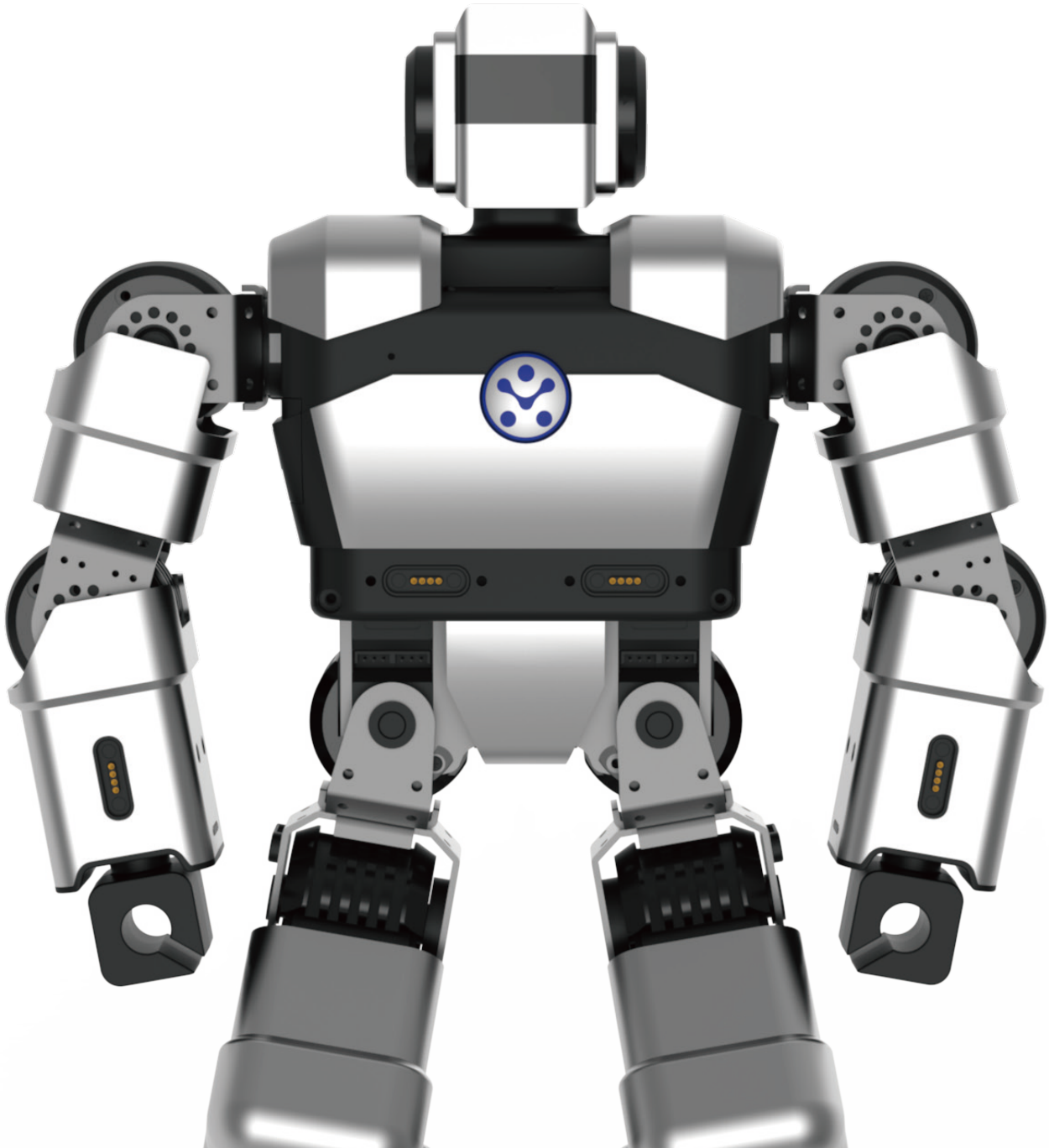
UBTECH
Dream With Robots

yanshee

User Manual



Precautions!

1. All example of use refer to warning card.
2. Keep this product away from fire and keep it dry and clean.
3. Do not squeeze this product with too much force during use.
4. Please use the robot on a flat surface.
5. Maintain an appropriate distance from the robot while it is in operation to avoid injuries.
6. When the robot is in operation, do not forcibly bend its joints as to avoid hand injuries and damage to the machine.
7. Please use the supplied charger for charging the robot.
8. The servos for robot joints are precisely designed and should not be disassembled without authorization. Contact us if necessary.
9. For repair services, go to your local after-sales service center or contact our customer support.
10. When an abnormality is found during debugging, immediately press the Emergency Stop button and cut off the power as to avoid hand injuries and damage to the machine.
11. Take necessary preventive measures when using the robot. Do not use it at heights or near any edges as it may fall off and result in damage.
12. Man-made damage is not covered by our warranty.
13. It is best to use the robot for no longer than 1 hour each time, which will extend the service life of the servo actuators.
14. This product is not intended for children under 14 years of age.
15. You will be provided with software updates if any. For some features, the latest update instruction shall prevail.
16. Please use HDMI cables with good shielding layers and magnetic rings when connecting Yanshee to an external monitor.

Precautions for Batteries

1. The batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.
2. Only use attachments/accessories specified or provided by the manufacturer (such as the exclusive supply adapter, battery etc).
3. Do not touch the product when it is moving to avoid hand injuries.

4. Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion.
5. Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas.
6. A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

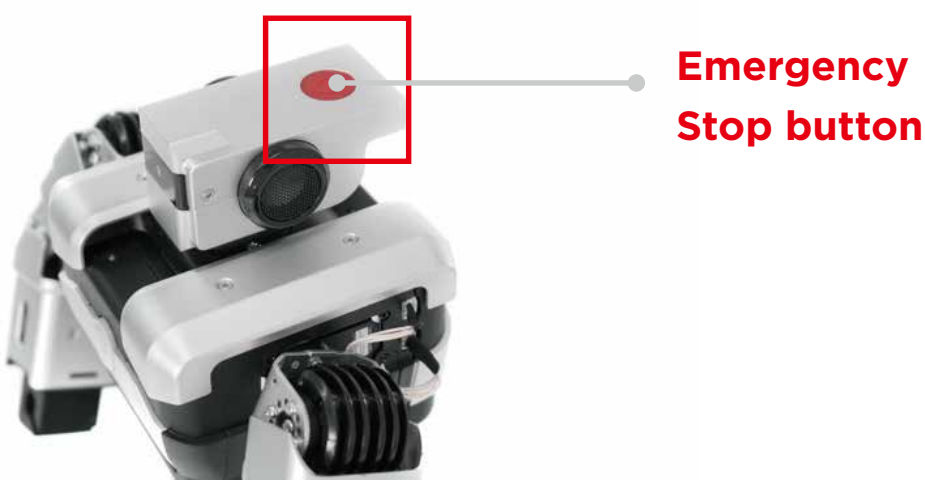
Immediately Cut off the power and contact us when:

a. The robot smokes or you smell something burning; or
b. Water or any other foreign matter enters the robot; or
c. The robot is damaged.

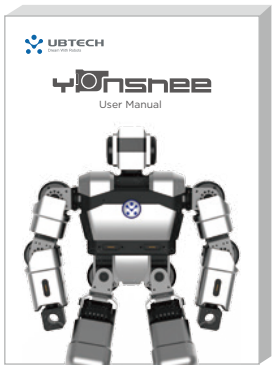
The User Manual contains important information. Please keep it for future reference!

⚠ Warning:

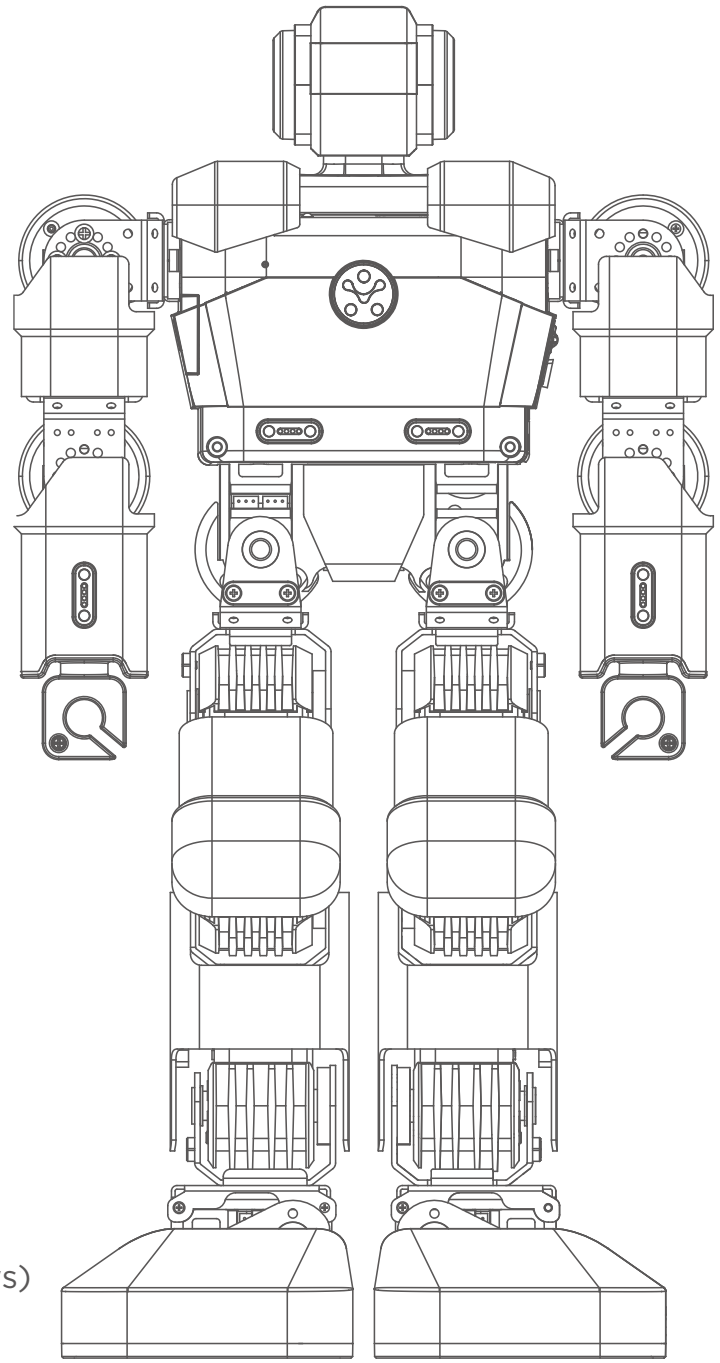
An "Emergency Stop" button is on the top of the robot. When the robot is in operation, you can press this button to immediately cut off the power and stop its operation.



01. Packing List



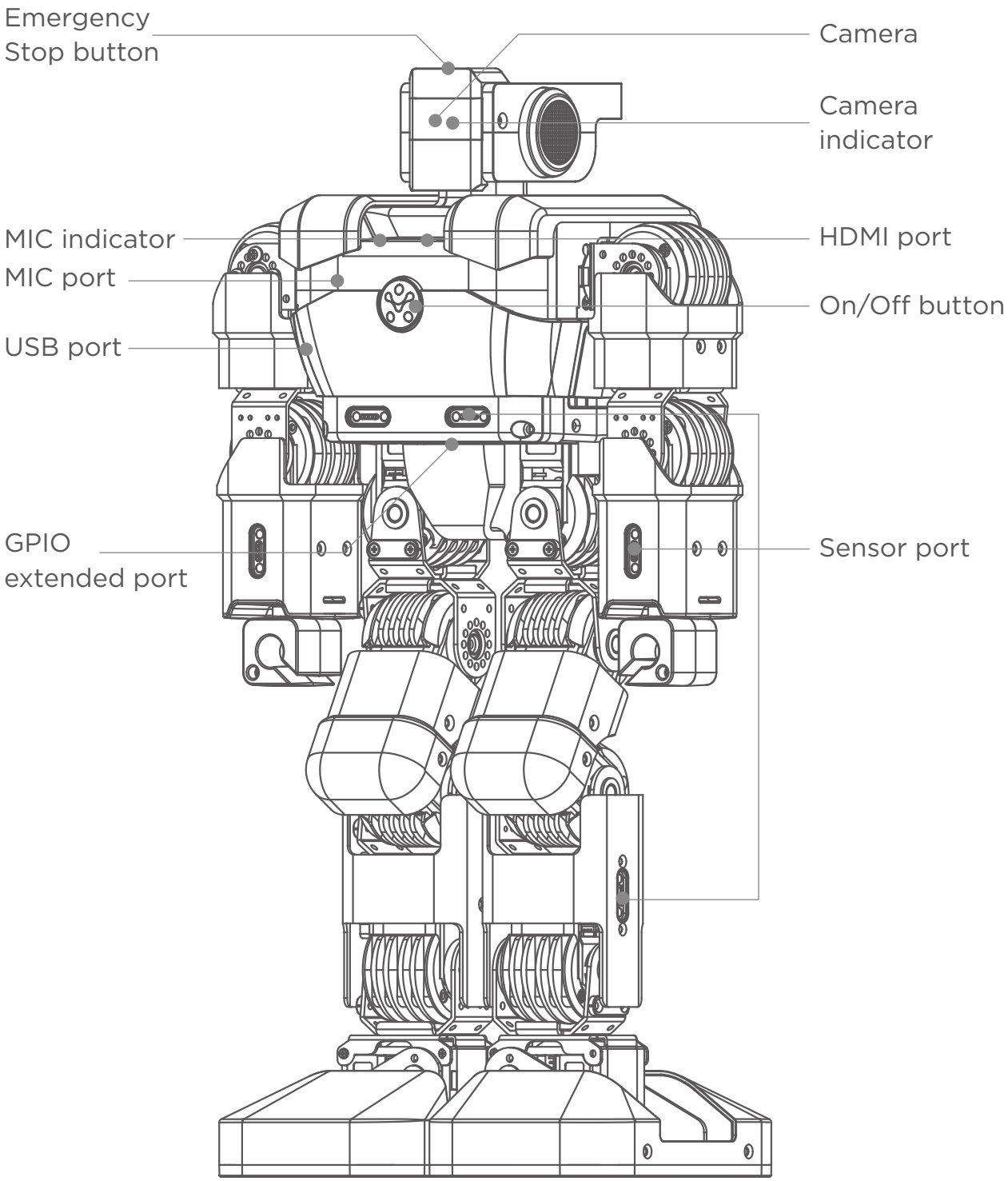
User Data Set*1
(Quick Start Guide*1,
Warranty Card*1)



Yanshee Robot

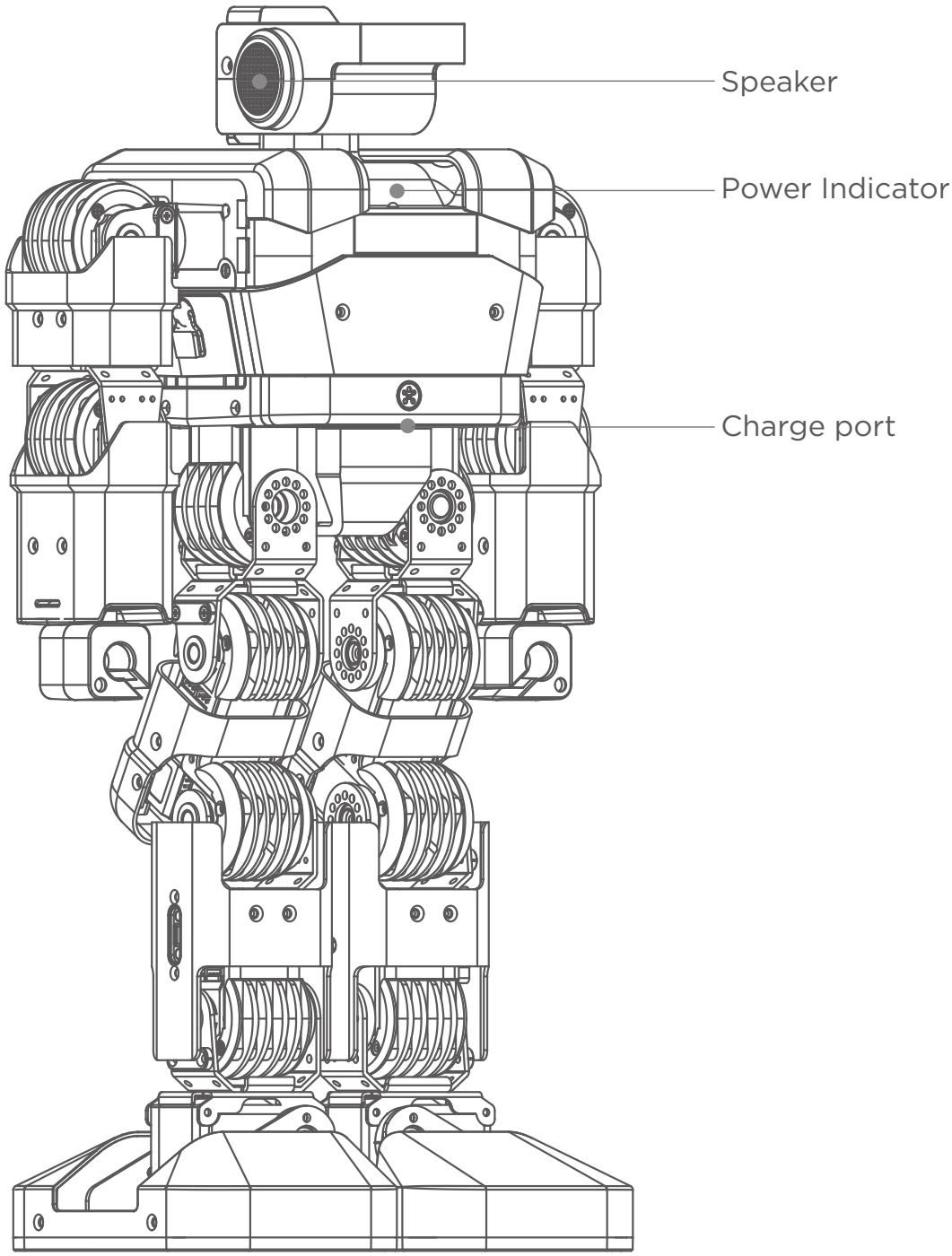
Yanshee Robot components: 1
Quick Start Guide: 1
Warranty card: 1
Usage Examples: 1
Battery: 1
Power adapter: 1
Power cord: 1
Spare parts kit: 1 (wires, screws)
Screwdriver: 1
Sensor Suite: 1 (Selective Accessories)
Charging dock: 1 (Selective Accessories)

02. Appearance



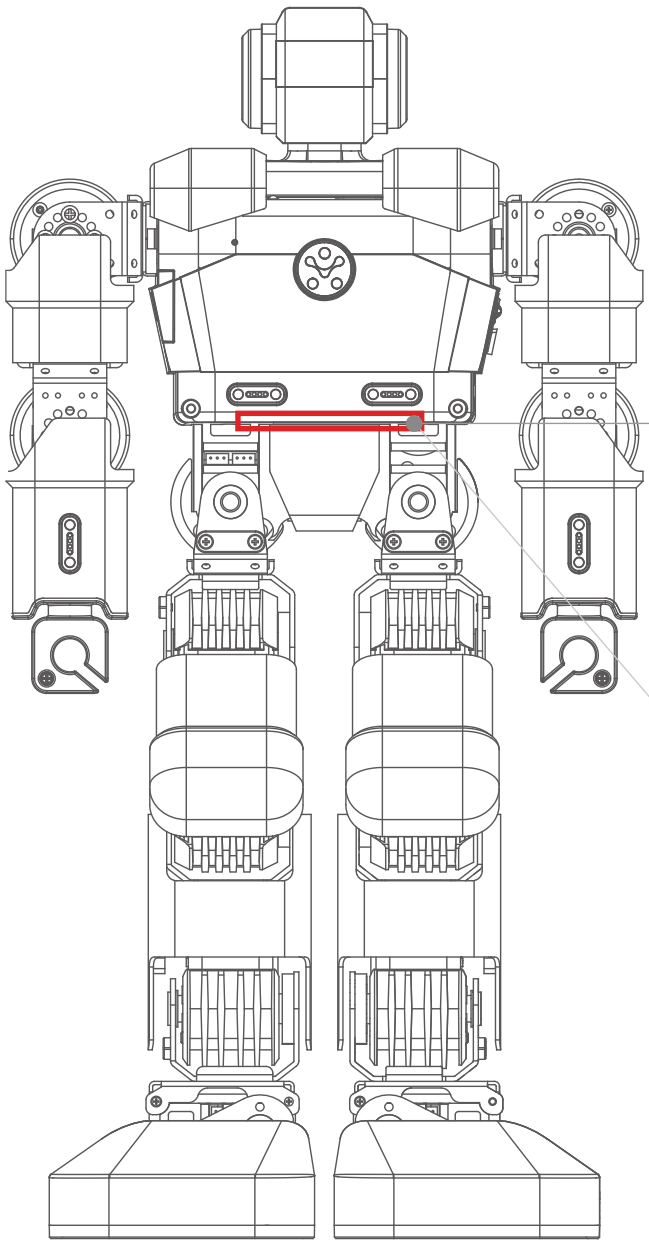
Front view of Yanshee

02. Appearance



Backside view of Yanshee

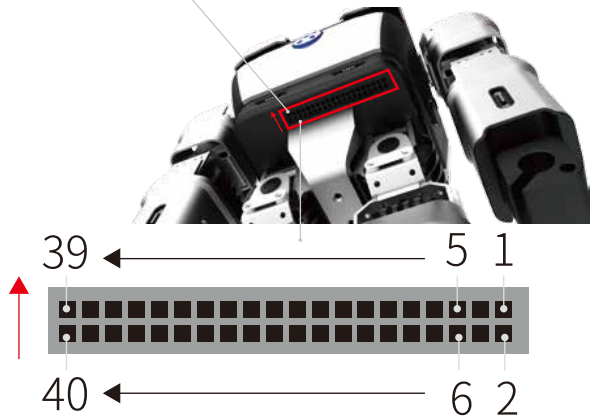
Introduction to GPIO Extended Port



Yanshee Robot

GPIO Pinout Diagram

Function	Physical Pin No.		Function
3.3V	1	2	5V
SDA.1	3	4	5V
SCL.1	5	6	GND
GPIO.7	7	8	TXD
GND	9	10	RXD
GPIO.0	11	12	GPIO.1
GPIO.2	13	14	GND
GPIO.3	15	16	GPIO.4
3.3V	17	18	GPIO.5
MOSI	19	20	GND
MISO	21	22	GPIO.6
SCLK	23	24	CE0
GND	25	26	CE1
SDA.0	27	28	SCL.0
GPIO.21	29	30	GND
GPIO.22	31	32	GPIO.26
GPIO.23	33	34	GND
GPIO.24	35	36	GPIO.27
GPIO.25	37	38	GPIO.28
GND	39	40	GPIO.29



Note:

Ports 3, 5, 12, 35, 38 and 40 are used, of which ports 3 and 5 are for I2C communication and ports 12, 35, 38 and 40 are for audio I2S signaling.

03. Specifications

Appearance	
Product Name	Yanshee
Product Model	ERHA101
Construction	Humanoid
Color	Silver
Dimensions	370*192*106 (mm)
Weight	≈2.05 kg
Material	Aluminum alloy structure, PC+ABS housing
Servo Actuators	17 degrees of freedom (DOF)
Electrical Specifications	
Operating voltage	DC 9.6V
Power	4.5W~38.4W
Operating temperature	0℃ to 40℃
Power adapter	Input: 100V~240V, 50/60Hz 1.5A Output: 9.6V, 4A

Master Chip and Memory	
Processor	STM32F103VDT6 Broadcom BCM2837 1.2GHz 64-bit quad-core ARMv8 Cortex-A53
RAM	1GB
Memory	16GB
Operating system	Raspbian
Network	
Wi-Fi	Supports Wi-Fi2.4G 802.11b/g/n fast connect
Bluetooth	Bluetooth 4.1
Battery capacity	3000mAh
Vision System	
Camera	8 mega-pixel camera, fixed focus
Light	Eyes: 3-color LED lights *2 Chest: 3-color LED notification lights *3 Microphone: green indicator *1 Charge: dual-color indicator *1

Audio	
Microphone	Single
Speaker	Stereo speakers *2
Sensors	
Built-in sensor	9-axle motion tracking sensor *1 Motherboard temperature sensor *1
Extended port	POGO 4PIN *6
Debugging Port	
HDMI	1
GPIO	40 (6 of them are used)
USB	2
Others	
Keys	ON/OFF key on the chest; Emergency Stop key on the top
Control Mode	Mobile software (APP); voice control; PC control（Raspbian）
Applicable Standard	For BT: Maximum Output Power :5.636 dBm For 2.4G WIFI: Maximum Output Power : 18.19dBm

04. Download and Sign in to Mobile Software (APP)

Download the APP:

Method 1: Scan the QR code below to enter the APP download page where you can click to download the Yanshee APP;

APP Download QR Code

Yanshee

Method 2: Search and download "Yanshee" in APP Store/Google Play/MyAPP or other platforms.

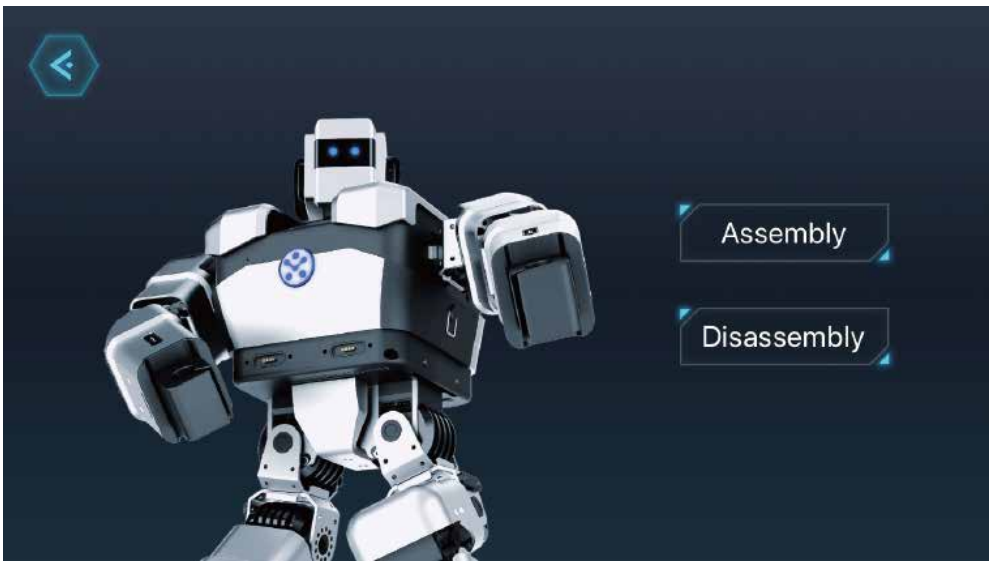
Method 3: Log onto http://yandev.ubtrobot.com/en to search for your desired product and download the app.

Sign in:

After installing the APP, run the APP and sign in according to the instruction. If you are a registered user, log into the APP directly.

05. Assemble the Robot

Open and log into the APP. Select the assembly tutorial to learn about how to assemble or disassemble the robot from the menu bar.

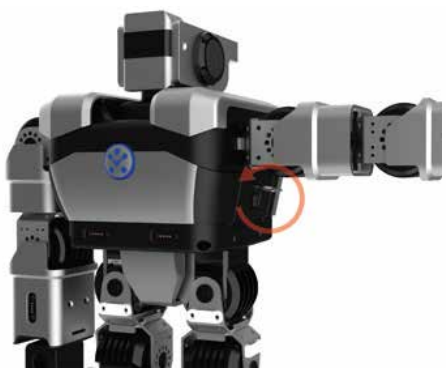


Select the disassembly tutorial to learn about how to disassemble the robot.

06. Install and Charge the Battery

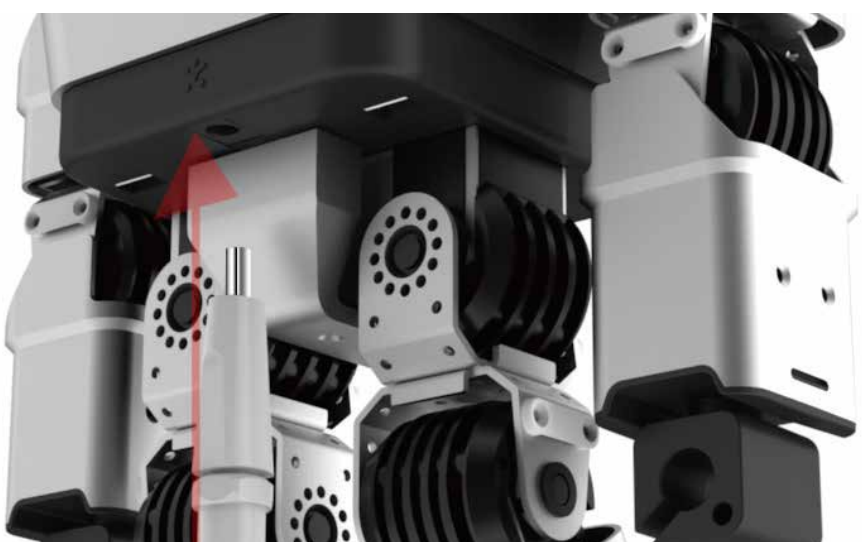
Install the Battery

- The battery compartment is below the left arm of the robot. Rotate the battery cover clockwise 90° to unlock it.
- Install the battery into the battery cover and then reinstall the battery cover. Rotate the battery cover counter-clockwise 90° to lock it.



Charge the Battery

Method 1: After installing the battery, connect the power cord to the charge port on the back of the robot to charge the battery.



Method 2: Place the battery onto the dock charger, and then connect the power cord to the charge port of the dock charger to charge the battery.

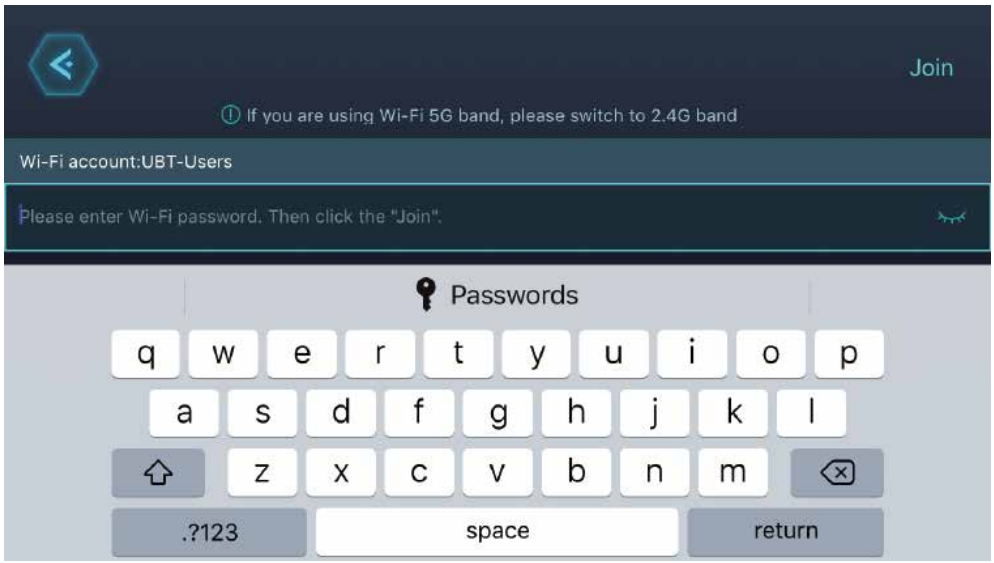
07. Start the Robot and Set up the Network

- Press and hold the button on the chest for 2-3 seconds and release until the indicator is lit up in blue. The robot is booted up after you hear a boot-up sound.

- Make sure that both the Bluetooth and Wi-Fi are enabled on the smart devices. Open and log into the Yanshee APP, and click the icon on the upper left of the home screen to connect the robot and set up the network.

- Refresh and search devices detected by the system, and select the device to be connected according to the last 4 digits of the MAC address value on the label attached onto the back of the robot.

- After the desired device is selected, the APP will select the SSID identical to the local Wi-Fi to be displayed on the page. Enter the correct Wi-Fi password and click the "Join" button, the robot will set up and connect to the network and also give you a voice prompt, saying "Connecting".



Note:

You will hear a voice prompt saying "Connected" after successful connection.

If the connection fails, you will hear a voice prompt saying, "Connection Failed". In this case, please set up the network again.

You do not have to set up the network again for later use, just directly select the desired device from the list.

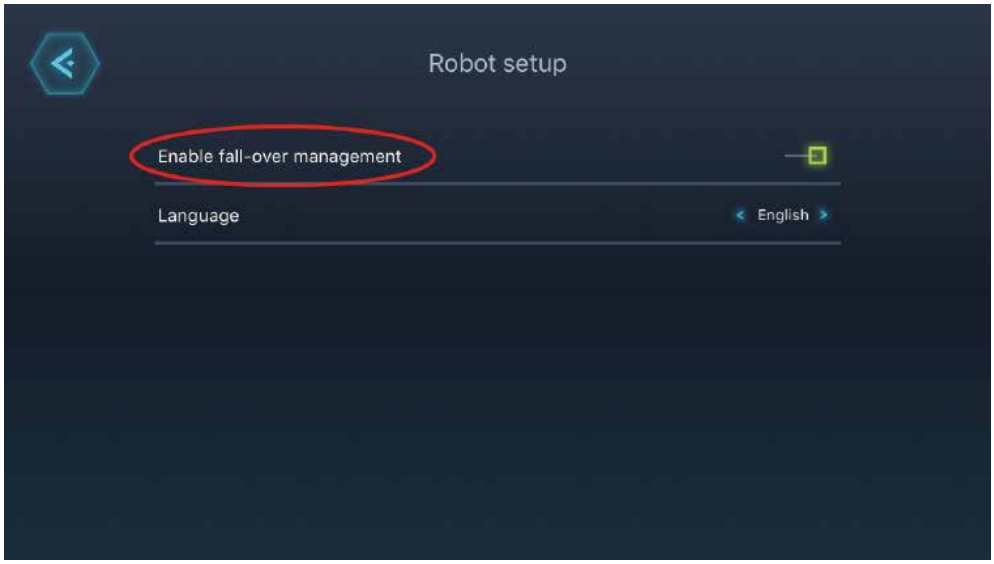
After setting up the network, you can use the APP to control the robot and learn more information.

08. Use of Mobile APP

The mobile APP has a built-in graphic user interface and integrates features including motion tracking, FPV, Blockly visual programming, action readback programming, curriculums, BBS and real-time sensor data view.

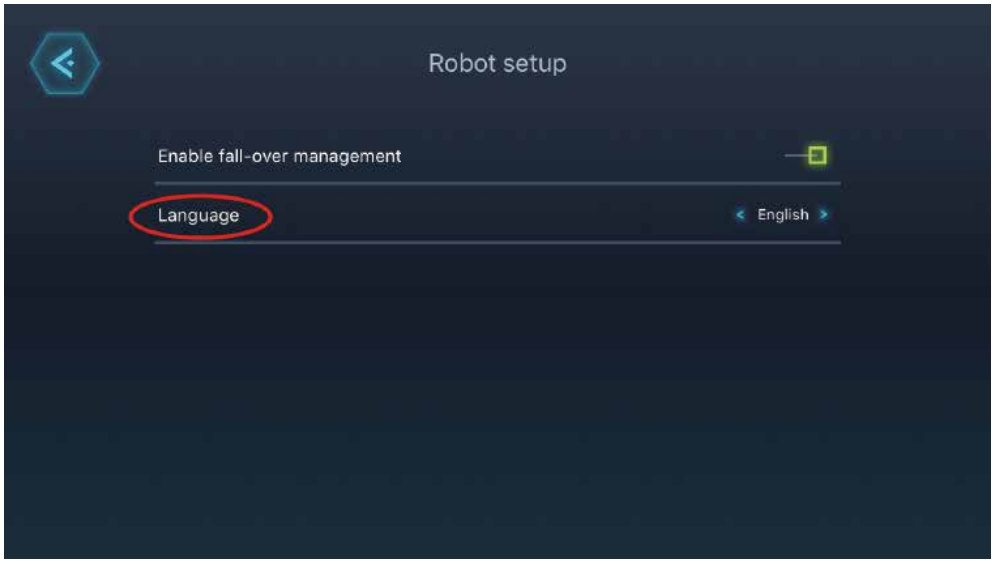
Fall-over Management

This feature is off by default. You can enable the feature via the APP. The robot can pick itself up if it falls over when enabled.



Language Switching

Both Simplified Chinese and English are supported so far. Go to your APP to select the desired language for the robot.



09. Built-in Smart Applications

Raspbian OS issued by Raspberry Pi is used as the robot software. This open source software comes with the following features:

Speech Recognition
The robot is configured with speech recognition and semantic recognition for Chinese, allowing you to chat with it.
When the robot started, press the button on the chest until the chest lamp turns green, then you can chat with the robot after a "tinkling" sound is heard.

Visual Processing
The robot is configured with face analysis, face tracking and other features. You can call these functions through the programming tools in the APP or Raspberry Pi system. UBTECH provides the Open SDK API, which enables you to configure your own visual identification functions with third-party visual identification platforms.
Note: please abide by relevant laws when using the third-party voice platform.

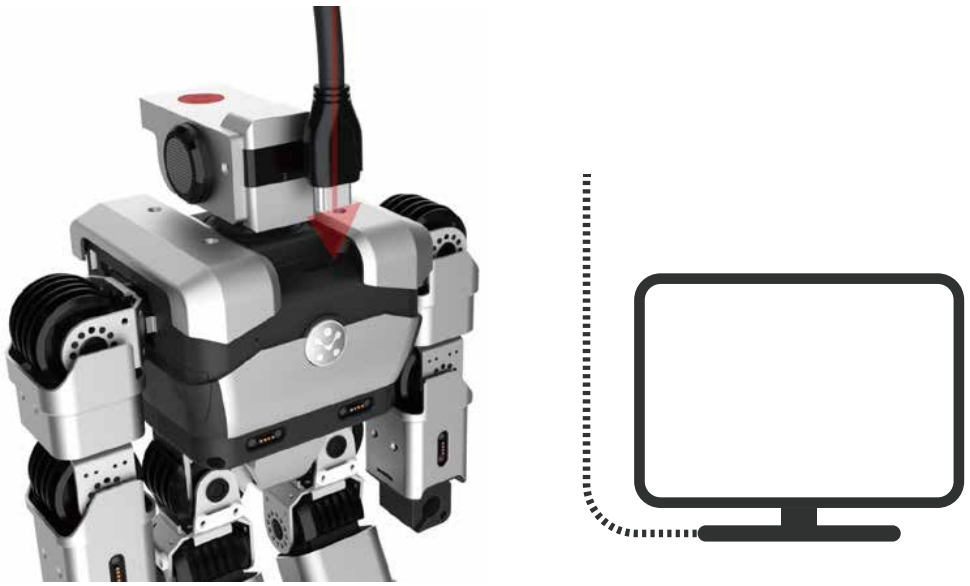
Auto Update:
After the robot is connected to the Internet, the built-in platform software will automatically detect whether you have the latest version and execute the update process.

Do not cut off the power or disconnect from the Internet while updating.

10. Open Source Platform

The Yanshee robot is built on the Raspberry Pi open source platform and open SDK files are provided, allowing a user to configure, learn or develop smart Applications as desired, and also allowing developers to create their own robot.

(1). Use an HDMI cable to connect the Yanshee robot to a monitor.



(2). Use the USB port on the Yanshee to connect a USB, keyboard and mouse.

(3). You can log onto the Linux system from Raspberry Pi by simply starting the robot.

(4). SDK API and Demo codes are available from http://yandev.ubtrobot.com/en

(5). For developers, please visit https://www.raspberrypi.org to learn more information about Raspberry Pi.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC ID: 2AHJX-YANSHEE-1

Ages: 14+

WARNING:
CHOKING HAZARD - Small parts.
Not for children under 3 years.

UBTECH ROBOTICS CORP LTD
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www.ubtrobot.com

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尺寸：95*130mm
颜色：四色双面印刷
材质：105g铜版纸
工艺：骑马钉
公差：±0.5mm

深圳市优必选科技股份有限公司

2019-09-25

临 时 文 件

UBTECH	PART NAME	Yanshee1.1 说明书-英文版	Part No.	1210200056	Version	B	公差	±0.5mm	Scale	1:1

包材类别：☐ 包装盒 ☐ 封套 ■ 说明书 ☐ 保修卡 ☐ 零件清单 ☐ 贴纸 ☐ 卡通箱 ☐ 吸塑 ☐ 珍珠棉 ☐ 航空箱 ☐ PE袋 ☐ 热塑膜 ☐ 栈板 ☐ 其他 _____

序号	审核部门	审核要点	审核人签字	日期	序号	审核部门	审核要点	审核人签字	日期
1	产品经理	1.产品定义，产品中英文名称，包装成本与策略的制定； 2.包装视觉设计表达审核； 3.基础版包装全案（含包装盒，说明书，宣传页等所有市场物料）审核；	郭思	2019-09-25	6	认证代表	1.法规要求的警示文字 2.各国法规及认证标示，与认证公司最终确认的结果； 3.CMIIT ID， 入网证许可等信息与机构最终确认的结果；	贺娟	2019-09-25
2	品牌部	1.包装文案及语义表述审核； 2.包装全案（含包装盒，说明书，宣传页等所有市场物料）审核；			7	软件代表	审核体现在说明书，包装盒等上面的软件版本，二维码，技术参数是否正确。		
3	包装组	1.包装刀线审核； 2.包装物料印刷效果审核（包含粘标贴位置是否增加定位标记， 是否预留足够位置贴彩盒三合一标贴）； 3.包装物料材质及表面工艺审核； 4.EAN/UPC是否准确；	龙聪	2019-09-25	8	ID代表	1.包装盒产品ID图审核； 2.零件清单数量，颜色，形状，型号审核； 3.说明书ID渲染图，矢量图审核；		
4	创意搭建/动效设计组	1.审核零件数量、颜色、形状是否与BOM表，3D动画模型一致； 2.审核模型颜色和造型细节是否与ID最终图，实物，3D动画一致；			9	项目经理	1. 产品型号审核； 2. 产品中英文名称 3. 终审	尹鹏飞	2019-09-25
5	市场销售部	1. 审核客户信息（如名称，电话，定制信息等）是否完整包含、准确无误 2. 语言表述的是否合理，无歧义（主要是外文）			10	其他部门	其他未尽事宜；		