KEENON T6 Peanut Multi-layer Food-Delivery Robot User Manual

KEENON

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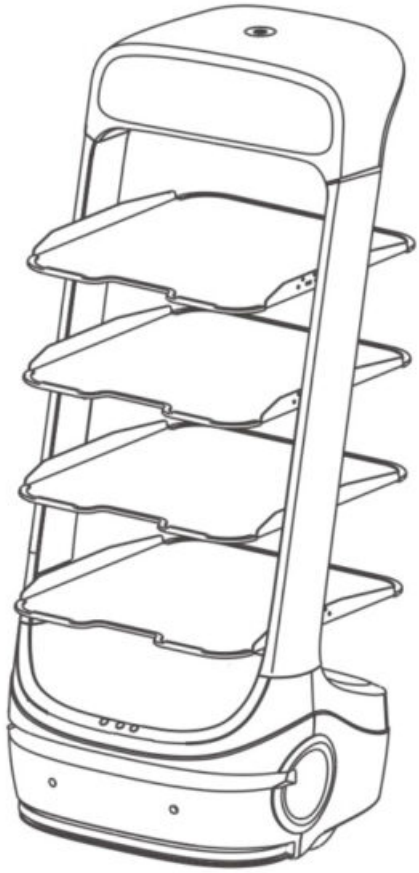

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Statement

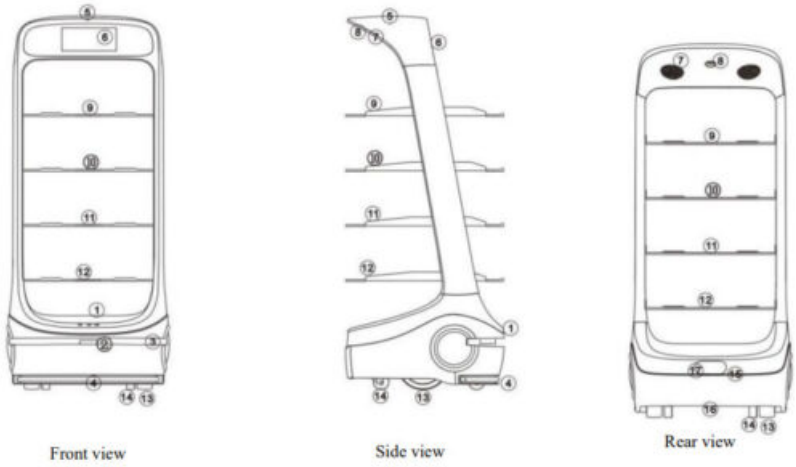
Preface

Dear users,
Thanks for choosing PEANUT Delivery Robot. Before using this, please read carefully this user guide and follow the instructions step by step. If there is any questions about this manual, please contact our customer hotline:086-400-9651-808.

Outline

This Manual principally presents the functional properties, methods of installation, and use and precautions during the use of Multi-layer Food-delivery Robot No. T6.
This Manual covers the following contents:

1. Introduction: It briefs the basic functional properties of the robot and elaborates the structural information of the robot.
2. Operating Procedures: It presents the preparatory work and precautions in installing and using the robot.
3. Warranty: It detailed introduced the warranty time and some non-warranty clauses.
4. Appendix: It presents the common faults, detailed technical parameters, and safety precautions in connection with the robot.



1. Stereo vision	10. The second-floor tray
2. Laser radar	11. The third-floor tray
3. Laser layer gap	12. The fourth-floor tray
4. Anti-collision bar	13. Main wheel
5. Image module	14. Universal wheel
6 Touch screen	15. Manual charging port
7. Horn	16. Automatic charging port
8. Emergency stop switch	17. Power switch
9. The first-floor tray	

Figure 1: Structure of PEANUT Multi-layer Food-delivery Robot No. T6
Note: The above figure is for reference only, and it shall be subject to the actual object for the appearance and color of the specific product.

Introduction

- Multi-layer Food-delivery Robot is suitable for indoor environments such as restaurants, hotels, shopping malls and supermarkets, cinemas, KTV, business offices, etc.
- Multi-Layer Food-Delivery Robot realizes such core functions as full-automatic positioning and navigation, intelligent obstacle avoiding, etc. on the strength of machine vision and laser radar. It can move in a full-automatic manner in indoor environments and intelligently chat and interact with people, rendering varieties of services such as delivering restaurant food, transferring office documents, express distribution, etc.
- The product mentioned in this Manual is of T6 model of the multi-layer food-delivery robot, the charging pile described is optional.

Main Structure

Figure 1 displays the body structure of the Multi-layer Food-delivery Robot. The robot chassis is of a two-main-wheel and four-engaged-wheel structure. It achieves automatic positioning on the strength of machine vision and laser radar and integrates touch switches and other sensors to implement the function of intelligent obstacle avoiding. Besides, its touch screen is set for users to operate the robot system.

Figure 2 shows the structure of the charging pile of the Multi-layer Food-delivery Robot. The robot is provided with the function of intelligent automatic charge-back. The robot can, on its own, finds, match and contact the charging pile to implement the function of automatic charge-back.

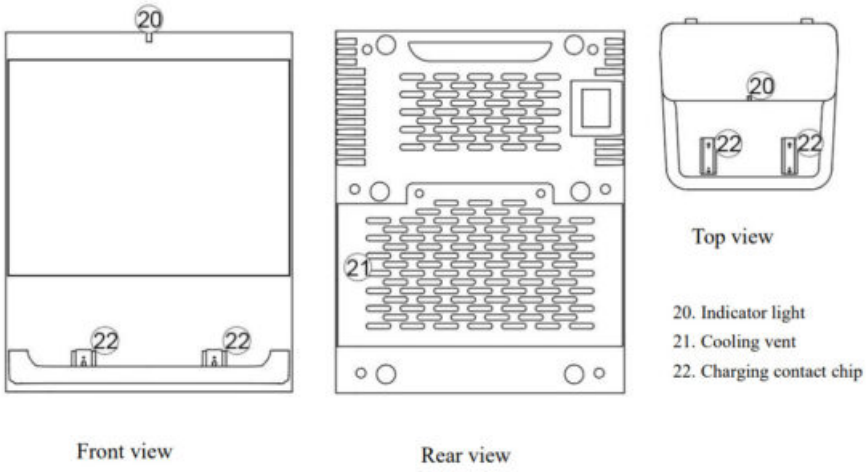


Figure 2 Structure of the Charging Pile

Operating Procedures

When starting to use the robot, the user should operate in the following steps carefully.

Installation

Robot Mapping

Before the robot moves automatically, it needs to get familiar with the environment around, it and store and identifies the operating environment by way of a map. This step is called mapping. (It is completed by professional technicians in advance and users do not need to operate it by themselves.) When there exist significant changes in the indoor environment of the robot (such as redecoration is launched, the robot is moved to a new place of operation or indoor items are rearranged, etc.), the user should contact customer service personnel at 400-9651-808 to rebuild the map.

Arrangement of Charging Pile

The robot is provided with the function of automatic charge-back. It is required to place the charging pile in its operation site where charging is convenient. The factory technicians are responsible for the installation of the charging pile. Once the charging pile is fixed, the user should not move it arbitrarily. If it is indeed necessary to change the position of the charging pile, the user should contact customer service personnel at 400-9651-808 to reset the position of the charging pile.

Power On

Switch on/off

The power switch is set on the chassis behind the robot. When the silicone cover under the chassis is opened, the user can see the button on the left, which is the power switch. Find the position of the power switch in the position exhibited in Figure 3; press the power switch by hand to start the robot. The system cannot be put into normal operation until it starts for about 40 seconds.

When the power of the robot requires to be turned off, the user should turn off the power switch in the same manner. After the power switch is turned off, the machine will be powered off at once.

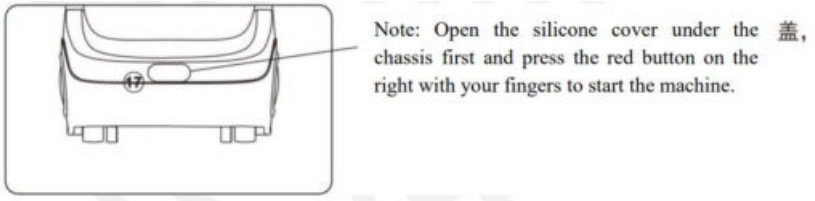


Figure 3 Schematic Diagram of the Position of the Power Switch

Startup of PEANUT APP

1. After the power switch is started, the system desktop will display the LOGO of a startup, animation of PEANUT, and Android desktop in sequence and the system will start for approximately 40 seconds.
2. The PEANUT APP will be automatically opened after the system is started by default. If the PEANUT APP is not systematically opened, the user should find the PEANUT icon on the system desktop, as demonstrated in Figure 4, and the APP can be started by clicking this icon.

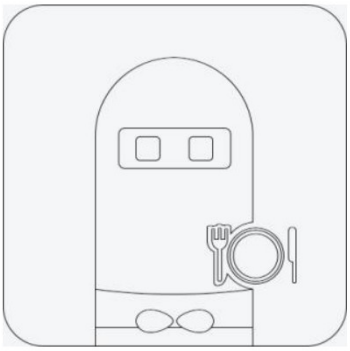


Figure 4 Icon of PEANUT APP

After PEANUT APP starts, the user can use the PEANUT robot normally.

Settings

The user can set the robot via the PEANUT APP, and the steps to enter the setup page of the robot are specified as below:

1. Click the “III” icon in the upper left corner of the home page to enter the menu page of the software function theme.
2. Click the icon of the [Robot Settings] of the PEANUT APP to enter the setup page.

Connect WI-FI

When using it for the first time, the user should access the robot to the network via WI-FI, and the setup steps are specified as below:

1. Turn on the WLAN (WI-FI) function of the system and search for available WI-FI.
2. Select the available WI-FI and enter the password.
3. Click the [Connect] button until the WIFI connection is successful.

Charging Settings

The operating steps for setting the [Amount of Automatic Charge-back] of the robot are specifically as below:

1. Click the [Power Management] menu to display the setup page of power management.
2. Slide the page upward to find and click [Electric Quantity of Automatic Charge-back].
3. Enter the numerical value and save it.

The operating steps for setting the [Minimum Power Consumption] of the robot are specifically as below:

1. Click the [Power Management] menu to display the setup page of power management.

2. Slide the page upward to find and click [Minimum Power Consumption]
3. Enter the numerical value and save it.

During the working time, when the electric quantity running the robot is lower than the [Electric Quantity of Automatic Charge-back], the machine will automatically reach the specified charging pile for charging; if the administrator cancels during charging, the machine will trigger automatic charge-back again when the electric quantity running the robot is lower than the [Minimum Power Consumption].

The operating steps for setting the working time of automatic charge-back of the robot are specifically as below:
The robot is provided with the function of intelligent automatic charge-back. In PEANUT APP, the user can set the working time of the robot as below:

1. After entering the [Robot Settings] page, select [Power Management] to find the function setting column of “Working Hours”.
2. Click the [Add] button for working hours to enter the setup interface of time.
3. Enter the setup page of time, pop up the selection page of time, click [OK] on the right after selecting the time, and the time will be displayed at the start time on the left (enter the setup page of time, and the selection page of time automatically popped up will correspond to the start time).
4. If the start time and end time are changed, click the displayed time (e.g. 9:00), and the selection page of time will be displayed from bottom to top. After selecting the time, the user must click [OK], and the time will be displayed in the corresponding position.
5. The number of working days is seven by default, and the machine will automatically return to the charging pile for charging from the end of each working day; the user can choose the specific working day as needed; if “I” is selected, the machine will only work on Monday, and will automatically return to the charging pile for charging after the work ends.
6. Set the time and working day well, and click the [Save] button. The added working hours are valid, defaulted as on, and the ON button is orange.
7. The added working hours cannot be revised but can be deleted or closed. The close button is grayish-white; when the working period is in a closed state, the machine will not automatically go to the charging pile for charging when it reaches the end time of working.

Adjust the Volume Level
If the system menu bar is displayed at the bottom of the screen, directly click the volume button to adjust the volume. If not, follow the following steps:

1. Click the [Robot Settings] icon of the PEANUT APP to enter the page of settings management.
2. Select the [System Settings] menu, cancel [Hide Menu Bar], and find the volume control button at the bottom of the screen.
3. Click the volume adjustment button on the right to increase the volume.
4. Click the volume adjustment button on button to reduce the volume.

Hide the Status Bar

1. Click the [Robot Settings] menu on the selection page of the software menu to enter the setup page of the APP.
2. Click the [System Settings] menu.
3. When clicking [Hide Status Bar], a blue check icon will be displayed, and the status bar on the desktop will be

hidden; when clicking [Hide Status Bar] again, the blue check icon will disappear and the status bar will be displayed.

The setting of Guardian Mode

When the [Guardian Mode] of the robot is turned on, the robot will automatically detect whether to run the PEANUT APP and automatically turn on PEANUT APP. The operating steps are specifically as below:

1. Enter the page of robot settings, click [System Settings] to slide the button on the right of [Guardian Mode] to the right. When the button turns green with the word “On”, the Guardian Mode will be on, and the PEANUT APP will restart automatically after it is accidentally closed.
2. Click the button on the right of [Guardian Mode], and the button will slide to the left. When the button is white with the word “Off”, the function of guardian mode will be turned off. PEANUT APP will not open automatically after it is turned off. It cannot be operated until the APP icon is manually clicked.

The operating steps for automatic startup setting

By default, the system will automatically start the PEANUT APP. When the PEANUT APP does not start automatically, the user should set the PEANUT APP to start automatically in the following steps:

1. Enter the setup page of the robot, click [System Setup], and then slide the button on the right side of [Boot-up and Self-Start] to the right. When the button turns green with the word “On”, the boot-up and self-starting function will be turned on; after successful setup, the robot will automatically start the PEANUT APP every time it starts up.
2. Click the button on the right side of [Boot-up and Self-start] and slide the button to the left.
   When the button turns white with the word “Off”, the boot-up and self-start will be turned off.

Robot name setting

1. Enter the setup page of the robot, and click [Robot Name] in [System Setup] to enter the setup page of name (nickname).
2. Set the name, click the [Save] button in the upper right corner of the page to return to the system setup page, and then the name can be displayed.

Distribution

After the staff has created the map, the robot can work for you. The operating steps are specifically as below:

1. Place the articles to be delivered on the robot tray.
2. Start PEANUT APP automatically after the system is turned on. The upper left part of the home page displays the label page of the type of restaurant room; select [Hall] or [Box] respectively to enter the corresponding page.
3. Select the table number on the [Hall] page and the room number on the [Box] page. After selection, the corresponding label will be highlighted in blue and the robot icon on the right will display the destination in real-time.
4. Click the [Start Now] button on the lower right.
5. When the page jumps to the interface [On the Way], the robot will start to move to the target carrying articles,

and there will be a voice reminder as well.

6. When the robot arrives at the destination, it will be prompted by voice. Click [Return] after taking the goods and the robot will automatically return to the home page.

Charging

Automatic Intelligent Charge-back of the Robot
The robot is provided with the function of intelligent automatic charge-back. When the following two conditions are satisfied, the robot will automatically return to the position of the charging pile for charging. The user should ensure that the position of the charging pile is fixed well and the electricity is good.

- The electric quantity of the robot is lower than the charge-back value set by the user.
- The robot is beyond the working period and the power consumption is not up to 100%.

For setting the trigger condition of automatic charge-back, the user should refer to the “Charging Setting” section of this Manual.

Manually Triggering the Robot for Charging
The user can trigger and control the robot to automatically charge back via the PEANUT APP. The operating steps are specifically as below:

1. Click the [Power Management] menu to display the setup page of power management.
2. Click the [Auto Charge] button, and the robot will automatically find the charging pile for charging.
3. After the robot reaches the position of charging pile, it will start to automatically match and connect the charging pile.
4. The robot starts charging after matching and connecting with the charging pile, and the page will jump to the display page of charging.

The user can also manually push the robot to the charging pile for charging. The operations are specifically as below:

1. Click the [Power Management] menu to display the setup page of power management.
2. Click the [Manual Charging] button, and the page will jump to the page of manual charging.
3. Manually push the robot to the position of the charging pile, and the page will jump to the prompt page.
4. Align the back of the robot with the electric pile, and then push the robot onto the electric pile so that the automatic charge-back interface at the bottom of the robot will contact the charging contact piece of the charging pile.
5. After the contact is successful, the page will display that the connection is successful, and after waiting for 5 seconds, the page of charging capacity will be displayed.

***Note:**
In the above steps ① and ②, the user needs to charge the robot through the charging pile. It is necessary to ensure that the electric pile is well electrified so that the robot can correctly connect the electric pile. Please pay attention to the potential safety hazard caused by the poor operation.

Adapter Charging (not recommended; it is forbidden to operate the robot during the adapter charging process)
When the battery of the robot is exhausted and the machine cannot be turned on, the user can charge the robot through the adapter in the following steps:

1. Turn off the power switch of the machine.
2. Open the silicone cover outside the back of the robot [Manual Charging Interface], and connect the robot with the charging plug of the adapter.
3. After successful connection, the adapter indicator will turn red and the screen interface will jump to the charging page, suggesting that charging is in progress.
4. When the indicator light of the adapter turns green, it suggests that the charging is complete.
   Please disconnect the adapter and plug the silicone cover outside the charging interface of the robot.

Emergency Treatment

When the robot is moving, the user is required to push and move the robot by hand, or when the robot is in an abnormal running state, which may result in damage to the surrounding environment, etc., the user can stop the robot by pressing the emergency stop switch on the back of the robot. The position and operating steps of the emergency stop switch are demonstrated in Figure 5.

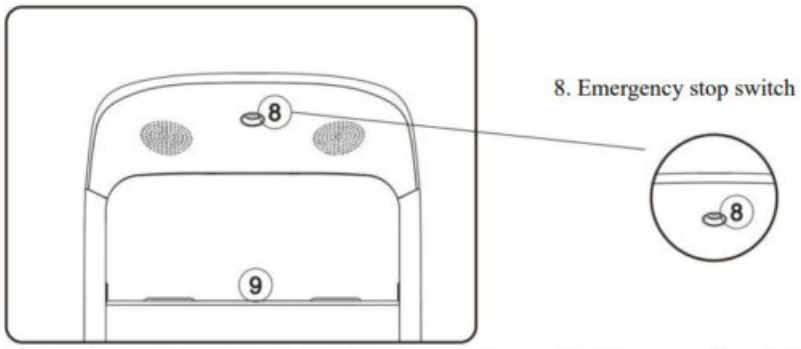


Figure 5 Local Enlarged View after Opening the Outer Cover of the Emergency Stop Switch

The emergency stop switch of the robot is at the top of the robot, i.e. the position indicated by numeral 8 in the figure. Press the red emergency stop switch to stop the robot under emergent circumstances.

Moving Robot Manually

Robots are expensive equipment. Please strictly observe the following instructions when moving the robot manually.

As demonstrated in Figure 6, the positions of the upright posts on both sides of the robot body are stress-bearing areas. The user can lift the robot by holding this part with both hands. Please keep the robot upright during conveying.

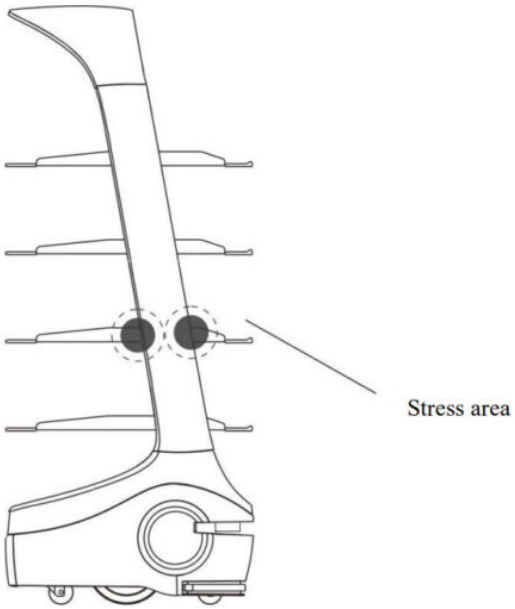


Figure 6 Schematic Diagram of moving the robot

***Note:**
The middle position on both sides of the body is the only place where the robot can be carried by force.
Please carry the robot strictly based on the instructions. During the handling process, it is forbidden to directly pull up the bottom of the robot, dump the robot, directly pull up the tray, directly pull up the gap in the laser layer, or directly pull up the robot's face and head. The damage to the robot caused by improper operation during handling shall be afforded by the user.

Warranty and After-Sales Service

Warranty
With regular inspection and maintenance, the expected service life of the product is 5 years and the warranty period is 1 year.
If the product fails in the warranty period due to quality or manufacturing issues of original components, maintenance will be provided free of charge.
The warranty period is 1 (one) year from the date of purchase of the equipment.

Non-Warranty Clause
The warranty is only applicable to the products under normal use. Products damaged by users and the following clauses are not covered by our warranty.

1. Product damage is caused by negligence, fault, misuse of users, or disaster (e.g. food liquid stains, water seepage, external force cracking, scratches and damage to peripheral components, etc.).
2. Users dismantle the machine by themselves and repair and refit it without authorization and approval of the manufacturer.
3. Improper connection of accessories; product damage caused by transportation and other accidents.
4. Damage caused by force majeure.

Warranty Card
If a problem persists despite measures described in 4.1, please contact us for maintenance and repair services. Please provide the following product information:

Product information	Product model:	SN code:
User information	Name:	Date of purchase:
	Tel.:	Email:
	Address:	Purchase address:
Sales unit information	Distributor.	
		Stamp of distributor

Appendix

List of Exceptions and Clearing of Faults

Fault Phenomenon	Possible Causes and Solutions
The robot cannot start normally	1. There is not enough electricity, and the user should connect the robot for charging via the adapter. 2. For other reasons, please contact customer service personnel.
The robot cannot be charged Connally	1. The position of the charging pile moves. Please place the charging pile at the initial setting position 2. The charging pile is not connected to the power supply, and the user should connect the charging pile to the power supply. 3. The charging pile is blocked, etc., and the user should ensure that there is no blocking object in front of the charging pile. 4. For other reasons, please contact customer service personnel.
The robot cannot move or navigate	1. The robot is in the blind area of the map. The user should turn off the robot and push it to the vicinity of the charging pile to start navigation again. 2. The vision module is covered, and the user should ensure that the vision positioning module is not covered. 3. Radar failure of the robot occurs, and the user should check whether the radar rotates normally. 4. The collision switch of the robot is faulty, and the user should check whether the collision switch is squeezed or not. 5. For other reasons, please contact customer service personnel.
The robot cannot play voice	1. The voice of the robot is off or the volume is too low, and the user should reset the voice. 2. For other reasons, please contact customer service personnel.
The robot moves abnormally	The user should turn off the power supply of the machine immediately and contact the customer service personnel for handling.
The robot falls	The user should turn off the power supply of the machine immediately and contact the customer service personnel for handling.

Performance Parameters of the Robot

Model	T6
Product size	519*531*1256mm
Tray size	515*426*180mm
Net weight of product	50Kg
Maximum walking speed	1m/s
Bear load	10KG (bear load of single layer)
Maximum climbing angle	Slope < =5 degrees
Network interface	WIFI/4G/Bluetooth
Battery capacity	DC 48V 12Ah
Rated power	50W
Standby current	Standby current < 0.5A
Battery life	Continuous work 12-14 hours
Standby time	Standby time 48 hours
Service life	20000h
Working temperature	0 – 45℃, RH:5% 85%, no dust
Working environment	Indoor environment, flat and smooth ground
Charging mode	Support automatic/manual charging, input rated voltage 100-240Va.c / 50-60Hz
Charging pile size	230*220*290mm the charging pile is optional
Charging pile weight	1 kg the charging pile is optional
Storage temperature	-10℃-60℃
Working pressure, altitude	A standard atmospheric pressure, not more than 1000 meters above sea level.

Safety Instructions

Restrictions:

- This product is a wheeled robot, which is only used in an indoor flat environment (the ground should be smooth, with the slope being less than 5 degrees and the protrusion not more than 1cm). Do not use it in an outdoor environment (such as an open balcony), on rugged ground (such as stairs), etc.
- Please do not use it in the suspended environment (e.g. duplex floor, open balcony, top of house, stairs) or environment without a fence.
- Please do not use it in the environment above 50℃ or below 0℃ or in the environment with any liquid or viscous substance on the ground.
- Before use, the user should put away all sorts of wires on the ground in the environment to avoid dragging

them when the main machine is running.

- Before use, the user should remove sharp objects on the ground (such as decoration waste, glass, nails, etc.) to avoid damage to the chassis of the machine.
- Please do not place any non-transportable objects (including children and pets) on stationary or running machines.
- Please do not push or carry the robot while the machine is moving.
- The user should do not move the machine at will, but should carry it in strict accordance with the User's Manual.
- Please clean and maintain the main machine and charging pile when the power is turned off or off.
- Please do not use hard or sharp objects to collide with the robot.
- Please do not spill any liquid into this product.
- Please do not push down the main machine or place it upside down.
- The robot is an electronic product, and the user should keep it away from fire.
- If the user needs to transport the product, he/she should ensure that the main machine is turned off and it is recommended to use the original packaging box for packaging.
- The user should use this product based on the instructions in the User's Manual or the Introduction Guide. If any loss or injury is caused due to improper use, the user shall be responsible for it.

Battery and Charging:

- Please do not arbitrarily use any third-party battery, power adapter or charging post.
- Please do not arbitrarily disassemble, repair or refit batteries or charging piles without permission.
- Please do not arbitrarily place the charging pile near the heat source (e.g. radiator, etc.).
- Please do not arbitrarily wipe or clean the contact pads of the charging pile with a wet cloth or wet hands.
- Please do not arbitrarily throw away the discarded batteries at will. It is suggested that they be disposed of by a professional organization.
- If the user does not use the product for a long time, the user should switch off the main machine after a full charge and put it in a cool and dry place. Charge it at least once a month to avoid battery damage.

Documents / Resources

	KEENON T6 Peanut Multi-layer Food-Delivery Robot [pdf] User Manual T6, Peanut Multi-layer Food-Delivery Robot, T6 Peanut Multi-layer Food-Delivery Robot