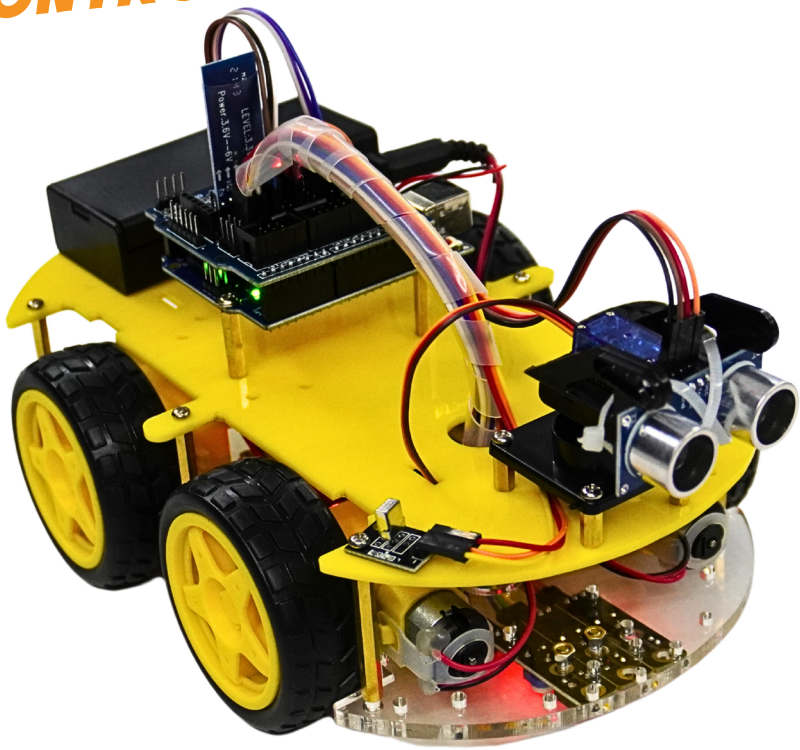
EST 2014

BOT SHOP

LET THE FUN BEGIN

MULTIFUNCTION BLUETOOTH CONTROLLED SMART CAR



Bluetooth controlled
10 **Pre-written** programs
Explanation video

What is in the BOX

- • Sensor shield
- • 40x Female to Female jumper cable
- • Screwdriver
- • Ultrasonic
- • 4x Wheels
- • Arduino uno R3
- • 3x Line following sensors
- • Insulation tape
- • H-bridge motor driver
- • Remote
- • 4x Motor brackets
- • Servo pan-tilt kit
- • 18650 Battery holder
- • Uno cable
- • Servo
- • IR receiver
- • Bluetooth module
- • 4x Double shaft motors
- • 34x Nuts
- • 6x Long stand-offs
- • 3x Medium stand-offs
- • 6x Short stand-offs
- • 10x Extra long screws
- • 24x Long screws
- • 10 medium screws
- • 2x Small screws
- • 2x Chassis
- • 2x Cable ties
- • Corrugated sleeve

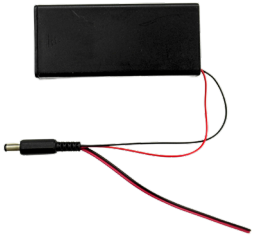
Nuts

Medium screw

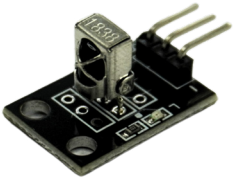
Extra long screw

Small screw

Long screw

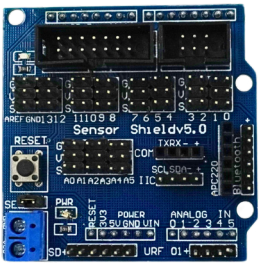


18650 Battery holdery

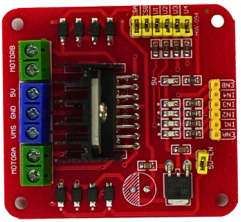


IR receiver

Servo

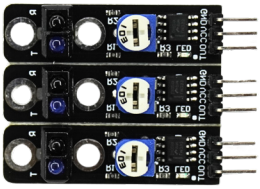


Sensor shield



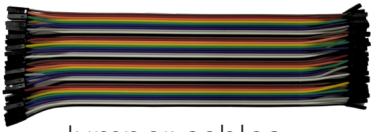
H-bridge motor driver

Screwdriver



Line following sensors

Insulation tape

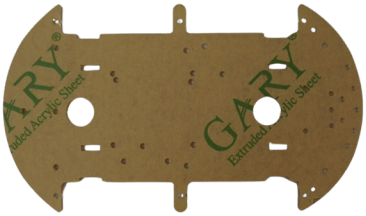


Jumper cables

Plastic sleeve

Cable ties

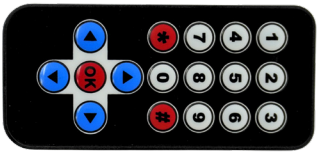
Motor brackets



Chassis

Small Stand-off

Medium Stand-off

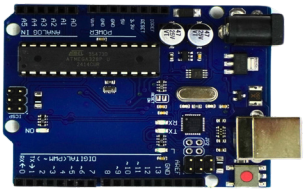


Remote

Long Stand-off

CD

Bluetooth module



Arduino uno R3

Servo pan-tilt kit

Uno cable

Ultrasonic sensor

Double shaft motors

Wheels

Diagram:

Remote Diagram to show you what the code is, each button sends to the arduino uno when it is pressed

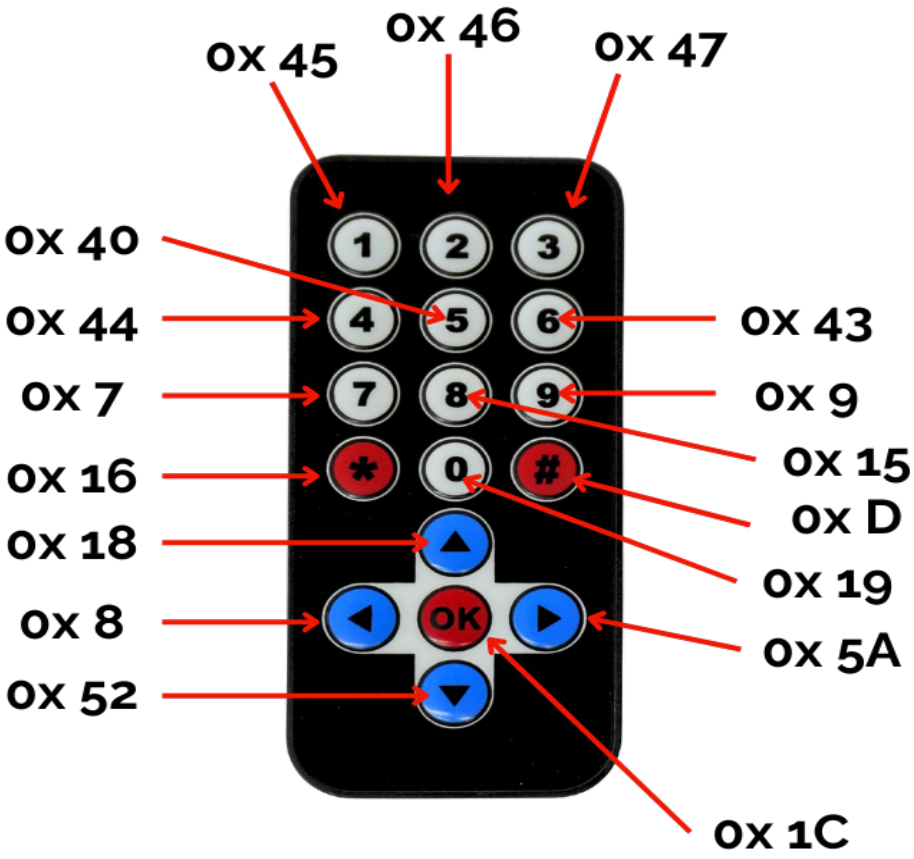


Diagram:

Diagram for motors, battery holder and where to connect the sensor shield to the motor driver

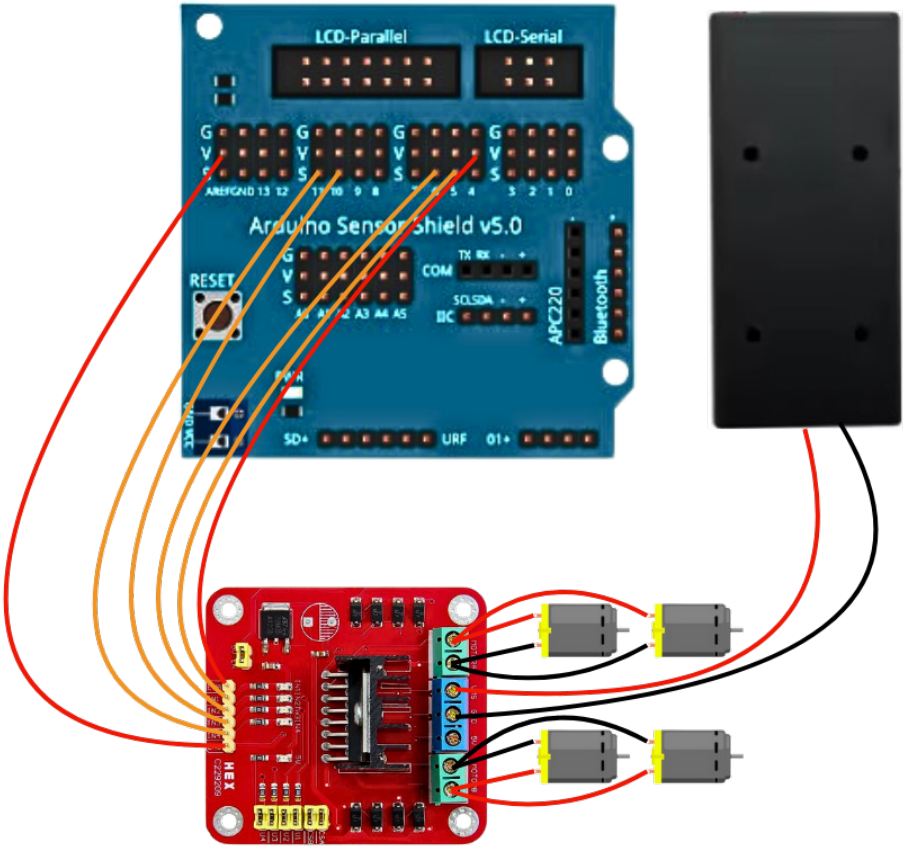


Diagram:

Diagram for IR receiver, servo, Bluetooth module and ultrasonic

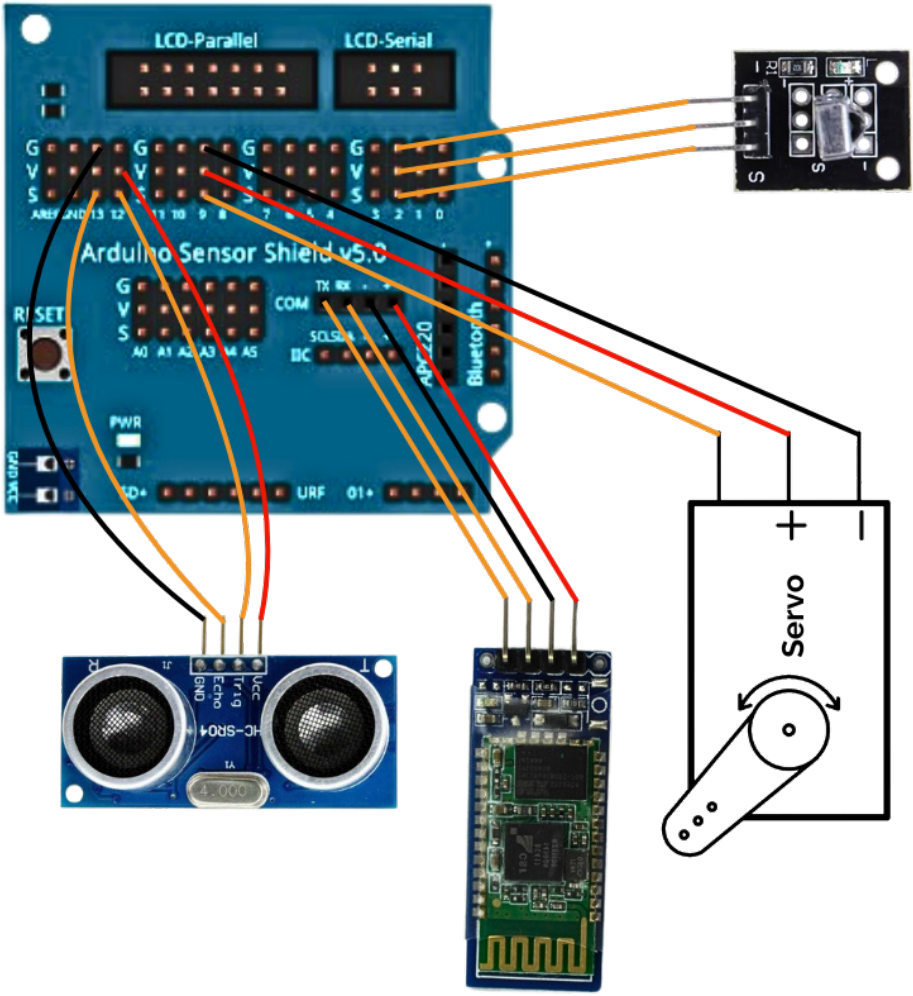


Diagram:

Diagram for the line following sensors

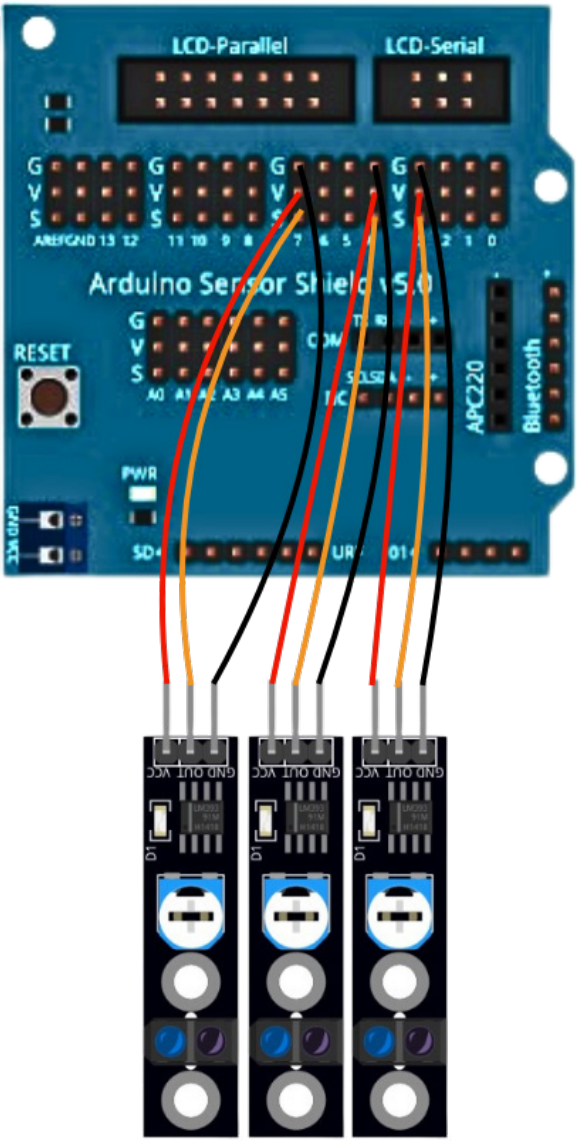
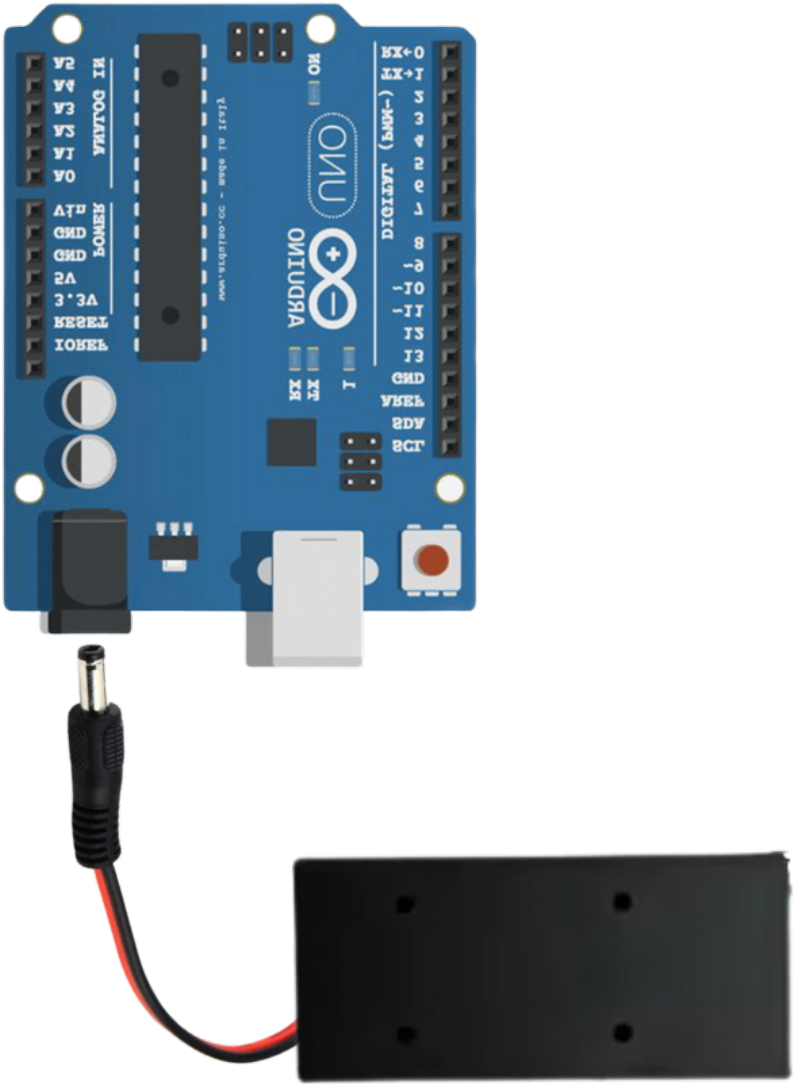


Diagram:

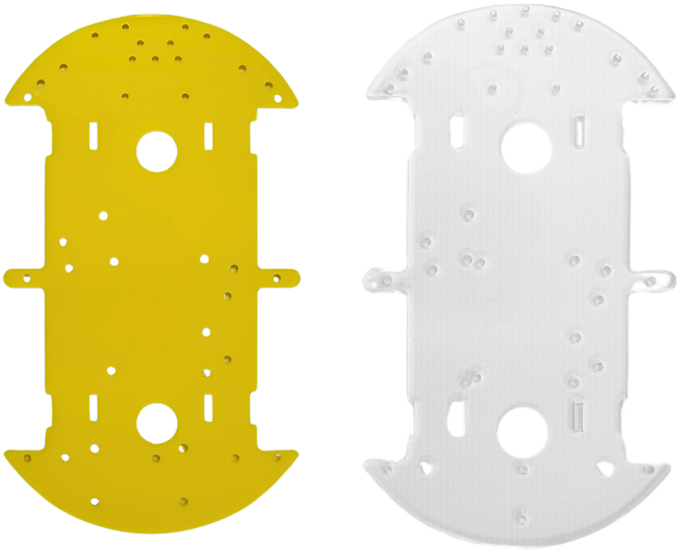
Diagram for the arduino uno R3 and the battery holder



Parts needed:

2x Chassis

Step 1:



Take the two chassis pieces. Remove the protective covers from both. Follow the picture above for guidance.

Parts needed:

4x Double shaft motors

4x Motor brackets

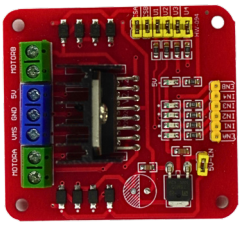
4x Nut

4x Extra long screw

Step 2:

Take the four motor brackets and attach each one to the four motors using extra-long screws and nuts. Make sure to install the motor bracket so that the holes shows downwards. Do the same for all four motors

Parts needed:

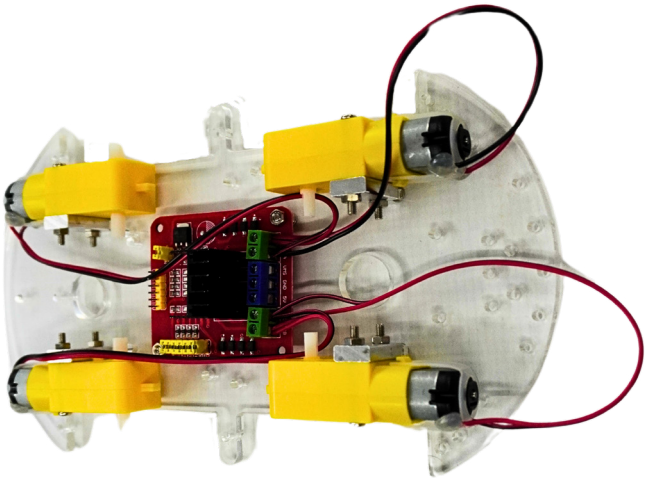


H-bridge motor driver

12x Medium screw

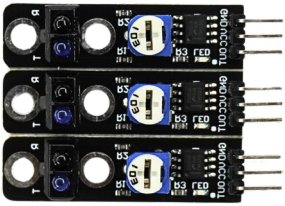
12x Nut

Step 3:



Attach all four motors to the transparent chassis using medium screws. Then, secure the motor driver to the chassis with medium screws and nuts. Once the motors and motor driver are in place, connect the two motors on the left side to the left-side screw terminals of the motor driver module, ensuring that the red wires are connected together and the black wires are connected together. Repeat the same process for the two motors on the right side, keeping the wire colours consistent.

Parts needed:

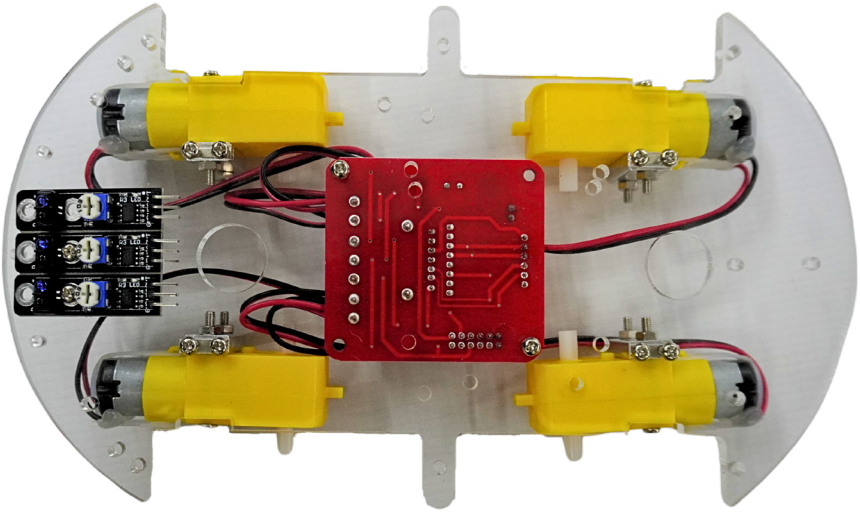


Line following sensors

3xSmall screw

3x Nut

Step 4:

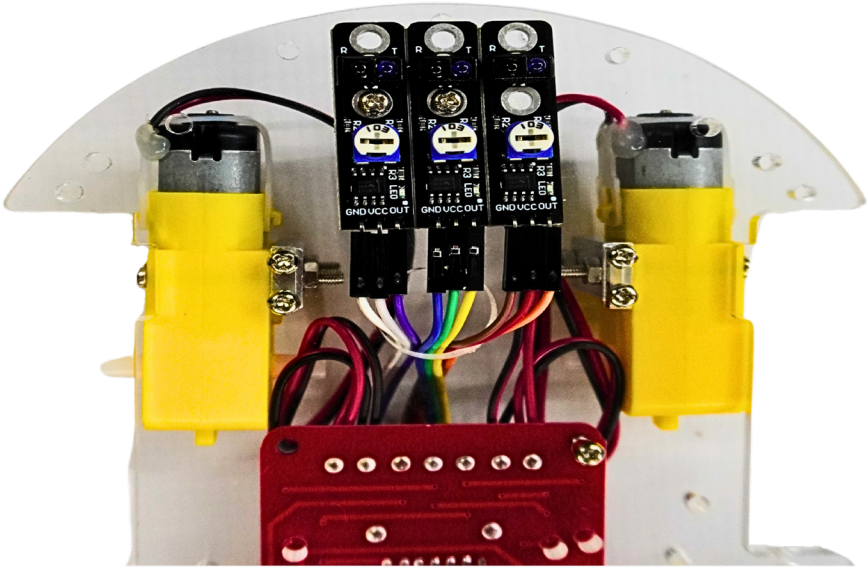


Place the three line-following sensors on the chassis and secure them using short screws and nuts.

Parts needed:

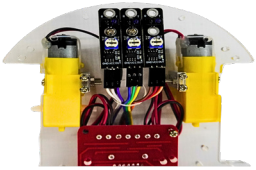
9x Jumper wires

Step 5:



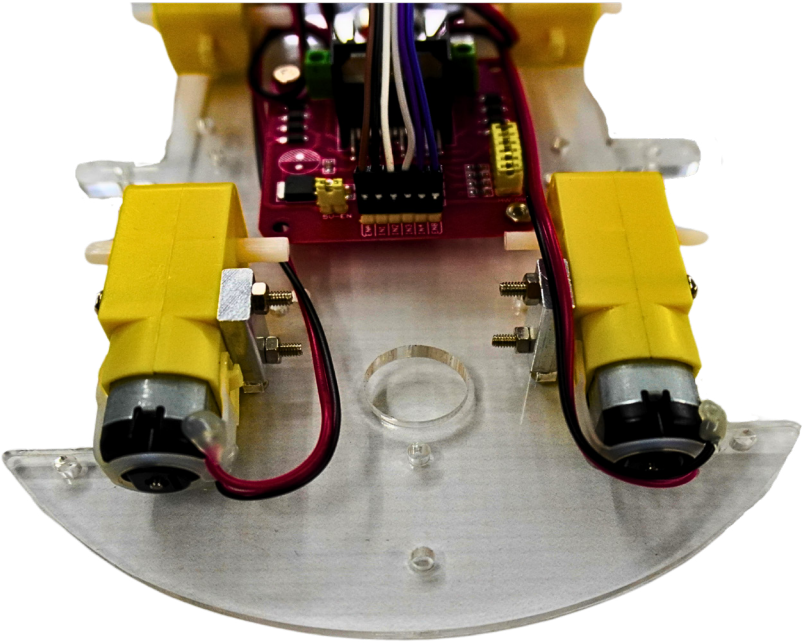
Connect the female-to-female jumper wires to the male pins on the line-following sensors. The wire colours don't matter. Put the wire through the big hole on the chassis.

Parts needed:



Step 5

Step 6:



Connect the female-to-female jumper wires to the male pins on the motor driver board and refer to the pin-out in the beginning of the manual.

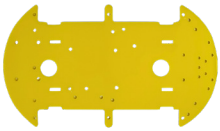
Parts needed:

Arduino uno R3

Medium Stand-off

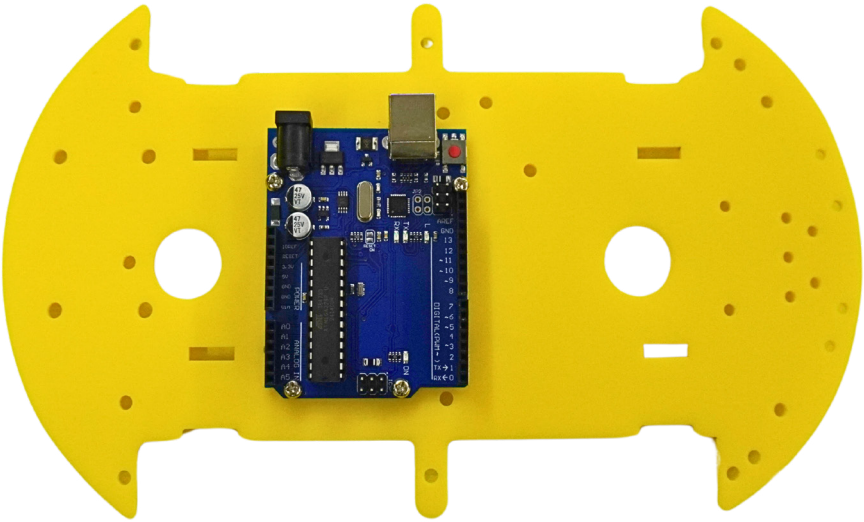
8x Medium screw

8x Nut



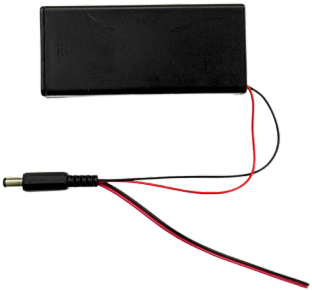
Yellow chassis

Step 7:



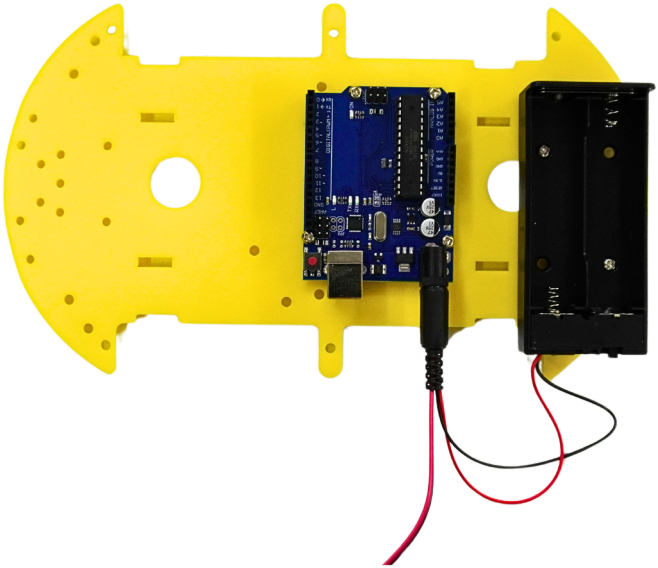
Attach the medium stand-offs to the Arduino Uno R3. Then, mount it onto the yellow chassis using medium screws and nuts.

Parts needed:



18650 Battery holdery

Step 8:



Attach the battery holder to the yellow chassis using short screws and nuts. After that, connect the Arduino Uno R3 to the battery holder by plugging the male DC jack from the battery holder into the female DC jack on the Arduino.

Parts needed:

Servo

Servo pan-tilt kit

Step 9:

Place the blue servo motor into one side of the servo pan-tilt kit. Then, take the other half and press it over the motor so both sides line up nicely. Once they're aligned, press them together. Finally, use two of the medium-length thin screws to secure the two halves.

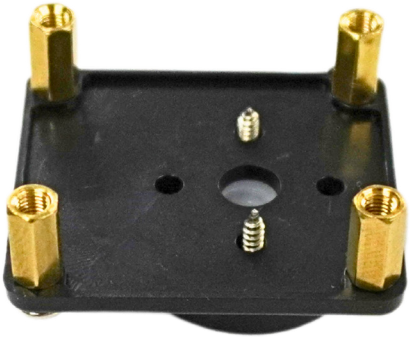
Parts needed:

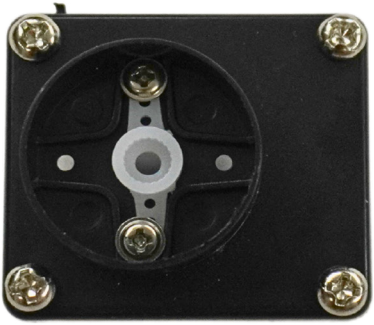
Bottom

Small Stand-off

Small screw

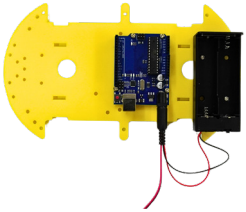
Step 10:





Attach four of the short stand-offs to the bottom of the servo pan-tilt kit using the short screws. Make sure they're securely fastened.

Parts needed:



Step 8

Step 10

Small screw

Step 11:

Take the assembly from Step 10 and attach it to the yellow chassis using the short screws. Make sure everything is firmly secured.

Parts needed:

Cable ties

Ultrasonic sensor

Step 12:

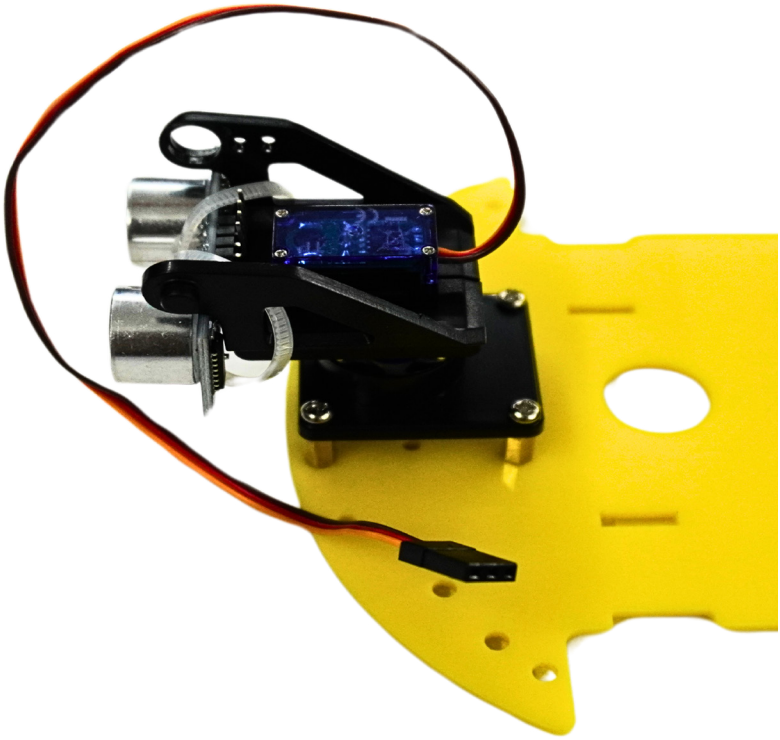
Use a cable tie to attach the ultrasonic sensor to the servo assembly from Step 9. Make sure it's securely fastened and properly aligned.

Parts needed:

Step 12

Step 11

Step 13:



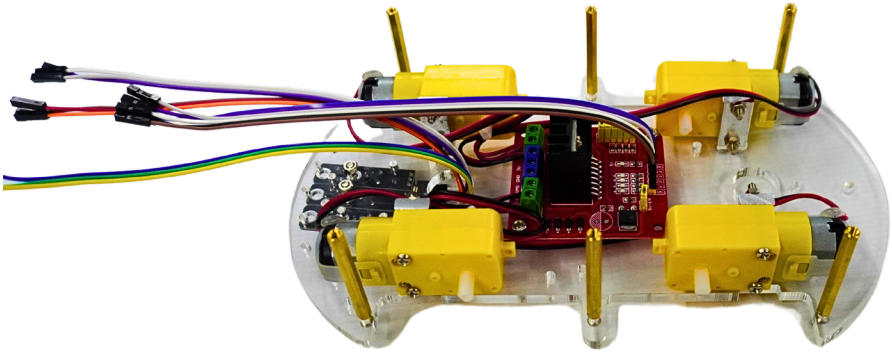
Gently press the shaft of the servo motor into the hole on the white mount located at the base of the servo pan-tilt kit. Make sure it's a good fit.

Parts needed:

8x Long Stand-off

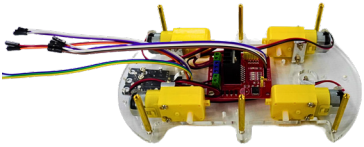
8x Medium screw

Step 14:

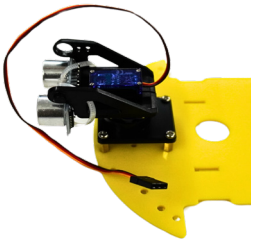


Attach the long stand-offs to the transparent chassis using medium screws. Ensure they're securely fastened and properly aligned.

Parts needed:

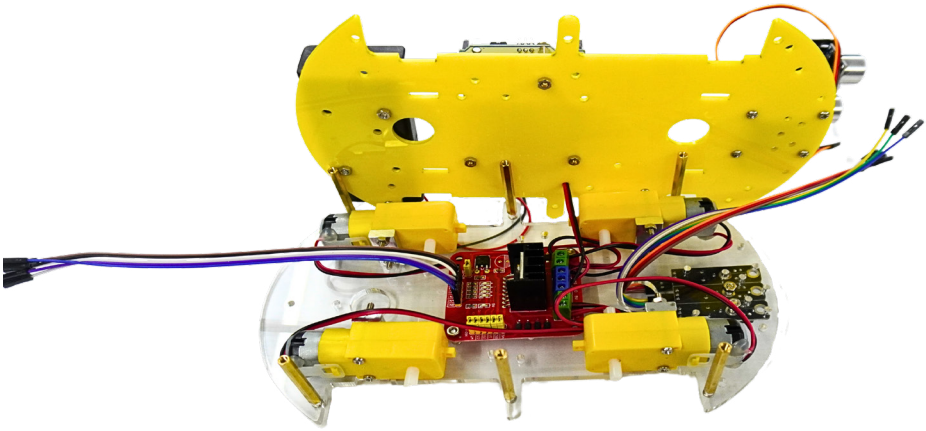


Step 14



Step 13

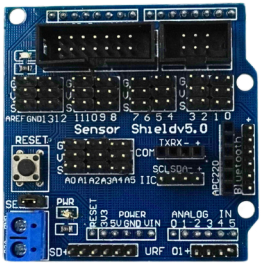
Step 15:



Connect the red wire from the battery holder on the yellow chassis to the VMS screw terminal on the motor driver module. Then, connect the black wire from the battery holder to the GND screw terminal on the motor driver module.

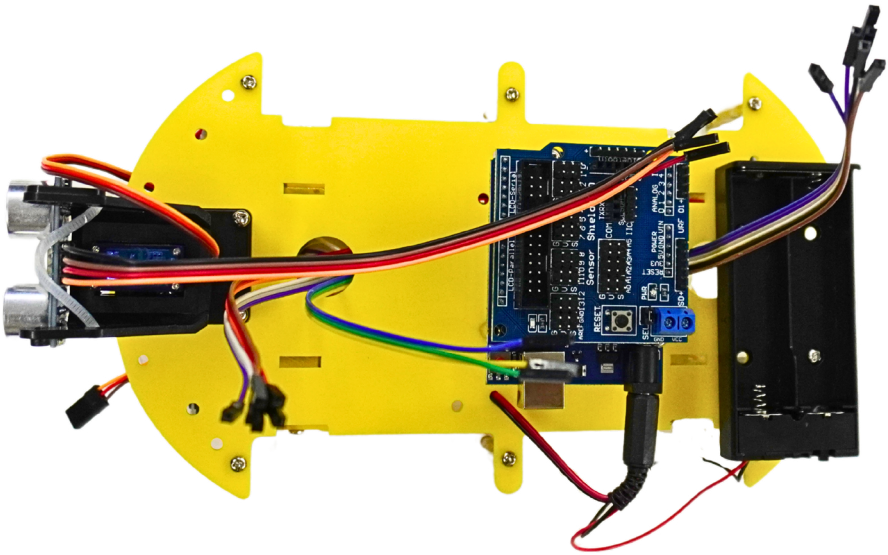
Parts needed:

8x Medium screw



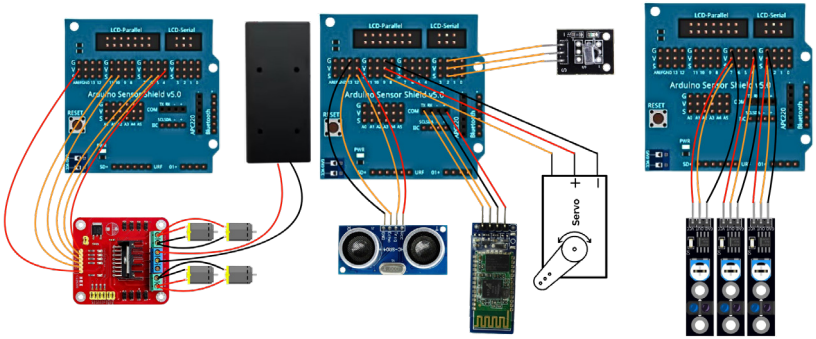
Sensor shield

Step 16:

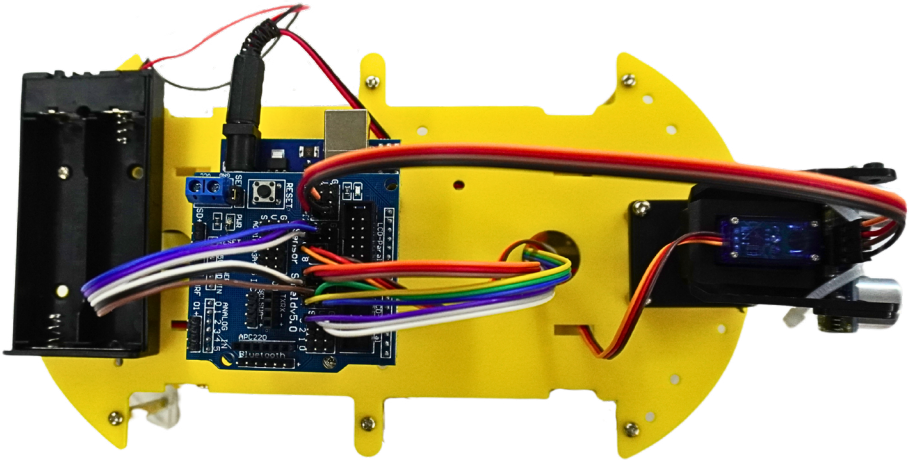


Attach the yellow chassis to the stand-offs installed in Step 14 using medium screws. Make sure to pull the wires through the two large holes in the yellow chassis as you secure it. Press the Arduino sensor shield onto the Arduino Uno R3. Then, refer to the pin-outs at the beginning of the manual to connect the female connectors to the corresponding male headers on the sensor shield.

Parts needed:

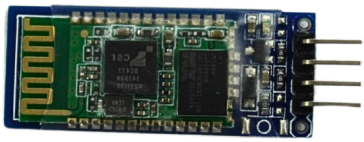


Step 17:



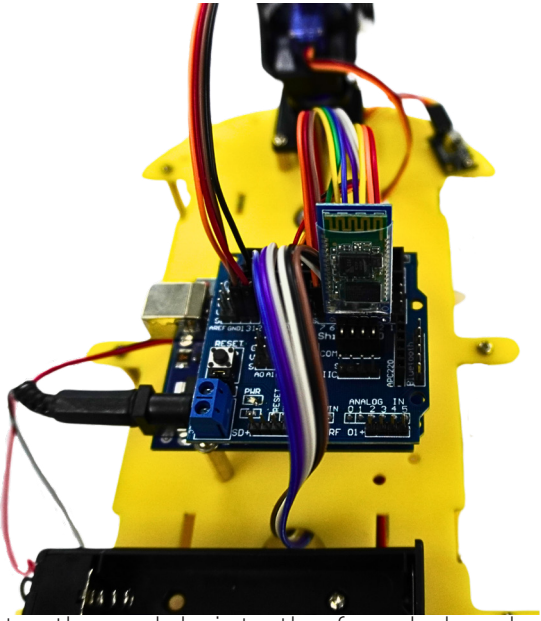
Then, refer to the pin-outs at the beginning of the manual to connect the female connectors to the corresponding male headers on the sensor shield.

Parts needed:



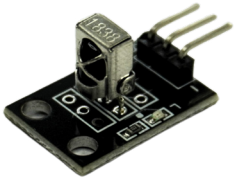
Bluetooth module

Step 18:



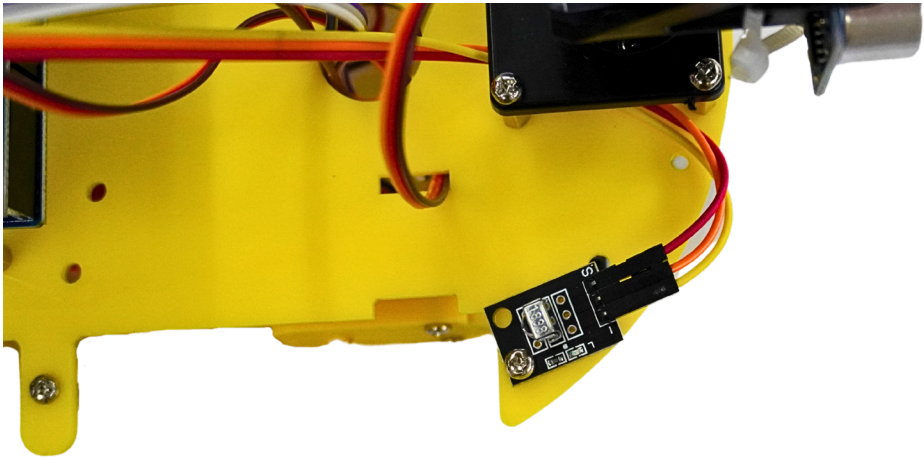
Insert the Bluetooth module into the female header on the sensor shield marked with TX RX-+. Ensure that the Vcc pin aligns with the pin labeled with a + sign.

Parts needed:



IR receiver

Step 19:

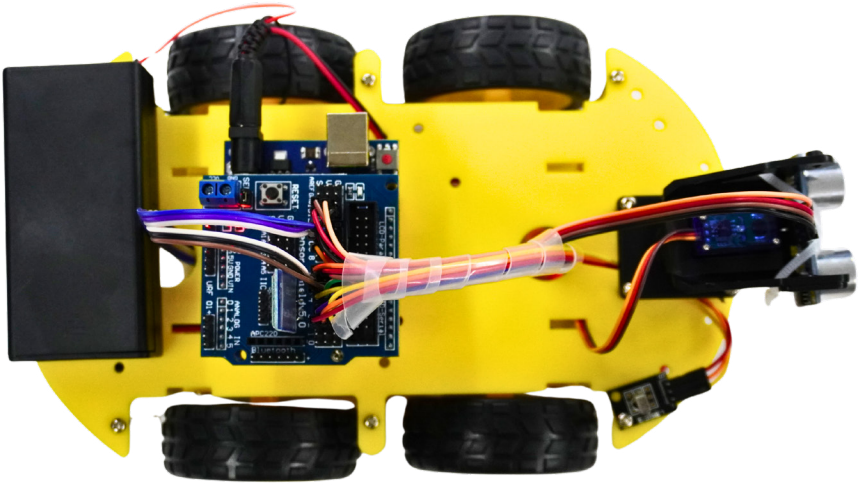


Loosen the screw on the corner of the top chassis that holds it onto the stand-off. Then, connect three female-to-female jumper cables to the IR receiver module. Attach the other ends of these cables to the sensor shield according to the pin-out diagram at the beginning of the manual.

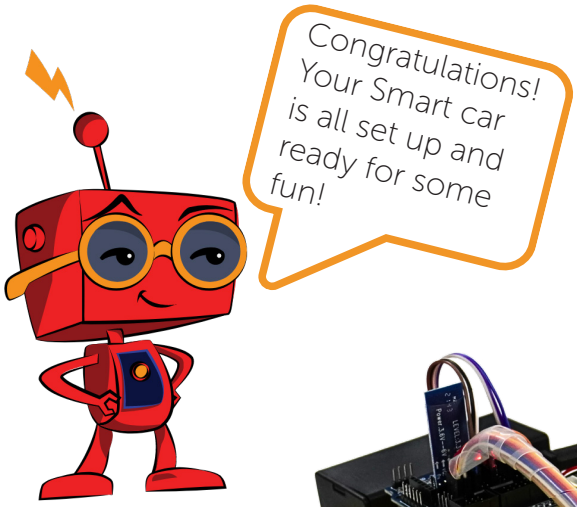
Parts needed:

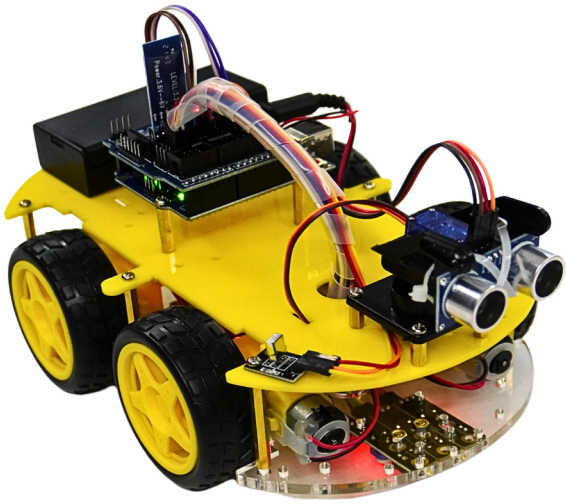
Plastic sleeve

Step 20:



Use the plastic sleeve to bundle all the loose wires together, as shown in the picture. Then, push the wheels onto the white shafts of the plastic geared motors.





Features for the Multifunction Bluetooth Controlled Smart Car Kit

- **Tracking**
- **Obstacle avoidance**
- **Infrared remote control**
- **Bluetooth remote control**

Scan the **QR Code** to get the IR remote control library.