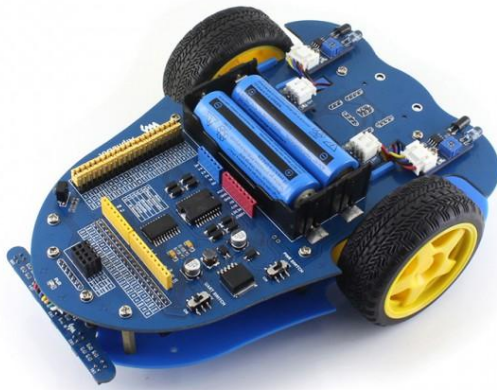


# AlphaBot, Mobile robot development platform

**SKU:** 12249

**Part Number:** AlphaBot (EN)

**Brand:** Waveshare



Mobile robot development platform, compatible with Raspberry Pi/Arduino

## Package Content

**Weight:** 0.431 kg

**Note:** this product requires two 18650 batteries to work, which are NOT included and should be purchased separately.

1. AlphaBot mainboard x1
2. Tracker Sensor x1
3. Photo Interrupter Sensor x2
4. Infrared Proximity Sensor x2
5. Motor with gearbox 2PCS x1
6. AlphaBot wheel 2PCS x1
7. AlphaBot acrylic chassis x1
8. Motor mounting plate 4PCS x1
9. omni-direction wheel x1
10. 20-slots encoder disk 2PCS x1
11. IR remote controller x1
12. XH2.54 4cm 4Pin 2PCS x1
13. XH2.54 4cm 3Pin 2PCS x1

14. XH2.54 4cm 7Pin x1

15. AlphaBot screws x1



## Overview

AlphaBot is a robotic development platform compatible with Raspberry Pi and Arduino. It consists of the AlphaBot mainboard, the mobile chassis, and everything required to get it moving.

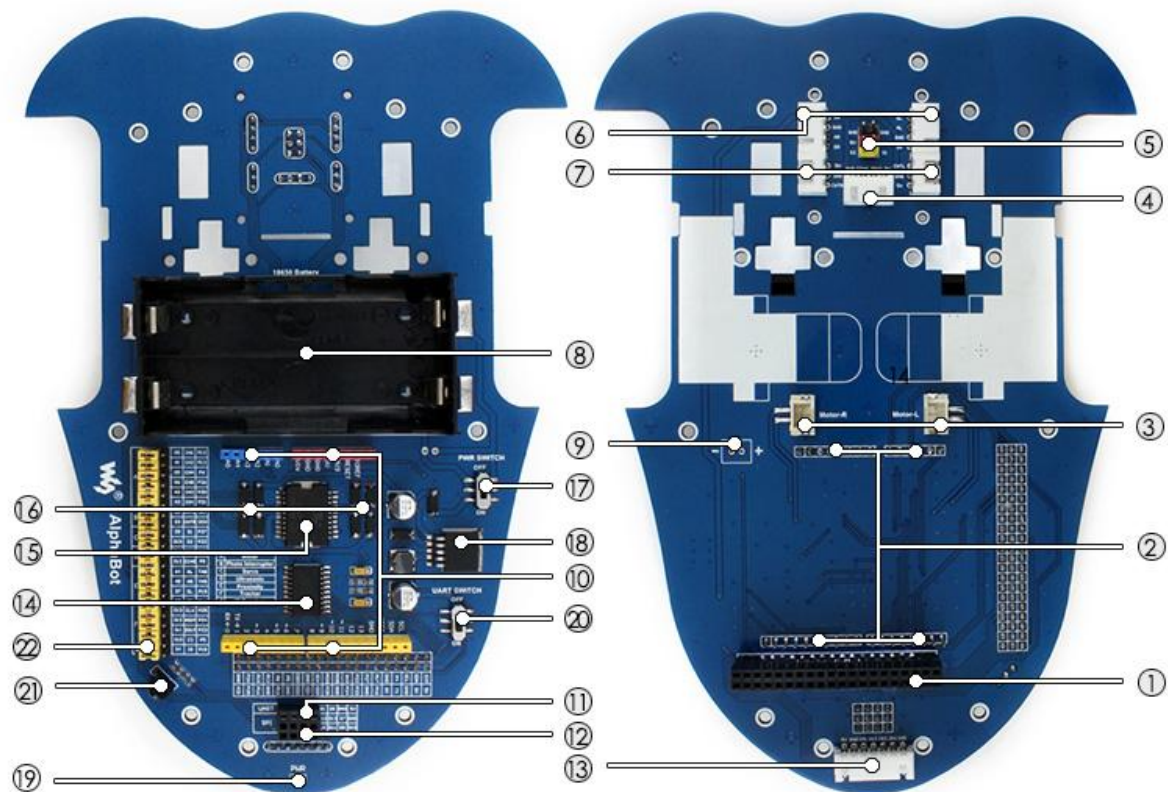
Just connecting a controller board, Raspberry Pi or Arduino, and combined with our open source example code, now it's all ready to start your robotic exploration: line tracking, obstacle avoidance, video monitoring, WiFi/Bluetooth/ZigBee/Infrared remote control, etc.

Raspberry Pi or Arduino is NOT included in the price, if you don't have one in hand, these all-in-one kits are recommended: [AlphaBot-Ar-Basic](#), [AlphaBot-Ar-Bluetooth](#), [AlphaBot-Pi](#)

## AlphaBot Features

- Raspberry Pi/Arduino interfaces, works with either one separately, or both
- Arduino extend header, supports Arduino shields
- Modular design, plug-and-play modules like line tracking, obstacle avoidance, speed measuring, etc. eliminating the trouble of connecting mess wires.
- LM298P motor driver with diode protection circuit, more safety
- LM2596 voltage regular, provides stable 5V power to the Raspberry Pi/Arduino
- TLC1543 AD acquisition chip, allows the Pi to use analog sensors

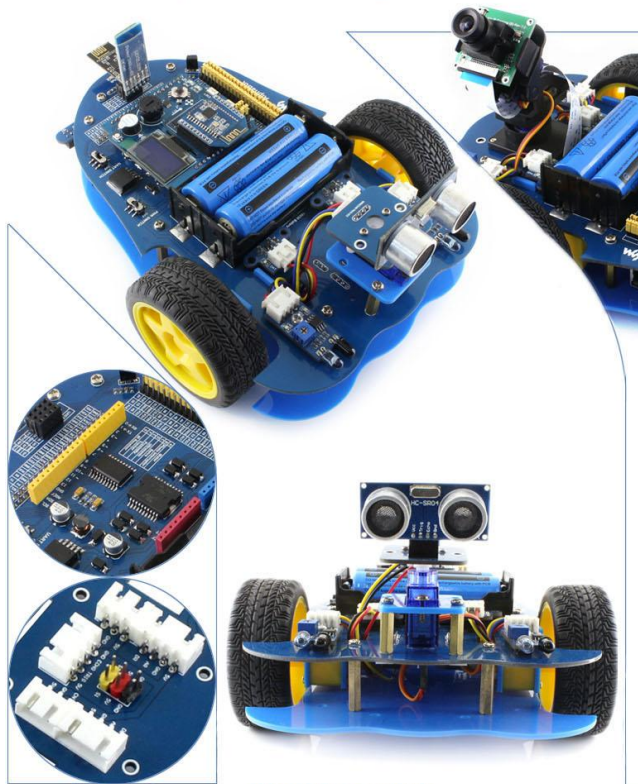
## What's on the AlphaBot Mainboard



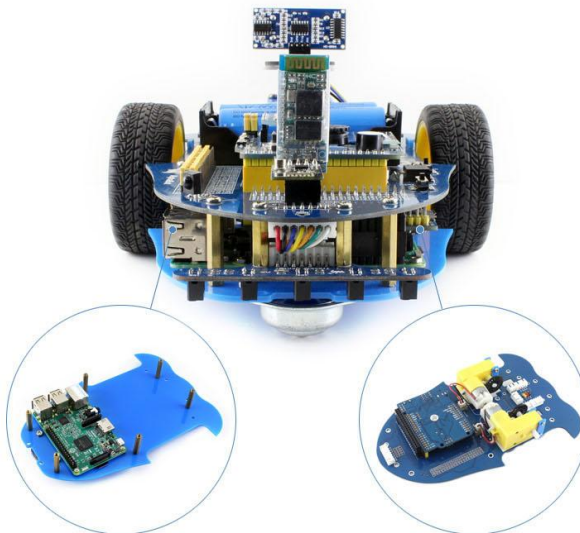
1. **Raspberry Pi interface:** for connecting Raspberry Pi
2. **Arduino interface:** for connecting Arduino
3. **Motor interface**
4. **Ultrasonic module interface**
5. **Servo module interface**
6. **Obstacle avoidance module interface**
7. **Speed measuring interface**
8. **Battery holder:** supports 18650 batteries
9. **Reserved power input (not soldered):** for connecting other external power supply
10. **Arduino expansion header:** for connecting Arduino shields
11. **UART interface:** for connecting Bluetooth module, to control the robot remotely via Bluetooth
12. **SPI interface:** for connecting NRF24L01 wireless module
13. **Line tracking module interface**
14. **TLC1543:** 10-bit AD acquisition chip, allows the Pi to use analog sensors
15. **LM298P:** dual H bridge motor driver chip, up to 2A current
16. **Anti-reverse diode**
17. **Power switch**
18. **LM2596:** 5V regulator
19. **Power indicator**
20. **UART switch:** turn on to enable serial communication between Raspberry Pi and Arduino
21. **IR receiver:** control the robot remotely via infrared
22. **Raspberry Pi/Arduino selection:** select the Raspberry Pi or Arduino to control the robot peripherals

## Photos

Modular Design, Get Desired Function By a Snap  
Open Source Plug-and-Play

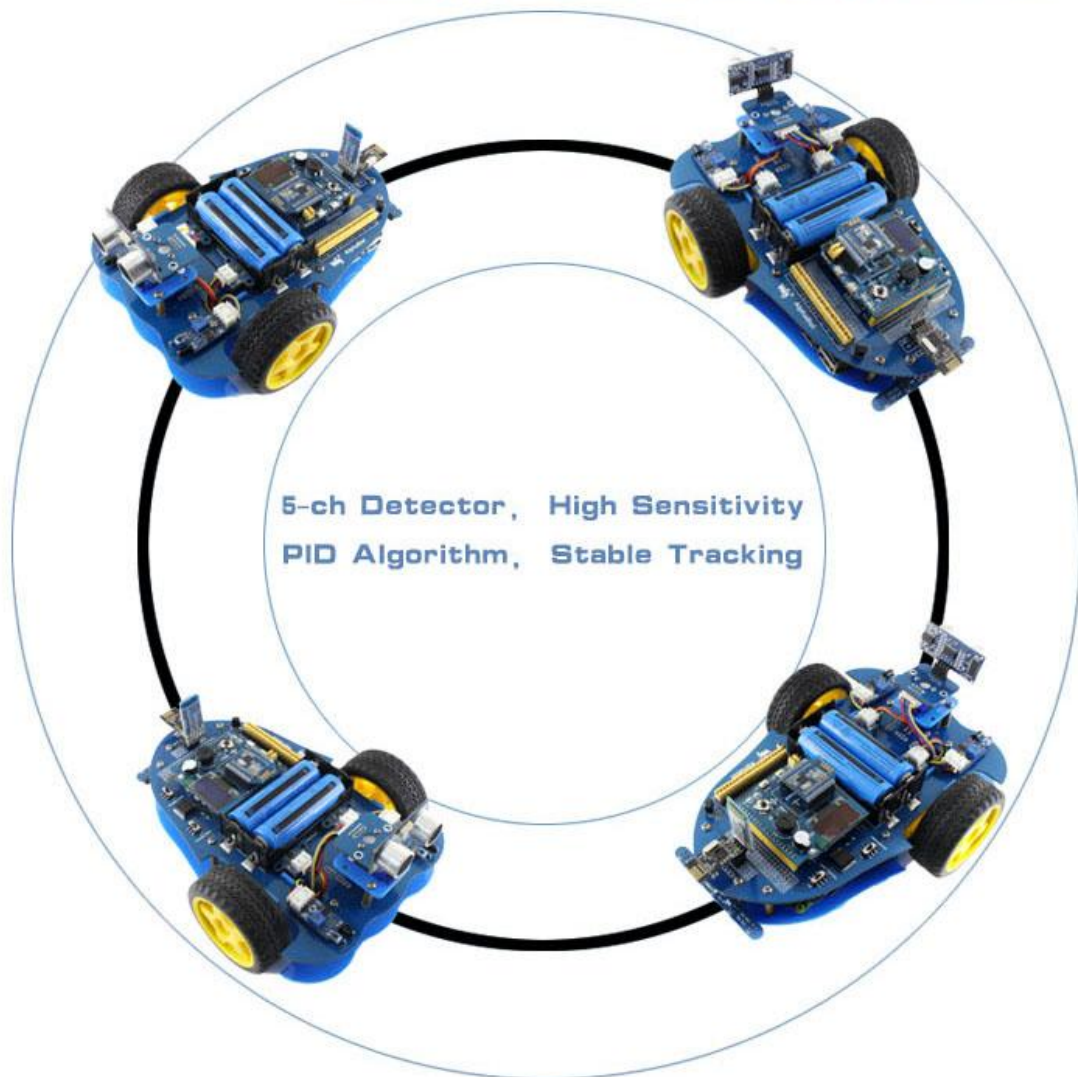


Working with  
Raspberry Pi/Arduino Separately  
or Both



## Infrared Line Tracking

$$= \begin{array}{|c|} \hline \text{Raspberry Pi} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Arduino} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{AlphaBot Chassis} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Tracker Sensor} \\ \hline \end{array}$$



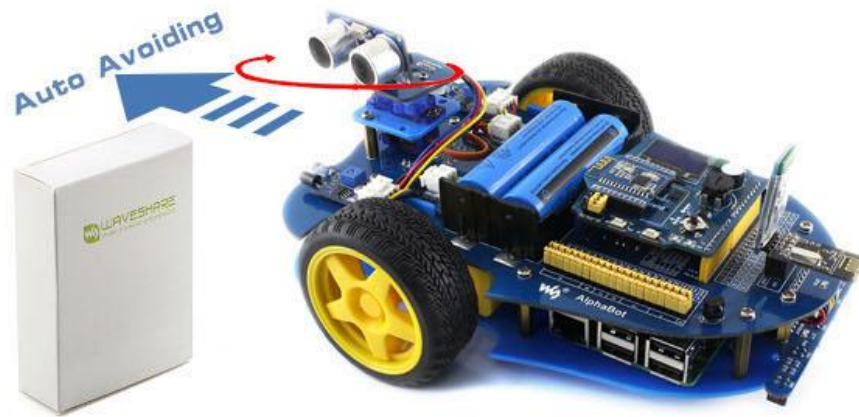
## Infrared Obstacle Avoidance

$$= \begin{array}{|c|} \hline \text{Raspberry Pi} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Arduino} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{AlphaBot Chassis} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Infrared Proximity Sensor} \times 2 \\ \hline \end{array}$$



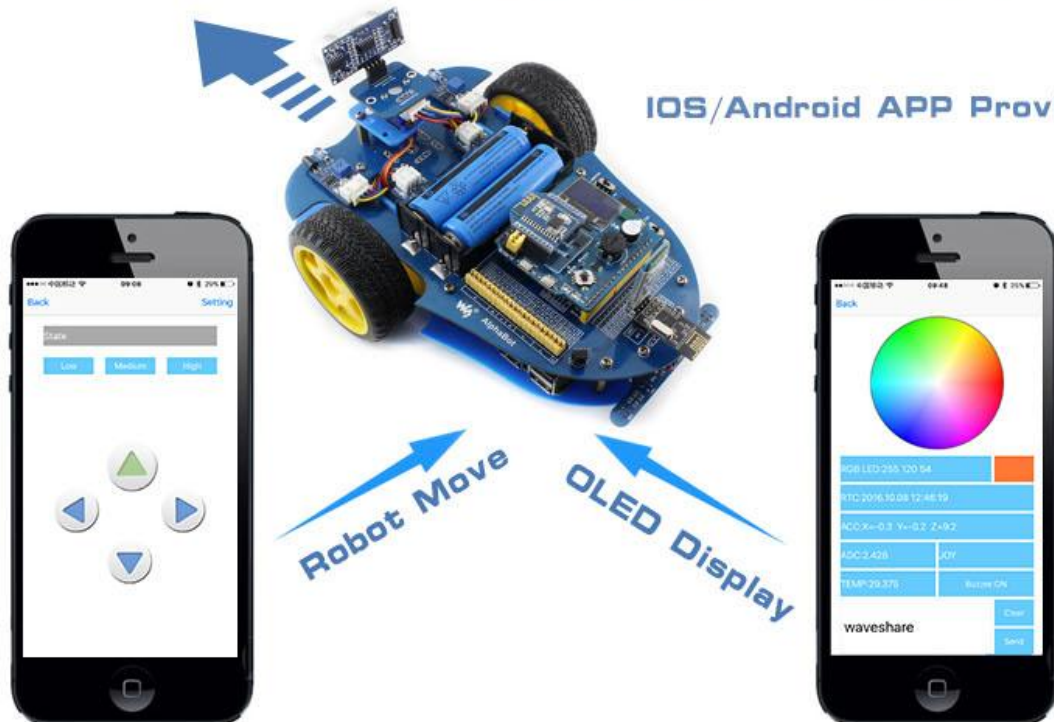
## Ultrasonic Obstacle Avoidance

$$= \text{Raspberry Pi} + \text{Arduino} + \text{AlphaBot Chassis} + \text{Ultrasonic Sensor} + \text{Servo}$$



## Bluetooth Remote Control

$$= \text{Arduino} + \text{AlphaBot Chassis} + \text{Arduino Shield Dual-mode Bluetooth}$$



## Video Monitoring Robot

$$= \text{Raspberry Pi} + \text{AlphaBot Chassis} + \text{Servo+Pan Head} + \text{Camera}$$





AlphaBot mainboard



AlphaBot mainboard back view



AlphaBot mainboard



AlphaBot mainboard back view



AlphaBot mobile robot



AlphaBot mobile robot back view



AlphaBot mobile robot



AlphaBot mobile robot



AlphaBot multi-function robot



AlphaBot multi-function robot



AlphaBot multi-function robot



AlphaBot multi-function robot



AlphaBot + Raspberry Pi



AlphaBot-Pi Raspberry Pi robot

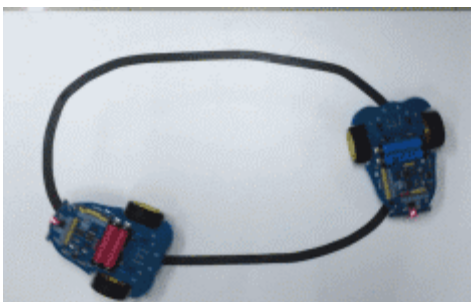


AlphaBot-Pi Raspberry Pi robot



AlphaBot-Pi Raspberry Pi robot

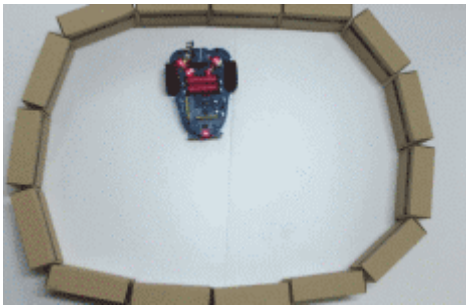
## Examples



Infrared line tracking robot



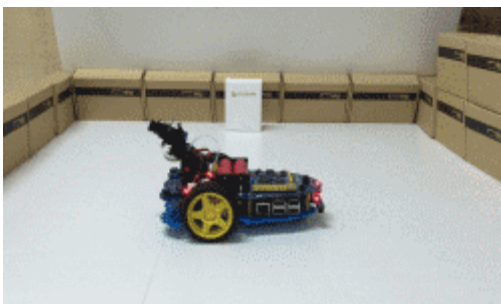
Infrared obstacle avoidance robot



Ultrasonic obstacle avoidance robot



Infrared/Bluetooth remote control robot



Video monitoring robot

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

## Development Resources

Wiki : [www.waveshare.com/wiki/AlphaBot](http://www.waveshare.com/wiki/AlphaBot)