AlphaBot2-PiZero

1. AlphaBot2-PiZero (adapter board) x1
2. AlphaBot2-Base (base chassis) x1
3. RPi Camera (B) x1
4. Ultrasonic sensor x1
5. Micro SD Card 16GB x1
6. Power adapter x1
7. SG90 servo x2
8. 2 DOF pan and tilt kit x1
9. IR remote controller x1
10. FC-20P cable 8cm x1
11. Micro USB connector x1
12. RPi Zero V1.3 Camera Cable 30cm x1
13. USB type A plug to micro B plug cable x1
14. AlphaBot2-PiZero screws x1
15. Micro SD Card Reader x1 (Extra Free)
16. Screwdriver x1 (Extra Free)

Note: this product requires two 14500 batteries to work,

which are NOT included and should be purchased separately

Overview

This AlphaBot2 robot kit is designed to use with Raspberry Pi Zero/Zero W (not included). It features rich common robot functions including line tracking, obstacle avoiding, ultrasonic ranging, Bluetooth/infrared/WiFi remote control (Bluetooth and WiFi are Zero W specific), video monitoring, etc.

Thanks to the highly integrated modular design, it is fairly easy to assemble by a snap, no wiring. After a few minutes spent on hardware assembing, you're almost there, our open source demo codes is ready to help you get started fast.

AlphaBot2 Features

AlphaBot2 employs a 2-layer structure to provide excellent stability and compatibility.

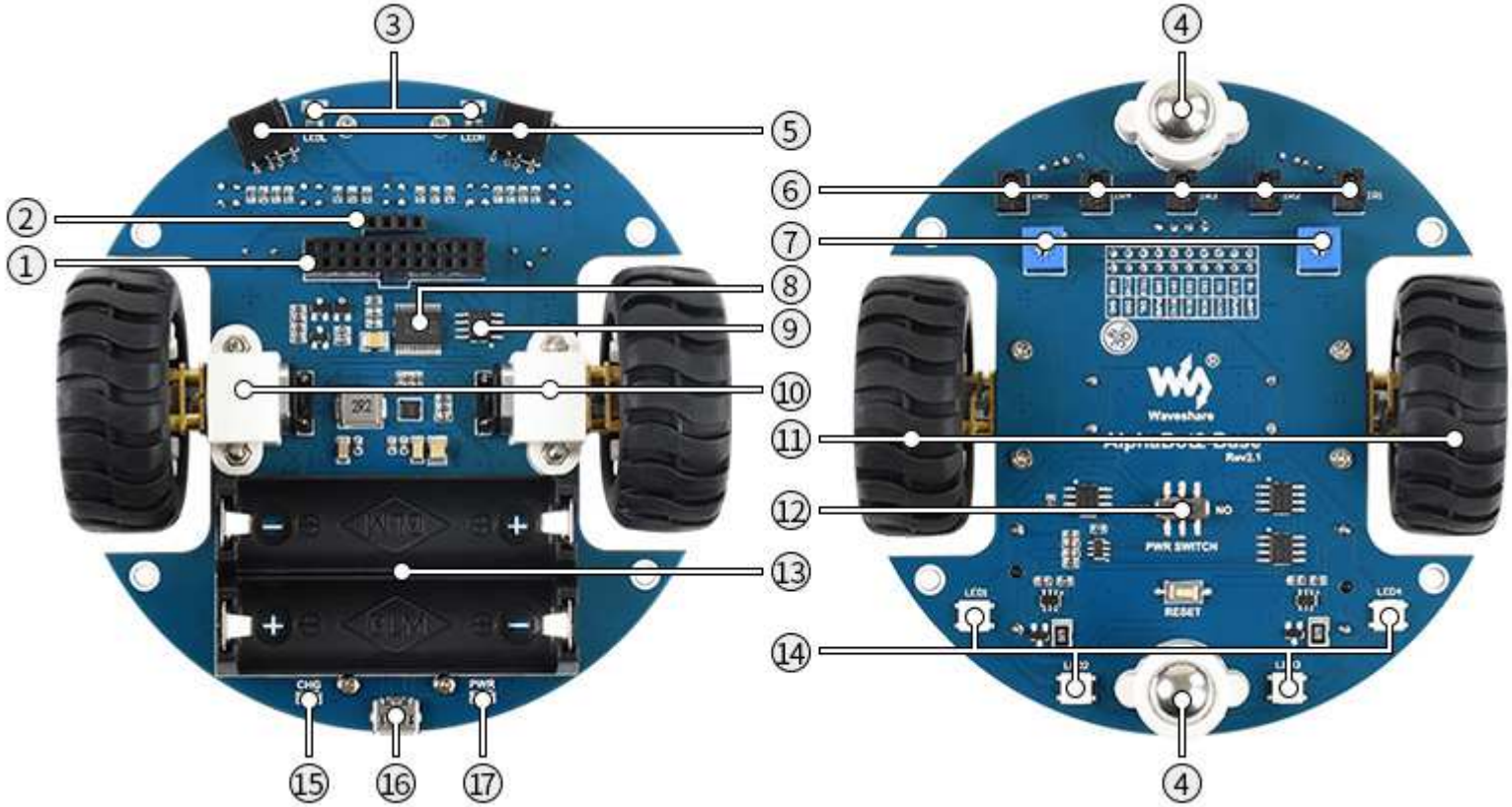
AlphaBot2-Base, the lower base chassis:

- 5-ch infrared sensor, analog output, combined with PID algorithm, stable line tracking
- Onboard modules like line tracking, obstacle avoiding, needs no messy wiring
- TB6612FNG dual H-bridge motor driver, compared with L298P, it's more efficient, more compact, and less heating
- N20 micro gear motor, with metal gears, low noise, high accuracy
- Onboard RGB LEDs, true color lighting, pretty cool

AlphaBot2-PiZero, the upper adapter board for controller:

- LM2596 voltage regulator, provides the Pi with stable 5V power
- TLC1543 AD acquisition chip, allows the Pi to use analog sensors
- PCA9685 servo controller, make it more smoothly to rotate the pan head
- CP2102 UART converter, easy for controlling the Pi via UART
- USB HUB chip, more USB ports for devices like NIC

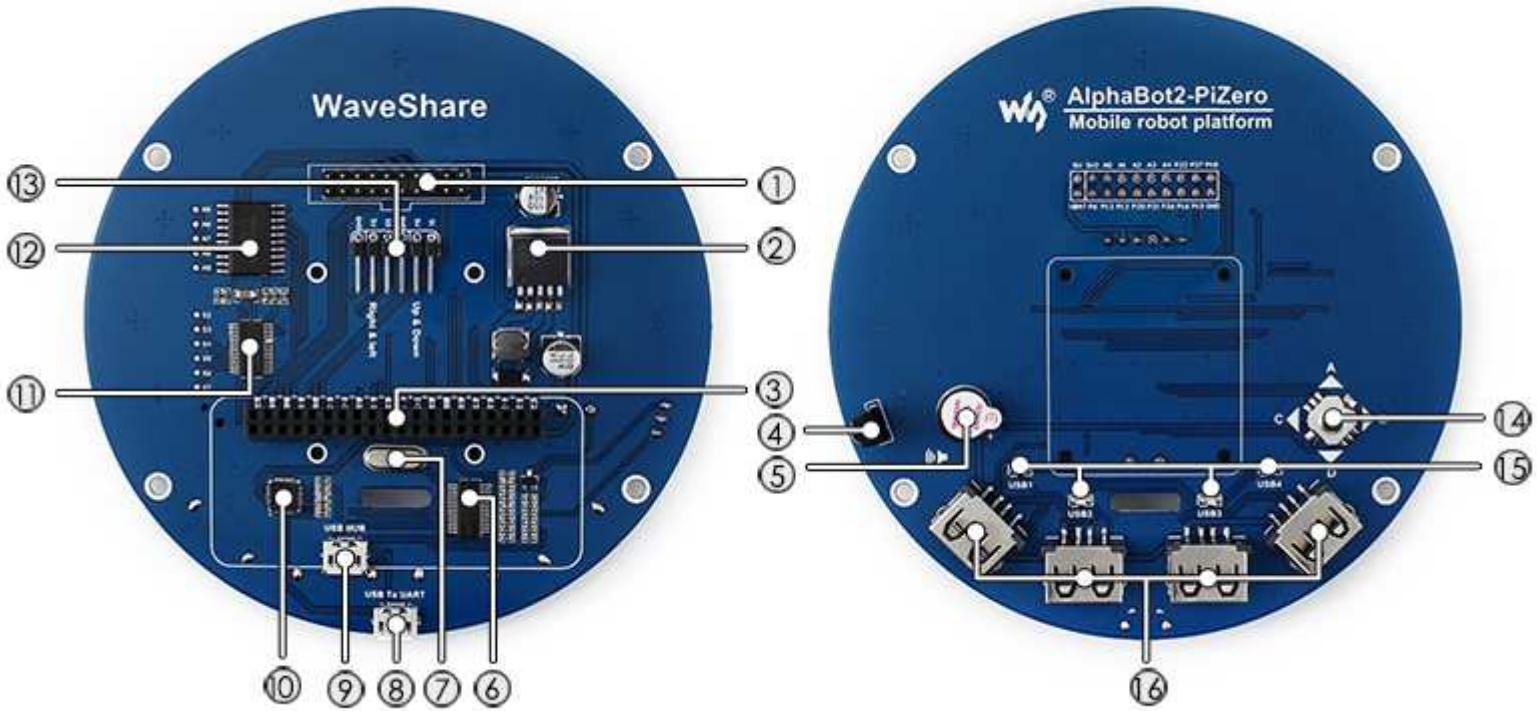
What's on the AlphaBot2-Base



1. **AlphaBot2 control interface:** for connecting sorts of controller adapter board
2. **Ultrasonic module interface**
3. **Obstacle avoiding indicators**
4. **Omni-direction wheel**
5. **ST188:** reflective infrared photoelectric sensor, for obstacle avoiding
6. **ITR20001/T:** reflective infrared photoelectric sensor, for line tracking
7. **Potentiometer** for adjusting obstacle avoiding range
8. **TB6612FNG** dual H-bridge motor driver

9. **LM393** voltage comparator
10. **N20 micro gear motor** reduction rate 1:30, 6V/600RPM
11. **Rubber wheels** diameter 42mm, width 19mm
12. **Power switch**
13. **Battery holder:** supports 14500 batteries
14. **WS2812B:** true color RGB LEDs
15. **Battery charging indicator**
16. **5V USB battery charging port**
17. **Power indicator**

What's on the AlphaBot2-PiZero



1. **AlphaBot2 control interface:** for connecting AlphaBot2-Base
2. **LM2596:** 5V voltage regulator
3. **Raspberry Pi interface:** for connecting Raspberry Pi Zero/Zero W
4. **IR receiver**
5. **Buzzer**
6. **FE1.1S:** USB HUB chip
7. **12M crystal**

8. **USB TO UART:** easy for controlling the Pi via UART
9. **USB HUB interface:** extends the USB port of Raspberry Pi Zero/Zero W
10. **CP2102:** USB TO UART converter
11. **PCA9685:** servo controller, make it more smoothly to rotate the pan head
12. **TLC1543:** 10-bit AD acquisition chip, allows the Pi to use analog sensors
13. **Servo interface**
14. **USB indicators**
15. **USB ports**: more USB capability

Photos

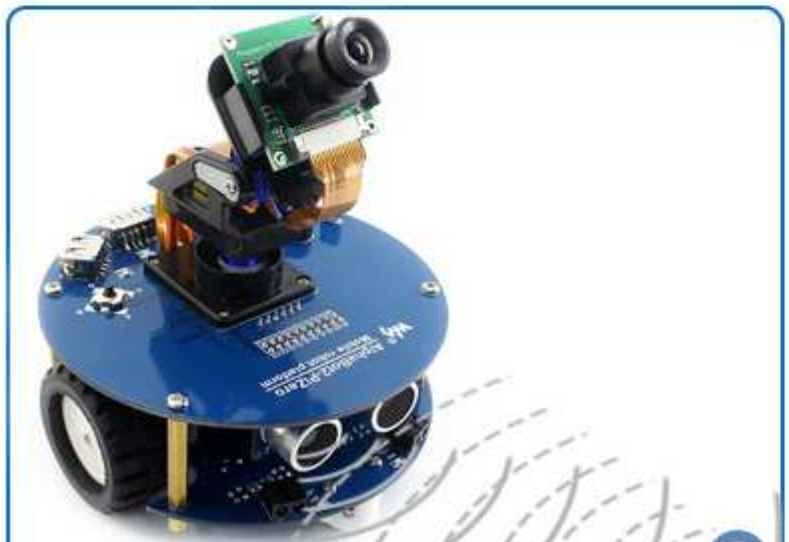
Base board + Adapter board
Compatible with multi controller boards

Full functions, How to play, Up to you

Auto obstacle avoiding

Infrared obstacle avoiding
Easily get out of obstacles in the way

Obstacle avoiding



Ultrasonic sensing

Ultrasonic ranging
Ultrasonic obstacle avoiding

Infrared remote control

Easily take control of your robot

Remote control

Web control (Mobile/Tablet/PC)

Qt software control (PC)

APP control (Android phone)

WiFi remote control

WiFi remote control

Via Webpage

Via Qt software on PC

Via Android APP

Supports routing,allows creating WiFi hotspot

AlphaBot2-PiZero top view

AlphaBot2-PiZero bottom view

AlphaBot2-Base top view

AlphaBot2-Base bottom view

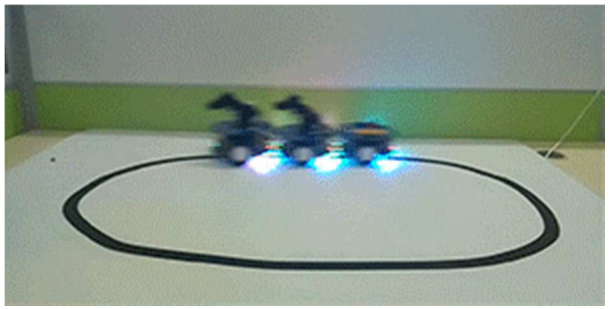
AlphaBot2-PiZero robot front view

AlphaBot2-PiZero robot back view

AlphaBot2-PiZero robot side view

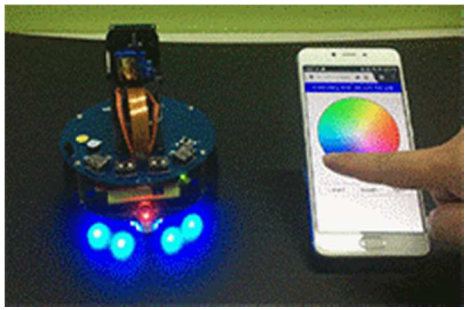
AlphaBot2-PiZero robot side view

Examples

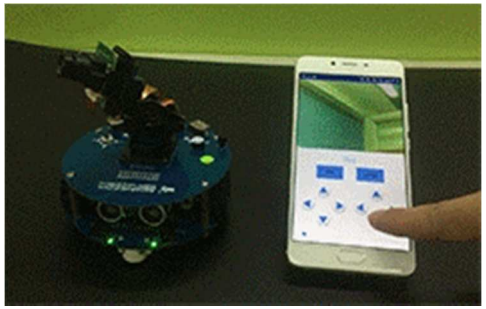


AlphaBot2 multi robots line following

AlphaBot2-PiZero robot obstacle avoiding



AlphaBot2-PiZero robot RGB LED remote control

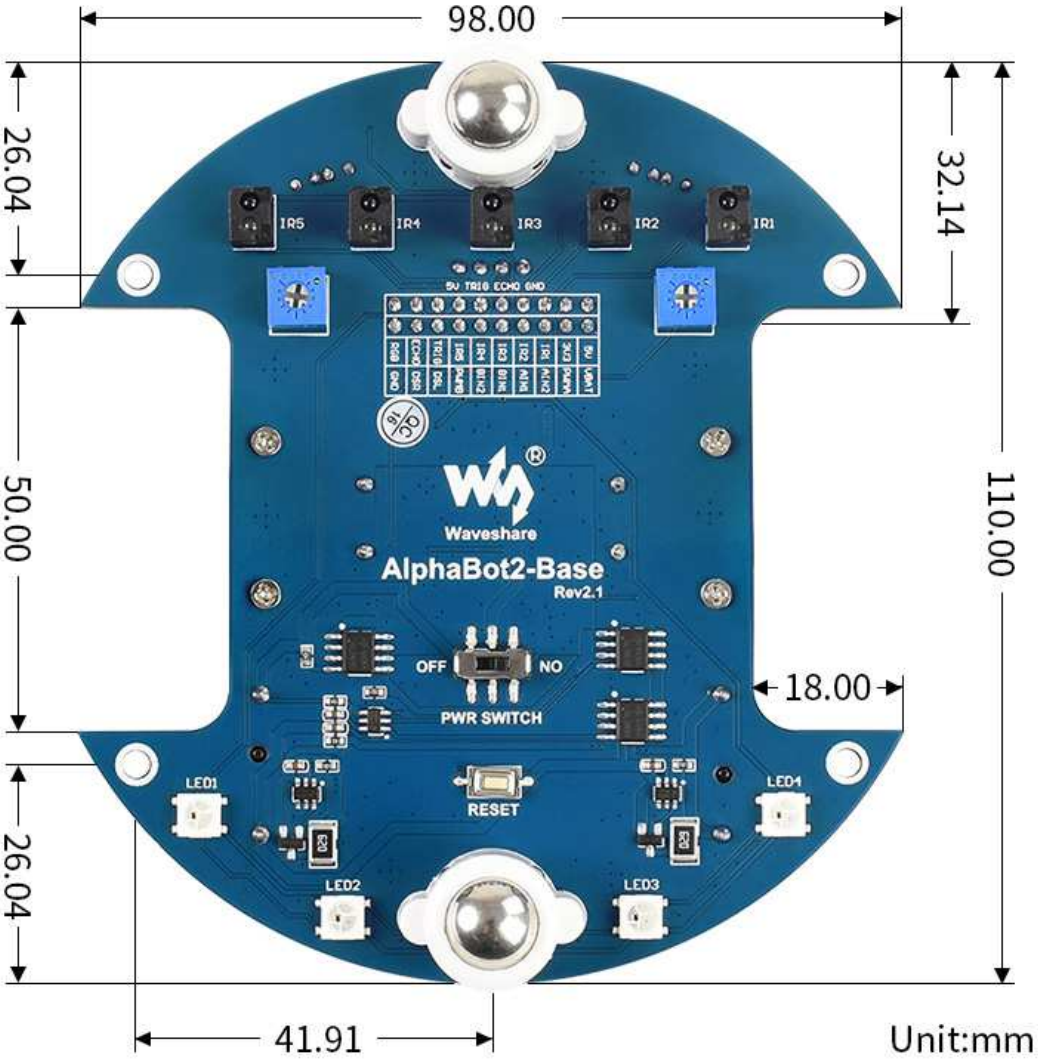


AlphaBot2-PiZero robot video monitor

AlphaBot2-PiZero robot Bluetooth control

Note: photos are FOR REFERENCE ONLY, the other boards/modules/accessories are NOT included in the price.

Dimensions


98.00
26.04
32.14
50.00
110.00
18.00
26.04
41.91
IR5
IR4
IR3
IR2
IR1
5V TRIG ECHO GND
Waveshare
AlphaBot2-Base
Rev2.1
OFF
NO
PWR SWITCH
RESET
LED1
LED1
LED2
LED3

Unit:mm