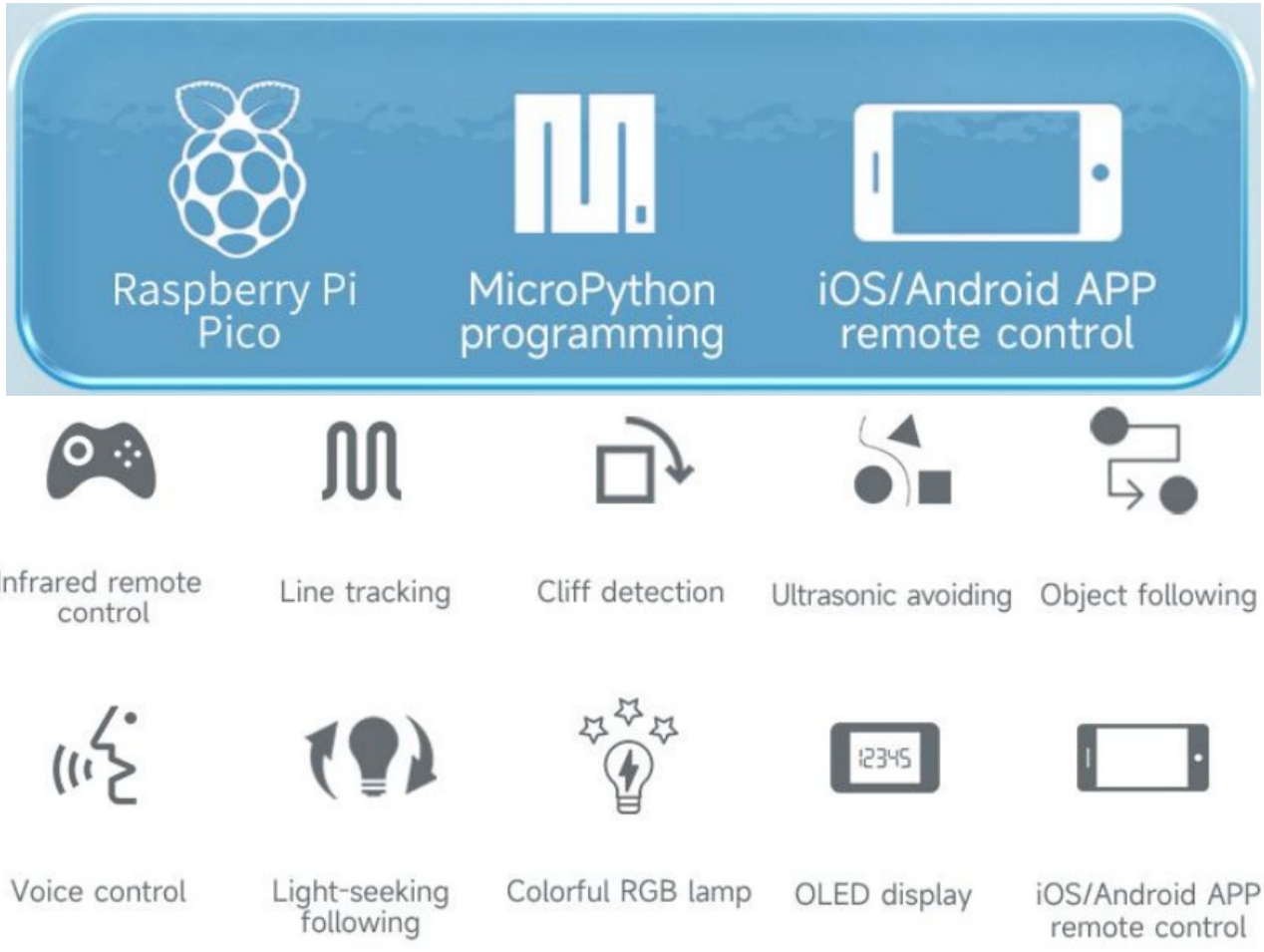
YAHBOOM Pico Robot Car Onboard Multi Sensor Module Instruction Manual

Pico Robot Car"
Onboard multi-sensor module/
Multi-functional APP remote control
Instruction Manual

Contents

Pico Robot Car Onboard Multi Sensor Module

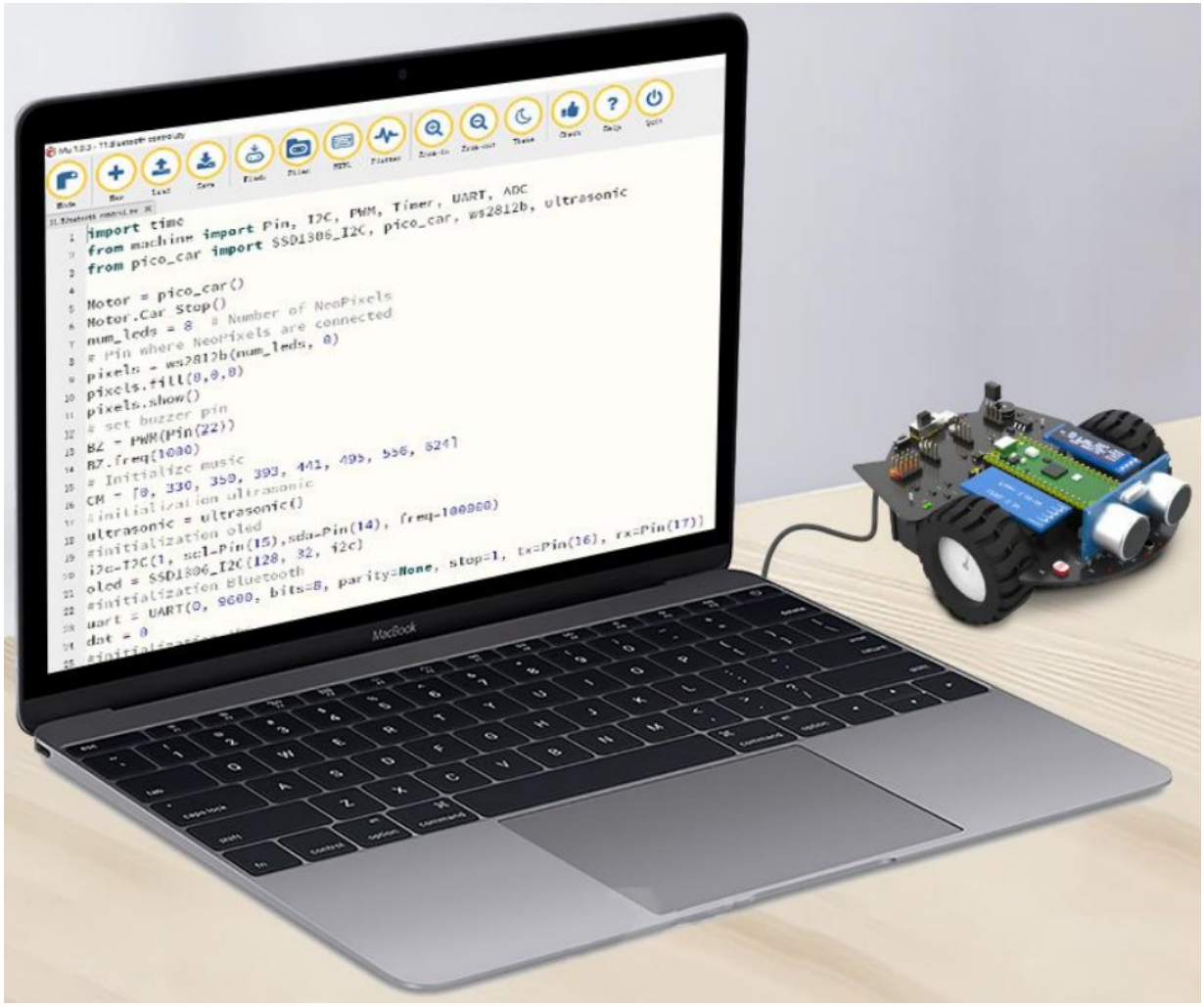


Based on Raspberry Pi Pico board

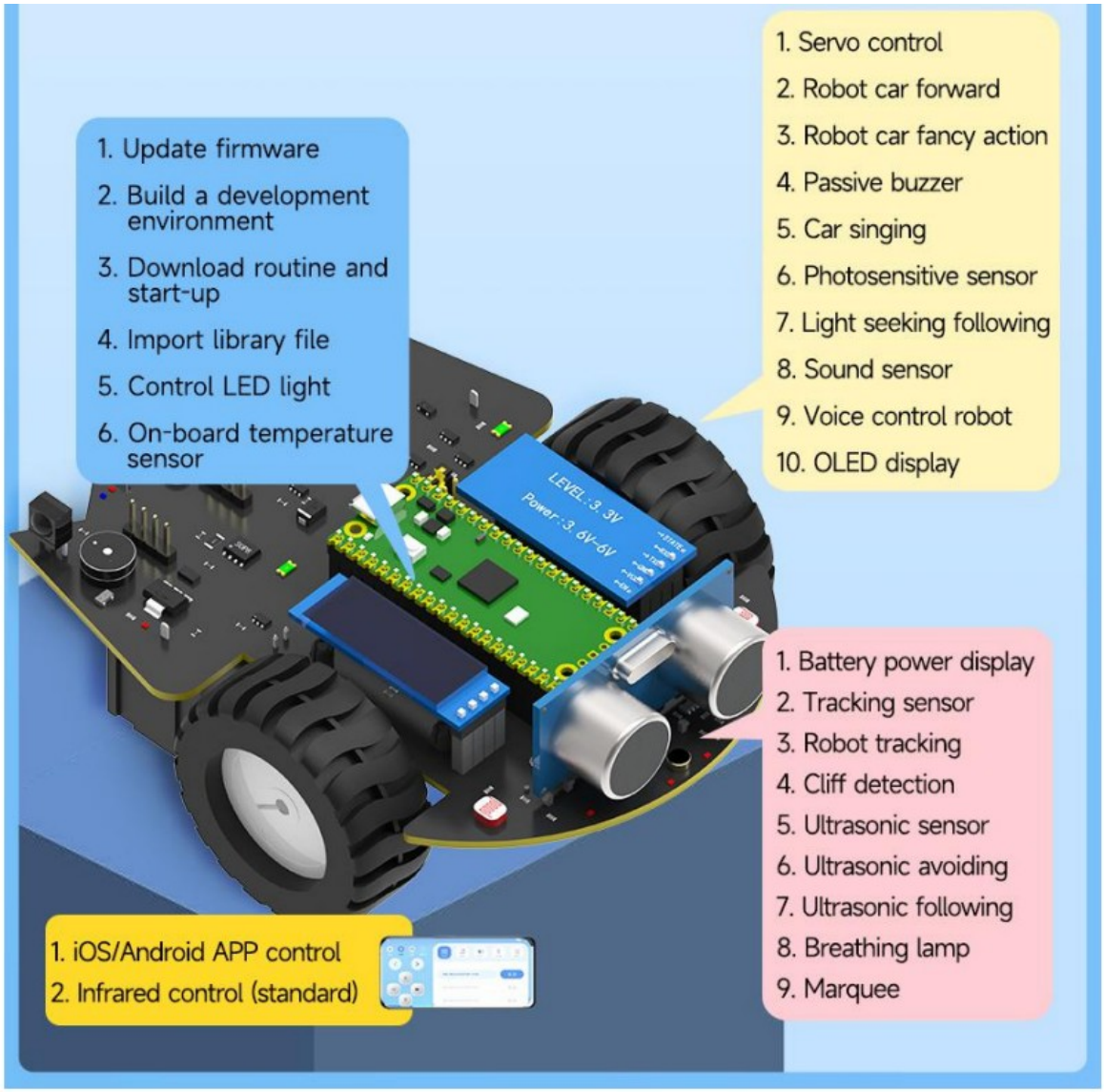
Raspberry Pi Pico is a low-cost, high-performance microcontroller. It adopt the RP2040 chipdeveloped by Raspberry Pi, and uses MicroPython as the programming language. Some complete development material tutorials will be provided, which is very suitable for beginners to learn programming and build some robot cars.

Programming with MicroPython

Raspberry Pi Pico is a compact microcontroller development board. Combined with the Python operating system, it can be used to build various electronic proj-ects. Through MicroPython, we can quickly realize our creative ideas.

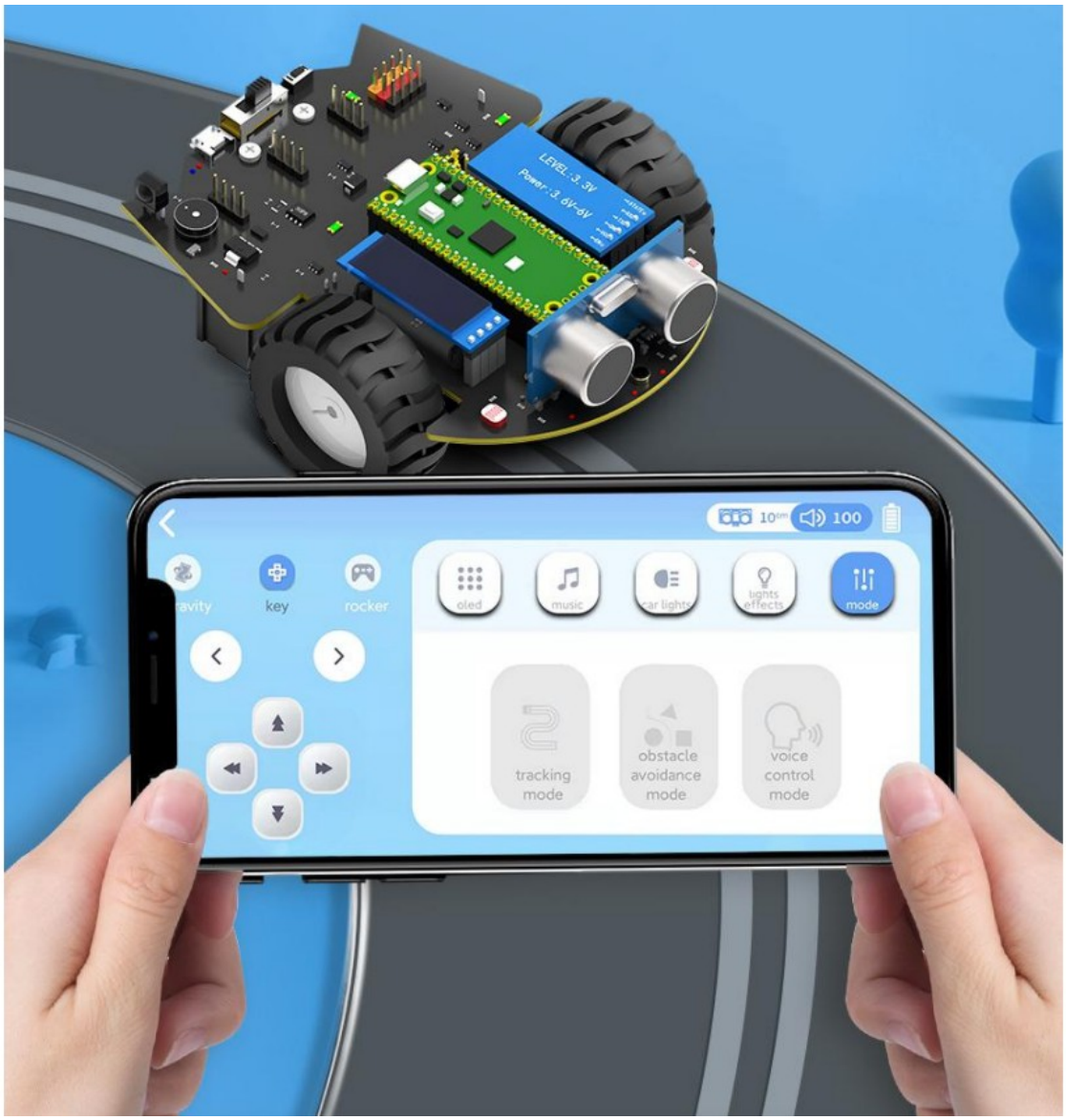


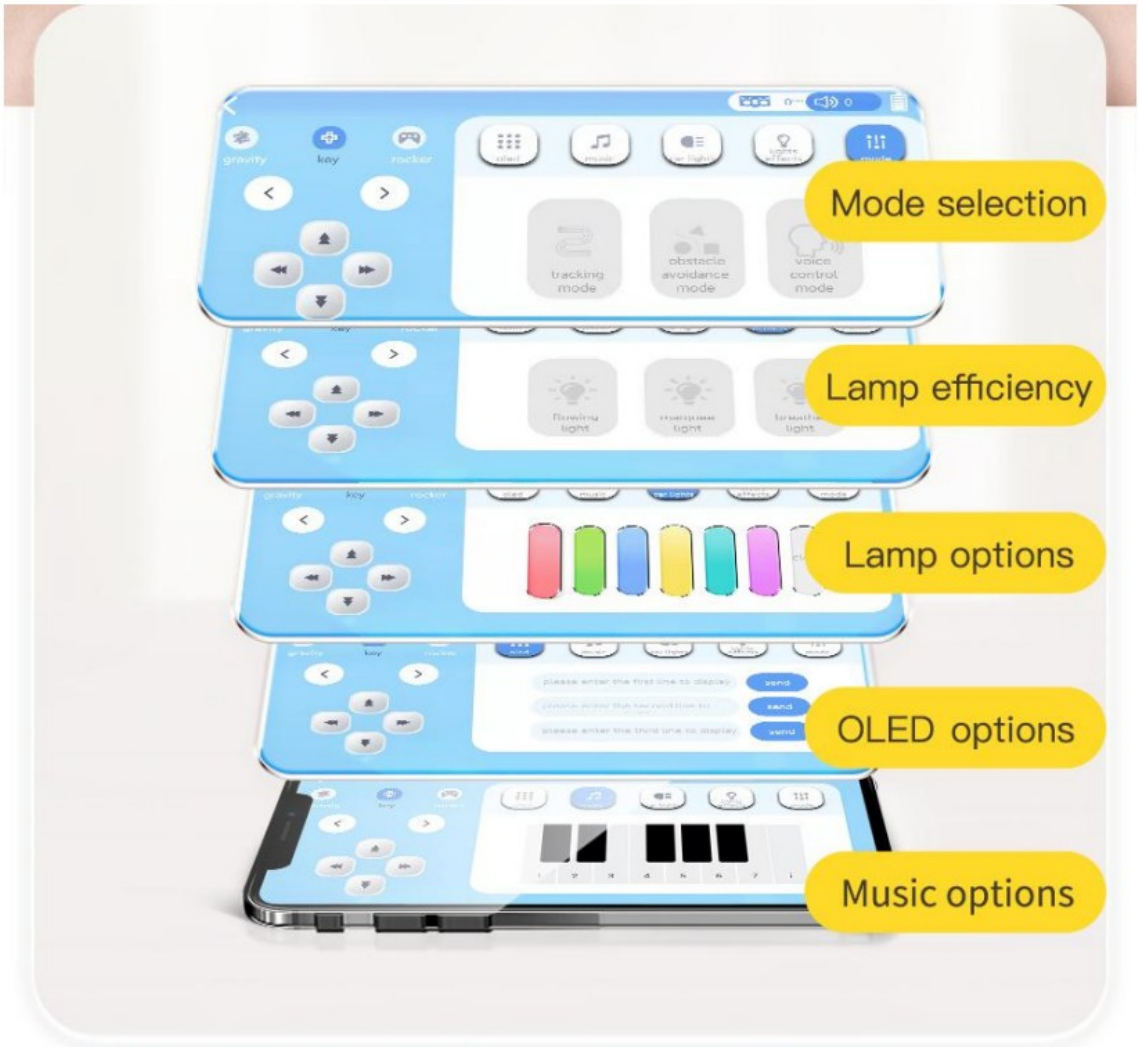
Function list



Support APP remote control by Bluetooth

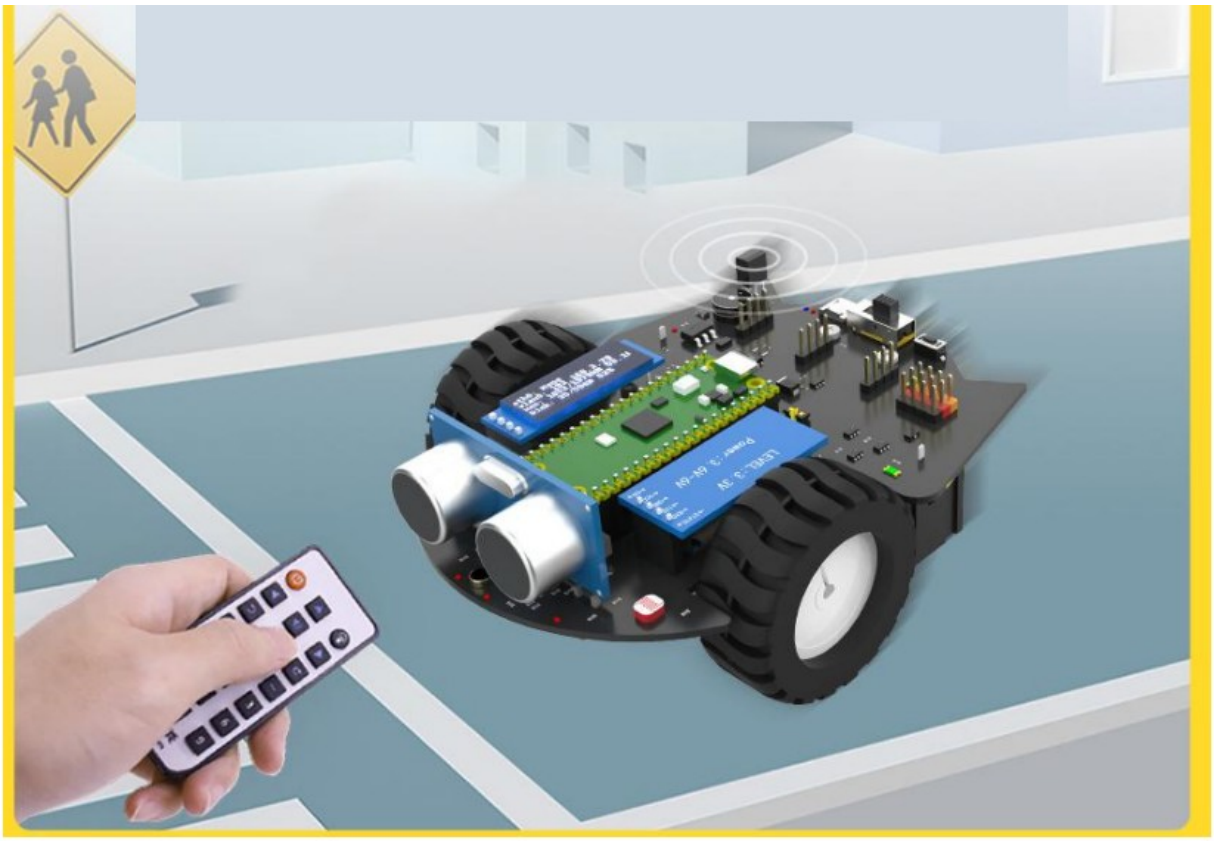
APP can control the motor motion state, OLED display, buzzer, RGB light, line tracking, obstacle avoidance, voice control mode and other functions of Pico robot.
iOS / **Android**


LEVEL: 3.3V
Power: 3.6V-6V
100
key
rocker
oled
music
mode
tracking mode
obstacle avoidance mode
voice control mode



Infrared remote control

Pico robot can receive the signal sent by the infrared remote controller and realize different actions of the remote control car by identifying the code value of each remote control key.

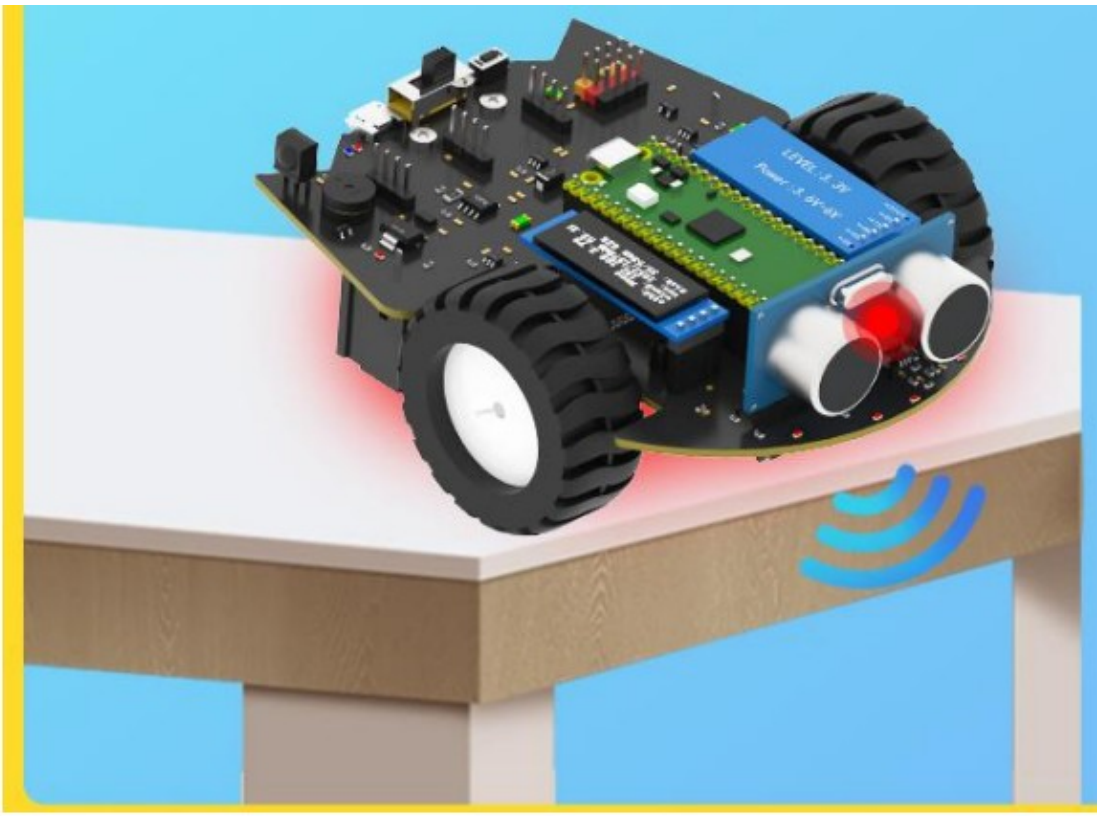


Tracking

Adjust the moving direction of the robot through the feedback signal from the tracking sensor, which can make robot car moves along the black line track.

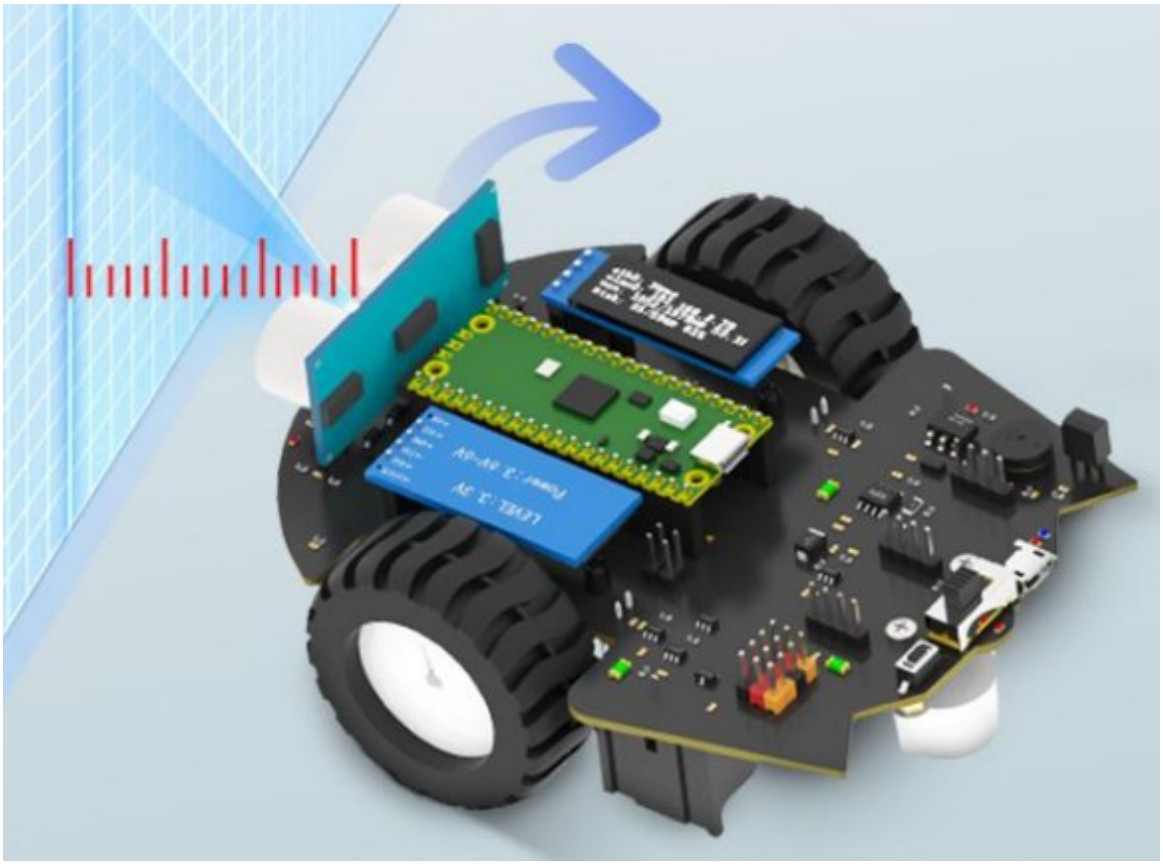
Cliff detection

The signal detected by the infrared sensor is judged in real time. When the robot is close to the edge of the table, the infrared sensor cannot receive the return signal, and the robot will retreat and stay away from the “cliff”.



Ultrasonic obstacle avoidance

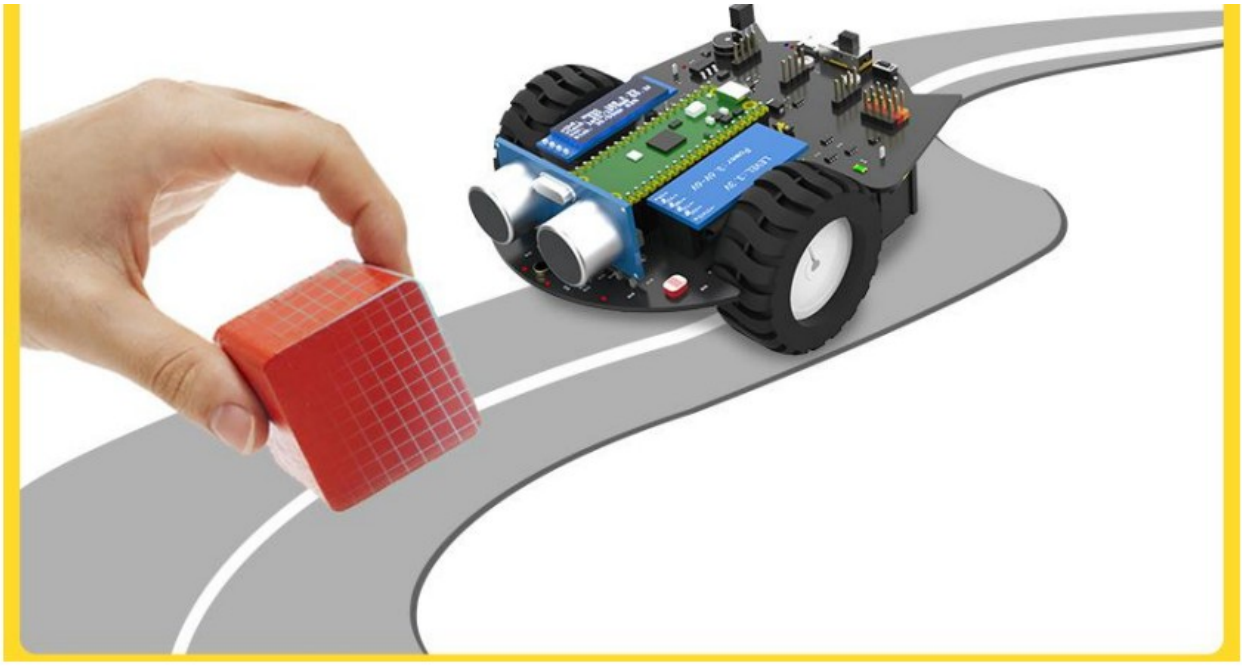
The ultrasonic signal is transmitted through the ultrasonic sensor, and the signal return time is calculated to judge the distance of the obstacle ahead, which can realize the function of distance measurement and obstacle avoidance of the robot.



Object following

Through distance measurement by ultrasonic sensors in real-time enables the car to keep a fixed distance from

the obstacles ahead, which can achieve the effect of object following.

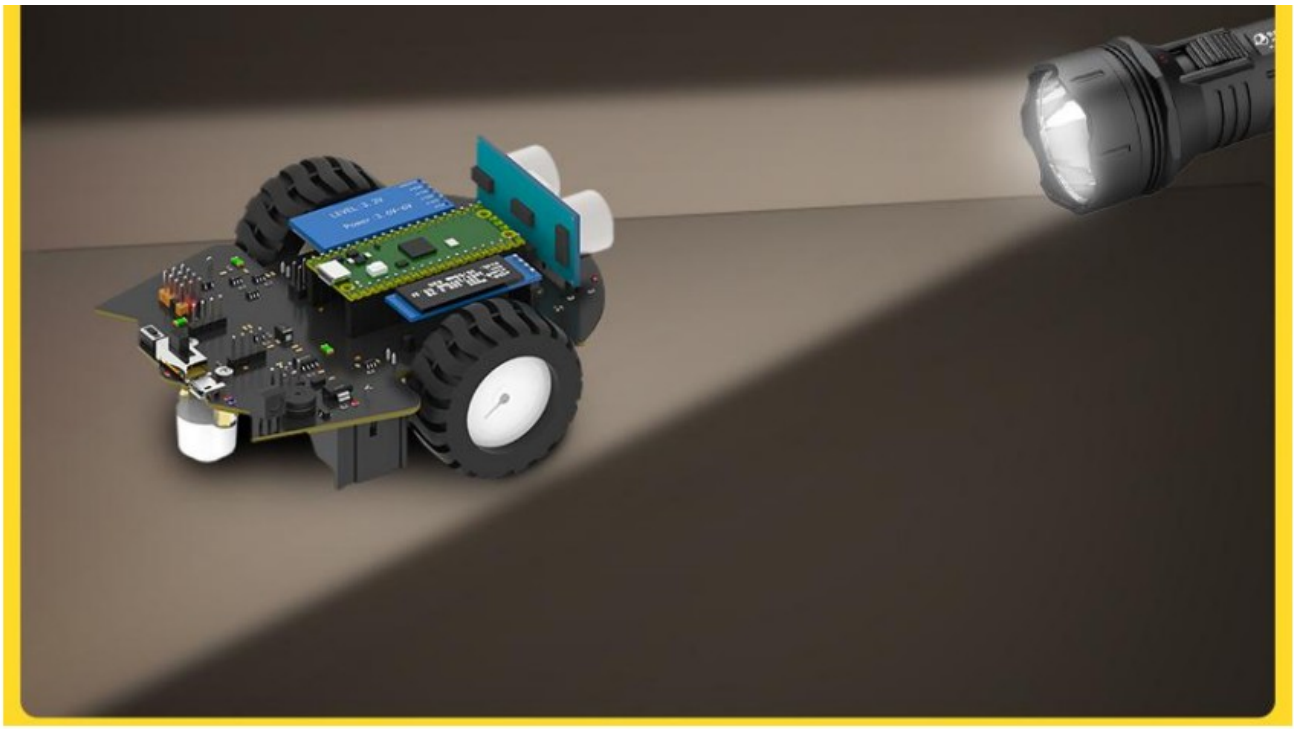


Voice control robot

The robot detects the current volume of the environment through the sound sensor. When the volume is greater than the threshold, the robot will whistle and move forward a certain distance, and the RGB lights will turn on corresponding lighting effects.

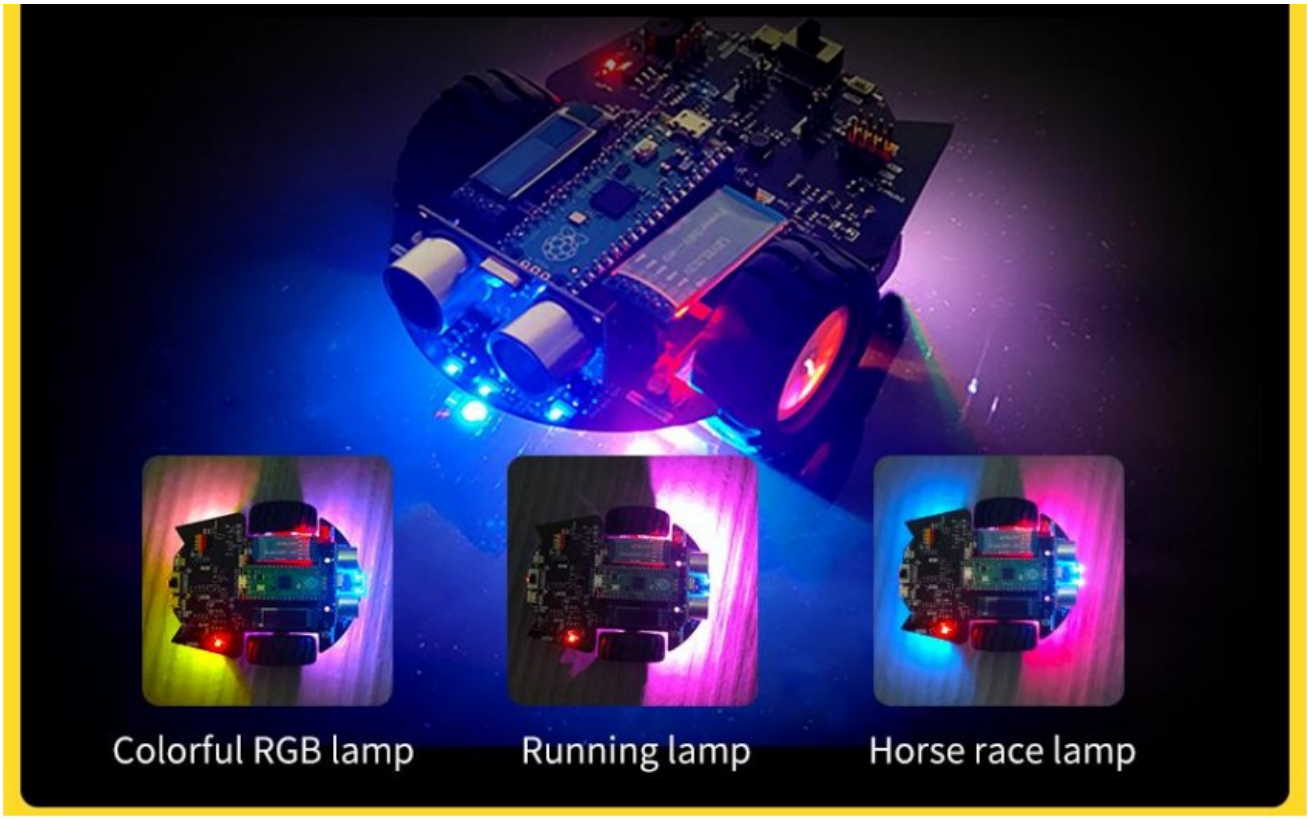
Light seeking following

By reading the values of the two photosensitive sensors, comparing the two values, judging the position of the light source to control the direction of movement of the robot.



Colorful RGB light

On-board 8 programmable RGB lamps, which can realize a variety of different effects, such as breathing light, marquee.



OLED display in real time

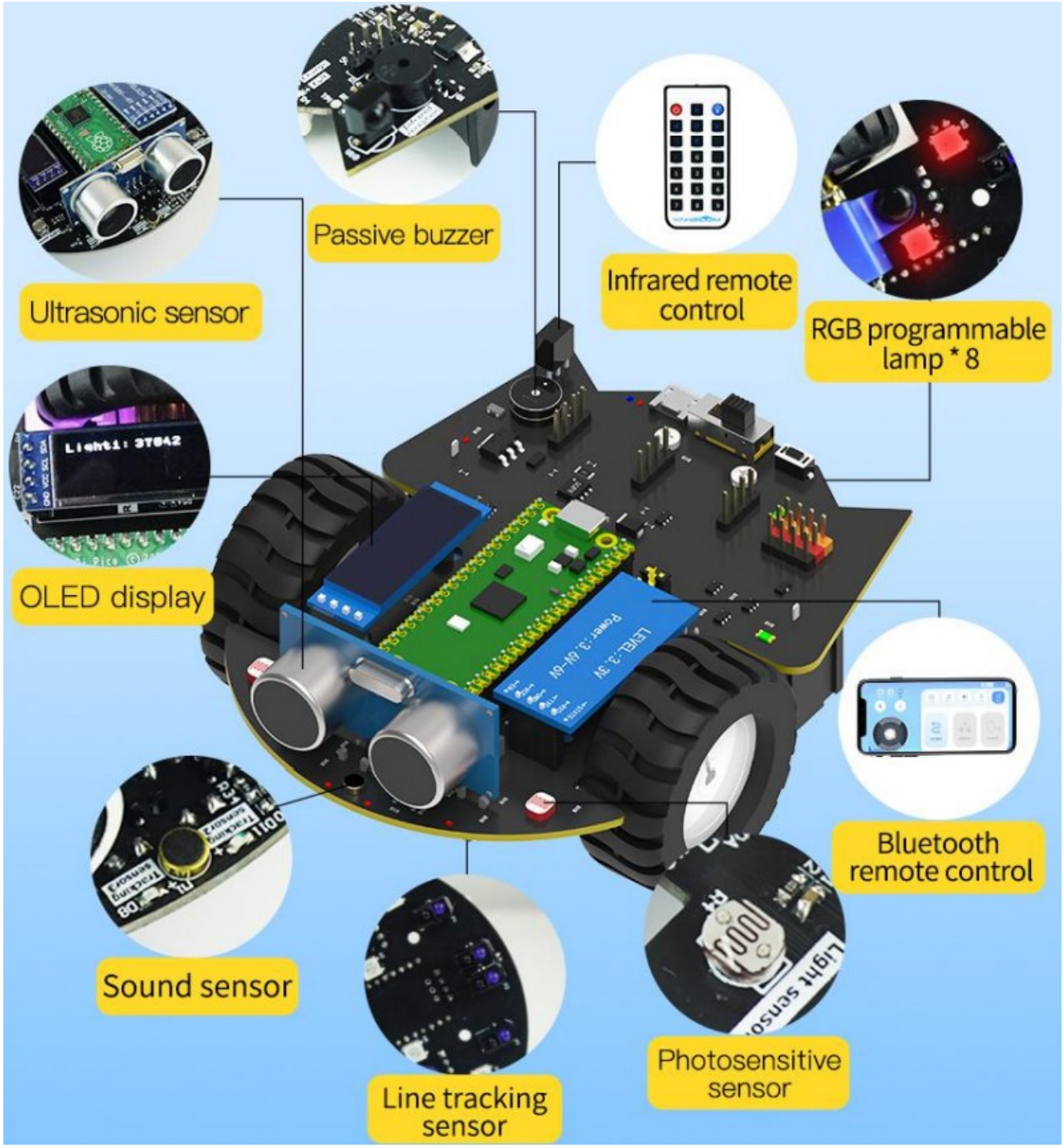
Many data of ultrasonic module, light sensor and sound sensor can be displayed on OLED in real time.

Sound detection

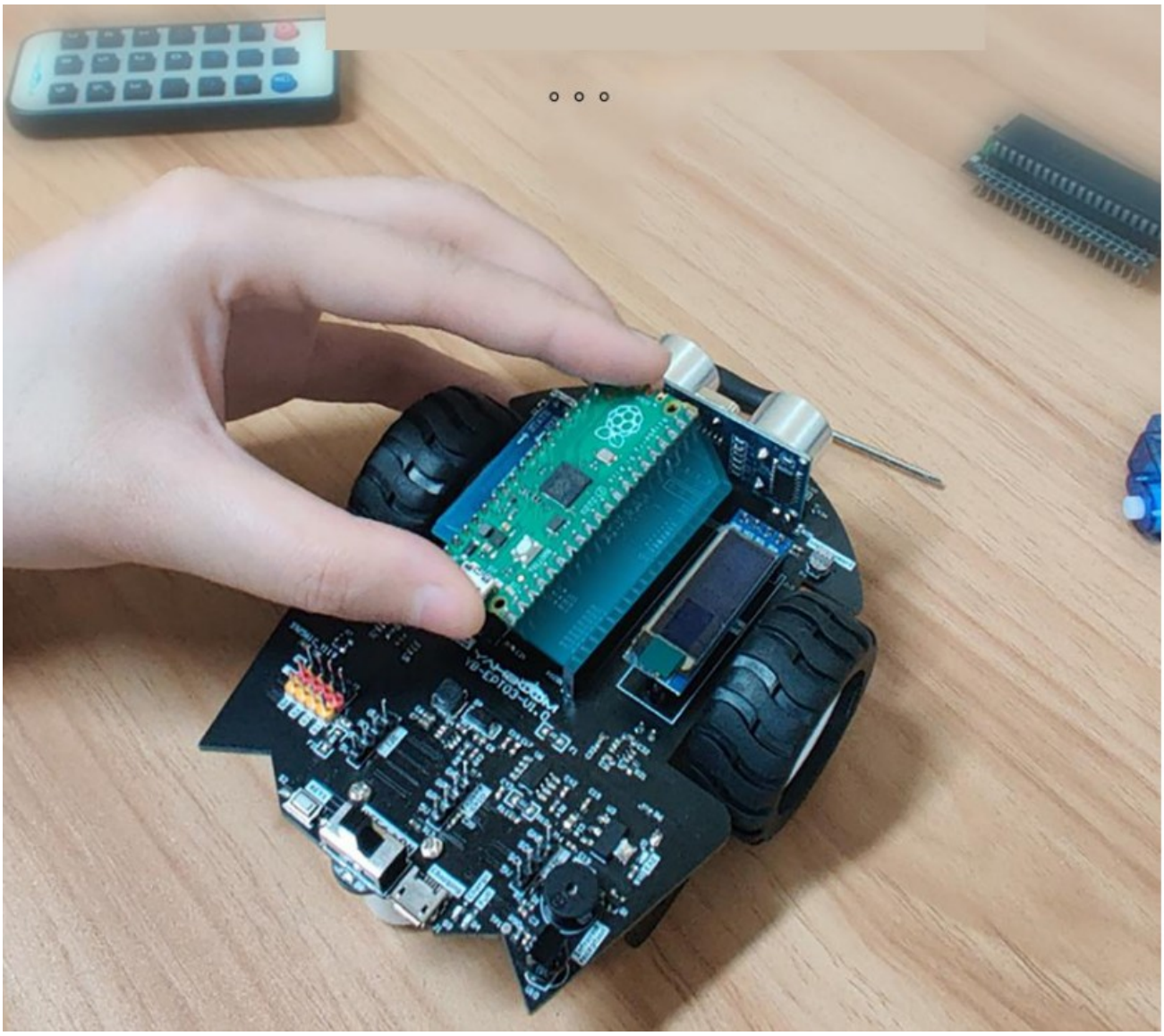
Light detection

Ultrasonic detection

Hardware configuration

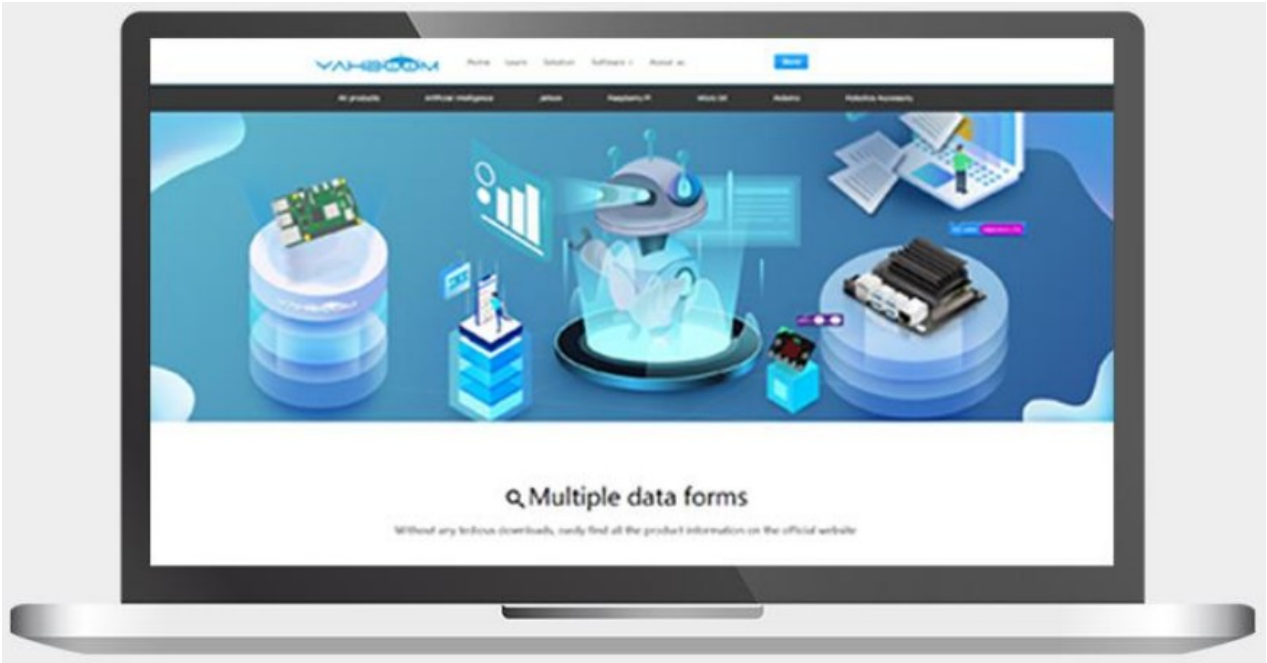


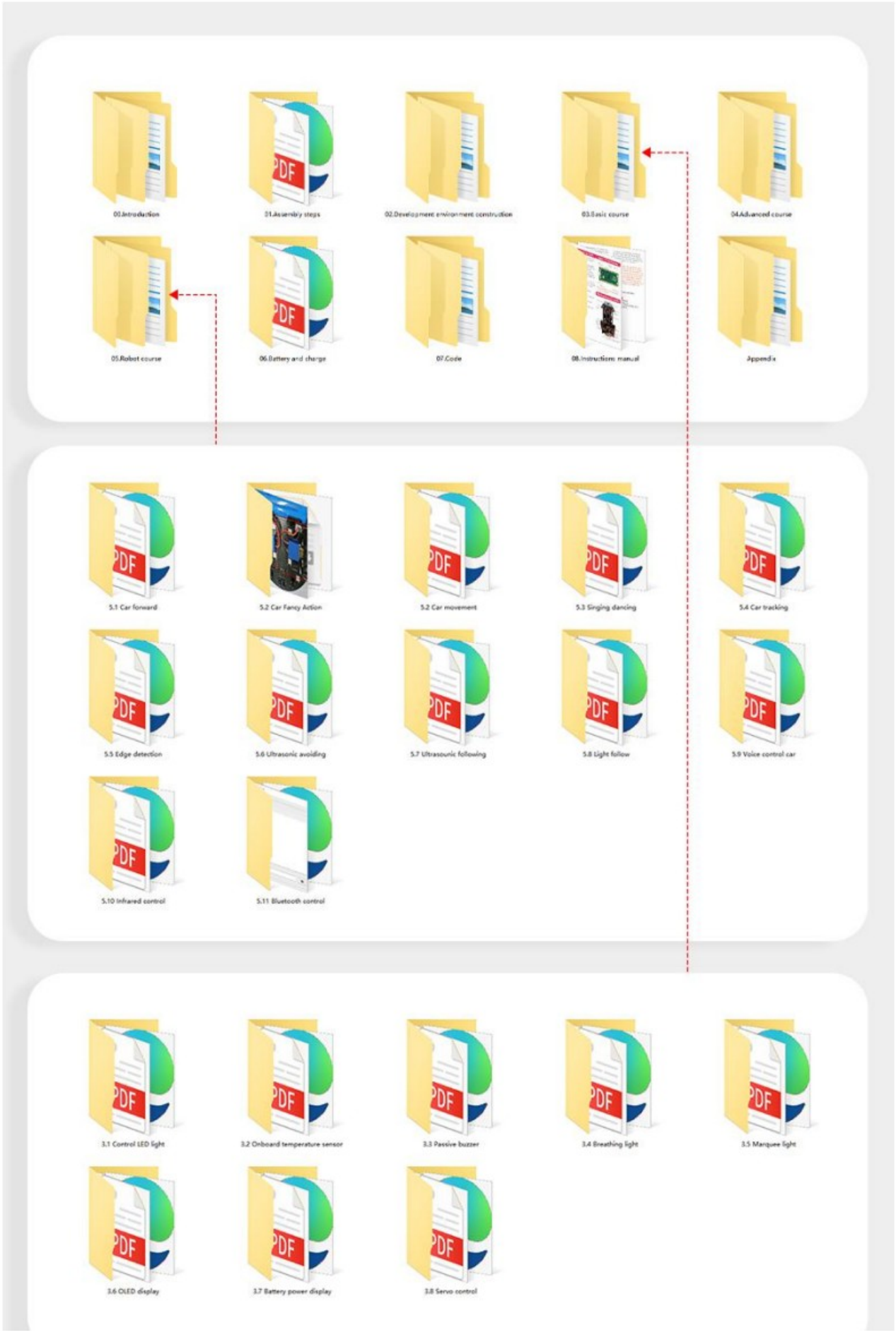
No welding plug and play



Gift information

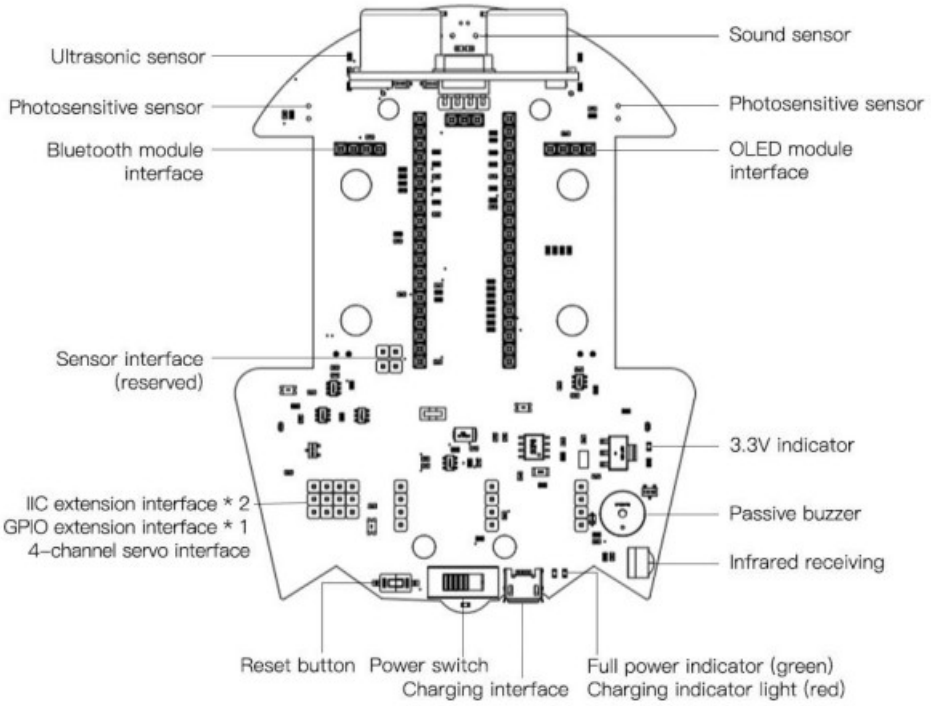
Tutorials Link: http://www.yahboom.net/study/Pico_Robot

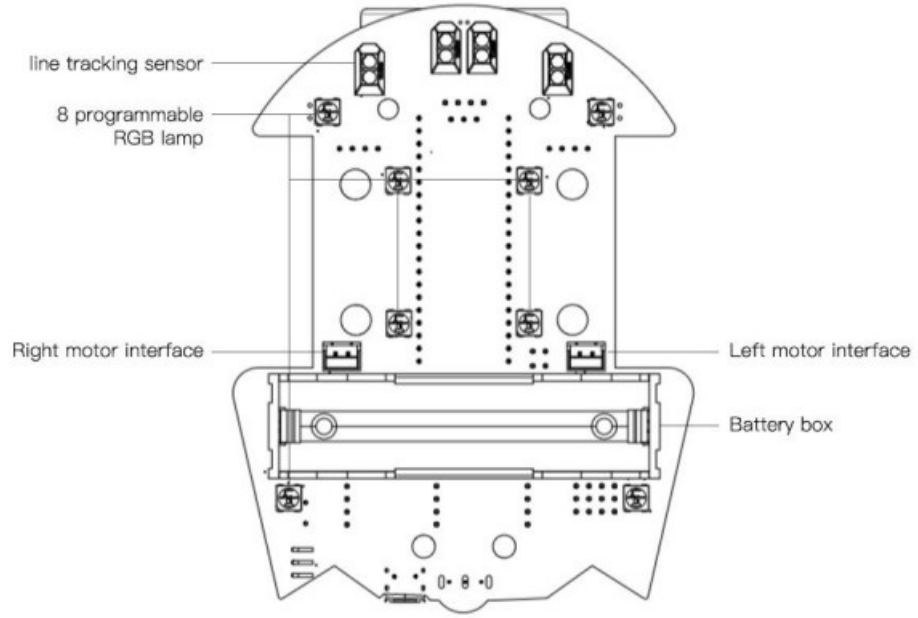




Hardware introduction

Functional configuration


Ultrasonic sensor
Photosensitive sensor
Bluetooth module interface
Sensor interface (reserved)
IIC extension interface * 2
GPIO extension interface * 1
4-channel servo interface
Reset button
Power switch
Charging interface
Sound sensor
Photosensitive sensor
OLED module interface
3.3V indicator
Passive buzzer
Infrared receiving
Full power indicator (green)
Charging indicator light (red)


line tracking sensor
8 programmable RGB lamp
Right motor interface
Left motor interface
Battery box

(Product parameters)
Main control board: Raspberry Pi Pico
Endurance: 2.5 hours
Microprocessor: RP2040
Power supply: single section 18650 2200mAh
Charging interface: micro USB
Communication mode: Bluetooth 4.0
Remote control mode: mobile APP/infrared remote control
Input: photosensitive resistance, 4-channel line tracking, sound sensor, ultrasonic, Bluetooth, infrared receiving
Output: OLED display screen, passive buzzer, N20 motor, servo interface, programmable RGB lamp
Safety protection: over-current protection, over-charge protection, motor locked rotor protection
Motor scheme: N20 motor *2
Assembly size: 120*100*52mm

Shipping list

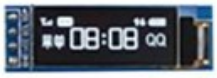
Pico car expansion board

Raspberry Pi Pico

N20 motor

N20 motor fixing base

N20 universal wheel



OLED screen

4.0 Bluetooth module

Micro USB cable

Manual

Remote control

Screw package

Screwdriver

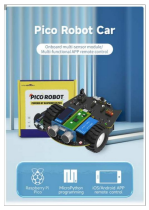
Tracking map

N20 tire

Battery

Tutorial: [Yahboom Raspberry Pi Pico Robot]

Documents / Resources

	[YAHBOOM Pico Robot Car Onboard Multi Sensor Module] [pdf] Instruction Manual Pico Robot, Pico Robot Car Onboard Multi Sensor Module, Car Onboard Multi Sensor Module, Onboard Multi Sensor Module, Multi Sensor Module

References

- Study