

YONSHEE

User Manual



Precautions!

1. Keep the robot away from fire, keep it dry and clean.
2. Do not squeeze the robot with too much force during use.
3. Please use the robot on a flat surface.
4. Please keep yourself at an appropriate distance from the robot to avoid any injuries when the robot is in operation.
5. Do not bend its joints forcibly as to avoid hand injuries and damage to the robot when the robot is in operation.
6. Please use the supplied charger to charge the robot.
7. The robot servos for joints are precisely designed and should not be disassembled without authorization. Contact us if necessary.
8. When an abnormality occurs during debugging, press the Emergency Stop button and cut off the power immediately to avoid hand injuries and damage to the robot.
9. Take necessary preventive measures when use the robot. Do not use it at heights or near any edges as it may fall and result in damage.
10. 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.
11. The robot is not intended for children under 14 years old.
12. You will be notified with software updates if there is any. The latest update instruction shall prevail for some features.
13. Man-made damage is not covered by our warranty policy.
14. Please contact our customer center for technical support and repairing service.

Cut off the power and contact us when:

- a. The robot smokes or you smell something burning; or
- b. Water or any other 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. You can press this button to cut off the power and stop its operation immediately at any time!

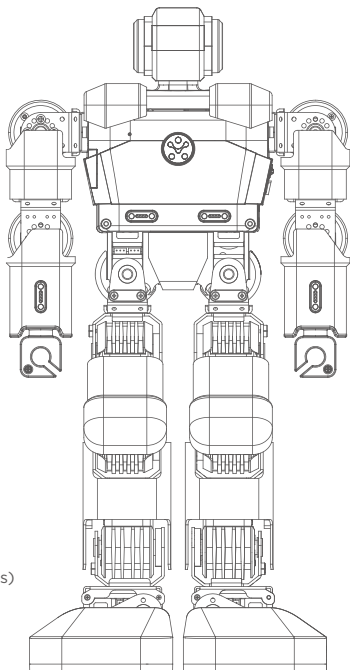


01. Packing List



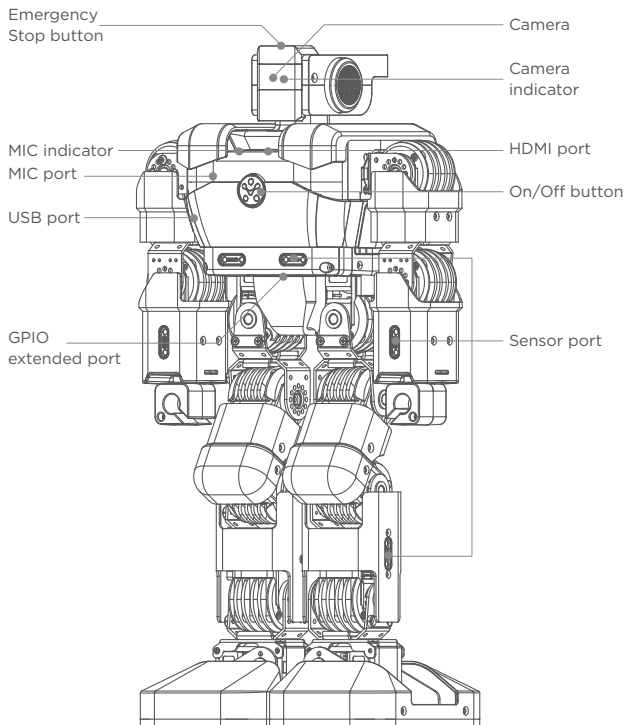
User Data Set*1
(Quick Start Guide*1,
Warranty Card*1)

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



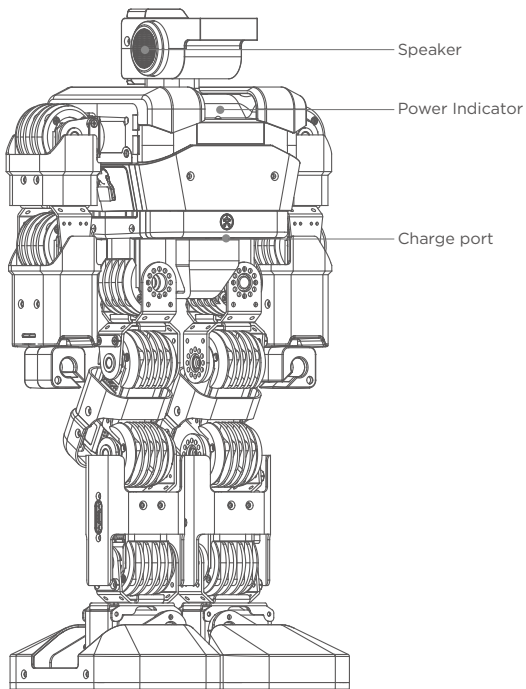
Yanshee Robot

02. Appearance



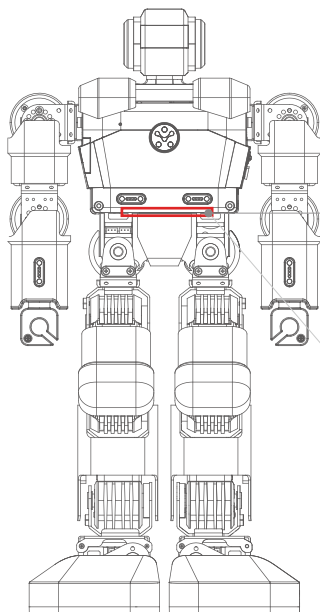
Front view of Yanshee

02. Appearance



Back view of Yanshee

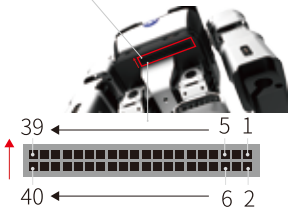
Introduction to GPIO Extended Port



Yanshee Robot

GPIO Pinout Diagram

Function	Physical Pin No.	Function
3.3V	1	5V
SDA.1	3	5V
SCL.1	5	GND
GPIO.7	7	TXD
GND	9	RXD
GPIO.0	11	GPIO.1
GPIO.2	13	GND
GPIO.3	15	GPIO.4
3.3V	17	GPIO.5
MOSI	19	GND
MISO	21	GPIO.6
SCLK	23	CE0
GND	25	CE1
SDA.0	27	SCL.0
GPIO.21	29	GND
GPIO.22	31	GPIO.26
GPIO.23	33	GND
GPIO.24	35	GPIO.27
GPIO.25	37	GPIO.28
GND	39	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	
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 1A Output: 9.6V, 4A

Master Chip and Memory

Processor	STM32F103RDT6 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	2750mAh

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-axe 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

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 www.ubtrobot.com 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.



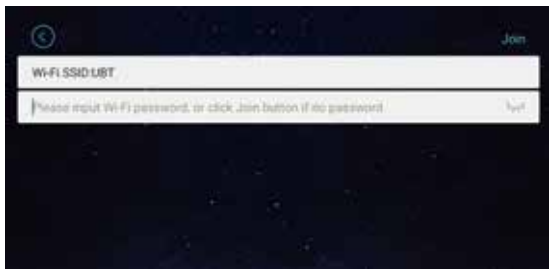
- Make sure that both the Bluetooth and Wi-Fi are enabled on the smart devices. Open and log into the Yanshee APP, and click the icon on the upper left of the home screen to connect the robot and set up the network.



- 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.

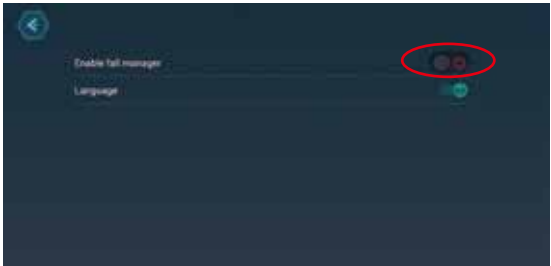
08. Use of Mobile APP

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.



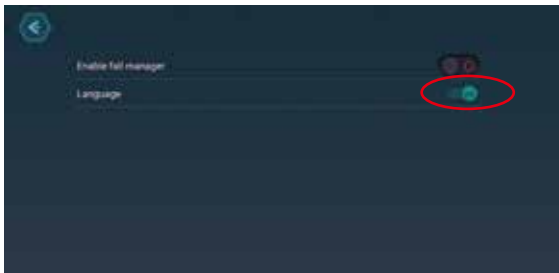
Fall-over Management

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.

You can chat with it after you hear a "tinkling" sound by pressing the button on the chest after start the robot.

UBTECH provides the Open SDK API, which enables you to configure your own English speech recognition functions

with third-party voice platforms.

Note: please abide by relevant laws when using the third-party voice platform.

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:

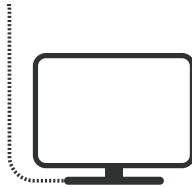
After the robot is connected to the Internet, the built-in platform software will automatically detect whether you have the latest version and execute the update process.

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.



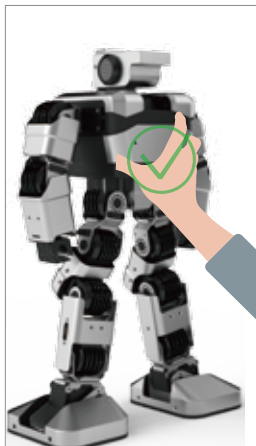
- (3). You can log onto the Linux system from Raspberry Pi by simply starting the robot.



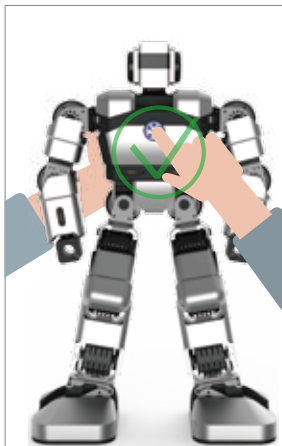
- (4). SDK API and Demo codes are available from the following link
<https://github.com/UBTEDU/Yanshee-Raspi-SDK>.
- (5). For developers, please visit <https://www.raspberrypi.org> to learn more information about Raspberry Pi.

11. Example of Use

Example of Correct Use:

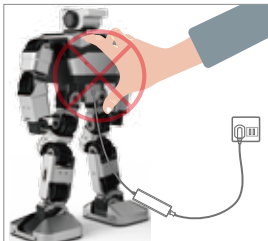


Correct operation:
Hold the back of the
robot firmly and pick
up the robot.

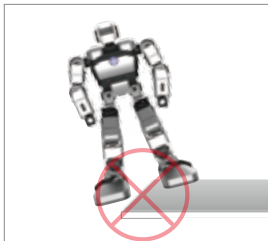


On/Off
First hold up the back
of the robot firmly and
then press the ON/OFF
button on the chest.

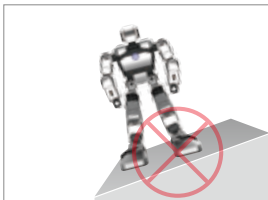
⚠ Warning of Improper Use:



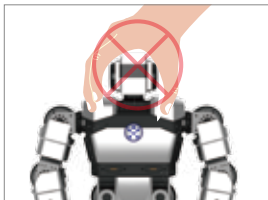
Do not use the robot while charging



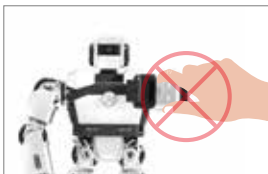
Do not place the robot near any edges



Do not place the robot on an inclined surface



Do not forcibly bend the robot head



Do not forcibly bend the robot joints



Do not forcibly bend the robot joints

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.



Ages: 14+



WARNING:

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

FCC ID: 2AHJX-YANSHEE



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