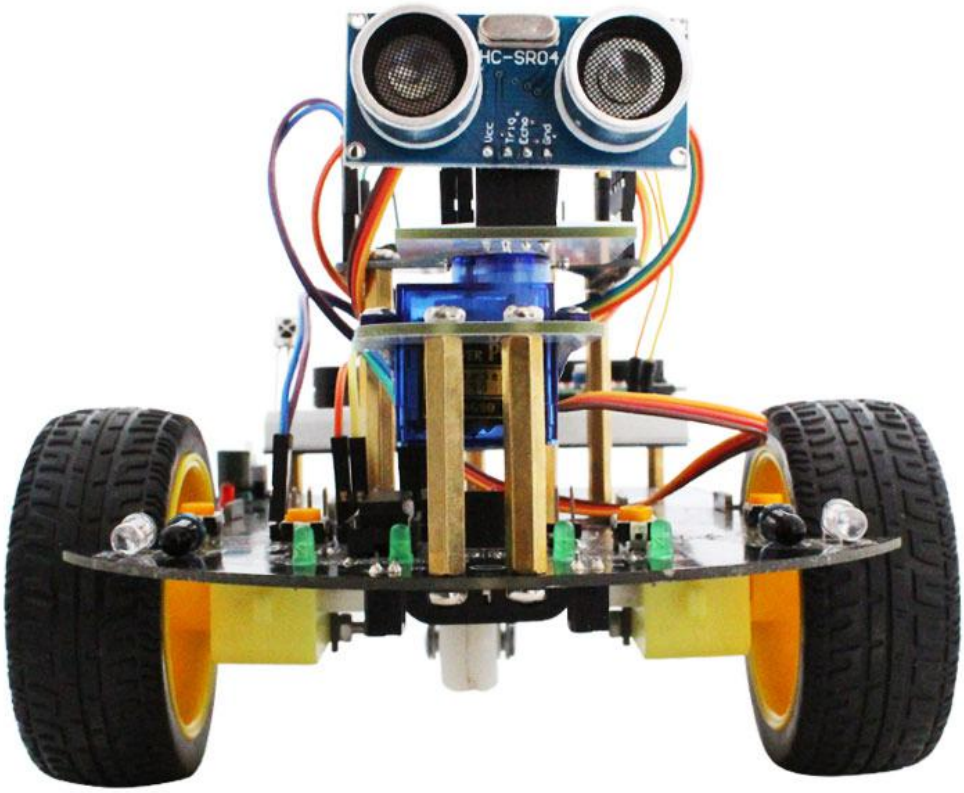
Smartduino Robots Operation Manual



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Arduino Smart Car (Standard Version)

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5. SG90 Servo & accessories * 1	24. Resistance * 20
6. Wheel * 2	25. Button Switch * 4
7. Reduction motor * 2	26. Adjustable Resistance * 3
8. Breadboard * 2	27. LCD1602 screen* 1
9. Motor Fixing Support * 4	28. USB Cable * 1
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2. Function Introduction

The standard version of the Arduino Smart Car is a Starter Kit + Smart Car 2-in-1 product. It can complete small experiments such as answering device, advertising light, and flame alarm. Not only that,but also infrared obstacle avoidance, follow, ultrasonic automatic driving and other smart car experiments can be completed. Supporting a full curriculum program and teaching video. All the codes are open to enthusiasts, and it is the first choice for the pioneering education

II. Installation For Arduino Smart Car

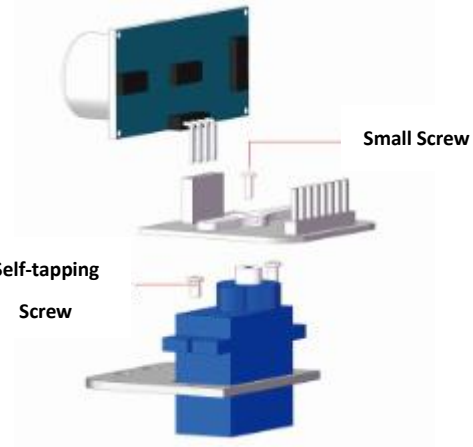
Accessory Introduction

			
M3*8mm Copper Pillar*7	M3*40mm Copper Pillar*2	M3*4mm Copper Pillar*4	Fixing Support*4 Need to take away from the two sides of the car chassis center.

					
M3 Nut*6	M3*8mm Screw *2	M3*6mm Screw*2	M3*30mm Screw*4	Self-tapping Screw*2	Small Screw*1

NOTE: The self-tapping screws and small screw are put in the servo accessory bag.

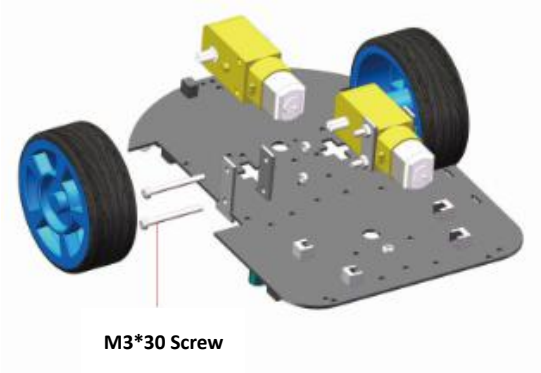
2.1 Installation for Servo



Design Sketch (After Installation)

Installation Instruction: Pass the servo through the lower fixing plate and fix it with self-tapping screws. The ultrasonic fixing plate is installed on the servo and fixed with small screws.

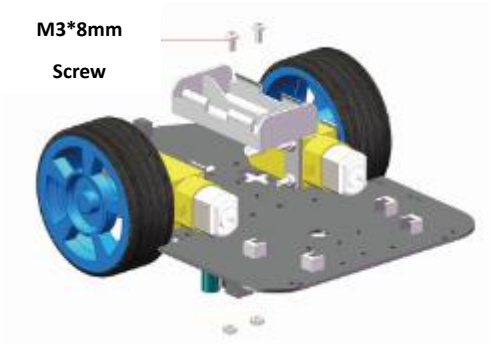
2.2 Installation for Motor & Wheel



Design Sketch (After Installation)

Installation Instruction: The motor fixing support passes through the car chassis, and fixed with screw and nut, then the wheels are mounted on the motors

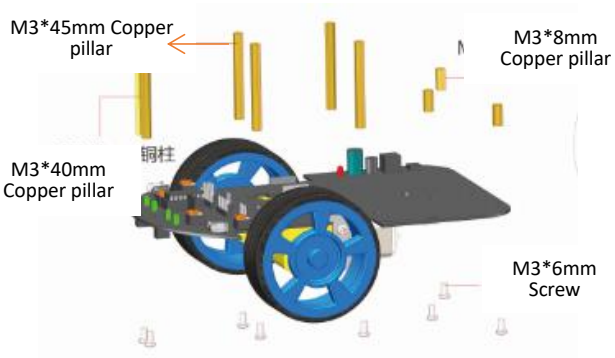
2.3 Installation for Battery Box



Design Sketch (After Installation)

Installation Instruction: Install the battery box on the bottom of car chassis, fixed with the M3*8mm screw and nut.

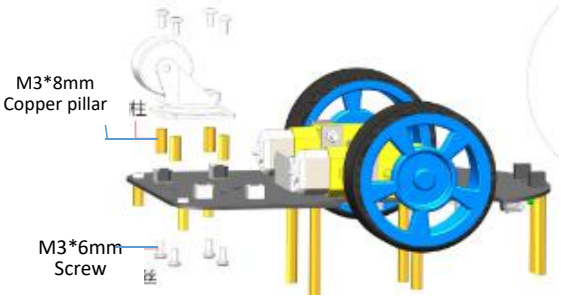
2.4 Installation for Copper Pillars



Design Sketch (After Installation)

Installation Instruction: Install the fixing copper pillar in the right side of the car chassis, 2pcs M3*40mm copper pillars in the car head, 4pcs M3*45mm copper pillars in the middle, 3pcs M3*8mm copper pillars in the tailstock. Then using M3*6mm screws to fix them at the bottom of the car chassis.

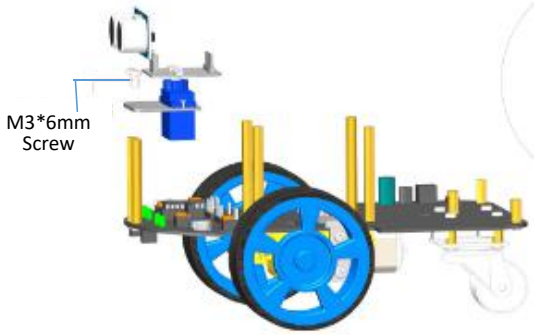
2.5 Installation for Universal Wheel



Design Sketch (After Installation)

Installation Instruction: Install 4pcs copper pillars on the back of the tailstock and fix it with screws on the front. Then install the universal wheel on the back of the car corresponding to the copper pillar and fix it with screws.

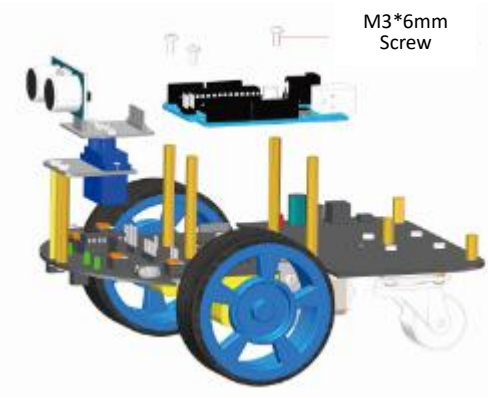
2.6 Installation for Servo and Ultrasonic Board



Design Sketch (After Installation)

Installation Instruction: Install the servo support on the M3*40mm copper pillars at car head and fixed with the M3*6mm screws.

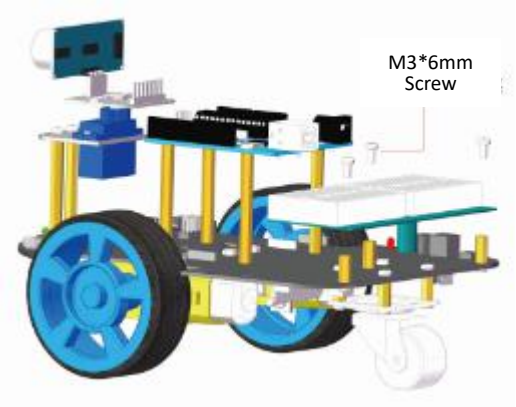
2.7 Installation for Arduino board



Design Sketch (After Installation)

Installation Instruction: Install Arduino board on the 4pcs M3*45mm copper pillars,then fixed by M3*6mm screws.

2.8 Installation for Breadboard



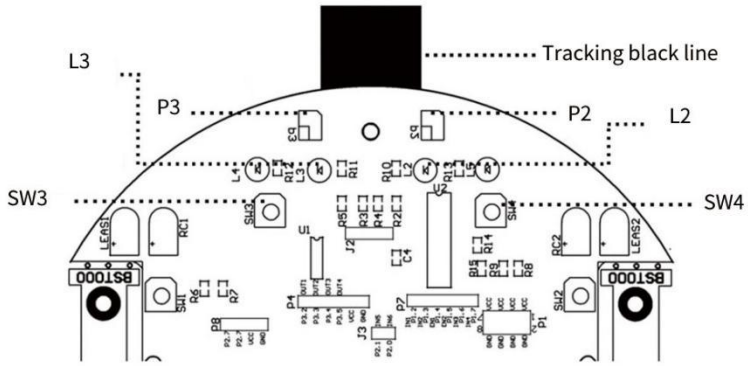
Design Sketch (After Installation)

Installation Instruction: Install a breadboard holder on the 3pcs M3*8mm copper pillars at tailstock and fixed with screws. Remove the sticker on the back of the breadboard and affix it to the holder. After the installation is completed, please select the connection diagram according to the experimental requirements.

III. Fuctions of Usage Intstructions

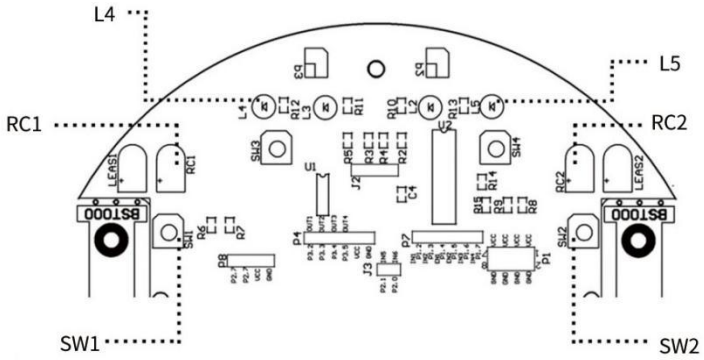
Infrared Tracking Mode

①Adjust potentiom【SW3】to make photoelectric sensor【P3】against white undersurface, then LED light【L3】illumiinates while against black surface, LED light【L3】goes off.
②Adjust potentiom【SW4】to make photoelectric sensor【P2】against white undersurface, then LED light【L2】illumiinates while against black surface, LED light【L2】goes off.
Caution:Don't excessively rotate potentiometer while adjusting. It should be within 30°.



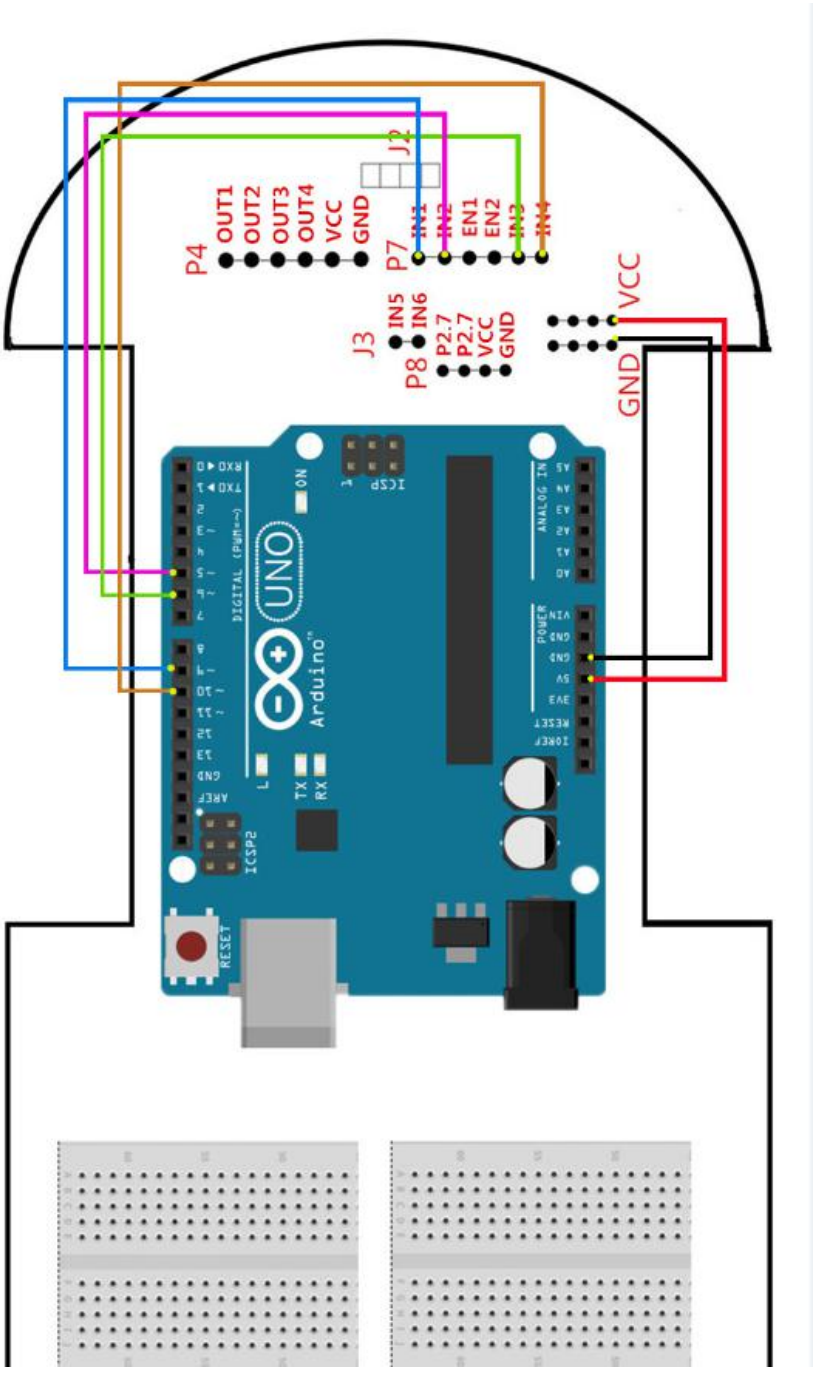
Obstacle Avoidance Mode

①Adjust potentiometer【SW1】to make the infrared light-emitting diode【LEAS1】and infrared light-receiving diode【RC1】away from obstacle less than 10cm, then LED light 【L4】illuminates, otherwise, it goes off.
②Adjust potentiometer【SW2】to make the infrared light-emitting diode【LEAS2】and infrared light-receiving diode【RC2】away from obstacle less than 10cm, then LED light 【L5】illuminates, otherwise, it goes off.
Caution:Don't excessively rotate potentiometer while adjusting. It should be within 30°.



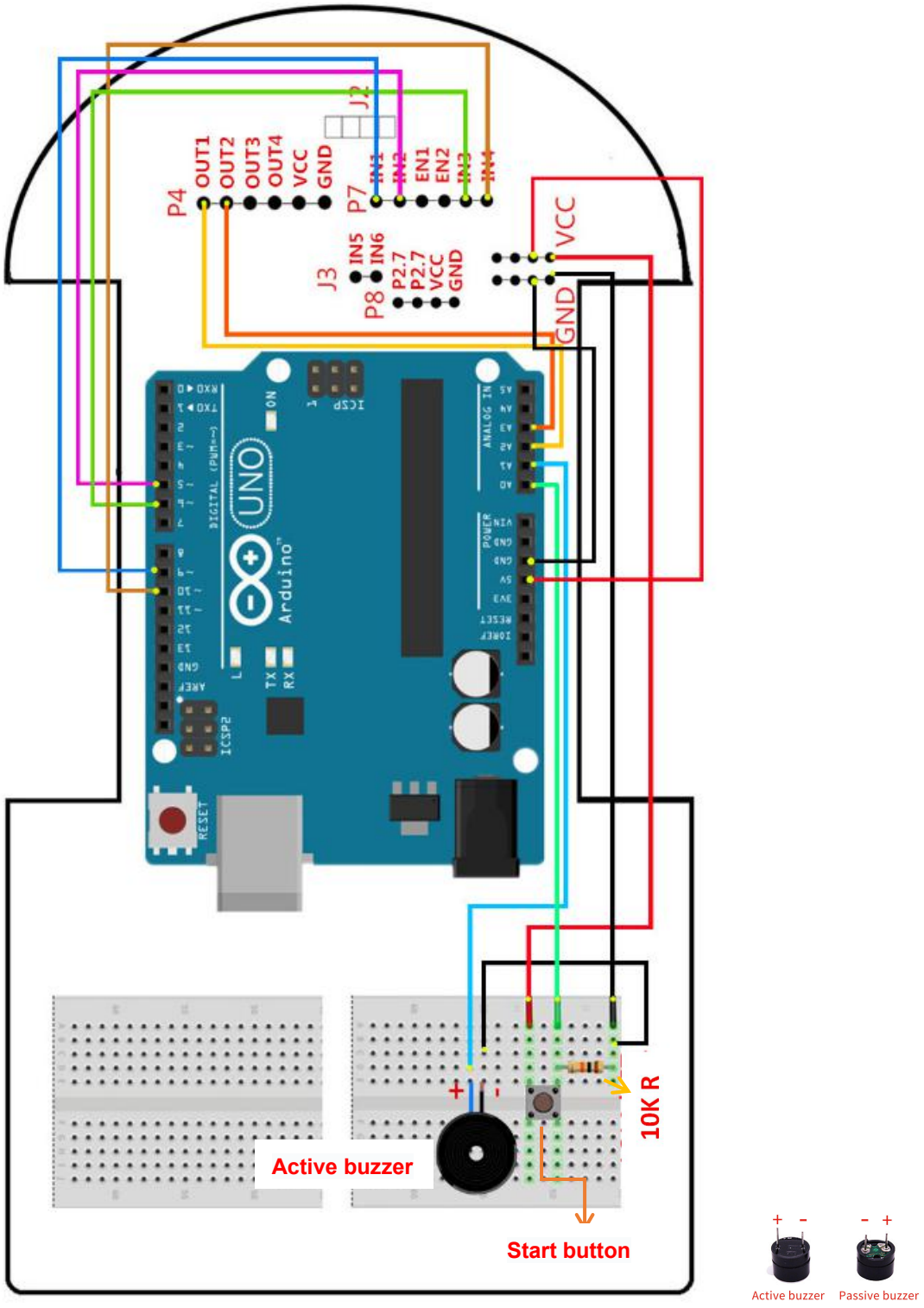
IV. Wiring Instructions

4.1 Motor drive wiring diagram



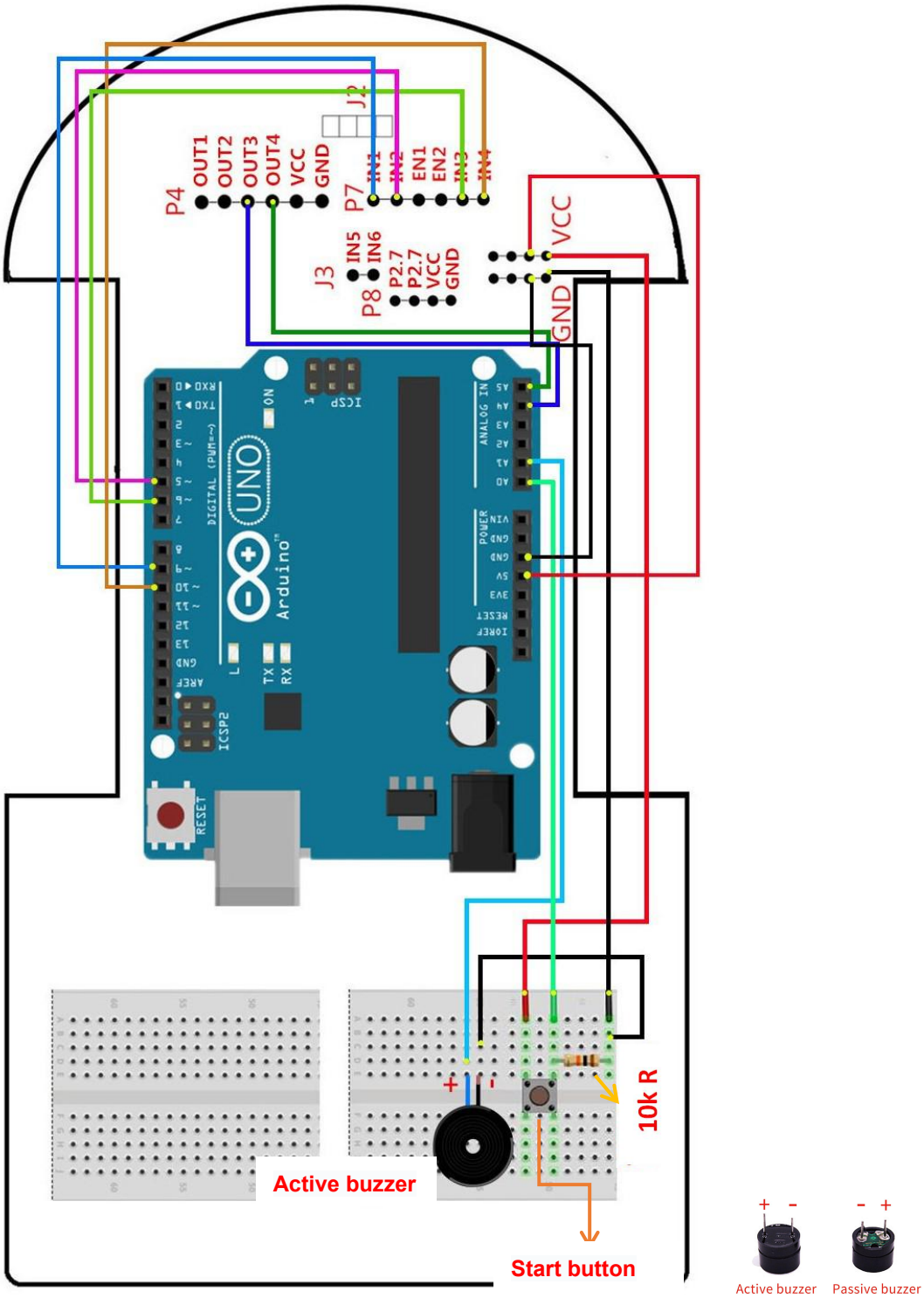
According to this wiring diagram, the smart car can realize forward, backward, left, right, and specified fancy movements after uploading the corresponding program.

4.2 Tracking wiring diagram



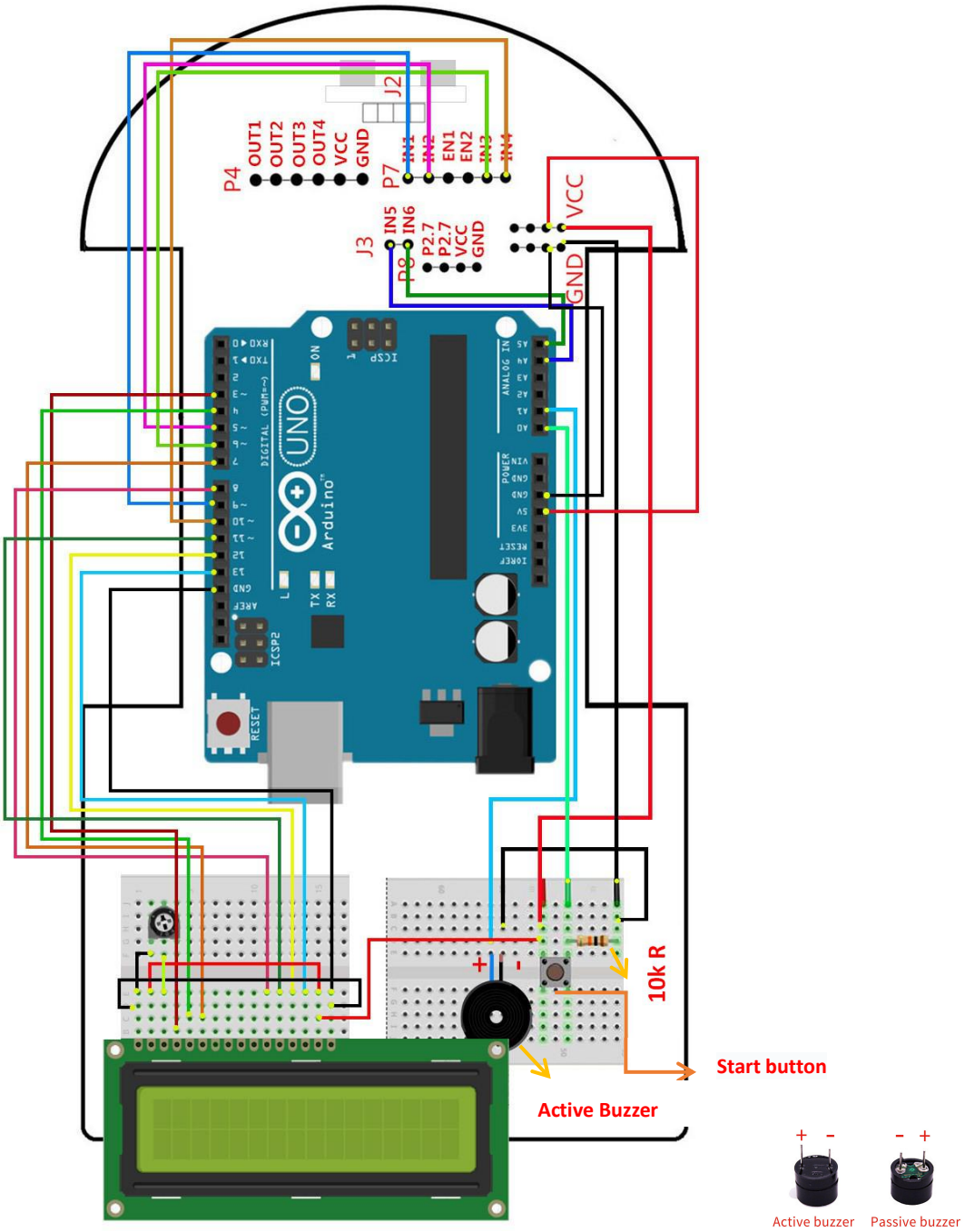
According to the wiring diagram , the smart car can realize the black line tracking function after uploading the corresponding program. Before the experiment, please refer to (III. Fuctions of Usage Intstructions).

4.3 Infrared obstacle avoidance wiring diagram



According to the wiring diagram, the smart car can realize infrared obstacle avoidance and infrared follow-up functions after uploading the corresponding program. Before the experiment, please refer to (III. Fuctions of Usage Intstructions).

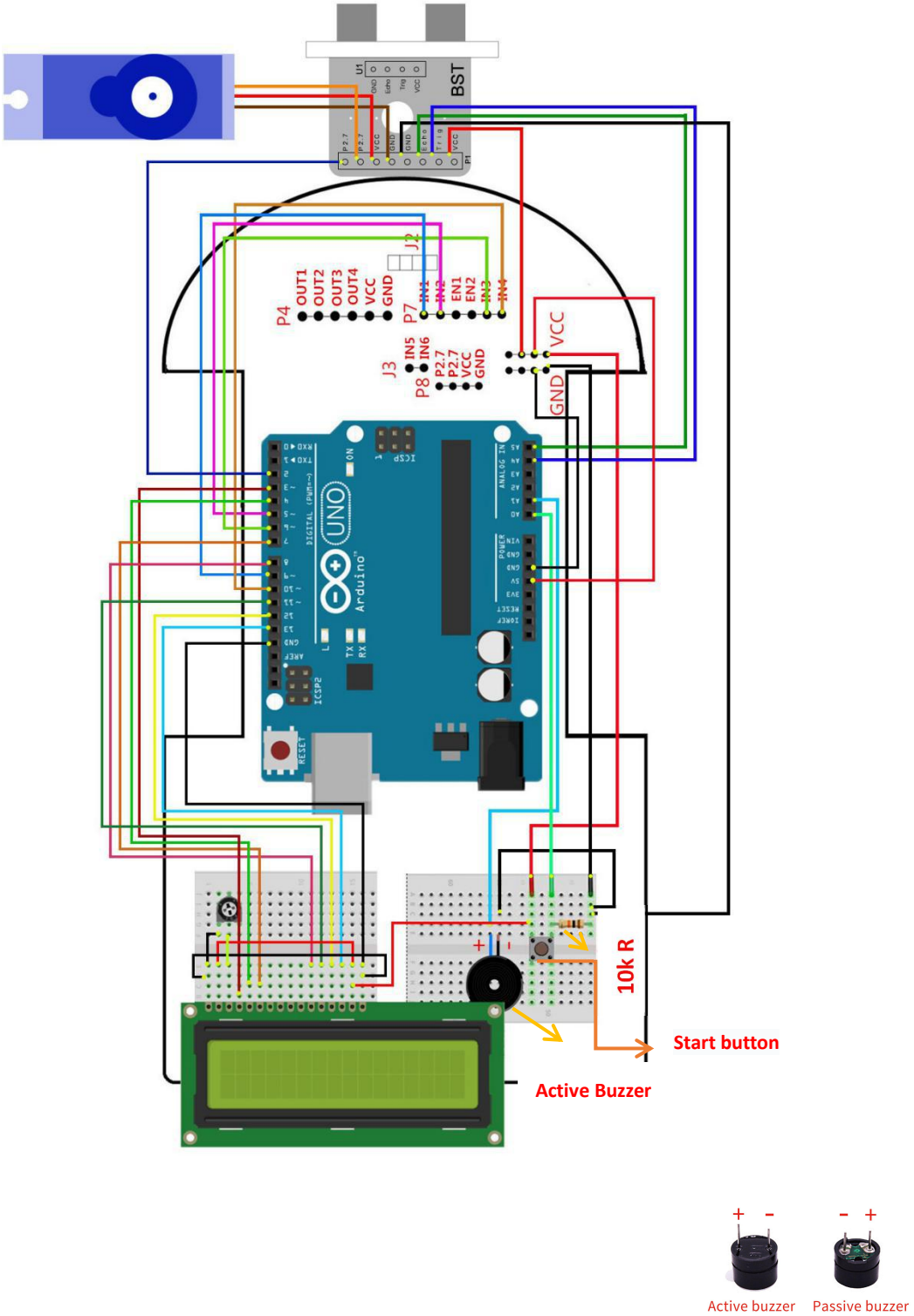
4.4 Ultrasonic obstacle avoidance(no servo) wiring diagram



Note: At the J2 slot, insert the ultrasonic sensor as picture.

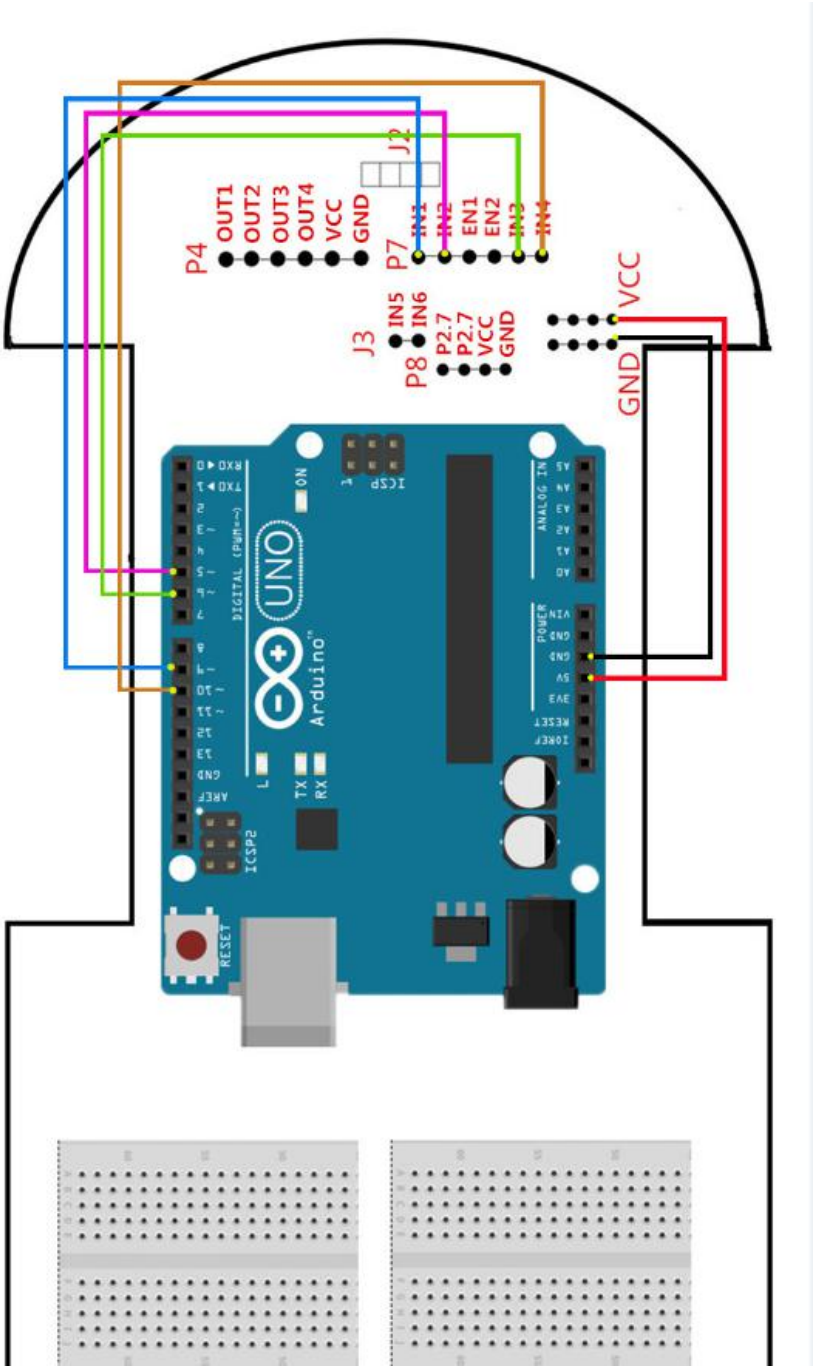
If you only use the ultrasonic obstacle avoidance function without displaying the distance, you can not install the 1602 sdisplay and yellow adjustable resistance.

4.5 Ultrasonic obstacle avoidance(with servo) wiring diagram



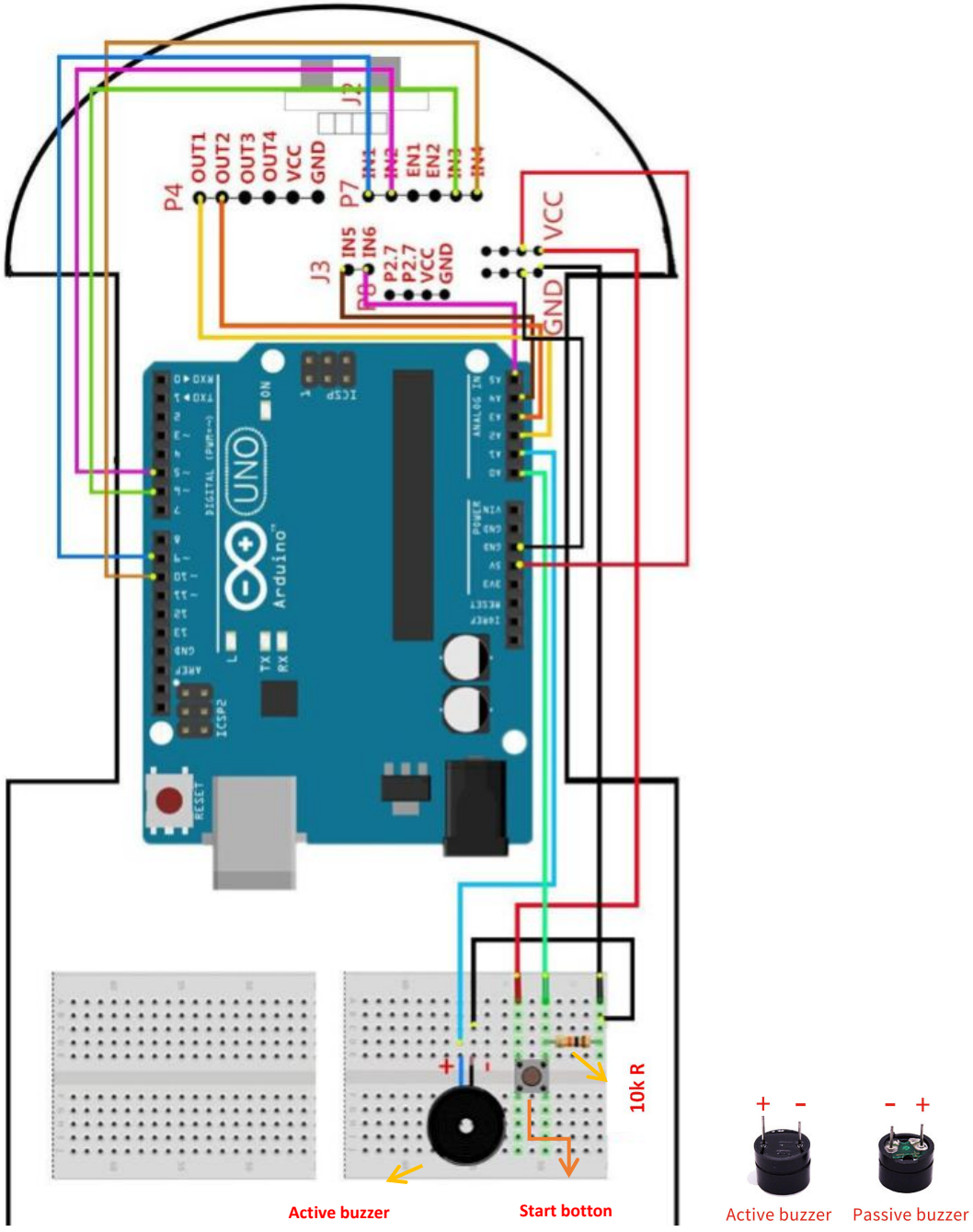
If you only use the ultrasonic obstacle avoidance function without displaying the distance, you can not install the 1602 sdisplay and yellow adjustable resistance.

4.6 Remote control wiring diagram



This experiment requires the use of an infrared remote control. Before use, please remove the insulated plastic sheet at the bottom of the remote control. The numbers 2,8,4,6 on the remote control correspond to advance, return back, turn left and ture right; 1,3 corresponds to left and right rotation; 5 is the stop button.

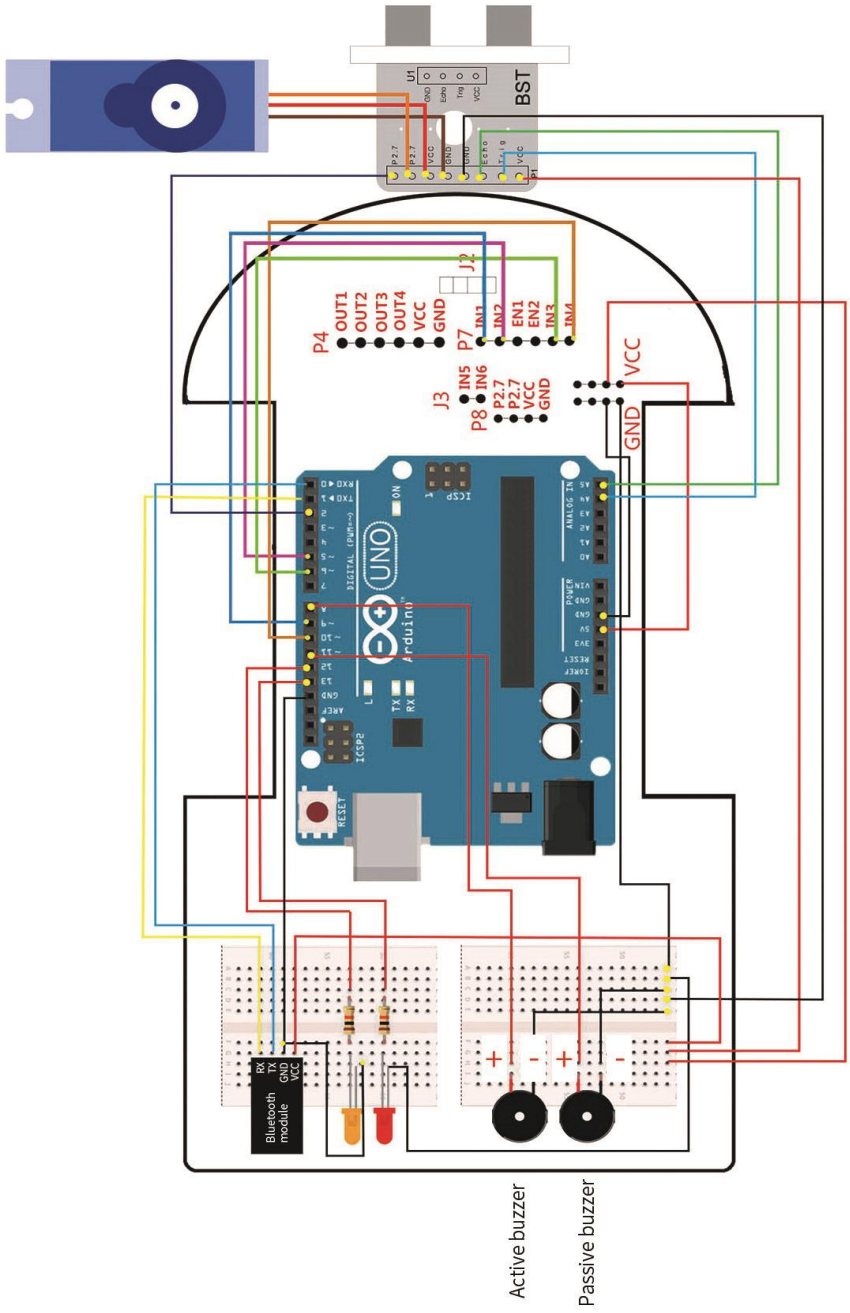
4.7 Tracking & Ultrasonic wiring diagram

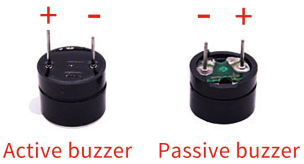


Note: At the J2 slot, insert the ultrasonic sensor as picture.

This experiment is a 2in1 comprehensive experiment. The car can detect the obstacles while tracking. When encountering an obstacle, the car stops waiting in place. After clearing obstacle, the car continues to track.

4.8 Bluetooth remote control wiring diagram





As the Bluetooth module and the serial port of the writer share the IO ports 0 and 1, it will cause failure in burning. Please remove the VCC of the Bluetooth module power supply before burning, and then supply power to the Bluetooth module after finishing.

Arduino smart car(with bluetooth)

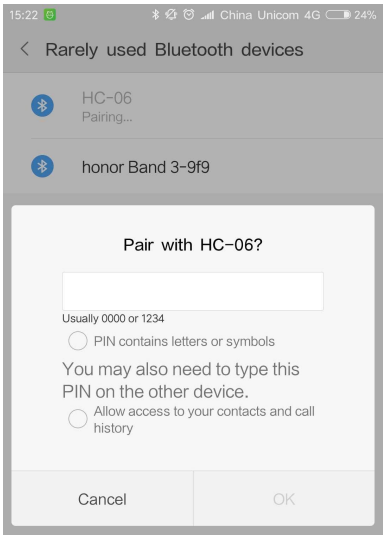
1.Package list

Arduino smart car(standard) + Bluetooth module

2.Introdution

The Arduino Smart Car (Bluetooth Version) has a Bluetooth module added to the standard configuration. Users can use the APP we provide to perform Bluetooth remote control. The Bluetooth remote control includes controlling the car's front, rear, left and right travel, adjusting the speed, and rotating. Smooth operation, good experience, suitable for users who need to play with remote control cars. The current APP program only supports Android phones.

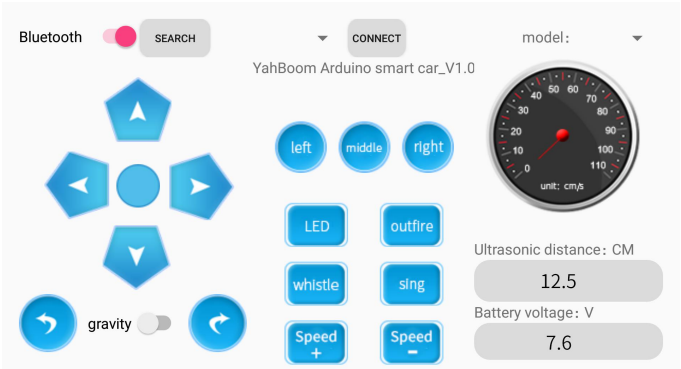
3. Bluetooth remote control instructions

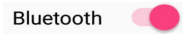


①First, connect the car according to the Bluetooth experiment wiring diagram P15.

②Turn on the smart car to ensure the power of the Bluetooth module is normal (the light of the Bluetooth module is blinking)

③Open the Bluetooth of the mobile phone and find the Bluetooth module device in the Bluetooth settings. Click to enter the password: 1234.



④Open Bluetooth App, remote control interface is as follows. If the Bluetooth function is not enabled on the phone, the display button next to the "Bluetooth switch" is dark. Click to open, as shown in the photo 

(Bluetooth can also be set in the mobile system)

⑤Click “Search”

⑥Click the drop-down button

to select the physical address of the connected Bluetooth module

⑦Click“connect”. You will be prompted after successful connection. If the connection fails, you return to the first step to check and try to reconnect.