I. Warning

• Children under 12 years old must be supervised by an adult during the assembly process.

• The installation parts include sharp screws—handle with care.

• Do not touch high-speed rotating components such as motors or servos while the car is in operation.

• Use only compliant 18650 lithium batteries (button-top, 3.7V). Damaged, abnormal-voltage, or incompatible batteries are prohibited.

• Pay attention to polarity when installing the battery. Avoid short-circuiting the positive and negative terminals to prevent motherboard damage or battery overheating/explosion.

• Turn off the power switch when the car is not in use to avoid battery over-discharge.

• This product contains a coin battery. A coin battery can cause serious internal chemical burns if swallowed.

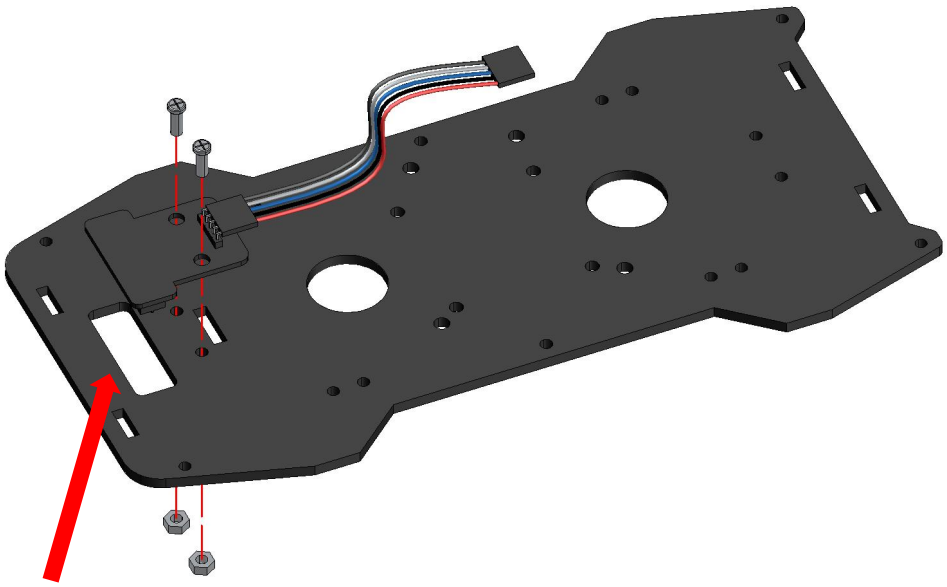
• Dispose of used batteries immediately. Keep new and used batteries away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

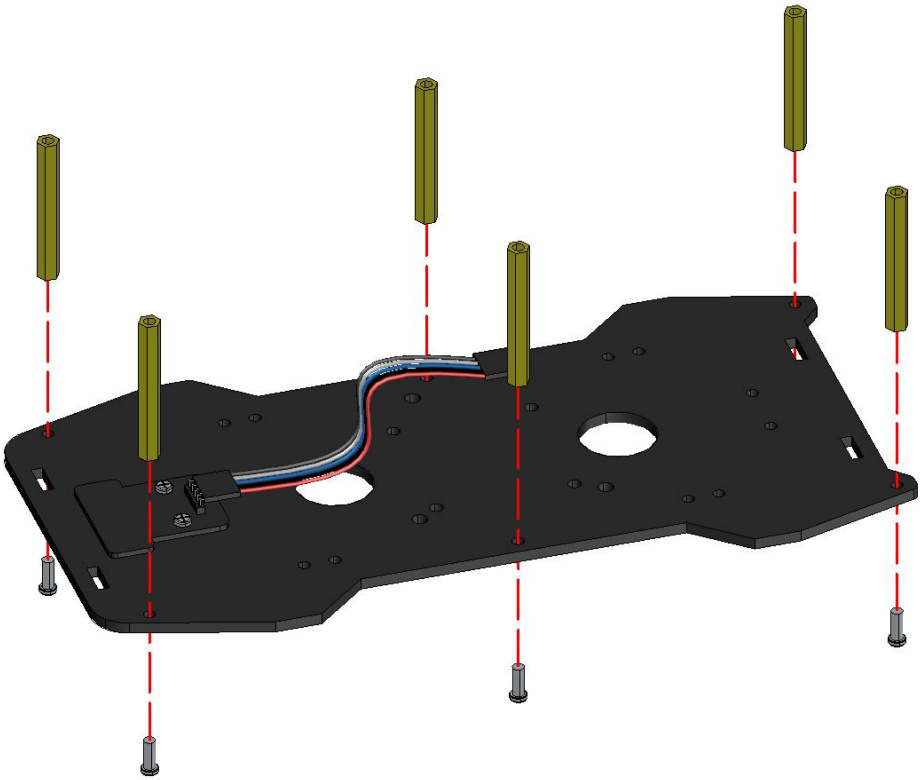
II. Cleaning and Maintenance Guide

• Wipe dust or dirt from the car's surface with a dry cloth once a week.

• Regularly inspect the battery for swelling, leakage, or corrosion. Discontinue use immediately if any defects are found.

• If the car will not be used for an extended period, remove the battery to prevent over-discharge damage.

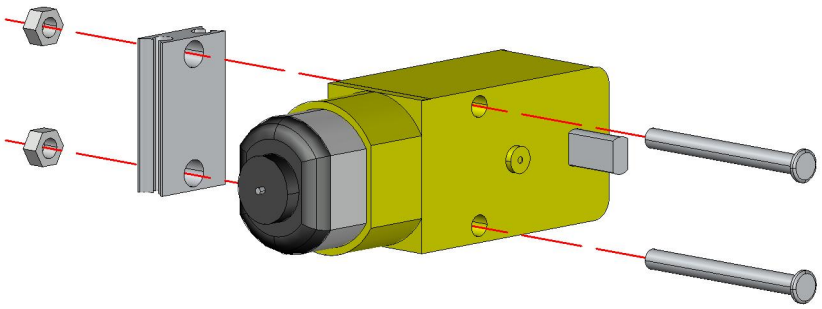
<table>
<tr><th colspan="3">Step 1 Installing Trace Sensor</th></tr>
<tr><td rowspan="2">Parts List</td><td>Acrylic Lower Board*1</td><td>Trace Sensor*1</td></tr>
<tr><td>M3*10MM Round Head Screws*2</td><td>M3 Nickel-Plated Nuts*2</td></tr>
<tr><td>Splicing Diagram</td><td colspan="2"> 
With the hole of Trace Sensor</td></tr>
<tr><td>Notes</td><td colspan="2">1. You need to tear off the plastic film of the acrylic base first;
2. Screwing steps: first put the nut on the screw by hand and then tighten it;
3. Tightening method: hold down the nut and screw the screw with a screwdriver, or hold down the screw and screw the nut with a cross socket;
4. Here first plug in the Dupont wire, the red wire connects to the V pin of the tracing sensor, the black wire connects to the G pin, the blue wire connects to the L pin, the white wire connects to the M pin, and the gray wire connects to the R pin.</td></tr>
</table>

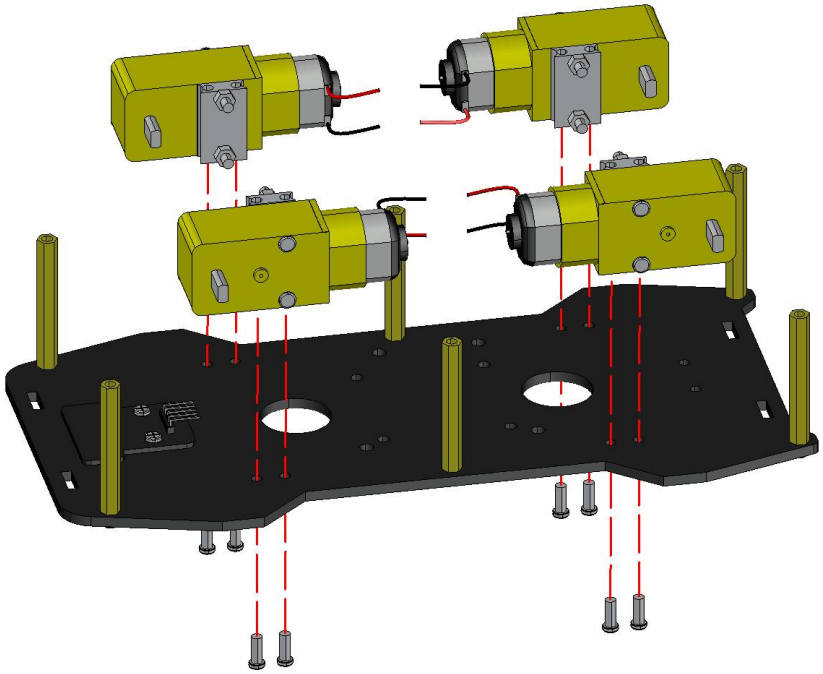
Step 2 Installing the Copper Pillars on the Board		
Parts List	M3*40MM Dual-pass Copper Pillar*6	M3*10MM Round Head Screws*6
Splicing Diagram		
Notes	Screw the copper pillar from the bottom of the board.	

Step 3 Installing Motor

Parts List	TT DC Geared Motors*4	Motor Brackets*4	M3*30MM Round Head Screws*8
	M3*10MM Round Head Screws*8	M3 Nickel-Plated Nuts*8	

Splicing Diagram

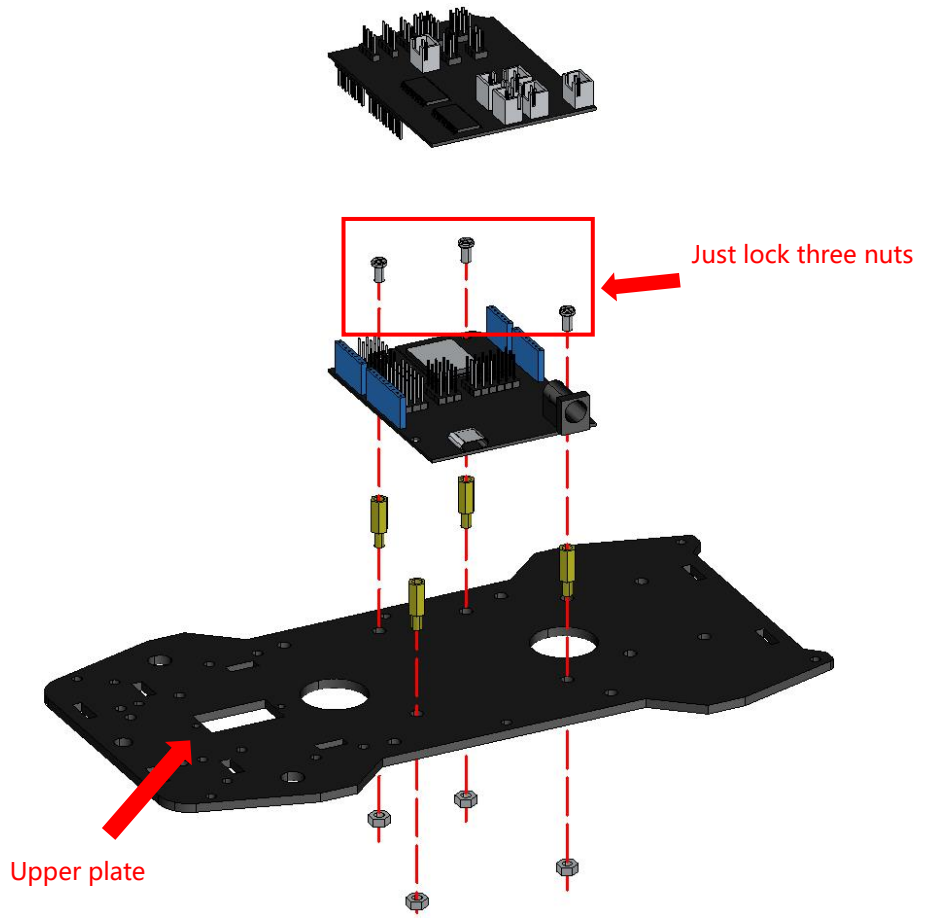


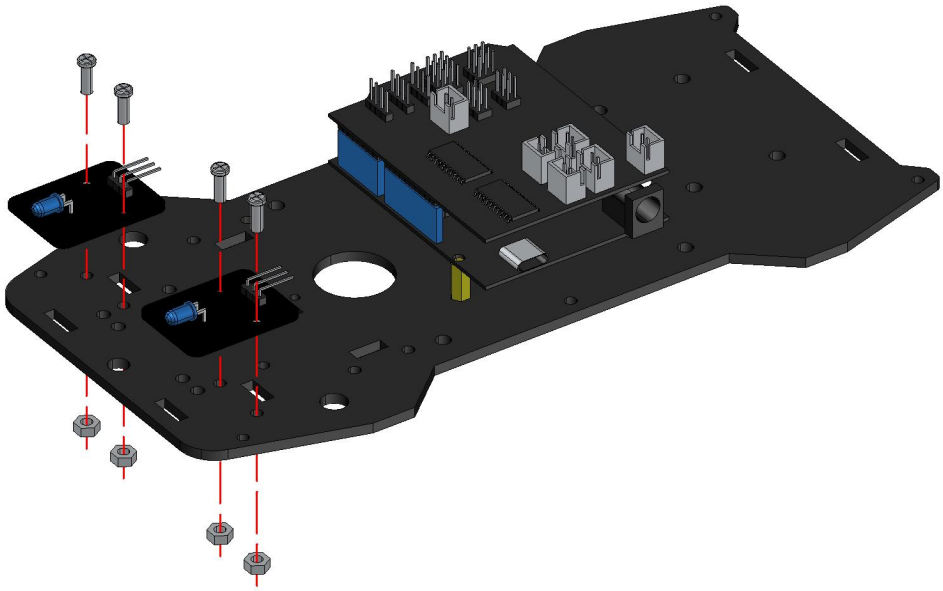


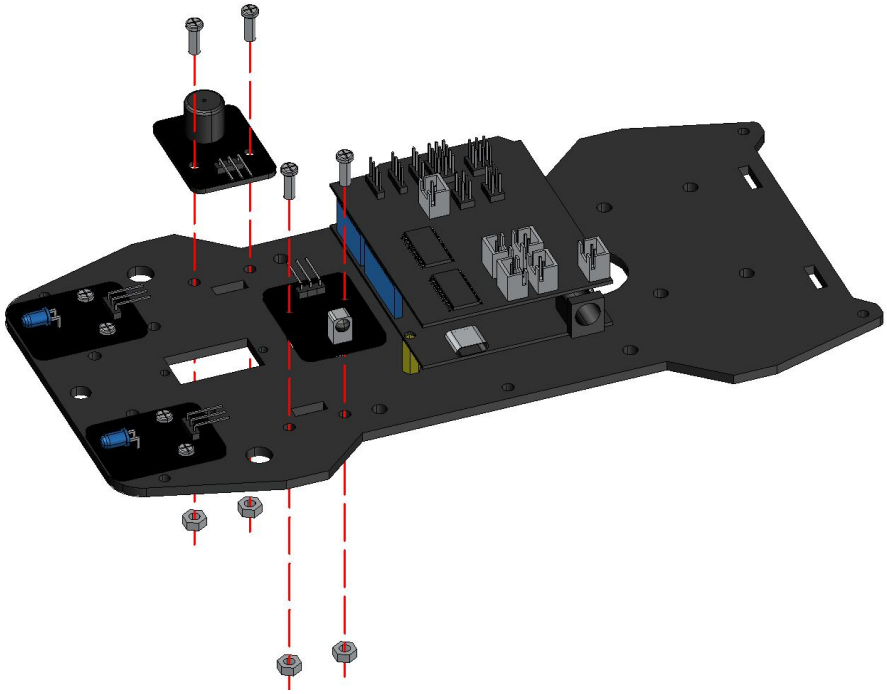
Notes

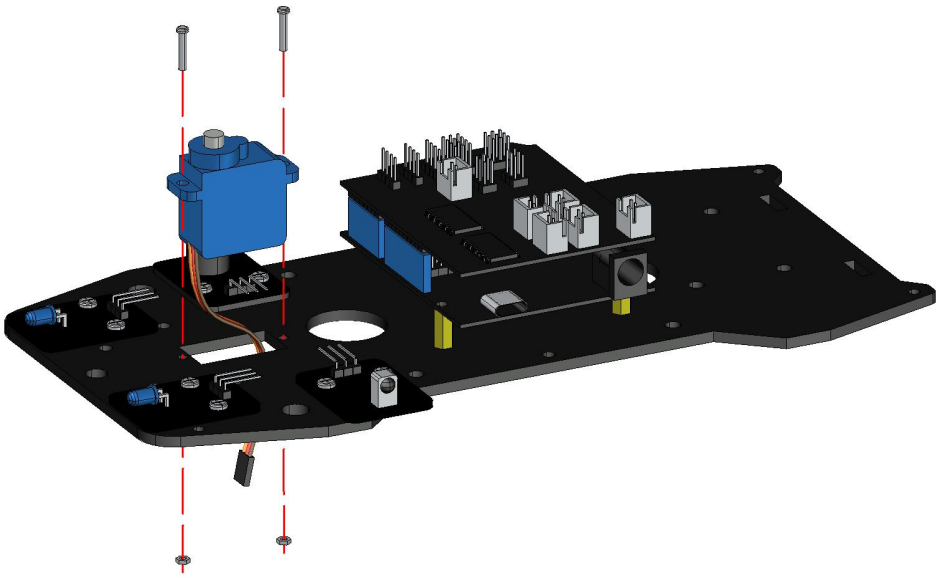
1. Fix the metal bracket on the motor first;
2. The direction of motor installation should be strictly as shown in the figure, and the end of the motor belt line should be placed inward;
3. When fixing the motor, try to keep the motor level and tighten it to prevent the motor from loosening during movement.

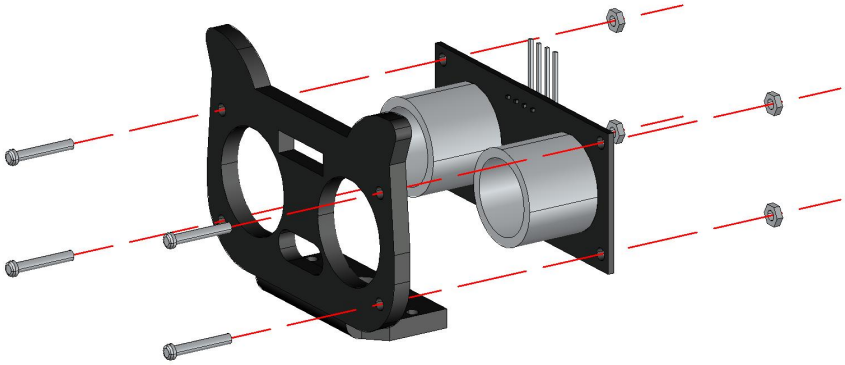
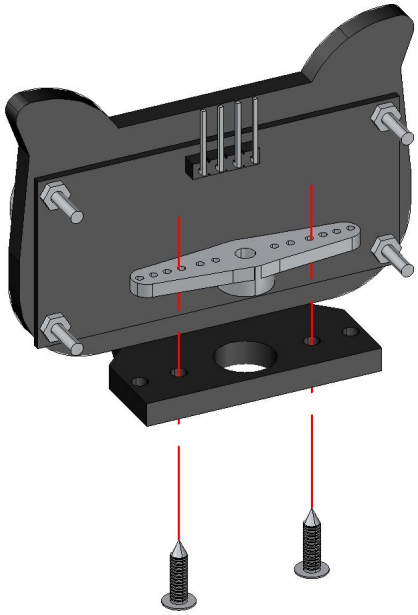
Step 4 Installing Controller Board and Car Shield

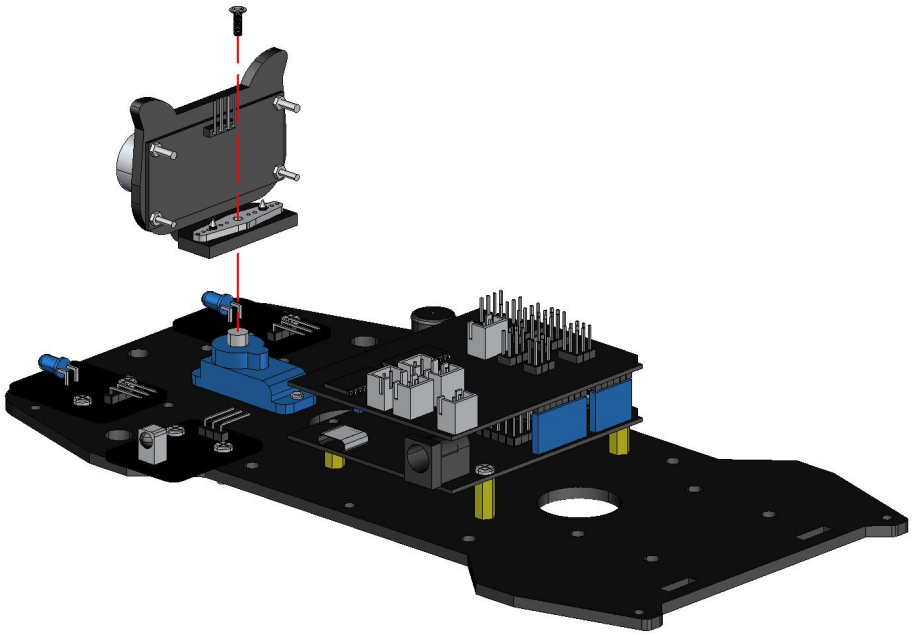
Parts List	ESP32 Max V1.0 Controller Board*1	ESP32-Car-Shield*1	M3*14MM Single-pass Copper Pillar*4
	M3 Nickel-Plated Nuts*4	M3*10MM Round Head Screws*3	Acrylic Upper Board*1
Splicing Diagram			
Notes	1.First, the single copper pillar is fixed on the upper board with a nut, which needs to be tightened; 2.Then use screws to fix the ESP32 board on a single copper pillar, only three places can be fixed here as shown; 3.Insert the car expansion board into the ESP32 controller board according to the corresponding pin number.		

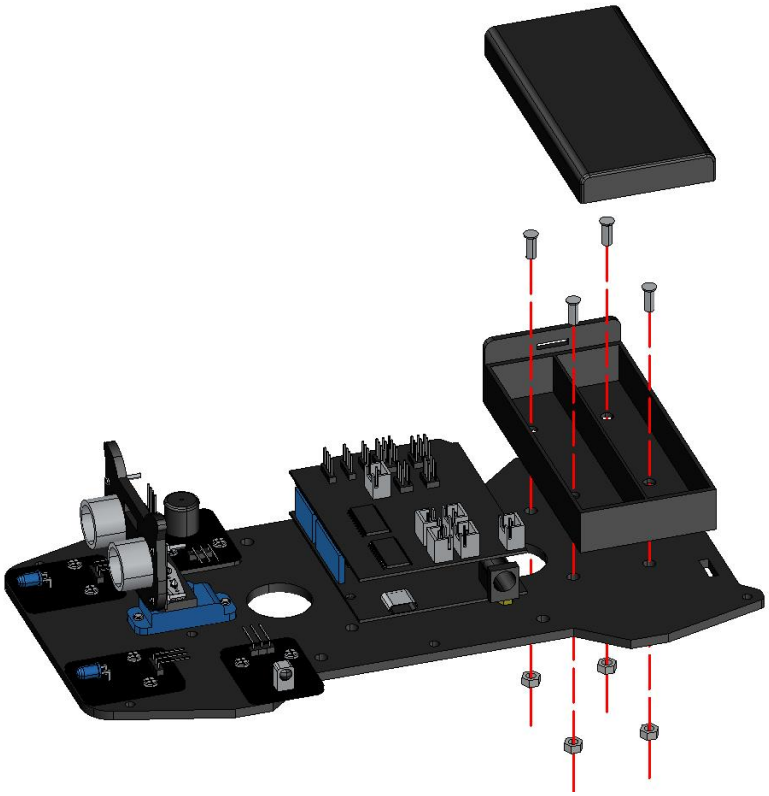
<table>
<tr><th colspan="3">Step 5 Installing Blue LED Module</th></tr>
<tr><td rowspan="2">Parts List</td><td>Blue LED Module*2</td><td>M3*10MM Round Head Screws*4</td></tr>
<tr><td colspan="2">M3 Nickel-Plated Nuts*4</td></tr>
<tr><td>Splicing Diagram</td><td colspan="2">  </td></tr>
</table>

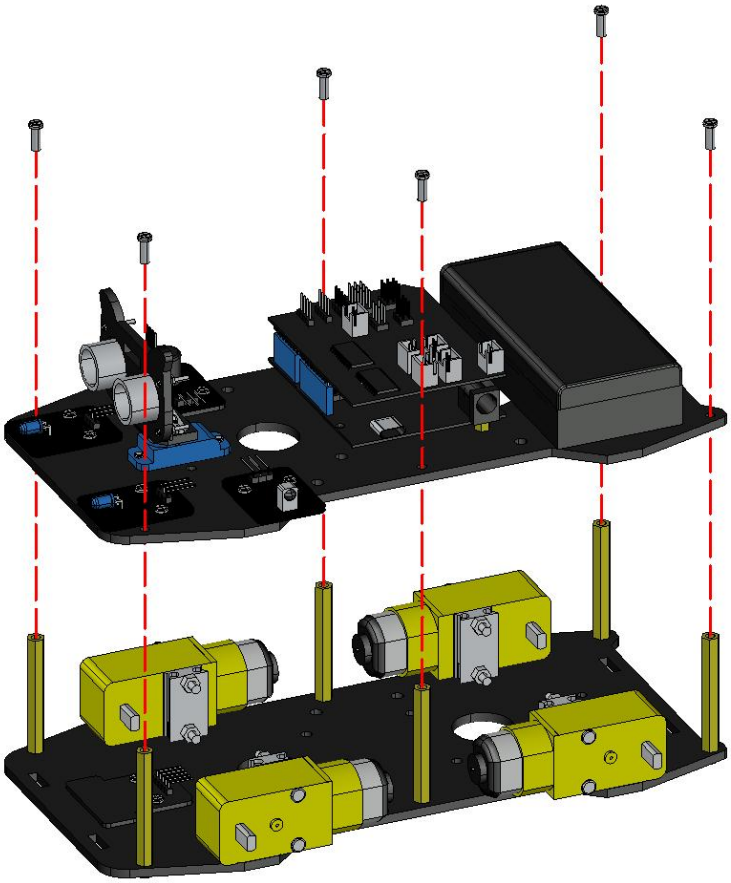
<table>
<tr><th colspan="3">Step 6 Installing P-Buzzer Module And IR Receiver Module</th></tr>
<tr><td rowspan="2">Parts List</td><td>P-Buzzer Module*1</td><td>IR Receiver Module*1</td></tr>
<tr><td>M3*10MM Round Head Screws*4</td><td>M3 Nickel-Plated Nuts*4</td></tr>
<tr><td>Splicing Diagram</td><td colspan="2">  </td></tr>
</table>

Step 7 Installing Servo Motor			
Parts List	Servo SG90 9G*1	M2*10MM Round Head Screws*2	M2 Nickel-Plated Nuts*2
Splicing Diagram			
Notes	Pay attention to the direction of the steering wheel shaft.		

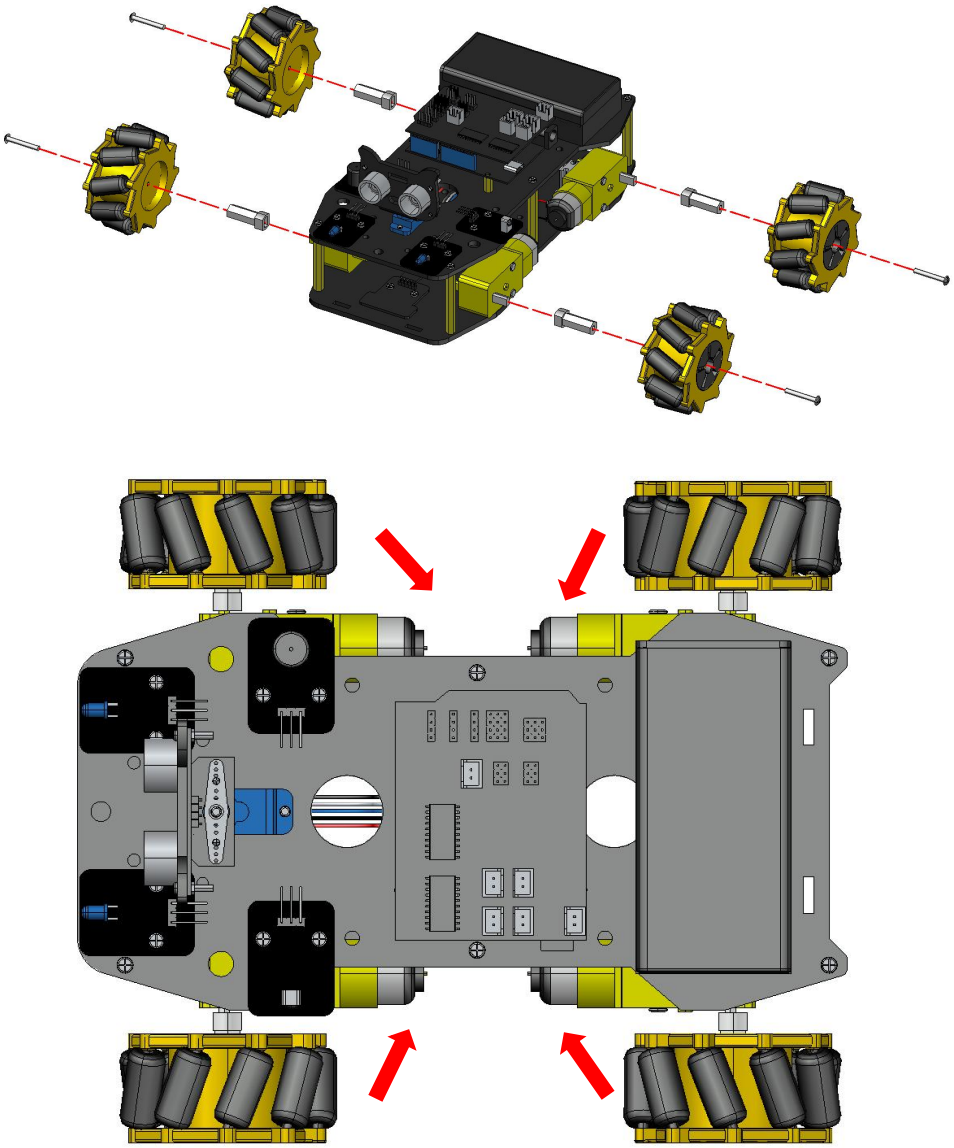
<table>
<tr><th colspan="4">Step 8 Installing Ultrasonic Module and Its Bracket</th></tr>
<tr><td rowspan="2">Parts List</td><td>Ultrasonic Bracket*1</td><td>Ultrasonic Sensor*1</td><td>M2*10MM Round Head Screws*4</td></tr>
<tr><td>M2 Nickel-Plated Nuts*4</td><td>Servo Rocker Arm*1</td><td>M1.4*5MM Large Round Flat Head Tapping Screws*2</td></tr>
<tr><td>Splicing Diagram</td><td colspan="3"> 
  </td></tr>
<tr><td>Notes</td><td colspan="3">Servo rocker arm is from the servo package .</td></tr>
</table>

Step 9 Installing Ultrasonic Sensor	
Parts List	Small screw from servo package*1
Splicing Diagram	
Notes	1.This screw comes from the servo package; 2.Here, install the ultrasonic sensor facing directly forward.

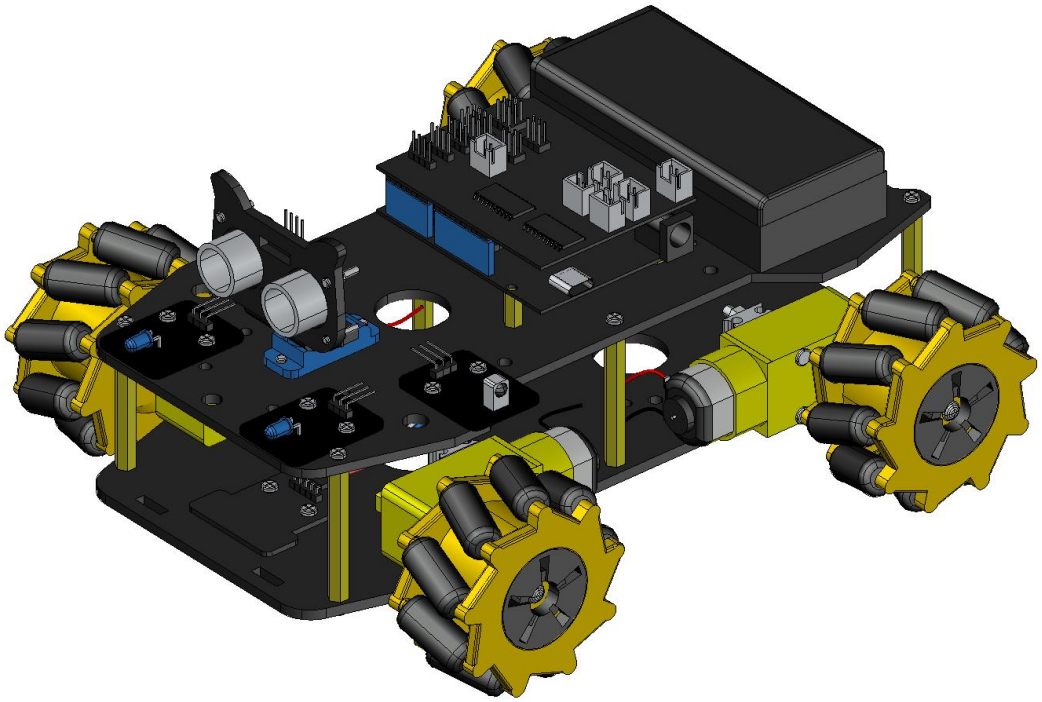
Step 10 Installing Battery Holder			
Parts List	18650 Battery Holder*1	M3*8MM Flat Head Screws*4	M3MM Nickel-Plated Nuts*4
Splicing Diagram			
Notes	The screws in the battery case need to be tightened so that the flat head nut fits against the bottom of the battery case.		

Step 11 Installing Acrylic Plate			
Parts List	Installed Upper Acrylic Plate*1	Installed Lower Acrylic Plate*1	M3*10MM Round Head Screws*6
Splicing Diagram			
Notes	Pass the connecting wire of the module on the lower acrylic plate through the round hole on the upper acrylic plate.		

Step 12 Installing Mecanum Wheels

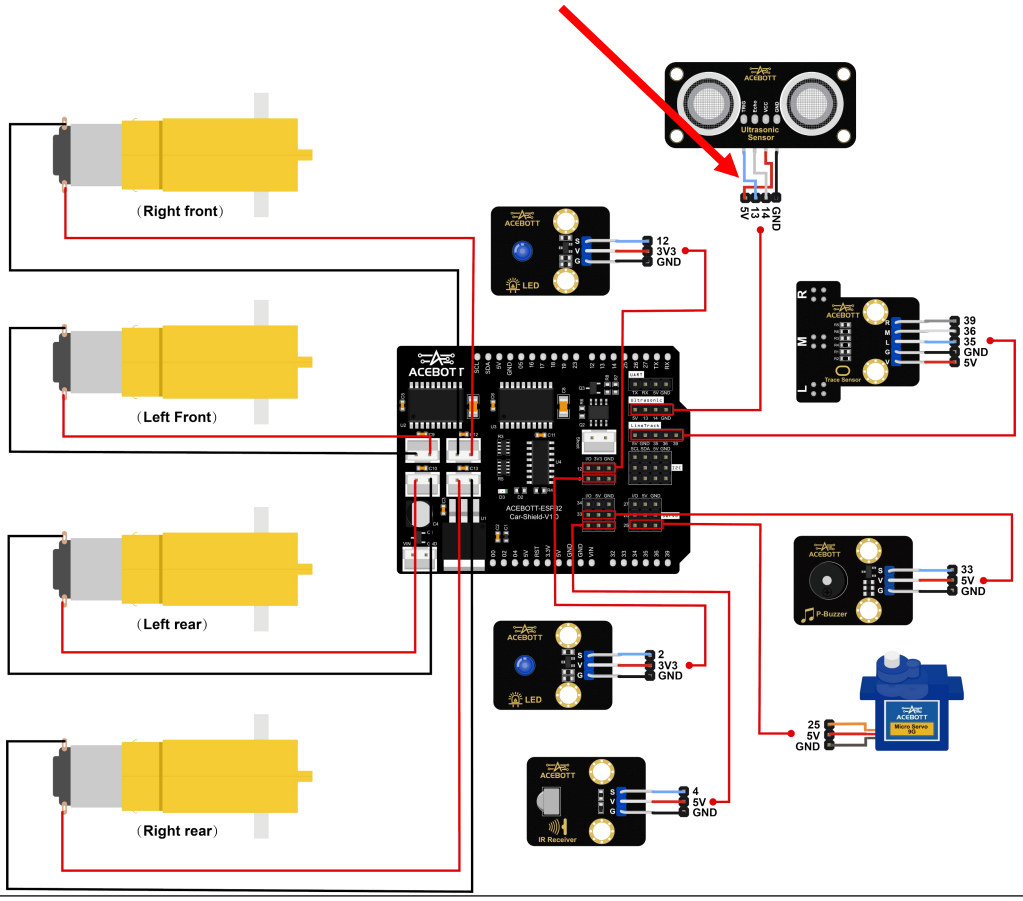
Parts List	60MM Mecanum Wheel*4	Mecanum Wheel Couplings*4	M2*25MM Round Head Self-Tapping Screws*4
Splicing Diagram			
Notes	The Mecanum wheel cannot be installed arbitrarily and needs to be installed strictly in the direction shown in the figure.		

Step 13 Complete Structure Diagram



Step 14 Wiring

Attention: Please use a 4P cable with one end as an open wire and the other end as a bundled wire to connect the ultrasonic sensor. Connect the open-wire end to the ultrasonic sensor according to the color coding shown in the diagram, and connect the bundled-wire end to the **Ultrasonic** interface on the control board, ensuring the **black wire** is connected to **GND**.



1. The color of the dupont line is blue, red and black. The blue thread is connected to the S pin, the red thread is connected to the V pin, and the black thread is connected to the G pin;

2. The color of the servo wire is different from the ordinary dupont wire, the red line is connected to the V pin, the brown line is connected to the G pin, and the yellow line is connected to the S pin;

3. Ultrasonic wire, red line is connected with V pin, white wire is connected with ECHO pin, blue wire is connected with TRIG pin, black wire is connected with GND pin;

4. Track the sensor wire, the red line is connected with 5V pin, the black line is connected with GND pin, the blue line is connected with L pin, the white line is connected with M pin, and the gray line is connected with R pin.

5.Please make sure to strictly follow the wiring instructions when connecting the module to the ESP32 controller board. Incorrect wiring may cause a short circuit and damage the ESP32 controller board.