

AlphaBot2 robot building kit for Raspberry Pi Zero/Zero W (no Pi)

SKU 110060862

Description

Note: Raspberry Pi Zero/Zero W is NOT included.

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/Wi-Fi remote control (Bluetooth and Wi-Fi are Zero W specific), video monitoring, etc.

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

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

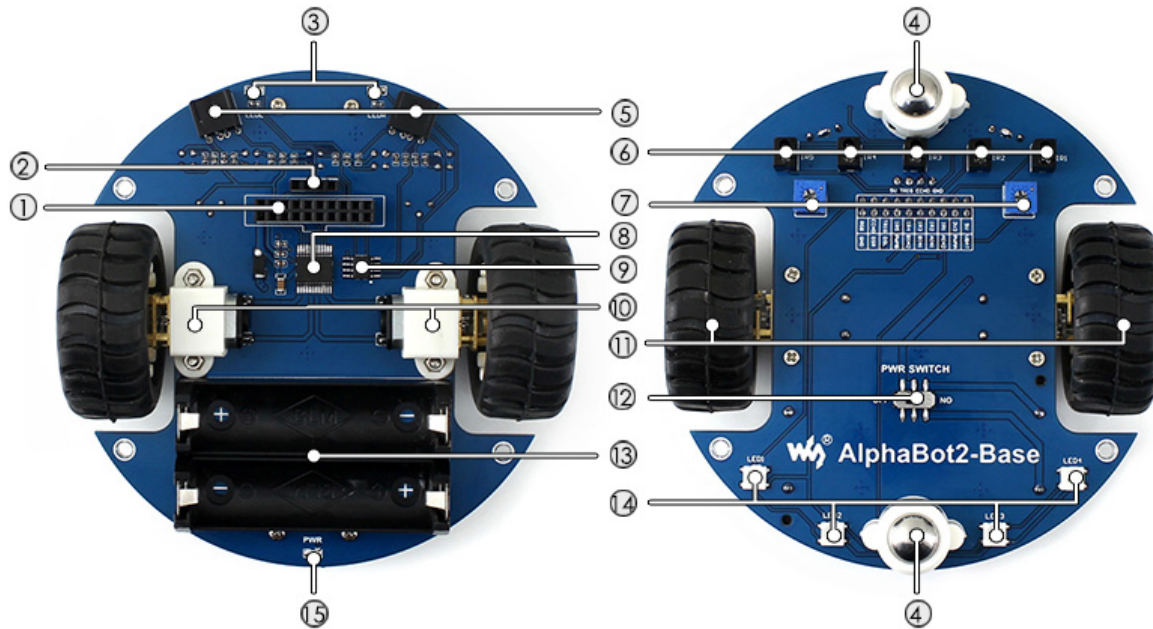
AlphaBot2-Base, the lower base chassis:

- 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

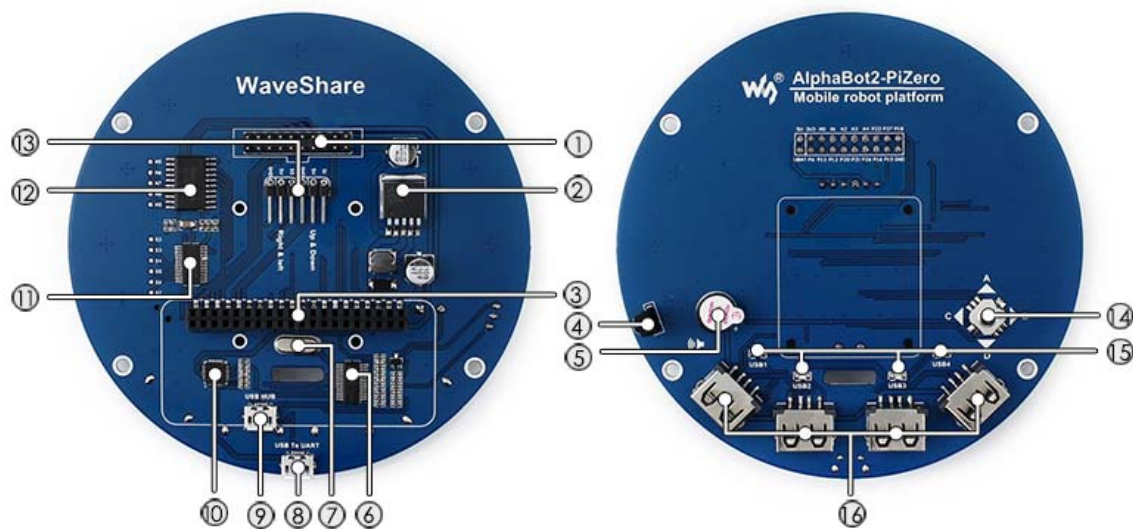
What's on the AlphaBot2-Base



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

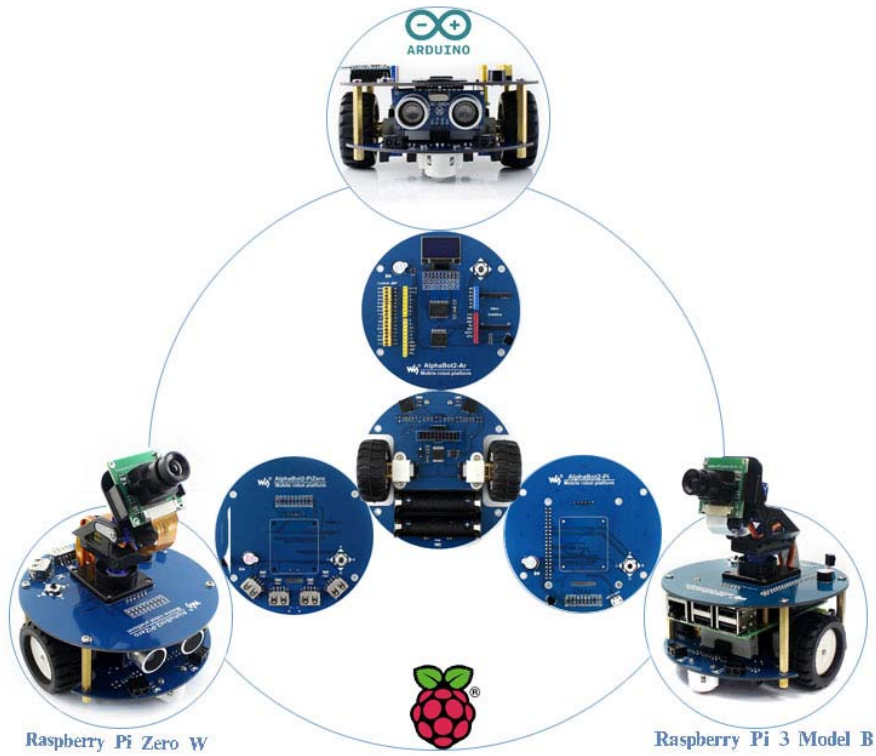
8. **TB6612FNG** dual H-bridge motor driver
9. **LM393** voltage comparator
10. **N20 micro gear motor** reduction rate 1:30, 6V/600RPM
11. **Rubber wheels** diameter 42mm, width 19mm
12. **Power switch**
13. **Battery holder**: supports 14500 batteries
14. **WS2812B**: true color RGB LEDs
15. **Power 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

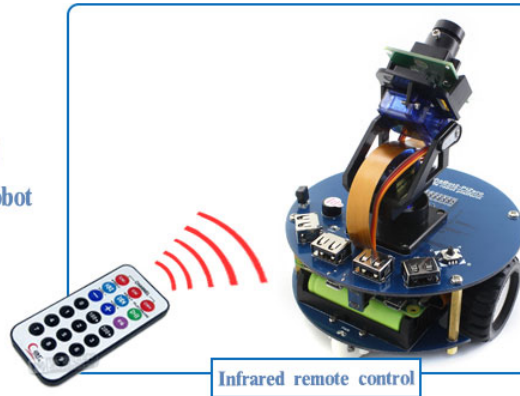
Base board + Adapter board Compatible with multi controller boards



Modular design, Easy installing without wiring



Infrared remote control
Easily take control of your robot



Infrared remote control



WiFi remote control

WiFi remote control

Via Webpage

Via Qt software on PC

Via Android APP

Supports routing, allows creating WiFi hotspot

Video monitoring

5M pixels camera, 1080P

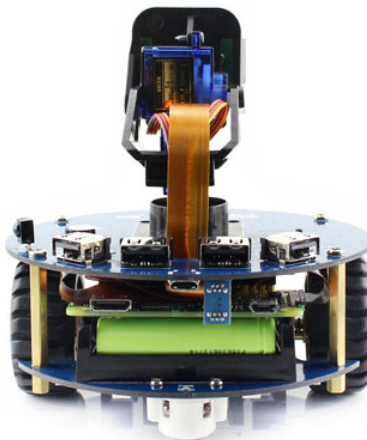
2-DOF pan and tilt

Hardware PWM servo, rotates smoothly



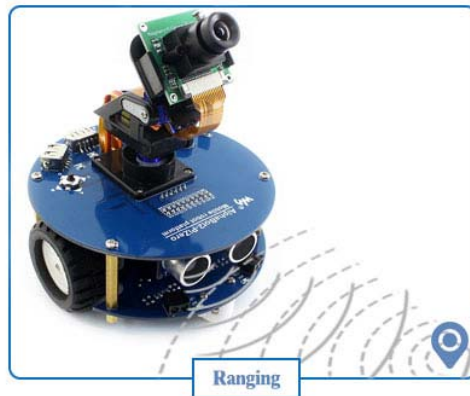
Video monitoring

Clever design, Proper layout, Stable structure



Full functions, How to play, Up to you

Auto obstacle avoiding
Infrared obstacle avoiding
Easily get out of obstacles in the way



Ultrasonic sensing
Ultrasonic ranging
Ultrasonic obstacle avoiding

Auto line tracking
5-ch detector, high sensitivity
PID algorithm, stable tracking



Bluetooth remote control
Communicate with the Raspberry Pi Zero W
integrated Bluetooth
Get the robot moving, get the RGB LED flashing
Android APP is provided



Technical Details

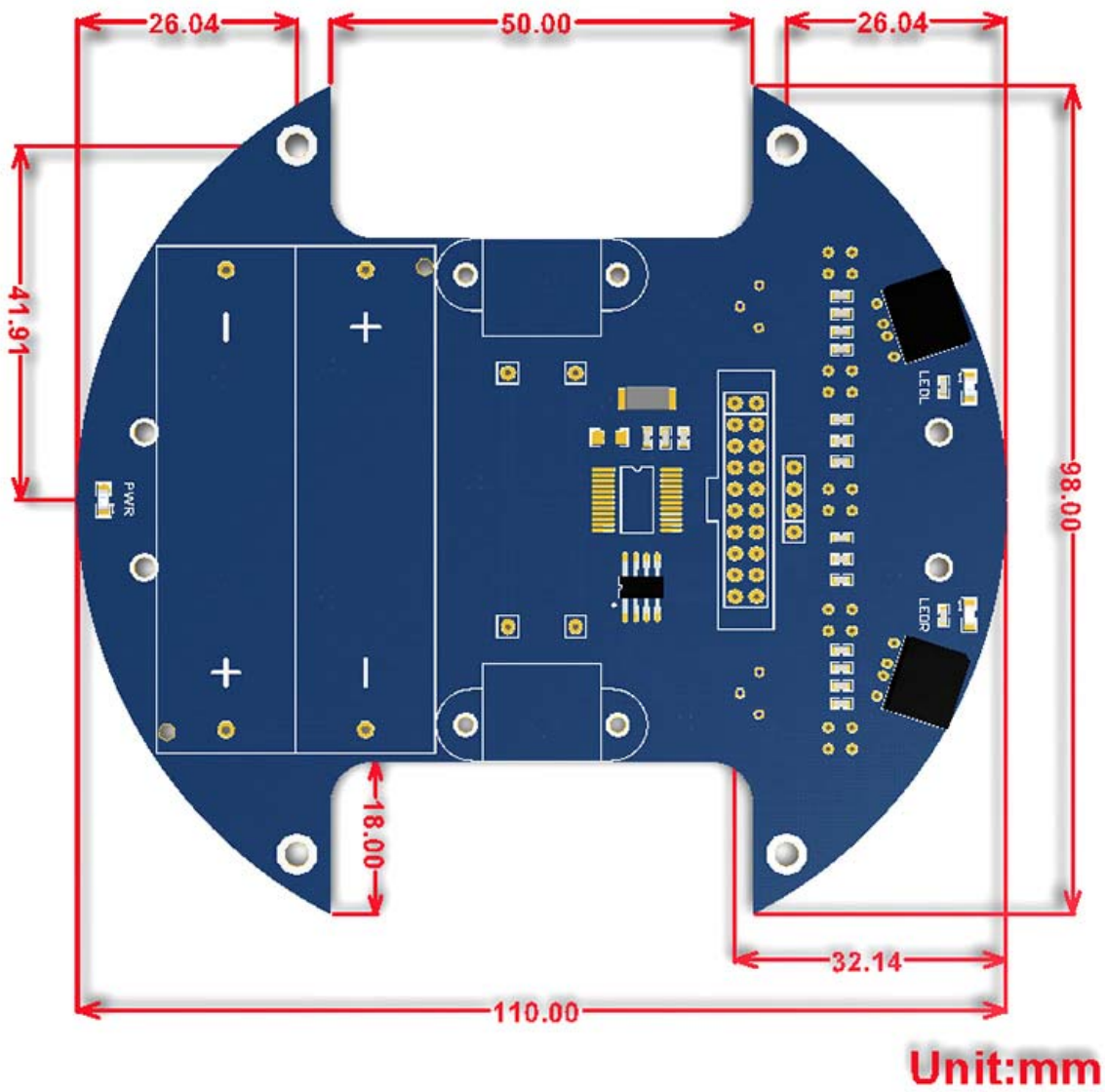
Dimensions	220mm x 165mm x 70mm
Weight	G.W 399g
Battery	Exclude

Part List

AlphaBot2-PiZero (adapter board)	1
AlphaBot2-Base (base chassis)	1
RPi Camera (B)	1
Ultrasonic sensor	1
Micro SD Card 16GB	1
Power adapter US standard 5V/2.5A USB output	1
SG90 servo	2
2 DOF pan and tilt kit	1
IR remote controller	1
FC-20P cable 8cm	1
Micro USB connector	1

RPi Zero V1.3 Camera Cable 30cm	1
USB type A plug to micro B plug cable	1
AlphaBot2-PiZero screws	1
Screwdriver	1
Micro SD Card Reader	1

Package Contents		Products				
Item	Description	AlphaBot2-Ar Acc Pack	AlphaBot2-Ar	AlphaBot2-Pi Acc Pack	AlphaBot2-Pi	AlphaBot2-PiZero Acc Pack
AlphaBot2-Base	Motor driver, integrates sensors for obstacle avoiding, line tracking	√	√	√	√	√
AlphaBot2-Ar	Adapter board, for connecting Arduino	√	√			
AlphaBot2-Pi	Adapter board, for connecting RPi3 B			√	√	
AlphaBot2-PiZero	Adapter board, for connecting RPi Zero W					√
RPi3 B	Raspberry Pi 3 Model B				√	
UNO PLUS	Enhanced Arduino compatible board		√			
Dual-mode Bluetooth	Dual-mode Bluetooth module		√			
Ultrasonic sensor	Ultrasonic obstacle avoiding, ranging	√	√			√
IR remote controller	remotely control the robot	√	√	√	√	√
RPi Camera (B)	Raspberry Pi camera, adjustable focus			√	√	√
SG90	Servo, working with the pan head, controlling the rotation of the camera			√	√	√
Micro SD Card 16GB	16GB Miro SD Card, class 10			√	√	√
5V 2.5A Power Adapter	RPi3 B requires 2.5A or above power supply			√	√	√



Unit:mm