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Elephant Robotics 大象机器人

13自由度双臂协作机器人-树莓派版

myBuddy 280

十三自由度双臂协作机器人
13-DOF Dual-arm Collaborative Robot

⚠ Warning

Before using myBuddy 280 please read all instructions and cautionary markings in this manual

1. Do not expose the product to rain or moisture to reduce fire or shock hazard.
2. Do not place the product in or near fire.
3. Do not leave the product in a car in hot or humid weather.
4. Do not disassemble, crush or pierce the product.
5. Do not expose the product to excessive shock such as dropping from a high place.
6. Do not expose the product to high temperatures above 45 °C .

⚠ Attention

Regarding the operation and secondary development of myBuddy 280, please read and download Gitbook before using it.

Official Website：https://www.elephantrobotics.com/en/

myBuddy 280

Raspberry Pi
树莓派版

Thirteen degrees of freedom dual-arm collaborative robot

myBuddy is the 1st dual-arm robot product of Elephant Robotics powered by Raspberry Pi, belonging to Service robot- A Dual-arm 13-axis Humanoid Collaborative Robot. The working radius of a single arm of myBuddy is 280mm, and the maximum payload is 250g. It owns a 7-inch interactive display screen and two 2-million-pixel HD camera, and provides the 3.3V I/O ports and Lego ports. myBuddy can work with multiple accessories such as suction pump, grippers, etc. It can meet the needs of different applications.

The whole machine motion control drive library of myBuddy is open, more than 100 control interfaces such as joint angel control,coordinate control, etc. Therefore, users can realize robot motion path planning algorithm research, dual-arm interference avoidance algorithm research, robot vision learning and other artificial intelligence applications development. myBuddy effectively helps developers and students to improve their personal scientific research ability.

Super perfect python control interface

- Support separate control of left and right arms and waist, making the control more freely.
- Provide programming sample programs, which can quickly implement scene applications.

Easy operation and open source

- The user can learn the operation of the product in a short time using drag teaching and myBlockly simple visual programming.
- Support ROS/MOVEIT and other development systems and the myBuddy APP operating software independently developed by Elephant Robotics.

Powerful performance, equipped with 13 high-performance servo motors

- Using 13 high-performance brushless DC servos, it has a repeatable positioning accuracy of ±0.5mm.
- Excellent algorithm control in the industry, the fastest command response speed can reach 30ms.

Affordable and cost-effective

- Affordable robotic arm, effectively reducing costs and increasing efficiency for scientific research that requires high performance & low cost.
- Individual developers with accessories can do creative development to meet a variety of scenarios.

Integrated design, safe collaborative operation

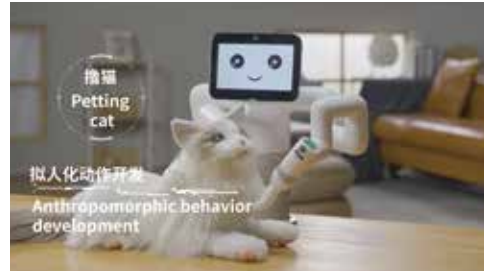
- The ingenious structural design makes it possible to make full use of the space and perfectly integrate into the actual environment.
- Integrated industrial design ID, rounded corner design of the whole machine, safer and more beautiful.。
- It has anti-collision detection function so that it can work with people safely.

7" interactive display

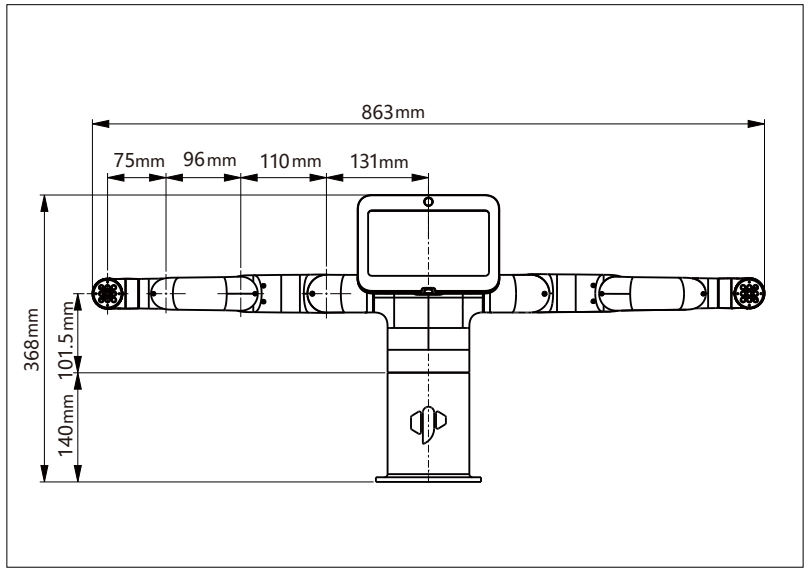
- Standard seven-inch interactive display, which can be used for image display, touch control.
- Built-in 20+ dynamic expressions, ready to use.
- The use of high-strength wear-resistant surface layer improves the service life of the touch screen.

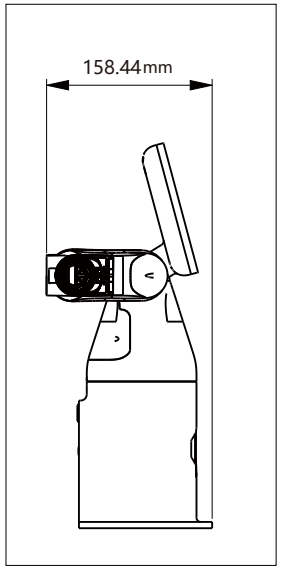
myBuddy 280 is an open source research and education robot

myBuddy 280 is a productivity tool and a tool to expand imagination. It has a variety of end effectors to adapt to a variety of application scenarios, such as scientific research, education scenarios, display scenarios, etc. For enterprise-level applications such as R&D scene integration, our company provides robot application related kits and development tutorials, which help users to develop and use more conveniently; 4-7 inch interactive display screen, built-in 20+ dynamic expressions; support VR control, virtual reality combined, makes the control easier. The customer feedback so far has been very good.



myBuddy 280 - Size Range Diagram



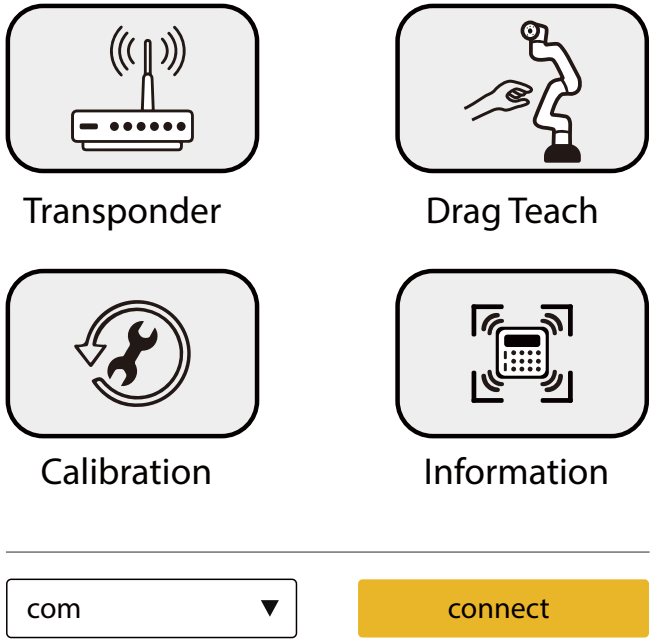


Parameter

Manipulator parameters	
Model	myBuddy 280
Degrees of freedom	13
Payload	Single arm 250g
Working radius	Single arm 280mm
Repeatability	±0.5mm
Weight	2750g
Output port	Shared with input
Life span	500h
Communication	USB

Hardware parameters	
Master	Raspberry Pi 4B 4G
CPU	Broadcom BCM2711 , 64 bit 1.5GHz quad core
GPU	500 MHzVideoCore Vl
Bluetooth/Wireless	Support
USB	USB2.0 x1
HDMI interface	Support
IO interface	Input x6; output x6
Track recording	Support

Software platform	
ATOM	Support
Raspberry Pi	Official mirror
PICO	Support
myBlockly	Support



myStudio

myStudio is a one-stop platform for robots

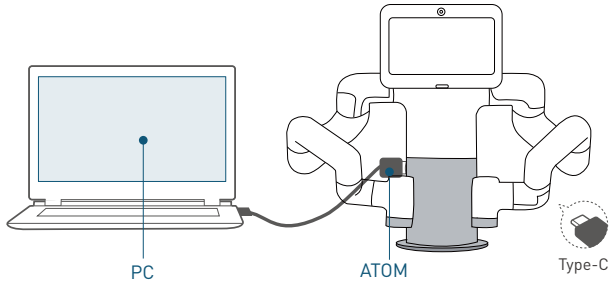
myStudio integrates myCobot's software and various materials.
The main functions of myStudio are: 1) Update the firmware; 2) Provide video tutorials on how to use the robot; 3) Provide maintenance and repair information (such as video tutorials, Q&A, etc.).

Please download the latest version of myStudio to use.

The download link is as follows:
Officail website: https://www.elephantrobotics.com/en/support-320-pi-en/
Github: https://github.com/elephantrobotics/MyStudio/

Burn Table

Development environments that support the secondary development of myBuddy 280 are: myBlockly, ROS, python, etc.



Development Environment	Pico Firmware	Atom Firmware
Default Program	picoMain	atomMain
myBlockly	picoMain	atomMain
RoboFlow Industrial Programming Software	picoMain	atomMain
Python	picoMain	atomMain
ROS Development	picoMain	atomMain
BlueTooth	picoMain	atomMain

myBuddy 280 Accessory

Elephant Robotics are targeted at robotic collaboration applications, making “my-series” product line.
For new information about the accessories, Follow us on Shopify and Twitter.
Shopify: https://shop.elephantrobotics.com/
Twitter: @cobotMy
Facebook: myCobot

Hand-grab

Hand-yeah

Hand-praise

Camera Flange

Suction Pump

Adaptive Gripper

⚠ 警告

在使用本产品之前，请阅读本手册中所有说明及警告提示。

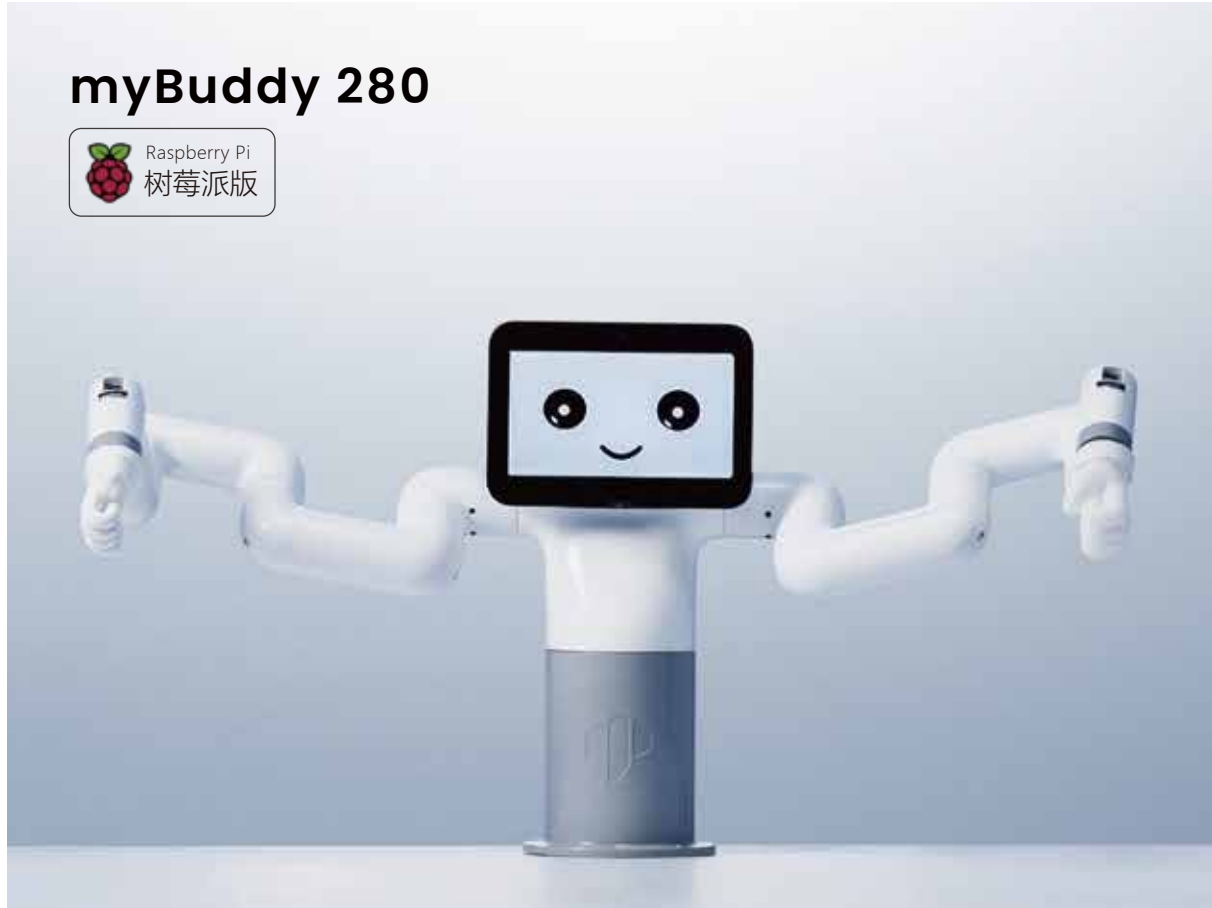
- 为避免火灾或电击危险，请勿将产品暴露在雨中或潮湿的地方。
- 请勿将产品放在火中或靠近火处。
- 请勿将本产品放置或使用在炎热潮湿的地方。
- 请勿暴力拆卸本产品。
- 请勿将产品暴露在过度的冲击下，如从高处跌落。
- 不要将产品暴露在超过60℃(140℉)的高温下。

⚠ 开机必读

本册为myBuddy 280-树莓派版产品画册

关于本产品的操作使用及二次开发，请先在大象机器人官网阅读并下载Gitbook相关指导说明.

下载链接：https://www.elephantrobotics.com/mybuddy280-pi-cn/



十三自由度双臂协作机器人

myBuddy 是大象机器人的第一款双臂机器人产品，由树莓派驱动，属于服务机器人——双臂 13 轴人形协作机器人。 myBuddy单臂工作半径为280mm，最大有效载荷为250g。 它拥有一个7英寸的交互式显示屏和两个200万像素的高清摄像头，并提供3.3V I/O端口和Lego端口。 myBuddy 可搭配吸泵、夹具等多种配件，满足不同应用的需求。

myBuddy的整机运动控制驱动库是开放的，关节角度控制、坐标控制等100多个控制接口。 因此，用户可以实现机器人运动路径规划算法研究、双臂干扰规避算法研究、机器人视觉学习等人工智能应用开发。myBuddy 有效帮助开发者和学生提高个人的科研能力。

超完美的python控制界面

- 支持左右手臂和腰部分开控制，控制更自由。
- 提供编程示例程序，可快速实现场景应用。

操作方便，开源易用

- 用户可以通过拖拽教学和myblockly简单的可视化编程，在短时间内学会产品的操作。
- 支持ROS/MOVEIT等开发系统和大象机器人自主研发的myBuddy APP操作软件。

性能强大，配备13个高性能舵机

- 采用13个高性能无刷直流舵机，可实现±0.5mm的可重复定位精度。
- 业内优秀的算法控制，最快的指令响应速度可达30ms。

经济实惠且具有成本效益

- 经济实惠的机械臂，为需要高性能和低成本的科学研究有效降低成本和提高效率。
- 有配件的个人开发者可以进行创意开发，满足多种场景。

一体化设计，安全协同作业

- 巧妙的结构设计，使空间的充分利用，与实际环境完美融合成为可能。
- 一体化工业设计ID，整机圆角设计，更安全、更美观。
- 它具有防碰撞检测功能，可以安全地与人一起工作。

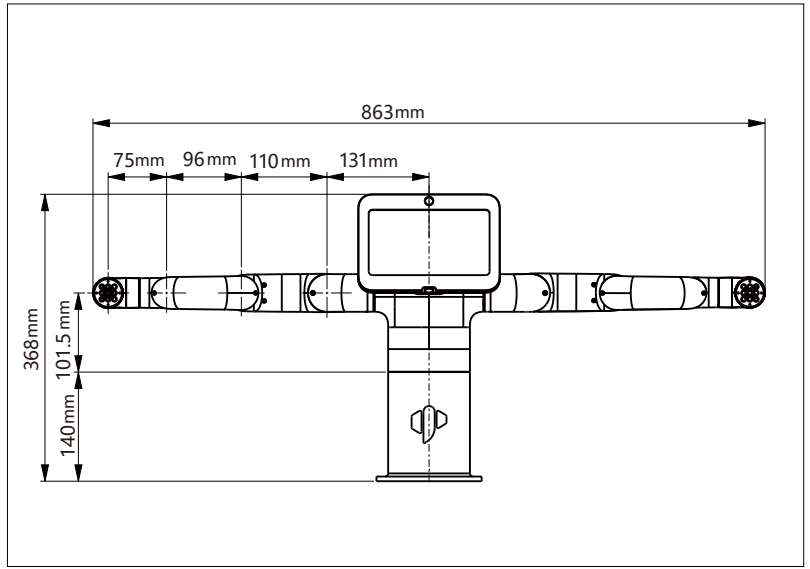
7" 交互式显示屏

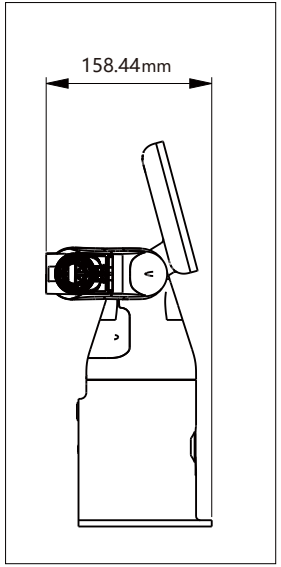
- 标配7寸交互式显示屏，可用于图像显示、触控。
- 内置 20+ 动态表达式，随时可用。
- 采用高强度耐磨面层，提高了触摸屏的使用寿命。

myBuddy 280是一款开源研究教育机器人

myBuddy 280 是一款生产力工具，也是一款拓展想象力的工具，拥有多种末端执行器适配多种应用场景，如科研、教育场景、展示场景等.基于本产品还可以进行商业展示、预研发场景融合等企业级应用，我司提供机器人应用相关套件及开发教程，有助于用户更加便捷开发使用；7寸可交互式显示屏幕，内置20+动态表情；支持 VR控制，虚拟现实结合，让控制更简单，迄今为止客户反馈非常好。

尺寸范围图



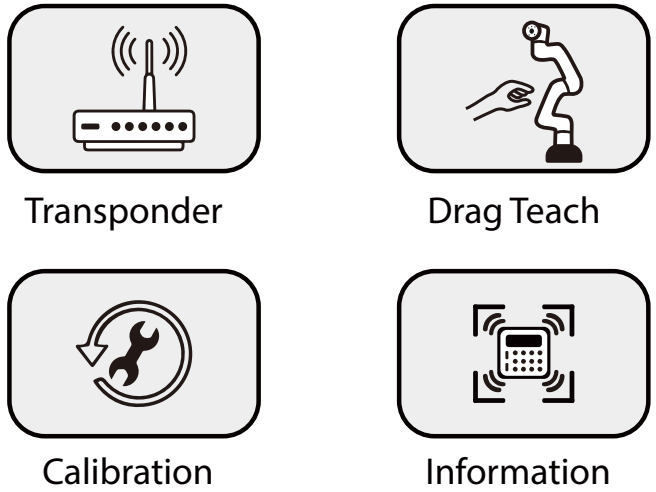


产品参数

机械臂参数	
型号	myBuddy 280
自由度	13
有效负载	单臂250g
工作半径	单臂280mm
重复定位精度	±0.5mm
重量	2750g
输出端口	同输入共用
寿命时长	500h
通信	USB

硬件参数	
主控	raspberry pi 4B 4G
CPU	Broadcom BCM2711, 64位 1.5GHz四核
GPU	500 MHz VideoCore VI
蓝牙/无线	有
USB	USB2.0 x1
HDMI 接口	有
IO 接口	输入 x6；输出x6
轨迹录制	有

软件平台	
ATOM	支持
树莓派	官方镜像
PICO	支持
myblockly	支持



myStudio

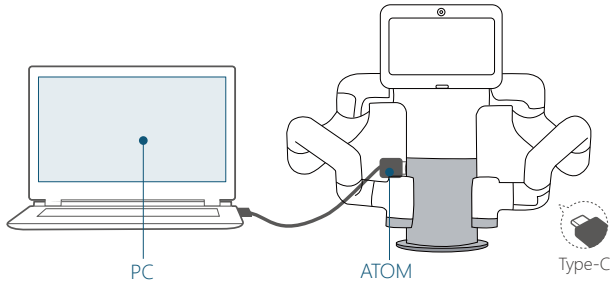
myStudio是一个一站式的机器人的使用平台。
myStudio整合了myCobot 、 myCobot 320、mybuddy的软件资源及各类资料，主要功能为：
1）下载更新固件；2）查看机器人使用视频教程；3）维护和维修方面的信息（如视频教程、Q&A等）

请下载最新版的myStudio进行使用

软件下载链接如下：
1、官网：https://www.elephantrobotics.com/support/
2、Github：https://github.com/elephantrobotics/MyStudio/

固件烧录

可支持myBuddy 280进行二次开发的开发环境有：myBlockly 、RoboFlow、ROS、python等



开发使用环境	Pico所需固件	Atom所需固件
默认程序 Default Program	PicoMain	atomMain
Myblockly	PicoMain	atomMain
RoboFlow 工业级可视化编程软件	PicoMain	atomMain
API 开发软件接口 Python	PicoMain	atomMain
ROS Development ROS 开发	PicoMain	atomMain

myBuddy 280产品配件

大象机器人面向机械臂扩展应用，打造"my-系列"产品线。
相关配件的上新，请关注官方淘宝店铺。店铺名称：大象机器人

手-握

手-指

手-赞

摄像头法兰

吸泵

自适应夹爪

产品保修卡

用户信息（必填）：

购买人 _____ 订单号 _____ 联系电话 _____

地址 _____ 物流签收日期 _____

产品问题描述（必填）：_____

如需退换货，请事先联系客服确认退回相关信息。待客服确认后，填写此卡并将这一页随同产品一起寄回。
注：我司在法律允许范围内保留对本产品保修卡解释和修改的权利。

- 产品自签收起7日内未拆封可无理由退换，因产品退换所产生的费用及其他风险需由客户承担。
- 用户如需产品保修服务需提供相应的购买单据及产品保修卡作为保修凭证。
- 凡属于正常使用下由于产品本身质量问题引起的硬件故障，保修期内大象机器人给予免费维修。
- 保修起始日期为产品购买日或物流签收日。
- 维修更换的配件归大象机器人所有，必要时会收取适当的成本费用。

以下为详细的配件保修服务说明(如需以下产品售后服务，请事先联系客服沟通并确认相关信息)

舵机	
保修期限	保修服务
≤1个月	我司免费提供一个新舵机并承担寄送运费(仅一次)
1-3个月	我司免费提供一个新舵机，由客户自行承担运费(仅一次)
≥3个月	客户需自己重新购买

电子件	
保修期限	保修服务
≤3个月	由用户拆卸后寄回，我司免费更换并承担往返运费(仅一次)
3-6个月	由用户拆卸后寄回并承担往返运费，我司免费更换(仅一次)
≥6个月	客户需自己重新购买

结构件，含外壳部分	
保修期限	保修服务
≤1年	我司免费提供新的零件，由客户自行承担运费(仅一次)
≥1年	客户需自己重新购买

特别说明: 在交付产品的保修期内，本公司仅对正常使用机器人时发生的故障进行免费修理。
但在以下情况下， 将对客户收取修理费用(即使在保修期内):

(1) 因不同于手册内容的错误使用以及使用不当而导致的损坏或故障
(2) 客户未经授权进行拆卸导致的故障
(3) 属于外壳等部件自然的消耗，磨损及老化
(4) 因调整不当或未经授权进行修理而导致的损坏
(5) 因地震、洪水等自然灾害导致的损坏
因此，请严格遵照本手册及相关手册的指示对机器人进行操作。

WARRANTY CARD

Customer Information (Required):

Purchaser _____ Order No. _____ Phone _____

Address _____ Logistics Receipt Date _____

Product problem description(Required):

_____

If you need to apply for warranty service, please contact our customer service to confirm the detailed information. After confirmation, please fill in the card and send it back together with the product and the attached invoice. Note: Our company reserves the right to explain and modify the warranty card of this product within the scope of the law.

- **Return service is limited to goods not opened within 7 days after the receipt date of logistics of the products. The freight or other risks incurred in return shall be borne by the customer.**
- **Customers should provide the purchasing invoice and warranty card as the warranty certification when a warranty is being asked.**
- **Elephant Robotics will be responsible for the hardware faults of products caused by the normal using during the warranty period.**
- **The warranty period starts from the date of purchase or the receipt date of the logistics.**
- **The faulty parts from the products will be owned by Elephant Robotics, and the appropriate cost will be charged if necessary.**

If you need to apply for warranty service, please contact our customer service first to confirm the detailed information.

Sever motor	
Warranty Period	Warranty Services
≤1 months	Elephant Robotics offers a free new servo motor and bear the freigh.
1-3 months	Elephant Robotics offers a free new servo motor, customs shall bear the freight.
≥3 months	Customers need to buy it themselves.
Electrical Parts	
≤3 months	Customers need to send it back after disassembly, Elephant Robotics shall send a new one for free and bear the freight out and home.
3-6 months	Customers need to send it back after disassembly and bear the freight out and home, Elephant Robotics shall send a new one for free.
≥6 months	Customers need to buy it themselves.
Structure Parts, including Shell Parts	
≤1 year	Elephant Robotics offers free new components once, customs shall bear the freight.
≥1 year	Customers need to buy it themselves.

During the warranty period of the delivered product, the company only repairs the malfunctions that occur during normal use of the robot for free. However, in the following cases, the customer will be charged for repairs (even during the warranty period):

- Damage or malfunction caused by incorrect use and improper use different from the contents of the manual.
- Failure caused by unauthorized disassembly by the customer.
- Damage caused by improper adjustment or unauthorized repairs.
- Damage caused by natural disasters such as earthquakes and floods.

Therefore, please strictly follow the instructions in this manual and related manual to operate the robot.