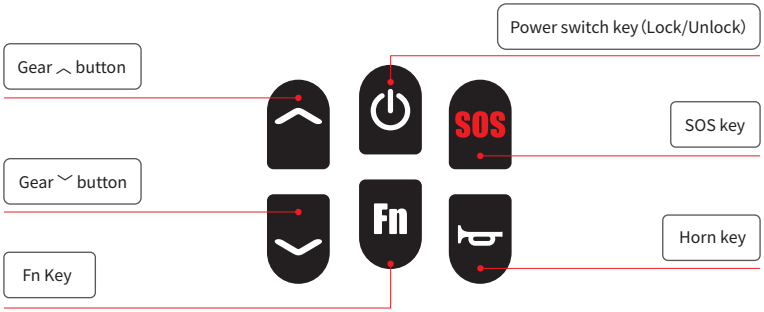


Figure 4.3.2

(1) Direction Rocker:

- Pushing the rocker on the upper controller allows you to control the electric wheelchair's speed and direction.

(2) Power Switch Key:

- On/Off: Long press for 3 seconds to turn on or turn off the power supply.
- Lock: A quick press activates the vehicle's locking function.
- Unlock: Press again to unlock the entire vehicle. The status will then display as unlocked.

(3) Gear ^ Button:

- Press "^" to increase the gear setting (Maximum: 5 gears).

(4) Gear ˇ Button:

- Press "ˇ" to decrease the gear setting (Minimum: 1 gear).

(5) Horn Key:

- A single press activates the horn, sounding it once.

(6) SOS Key:

- A long press for 3 seconds triggers the electric wheelchair's SOS alarm.

(7) Fn Key:

- **Novice Mode:** A single click enters the novice mode. The screen will display gears 1 & 2, alongside a NOVICE icon. This is paired with a voice prompt indicating "Enter the novice mode." The speed is limited to the first two gears.
- **General Mode:** Hold the Fn key for 5 seconds to enter the General mode. Repeat this long press to exit the General mode. In the General speed mode, the speed of each gear is 75% of that in the Enhanced mode.
- Further details and adjustments can be made using the mobile app as described in the APP operating instructions.

4.3.3 Display Screen Menu Description

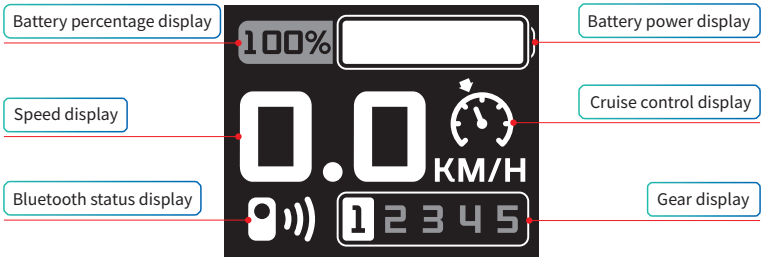


Figure 4.3.3.1

(1) Battery Percentage Display: Refer to Figure 4.3.3.1

- The electric wheelchair's upper controller screen displays the battery percentage.

(2) Speed Display: Refer to Figure 4.3.3.1

- The upper controller screen shows the electric wheelchair's driving speed in km/h.
- The displayed speed accuracy is ±5%.

(3) Bluetooth Status Display: Refer to Figure 4.3.3.1

- When there's no Bluetooth connection, the Bluetooth icon is absent from the screen.
- When connected via Bluetooth, the Bluetooth icon appears on the screen.

(4) Battery Power Display: Refer to Figure 4.3.3.1

- The upper controller provides real-time power status.

(5) Cruise Control Display: Refer to Figure 4.3.3.1

- To activate cruise control, press and hold the "Speed ∧" button for over 3 seconds. Upon activation, the upper controller screen will display the cruise control icon, accompanied by two voice prompts. Pushing the rocker forward commences cruise control.
- To exit cruise control, either press the lock key or shift the rocker backward, regardless of the driving state.
    - *Note: Cruise control is only available when the wheelchair is unlocked and cannot be initiated in locked mode.*
- "∧" and "∨" can be used to adjust the gears during the cruise control process.
- Use the rocker to adjust steering during cruise control.
- If the cruise control mode isn't activated within 5 seconds after selection, it will auto-exit. The voice prompt will notify, "Due to wait timeout, the cruise control mode has been automatically exited."

(6) Gear Display: Refer to Figure 4.3.3.1

- Use the "﹀" button to increase a gear (max up to 5 gears).
- Use the "﹀" button to decrease a gear (down to a minimum of 1 gear).
- The electric wheelchair's upper controller screen showcases the current speed gear.
- Gear adjustments are also feasible via the APP.

Figure 4.3.3.2

(7) Novice Mode Display: Refer to Figure 4.3.3.2

- Press the Fn button to initiate the novice mode. The screen will illustrate gears 1 and 2, alongside the NOVICE icon. A voice prompt will announce, "Enter the novice mode". Note: Only the first and second gears are available in this mode.

Figure 4.3.3.3

(8) Fault Code Display: Refer to Figure 4.3.3.3

- For diagnostic codes showcased by the built-in information diagnostic tool of the product, please consult section 5.2 for troubleshooting specifics.

Figure 4.3.3.4

(9) SOS display (as shown in Figure 4.3.3.4)

- Long press SOS button for 3 seconds to start SOS call. The screen displays SOS icon and flashes.

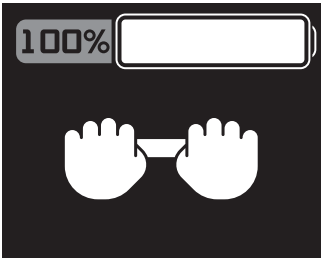


Figure 4.3.3.5

(10) Pushing Mode Display: Refer to Figure 4.3.3.5

- To activate this mode, simultaneously press and hold the "Speed ∧" and "Speed ∨" buttons for 3 seconds. The pushing mode icon will then appear on the electric wheelchair's upper controller screen.

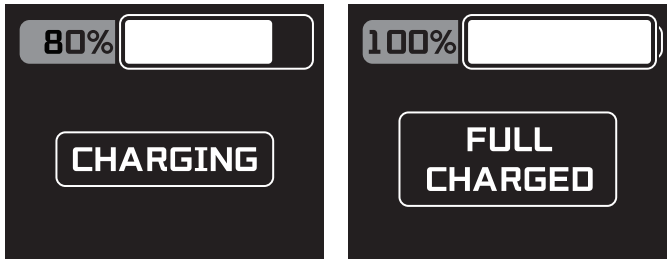


Figure 4.3.3.6

(11) Battery Charging Status Display: Refer to Figure 4.3.3.6

- While Charging: Once the charging port of the electric wheelchair connects with the charger, the upper controller screen will exhibit the CHARGING icon. This indicates that the wheelchair is currently charging.
- Upon Complete Charge: When the electric wheelchair attains a full charge, the upper controller screen will present the FULL CHARGED icon, signifying that the wheelchair's battery is now fully charged.

4.4 Lower Armrest Lamp Operation Guide

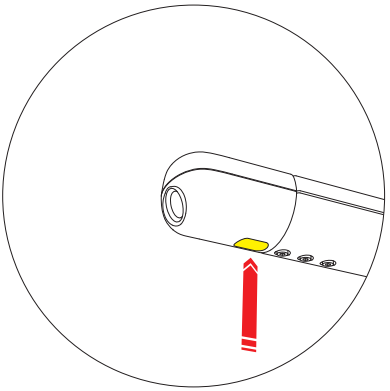


Figure 4.4.1

To control the illumination of the armrest touch lamp, simply engage the touch switch located on the left upper control of the lower armrest. Refer to Figure 4.4.1 for visual guidance.

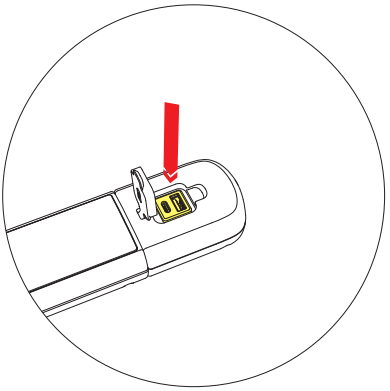


Figure 4.4.2

The armrest touch lamp assembly is equipped with two USB charging ports: USB Type-A and USB Type-C. For a visual reference, please refer to Figure 4.4.2.

4.5 Left and Right Handrails

4.5.1 Switching Between Left and Right Armrest Controllers

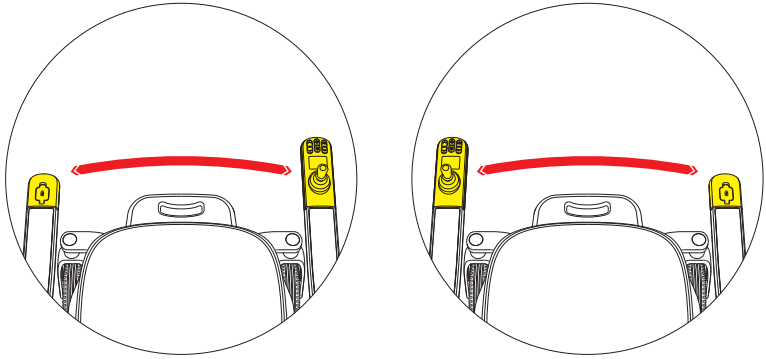


Figure 4.5.1

Follow the steps below to safely interchange the left and right armrest controllers:

1. Ensure the machine power is turned off before starting the exchange.
2. Use a hex wrench to remove the three Allen screws located underneath the armrest controller. Afterward, disconnect the wiring harnesses of both the left and right controllers.
3. Swap the positions of the left and right controllers. Reconnect their respective harnesses, slot them into the armrest controller holders, and then securely lock them in place using the hex wrench on the hex socket screws.

For a visual guide on this process, please refer to Figure 4.5.1.

4.5.2 Adjusting the Gear on Left and Right Armrest Controllers

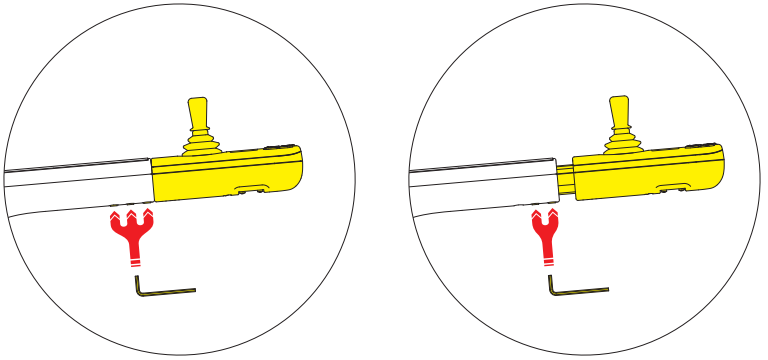


Figure 4.5.2

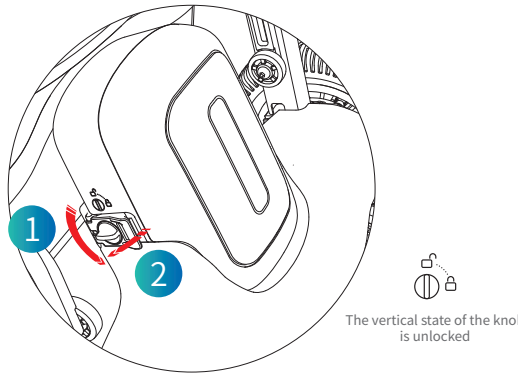
To adjust the gear on the left and right armrest controllers, follow these steps:

1. Ensure the machine power is turned off before starting any adjustments.
2. Using a hex wrench, remove the three Allen screws located underneath the armrest controller. Afterward, slide the controller outward to adjust by one gear.
3. Securely lock the controller in its new position using the hex wrench on the hex socket screws.

For a visual guide on this process, please refer to Figure 4.5.2.

4.6 Battery

4.6.1 Battery Disassembly



(1) Left Side of Battery Case (Refer to Figure 4.6.1.1)

- Manually rotate the left knob of the battery case.
- Turn the left knob to the unlocking position.
- Open the left battery buckle.

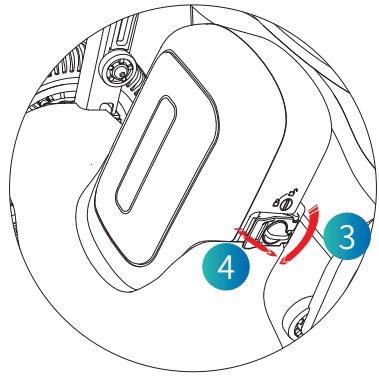


Figure 4.6.1.2

(2) Right Side of Battery Case (Refer to Figure 4.6.1.2)

- Manually rotate the right knob of the battery case.
- Turn the right knob to the unlocking position.
- Open the right battery buckle.

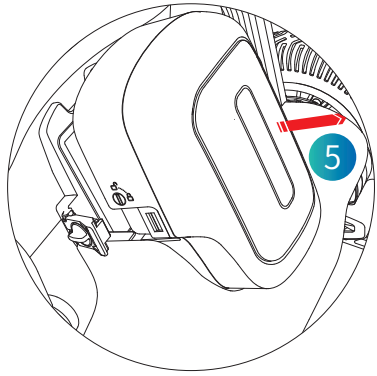


Figure 4.6.1.3

(3) Battery Removal (Refer to Figure 4.6.1.3)

- Remove the battery by sliding it in the direction indicated in the figure.

4.6.2 Battery Installation

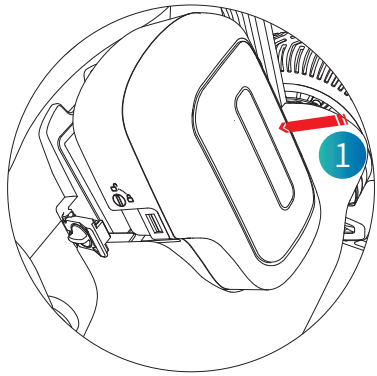


Figure 4.6.2.1

(4) Inserting the Battery (Refer to Figure 4.6.2.1)

- Position the battery into the designated slot, aligning it in the direction as indicated in the figure.

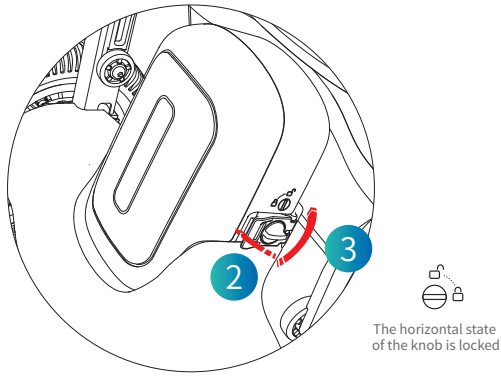


Figure 4.6.2.2

(2) In Step 2, manually close the battery right buckle and rotate the right knob of the battery box with the right knob to the locked position. (As shown on Figure 4.6.2.2)

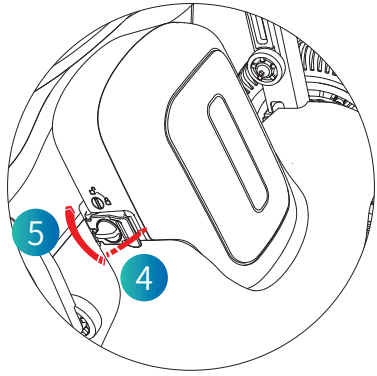


Figure 4.6.2.3

(3) In Step 3, manually close the battery left buckle and rotate the left knob of the battery box with the left knob to the locked position. (As shown on Figure 4.6.2.3)

4.7 Switch to Pushing Mode

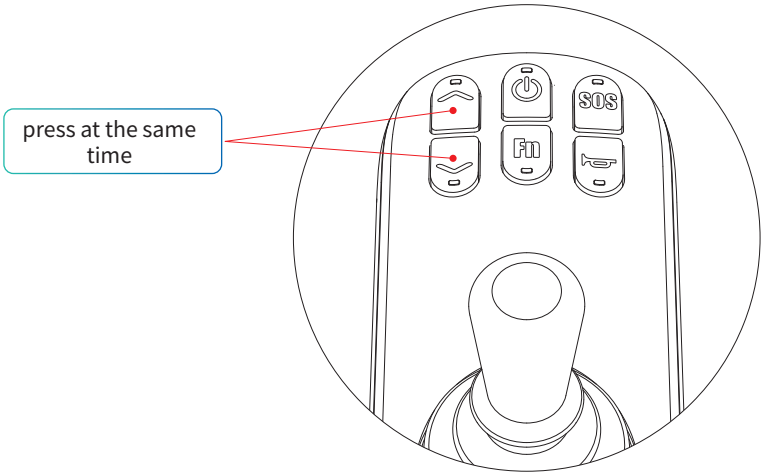


Figure 4.7

Entering Pushing Mode: Press both the '⌃' key and '⌄' key simultaneously to enter the pushing mode.

Exiting Pushing Mode: Shake the rocker to exit from pushing mode. (Refer to Figure 4.7 for guidance).

4.8 Charging

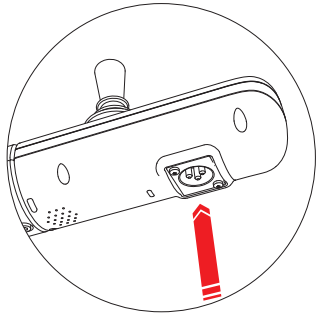


Figure 4.8.1

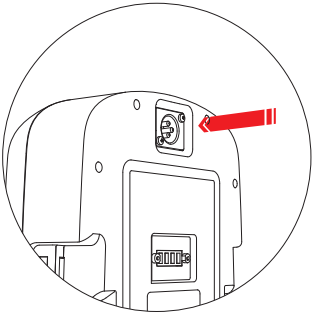


Figure 4.8.2

Charging Method I:

- Connect the charger.
- Insert the charger plug into the upper controller for charging.
- Refer to Figure 4.8.1 for a visual guide.

Charging Method II:

- Remove the battery.
- Plug the charger plug into the battery's charging port.
- Refer to Figure 4.8.2 for a visual guide.

5.1 Daily Spot Inspection and Maintenance

The responsibility for the cleaning, inspection, and maintenance of the electric wheelchair lies with the user or operator.

General Maintenance:

- Clean the electric wheelchair regularly.
- Inspect the tires for wear and damage.
- Check the batteries for functionality.
- We recommend inspecting the electric wheelchair every 6 months.
- To clean the wheelchair, gently wipe the upper controller with a clean towel.

Regular Checks:

- Depending on usage frequency, inspect connecting parts like screws and nuts weekly or monthly for any signs of loosening, corrosion, or missing components.
- Examine the folding parts for any issues such as jams or detachment.
- Periodically inspect the tires for aging and significant wear.
- After exposure to rain or damp conditions, thoroughly dry the electric wheelchair to prevent rusting.
- To protect the chair and maintain its lifespan, avoid leaving the electric wheelchair in direct sunlight during hot weather.

5.2 Electric Wheelchair Troubleshooting Guide

Fault code	Anomaly status	Fault phenomenon
E1	Key abnormality	The key corresponding function does not work.
20	The rocker ground line is disconnected	The rocker function does not work.
21	The rocker power cord is disconnected	The rocker function does not work.
22	The rocker X-axis is disconnected	The rocker function does not work.
23	The rocker Y-axis is disconnected	The rocker function does not work.
24	The rocker is a non-zero start	The rocker function does not work.
E6	CAN communication is abnormal	The rocker cannot control the driving of the electric wheelchair.
E7	FLASH fault	FLASH device ID cannot be detected and the device cannot work.
82	Left motor Hall fault	The left motor Hall is not connected or faulty, and the motor does not function.
81	Right motor Hall fault	The right motor Hall is not connected or faulty, and the motor does not function.
40	Flat in the electromagnetic brake of left motor	To release the electromagnetic brake handle of left motor, close the electromagnetic brake.
41	Flat in the electromagnetic brake of right motor	To release the electromagnetic brake handle of right motor, close the electromagnetic brake.
80	Low-voltage fault	The motor cannot run.
88	Pre-charge fault	The motor cannot run.
84	Short-circuit fault of lower gear MOS in the right motor	The motor cannot run.
85	Short-circuit fault of upper gear MOS in the right motor	The motor cannot run.
86	Short-circuit fault of upper gear MOS in the left motor	The motor cannot run.
87	Short-circuit fault of lower gear MOS in the left motor	The motor cannot run.
90	High voltage fault	After detecting the high pressure before starting, keep it locked.
91	The Left motor phase loss and disconnection fault	The motor cannot run.
92	The right motor is out of phase and disconnected	The motor cannot run.
93	The Left motor and The right motor are out of phase and disconnected	The motor cannot run.
94	The Right motor stall	The motor cannot run.
95	The Left motor stall	The motor cannot run.
96	Left and right motors are stuck	The motor cannot run.

Table 5.2

5.3 Guide to Safety Alerts and Precautions

Voice prompts	Corresponding scene description.
Enter novice mode	Press the novice mode button.
Quit the novice mode	Press the novice mode button again.
Alart	Long press SOS key to trigger SOS.
LOCK	It is in default that after the product is locked after it is powered on. Switch non-locking status to locking status.
Unlock	Switch locking status to non-locking status.
Start the remote control	Voice prompt when the remote control or APP Bluetooth is connected successfully.
car has been locked my bluetooth	Press the lock key.
Upgrade	When the APP detects new version, click to upgrade.
Upgrade complete	End of the single-module upgrade.
Upgrading	The equipment is upgrading.
Powering on tone	Press and hold the power-on key for 3s to start the power-on and the power-on sound.
Key tone	Touch the button to produce a prompt sound.
Charging	Charging
Charging complete	Unplug the charger and trigger the voice prompt of charging completed.
breaks open	The band-type brake opens.
Bluetooth connected	Voice prompt when the remote control or APP Bluetooth is connected successfully.
Drive protection	Voice prompt for a drive failure.
Machine protection	Voice prompt for a machine failure.
Rocker protection	Voice prompt for a rocker failure.
Powering off tone	Press and hold the power-off key for 3s to start the power-off and the power-off sound.
Bluetooth disconnected	Voice prompt when the remote control or APP Bluetooth is disconnected.
Upgrade failed	There is something wrong during upgrading.
The horn sounds	Touch the horn button.
Low battery, please charge	Trigger when the power is lower than 20%.
bluetooth unlocking the car	Press the remote control to unlock.
implementation mode	Long press "∧" button and "∨" button 3 seconds to enter the pushing mode, accompanied by the pushing mode prompt.
Exit implementation mode	Shake the rocker to quit the pushing mode.

Table 5.3

5.4 Production Date and Service Life

- The service life of this product is 5 years after the product is delivered. Please use within the effective date. In case of expiration, Do not use the product to avoid occurrence of accident.
- Refer to product tag for date of production.

5.5 Cleaning Instructions for the Product

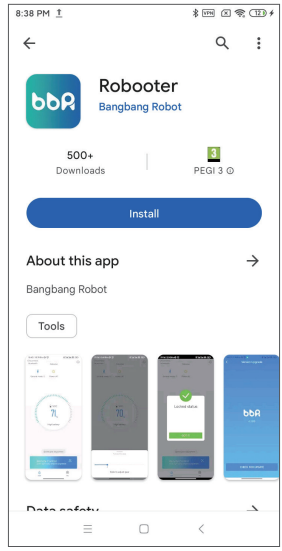
- Use a clean towel to wipe the interior of the product.

Download APP

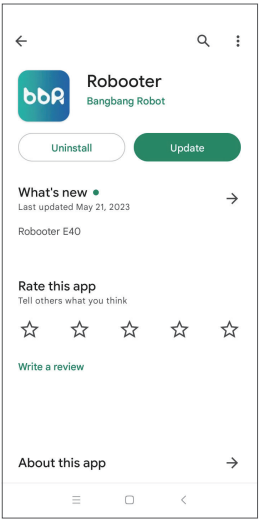
Scan the QR code to download the App

Install APP

(Android)



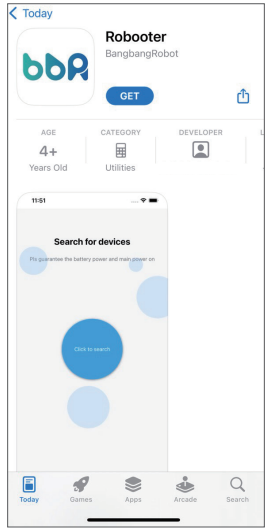
The above screen is displayed after scanning, click Install to install the mobile application.



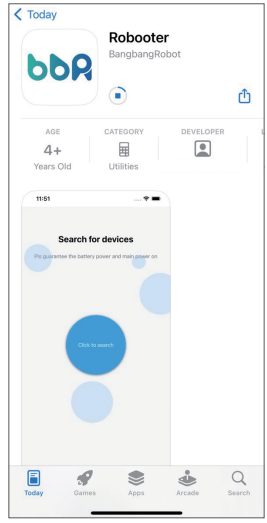
The above screen indicates that the installation of the mobile application is complete.

Click Open on the above screen to open the mobile application

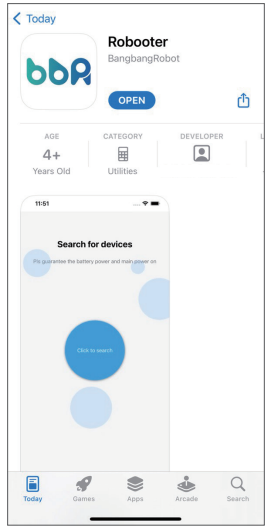
(IOS)



The above screen is displayed after scanning, click GET to install the mobile application.



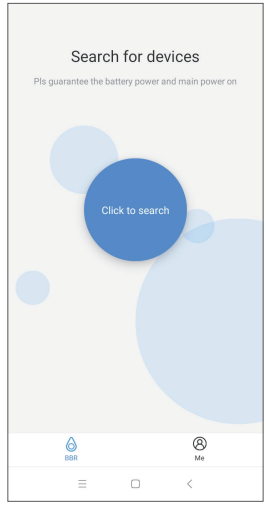
The above screen indicates that the mobile application is being installed



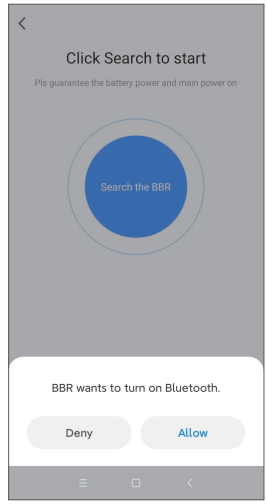
The above screen indicates that the installation of the mobile application is complete.

Click OPEN on the above screen to open the mobile application

Connect Device



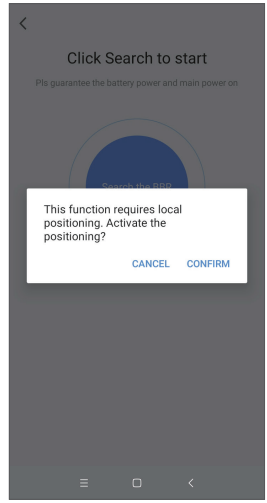
Click Click to search on the above screen to search device.



Note：Obtain phone permissions

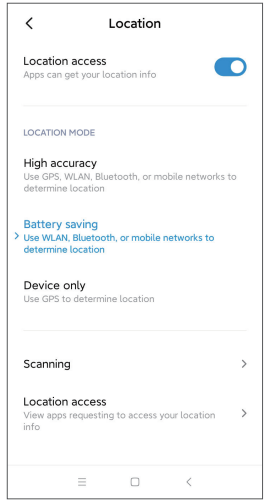
Click Allow on the above screen to turn on your mobile’ s Bluetooth

Installing the APP



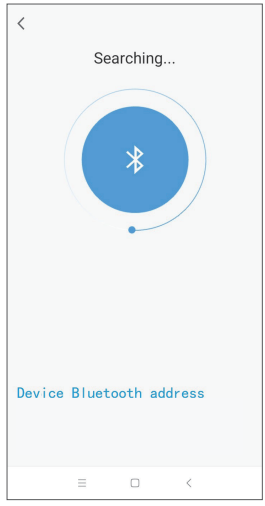
Note：Obtain phone permissions

Click CONFIRM on the above screen to turn on your phone's location.



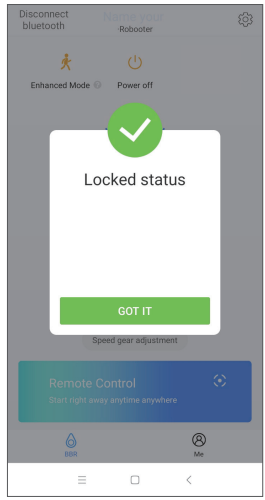
Note：Obtain phone permissions

Click "Location access" on the above screen to turn on your phone's location.



Once the above operation has been done mobile application start searching for the device.

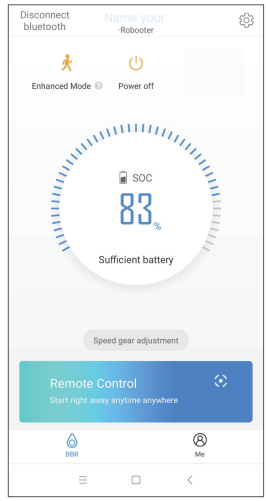
Click DF:85:EC:73:15:05 to pair the mobile application and device.



Note: When the wheelchair is in lock mode, display this interface. After turning on the wheelchair, enter the lock mode automatically. Only use the app after unlocking on the wheelchair.

The above screen indicates a successful connection.

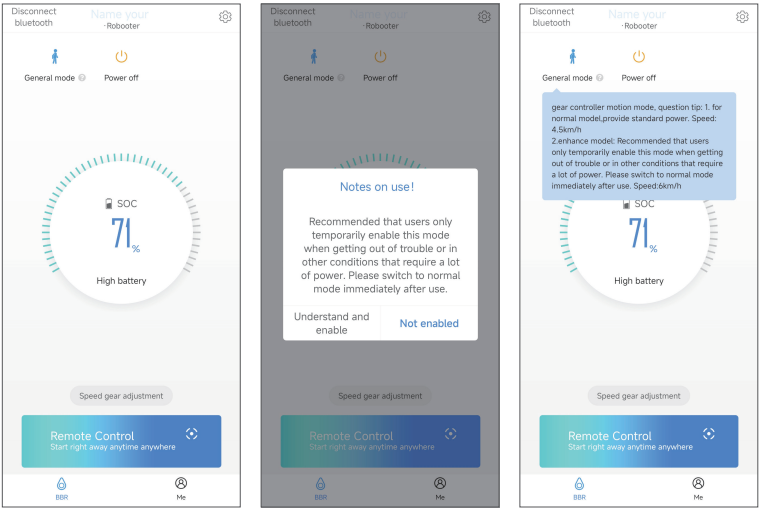
Click GOT IT in the above screen to access status screen of the electric wheelchair



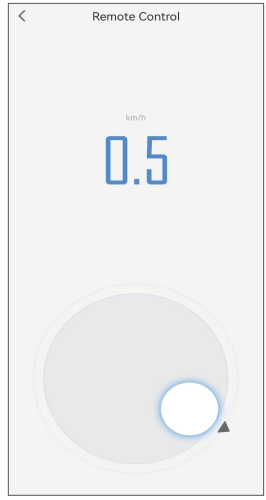
Click Power off to turn off the device.

Click Disconnect bluetooth to disconnect the bluetooth connection.

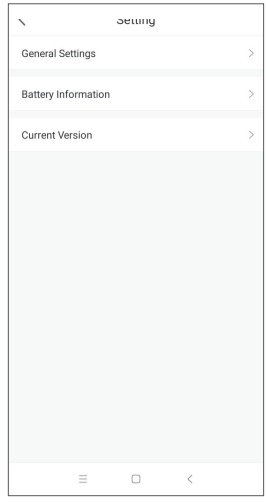
Click Speed gear adjustment to adjust the device speed.(Adjustable speed in 5 gears)



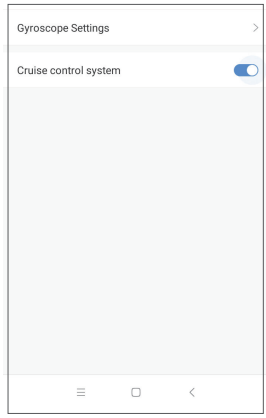
Click General mode in status screen to access enhanced mode adjustment and general mode adjustment.(General mode speed:4.5km/h, enhanced mode speed:6km/h)



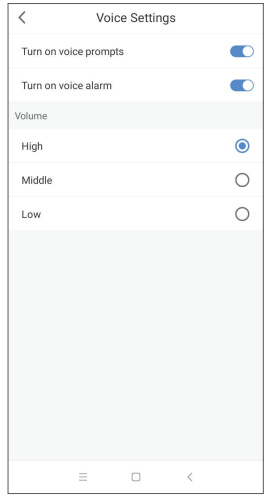
Click Remote Control in the status screen to access the remote cotrol mode
Circle up to move forward, down to move back, left to turn left, right to turn right.



Click in the top right corner to access the setting screen

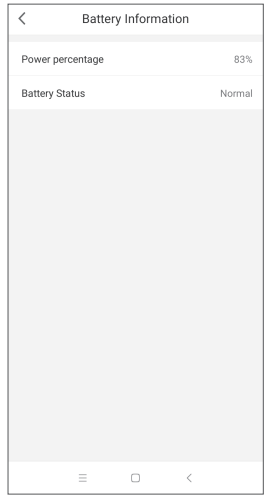


Click “General Settings” in the setting screen to access the general settings mode.
Cruise control system: slide left to turn off cruise control, slide right to turn on cruise control.

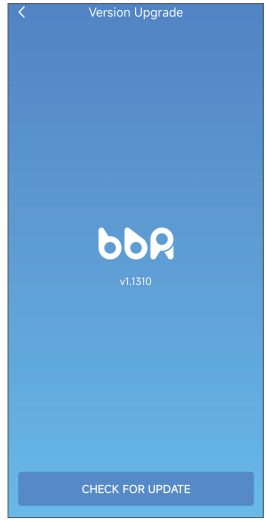


Click "Voice settings" in the General settings to access the voice settings mode.

- **Turn on voice prompts:** Slide to the left to turn off the voice; slide to the right to turn it on.
- **Turn on voice alarm:** Slide to the left to turn off the voice; slide to the right to turn it on.
- **Adjustable 3-step volume:** Choose from High, Middle, or Low settings.



Click “Battery Information”in the setting screen to access battery information screen. This will show the battery power percentage and battery status.



Click “Current Version”in the setting screen to access the version upgrade mode. This will show the current device version.

Click CHECK FOR UPDATE to upgrade the version of device.

Password Protection: We strongly recommend users to set robust passwords on their mobile phones to prevent unauthorized access and potential security breaches.

Application Download: For the optimal user experience and security, download the App by scanning the QR code provided in the manual. Ensure you download updates or the app itself exclusively from authorized platforms:

- For Android phones: Google Play Store
- For iPhones: App Store

Avoid Jailbroken Phones: For your safety, refrain from installing the App on jailbroken devices. Doing so might compromise the security and functionality of our application.

8.1 Description of Wireless Functions

The wheelchair is equipped with advanced wireless capabilities, allowing users to control it using a mobile phone. This functionality is made possible through Bluetooth 4.1 technology, which conforms to the IEEE 802.15.4 Bluetooth standard.

8.2 Characteristics of Wireless Technology Operation

- **Protocol:** Bluetooth 4.1
- **Frequency Band:** 2.4GHz ISM
- **Frequency Range:** 2.400GHz to 2.4835GHz
- **Modulation Technique:** GFSK (Gaussian Frequency Shift Keying)
- **Spread Spectrum Technique:** Frequency-Hopping
- **Output Power:** Range from +4dBm to -20dBm (with 4dB increments)
- **Sensitivity:** -93dBm (in BLE mode)
- **Operational Distance:** Less than 10 meters

8.3 Measures for Wireless Security

For ensuring robust wireless security:

- **Encryption at Application Layer:** We utilize AES128 encryption, which is applied at the hardware level to re-encrypt any interactive data.
- **Dynamic Key Generation: T**he 128-bit initial key is generated based on the unique feature code of the entities involved in the interaction. This key is recalculated and synchronized continuously throughout the connection.
- **Data Sequence Dynamics:** Every communication data sequence undergoes constant change due to the presence of dynamic random change codes and sequence codes. Actual data can only be discerned following decryption.
- **Connection Interruption Mechanism:** If there are any discrepancies in the data or if several illegal content verifications are detected, the connection is immediately terminated. Additionally, the entity is added to a blacklist and will remain there until it is overruled or removed.
- **Reliable Signal Transmission:** We ensure that the signal is transmitted precisely as intended.

8.4 Addressing Wireless Connectivity Issues

In the event that your mobile phone is unable to control the wheelchair effectively:

1. **Immediate Action:** Cease using the mobile phone immediately and resort to the manual controls on the wheelchair.
2. **Environment Check:** Ensure that other wireless devices in the vicinity are removed or turned off.
3. **Reconnection:** Reconnect your mobile phone to the wheelchair and attempt to control it again using the mobile device.
4. **Safety First:** Refrain from using the mobile phone for wheelchair control until you can confirm it operates the wheelchair accurately and reliably.

8.5 Addressing Wireless Coexistence Issues and Solutions

Wireless interference can occur when multiple devices operate in close proximity. To mitigate potential wireless coexistence challenges:

1. **Distance from Other Devices:** When utilizing the mobile phone with the wheelchair, ensure that other wireless devices are positioned at least 2 meters away from the wheelchair.
2. **Check Surroundings:** Before using the mobile control feature, inspect your environment for any devices that might interfere with the Bluetooth connection.
3. **Minimize Wireless Traffic:** If possible, limit the use of other wireless devices in the vicinity while operating the wheelchair through the mobile phone to prevent potential signal interference.
4. **Awareness:** Always be aware of the operational quality of the wheelchair when using the mobile control, and be prepared to switch to manual controls if interference affects functionality.

8.6 RF Wireless Communications Compliance

This device meets the standards set by Part 15 of the FCC Rules. It operates under the following stipulations:

- **No Harmful Interference:** The device is crafted to avoid causing interference with other electronic equipment or services.
- **Tolerance to External Interference:** It is designed to accept any external interference it might encounter, including instances that could lead to unexpected operations.

For optimal and lawful use, always follow the device's operational guidelines, ensuring you adhere to FCC regulations and ensuring uninterrupted, safe operation.

8.7 Warnings

1. **Environmental Considerations:** It is advised to keep the device away from environments with high electromagnetic (EM) disturbances.
2. **Performance Concerns:** Should the device's performance degrade or cease entirely due to EM disturbances, immediately discontinue its operation.
3. **Accessory and Cable Usage:** Utilizing cables or accessories other than those recommended or provided by the manufacturer could elevate electromagnetic emissions or diminish the device's electromagnetic immunity. This might lead to the device malfunctioning.
4. **Proximity to Other Devices:** When the device is operational, it's crucial to avoid using it near other equipment. If simultaneous operation with another device is inevitable, both devices should be closely monitored to ensure they're functioning properly.
5. **Distance from RF Communication Equipment:** Portable RF communications devices, along with related peripherals (like antenna cables or external antennas), should maintain a minimum distance of 30 cm (12 inches) from any part of this device. This precaution ensures the device's optimal performance isn't compromised.
6. **Potential RF Emission Sources:** Please be aware of common RF emitters in proximity, such as RFID readers, electronic security systems (like metal detectors and electronic article surveillance), NFC systems, WPT, and unique medical devices (like electrocautery, MRI, electrosurgical units, and diathermy equipment). Such emitters might produce electromagnetic interference (EMI). To ensure safety and functionality, maintain a safe distance from these sources when using the device.

9. Disclaimer

Shanghai Bangbang Robotics Co., Ltd. (hereinafter referred to as "the Company") holds the intellectual property rights for the Robooter E40 Product Manual. The copyright is solely retained by the Company. This product, inclusive of its accessories and software design, is the outcome of the diligent endeavors of Bangbang. All intellectual and proprietary rights related to it are the exclusive property of the Company. Reproduction, extraction, or translation of any content within this manual is strictly prohibited without the Company's written authorization.

With utmost responsibility, the Company has curated the Robooter E40 Product Manual. Yet, the Company doesn't warrant its complete accuracy. As a technical document, this manual doesn't insinuate or allude to any third parties. Any discrepancies or printer's errors causing misunderstandings are unintentional, and the Company assumes no liability for such errors.

To ensure the safe and efficient use of all products by Shanghai Bangbang Robotics Co., Ltd., users must adhere strictly to the guidelines provided in the Robooter E40 Product Manual and the Company's official website (https://www.robooter.com). Any deviation from these guidelines or any violation of prohibitions stated in the manual that leads to personal injury or property damage will make the user or third party responsible for the resultant consequences, not the Company.

Given that the Company continually strives to innovate and enhance its products, users are advised to regularly check the official website of Shanghai Bangbang Robotics Co., Ltd. for the most recent operating instructions and updates or contact their local dealer for the latest Product Manual. The Company retains the unequivocal right to amend the Robooter E40 Product Manual without prior notice.

10. Package Contents

S/N	Material name	Unit	Quantity	Remarks
1	Electric wheelchair	Set	1	Included battery
2	Product Manual	Number	1	
3	Charger	Pcs	1	
4	Toolkit	Pcs	1	Including hexagon wrench, open wrench, screw

Table 9

MedWatch represents the FDA's (Food and Drug Administration) initiative for registering significant reactions, product quality inconsistencies, therapeutic equivalence discrepancies, and usage errors related to human medical commodities. This encompasses medical devices, drugs, biologics, cosmetics, dietary supplements, and infant formulas.

If you suspect that you or a family member has undergone a severe reaction to a medical commodity, it's recommended to present the reporting form to your medical practitioner. This approach is advantageous because your healthcare provider can supply the FDA with clinically pertinent data derived from your medical history, enhancing the integrity and value of your report.

Nevertheless, for various reasons, you might either opt not to involve your healthcare provider in the reporting process, or they might decide against completing the form. Do note, healthcare professionals are not mandated to submit reports to the FDA. If such circumstances arise, you are entirely capable of filling out the Online Reporting Form independently.

Upon the FDA's receipt of your report, you'll be acknowledged. Every submission undergoes a review by the FDA personnel. You'll only be directly contacted if there's a need for supplementary details.

To voluntarily convey adverse event notifications to the FDA, employ one of the subsequent methods:

- **Online Reporting:** Visit FDA's MedWatch Reporting and utilize the Consumer Reporting Form FDA 3500B. Adhere to the on-page guidelines to either fax or post your filled form. For guidance on completing the form, refer to MedWatchLearn.
- **Telephonic Reporting:** Dial 1-800-FDA-1088 for a direct line to the FDA to verbally relay your report.
- **Professional Reporting:** For healthcare practitioners, the Reporting Form FDA 3500 is available. It can be accessed here.

MD	Medical device	this symbol Indicates the item is a medical device
	Manufacture	Indicates the medical device manufacturer
	Date of manufacture	This symbol indicates the date of manufacture of the device or accessories.
LOT	Batch code	Indicates the manufacturer's batch code so that the batch or lot can be identified.
SN	Serial number	Indicates the manufacturer's serial number so that a specific medical device can be identified.
	Use-by date	Indicates the date after which the medical device is not to be used.
IPX4	IP code	X represents the lack of testing for solid objects, while the number 4 indicates the waterproof level of the device. Specifically, a rating of 4 means that the device is protected against splashing water from any direction, such as water droplets from any angle, but cannot withstand immersion or water jets.
		Indicates separate collection for waste of electrical and electronic equipment (WEEE).
EC REP	Authorized representative in the European Community	Indicates the authorized representative in the European Community.
		Maximum number of identical transport packages/items which may be stacked on the bottom package, where “n” is the limiting number.
		This is the correct upright position of the distribution packages for transport and/or storage.
		Distribution packages shall be kept away from rain and be kept in dry conditions.
		Contents of the distribution packages are fragile therefore it shall be handled with care.

ROBOOTER

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