

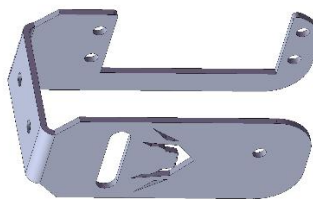
Lesson 6 Assembling PiCar-Pro

Before starting assembly, be sure to adjust all servos to 90° according to the instructions in [Lesson 5 Preparations before Assembly](#).

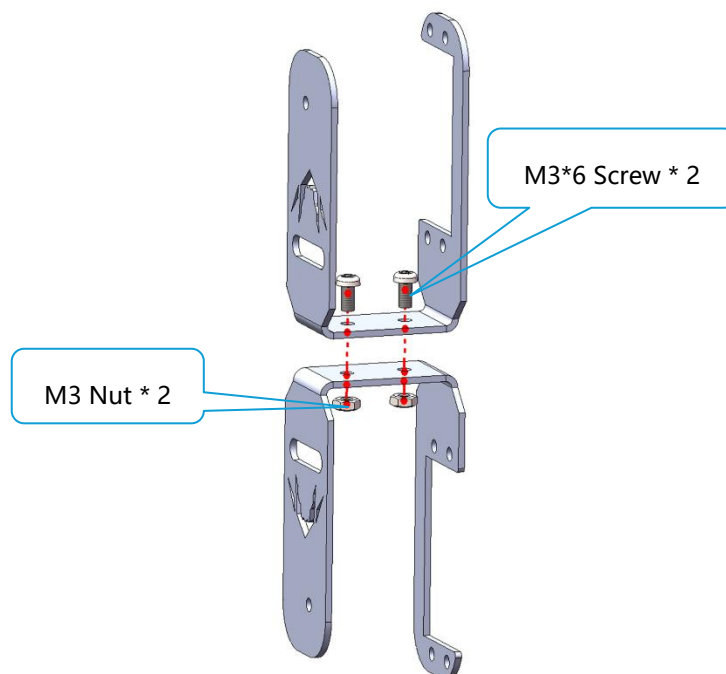
6.1 Assembly of the Arm

1. Connect two **A01** parts with two **M3*6 Screws** and two **M3 Lock Nuts**.

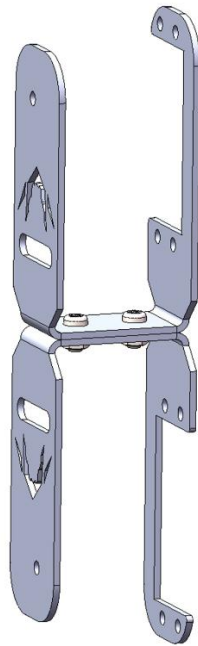
A01



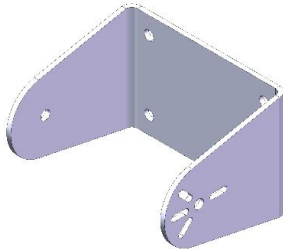
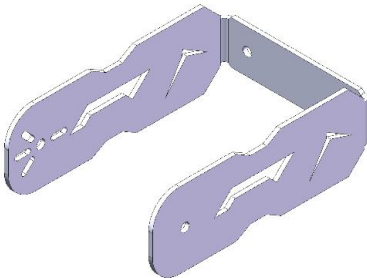
Assemble the following components:



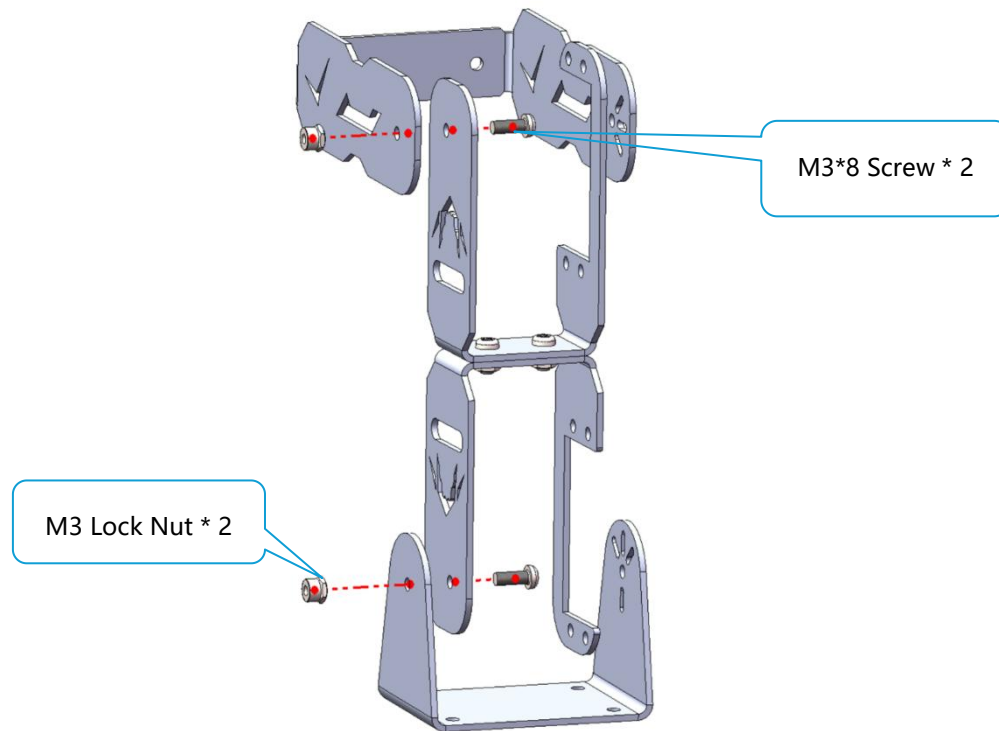
After Assembly:



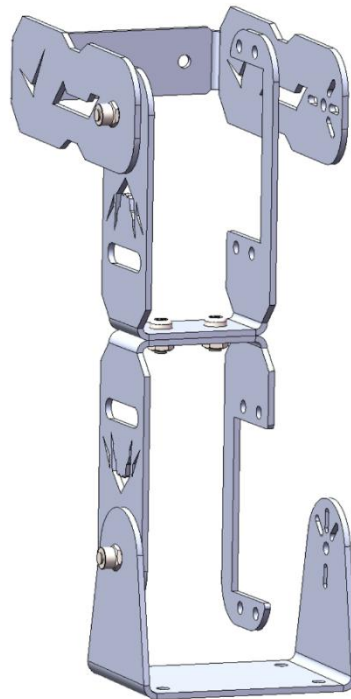
2. Connect part **A01**, part **A02** and part **A03** using two **M3*8 Screws** and two **M3 Lock Nuts**. (Please note that the lock nut should not be tightened too much.)

A02	
A03	

Assemble the following components:



After Assembly:

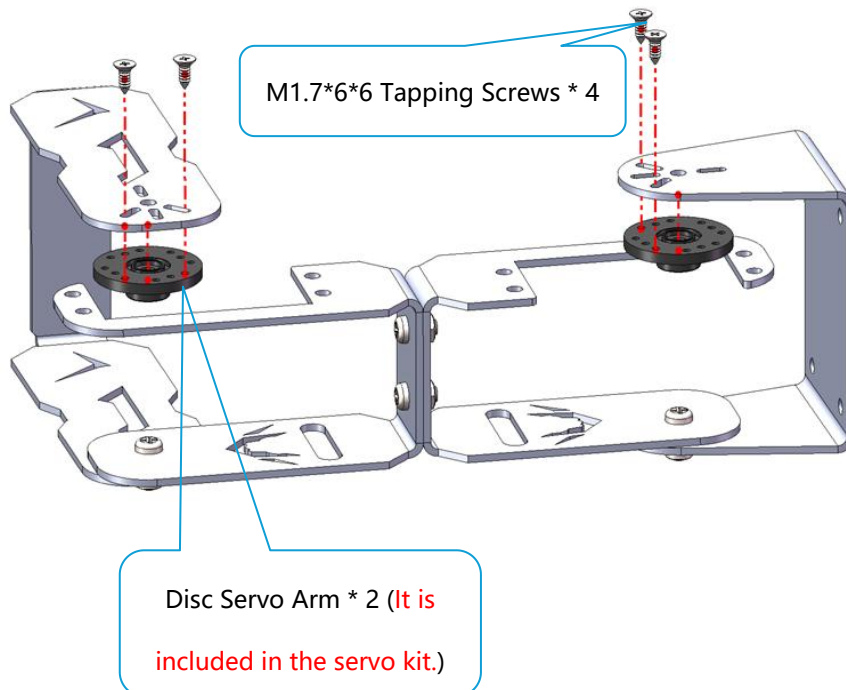


3. Use four **M1.7*6*6 Tapping Screws** to fix two servo **Disc Servo Arms** to part **A02** and part **A03**.

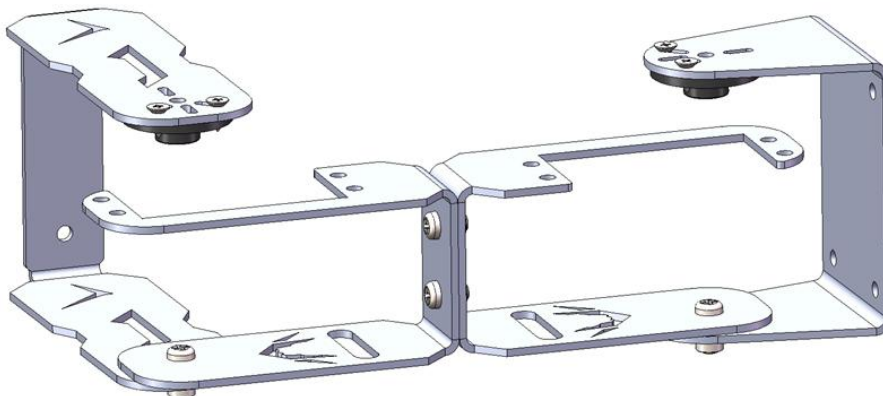
Disc Servo Arm



Assemble the following components:

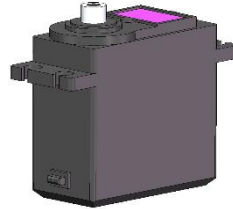


After Assembly:

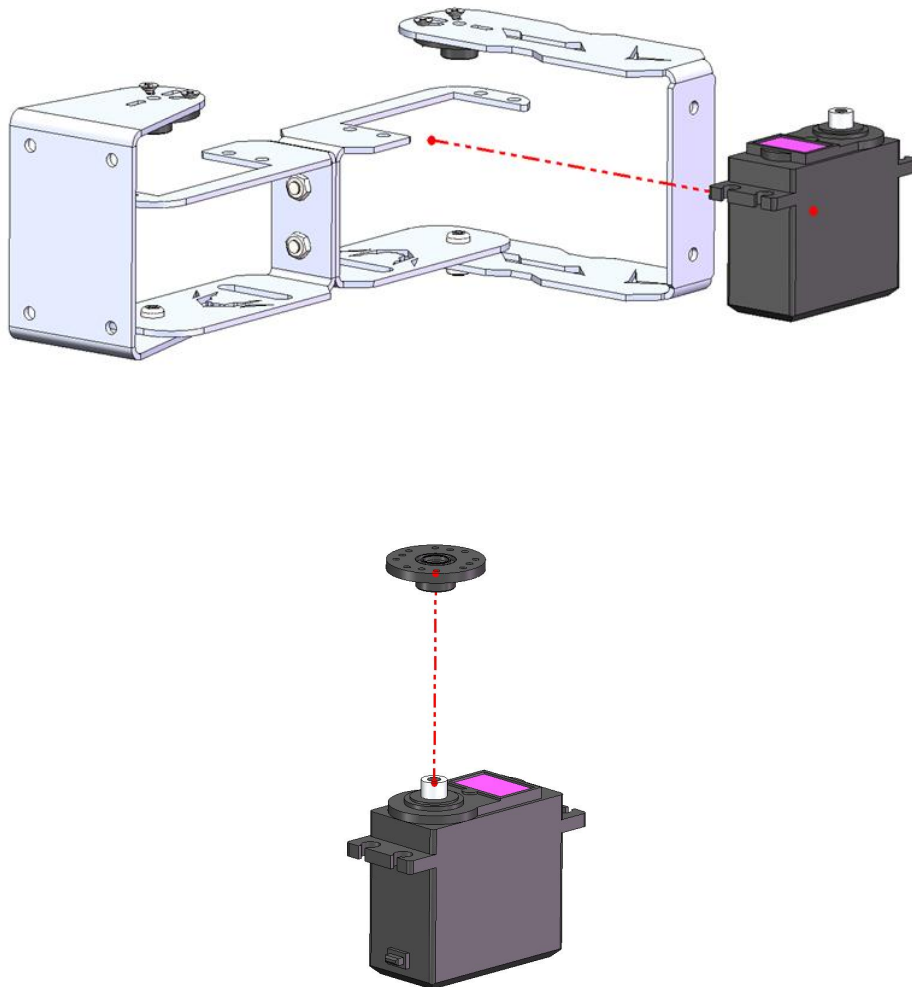


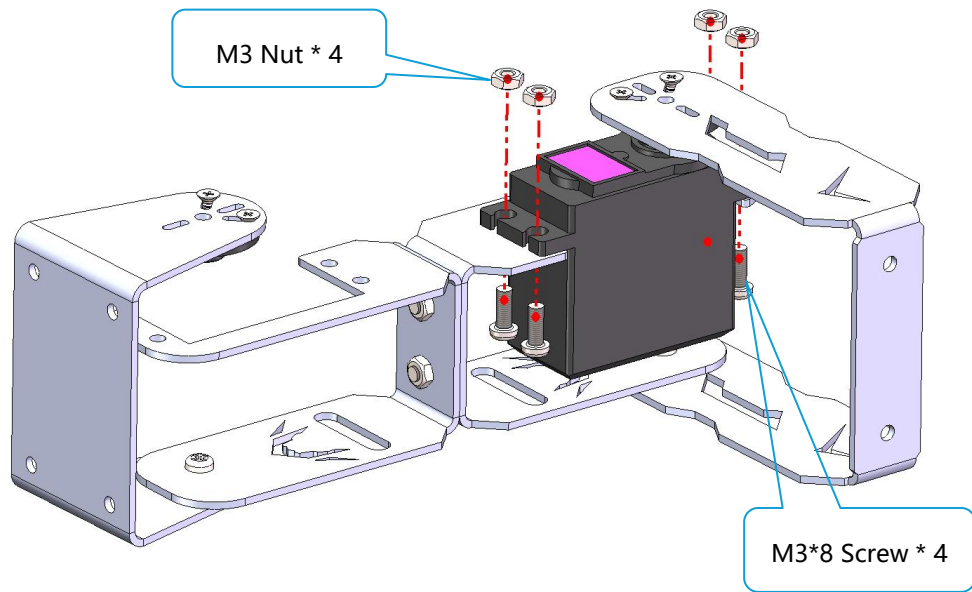
4. Fix two **Big Servos** to part **A02** and part **A03** with eight **M3*8 Screws**, eight **M3 Nuts** and two **M3*6 Screws**. (Install Big Servos at the angle depicted in the picture.)

Big Servo



Assemble the following components:

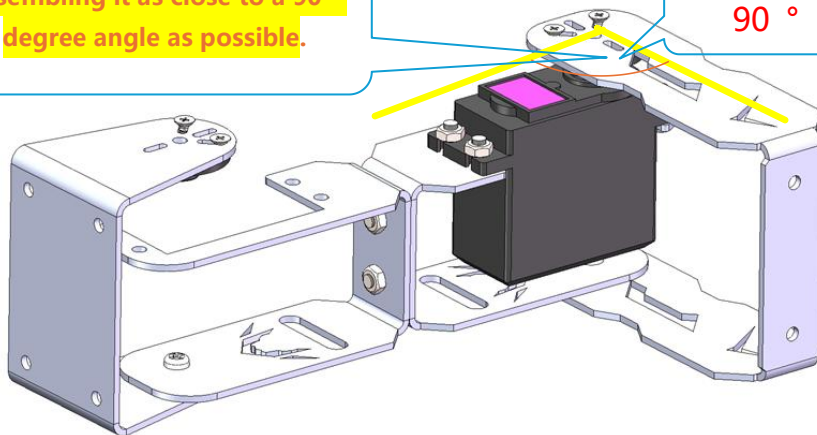




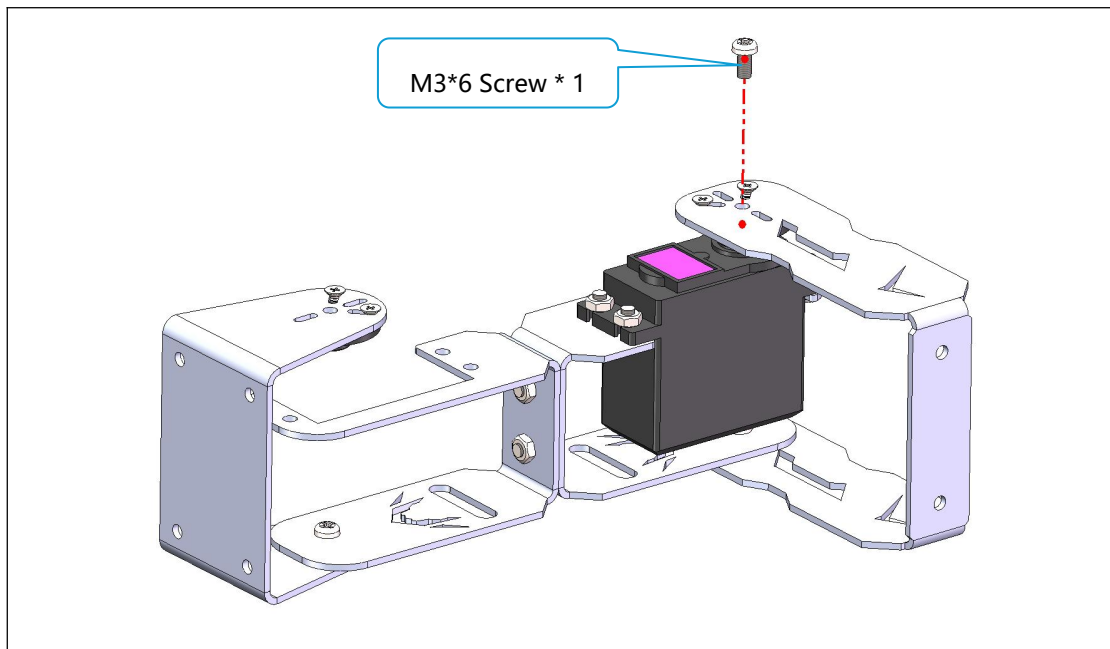
After Assembly:

assembling it as close to a 90 - degree angle as possible.

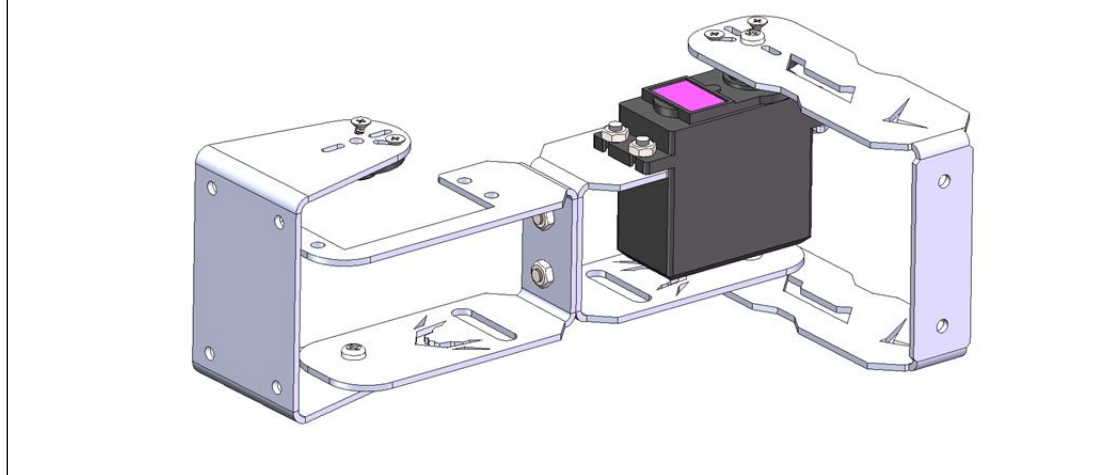
90 °



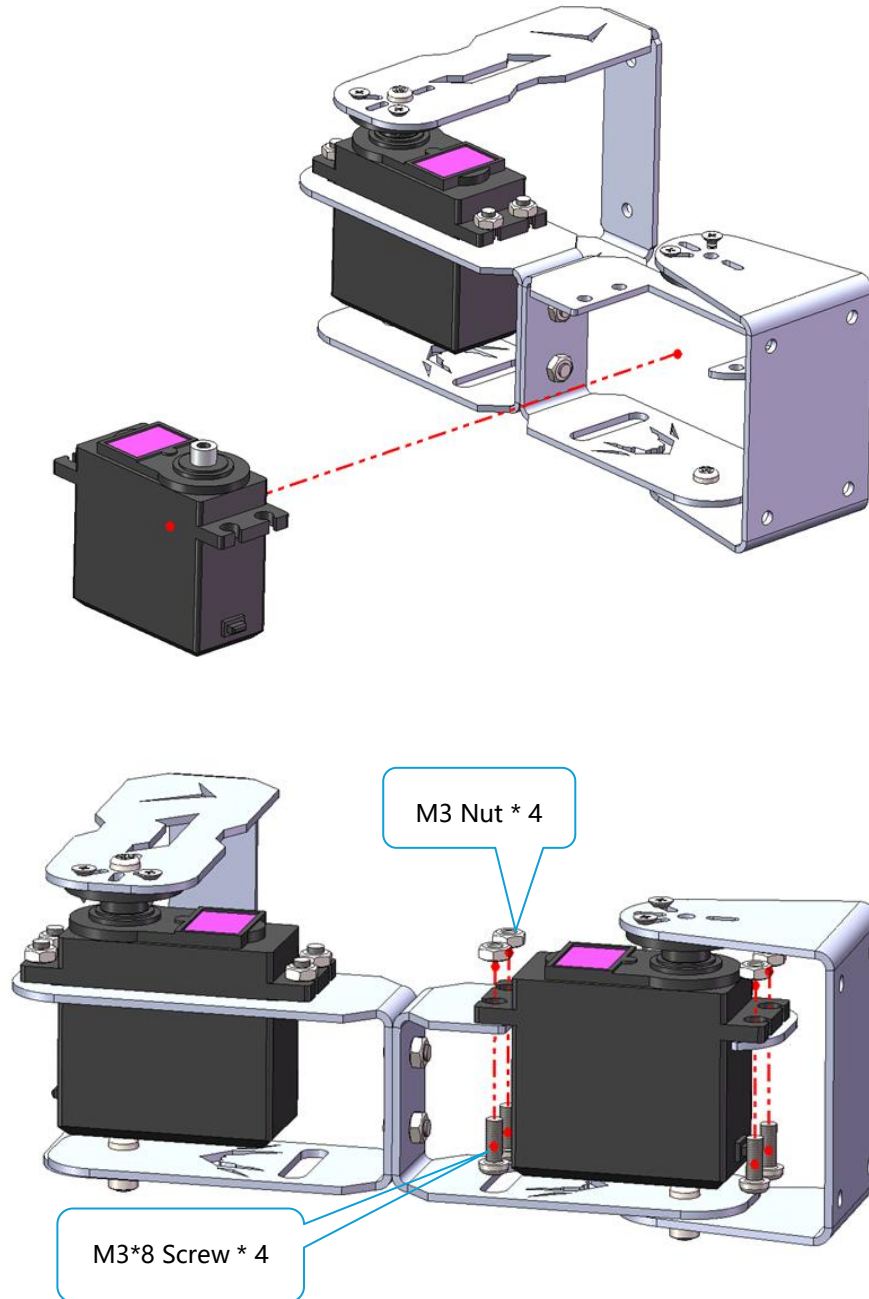
Assemble the following components:



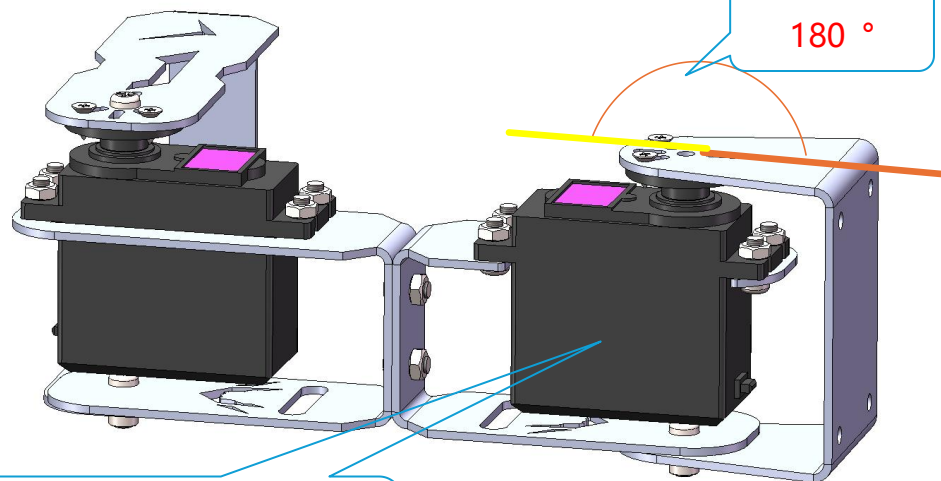
After Assembly:



Assemble the following components:

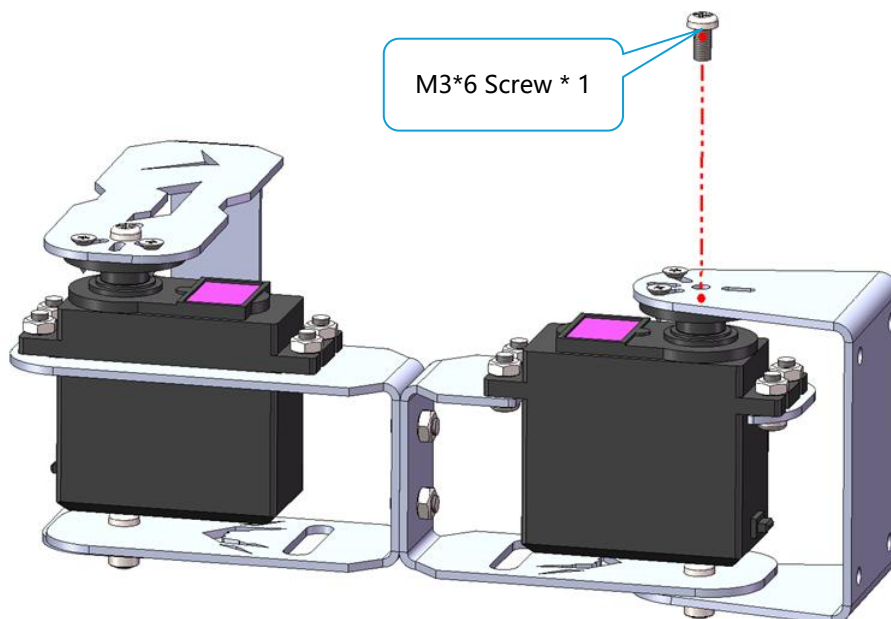


After Assembly:

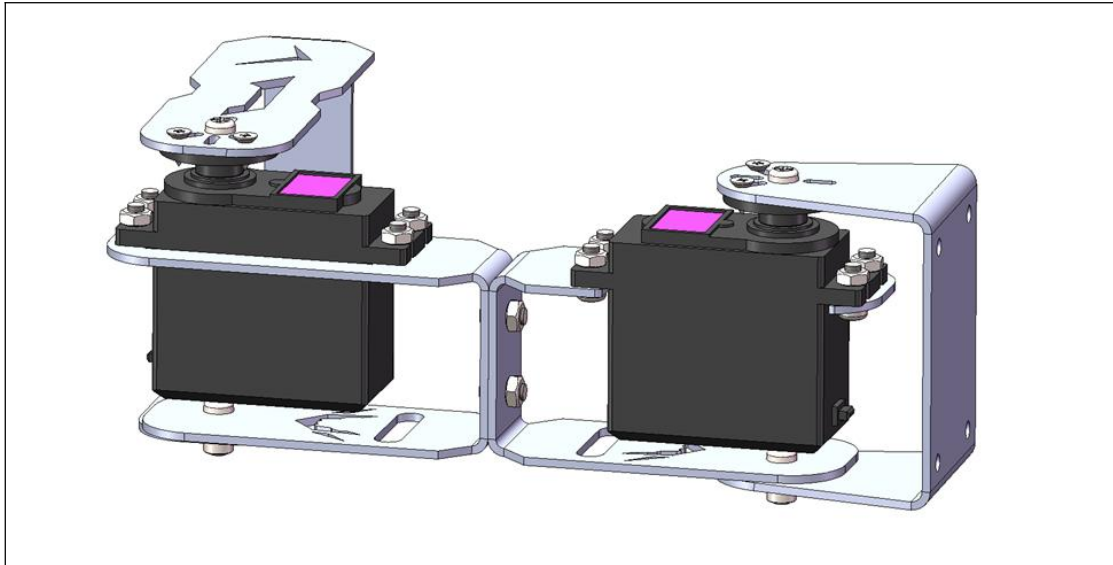


assembling it as close to a 180 -
degree angle as possible.

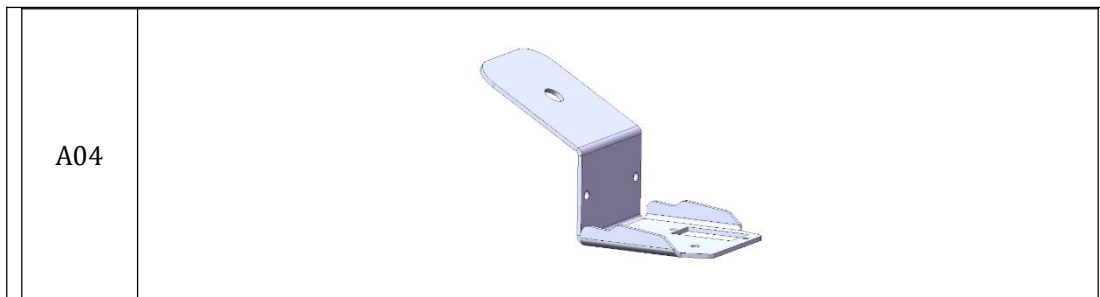
Assemble the following components:



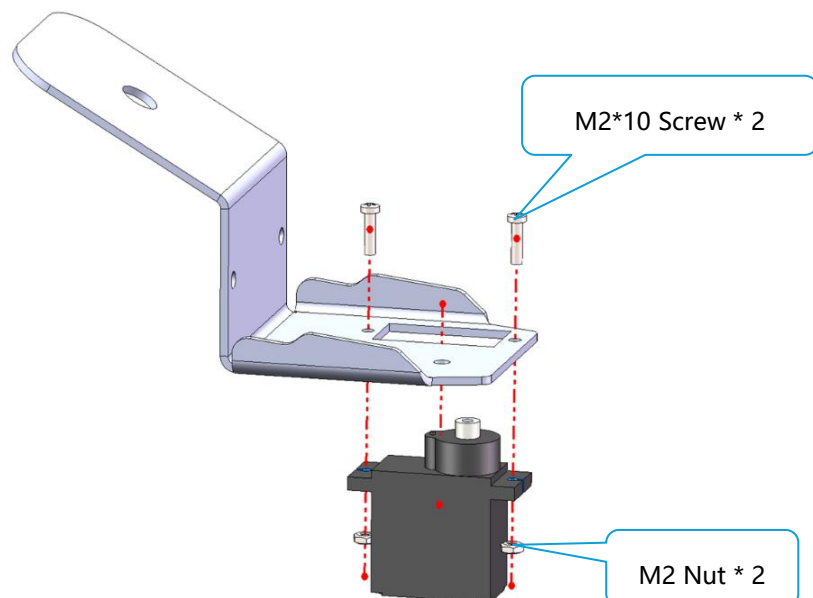
After Assembly:



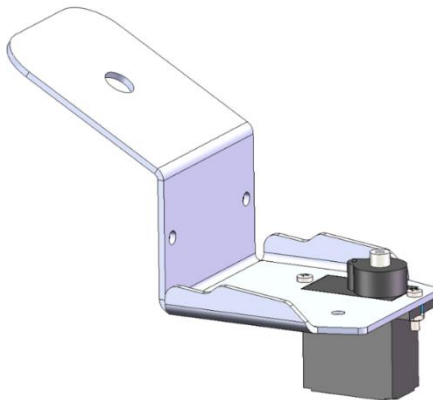
5. Fix the **Servo** to the part **A04** with two **M2*10 Screws** and **two M2 Nuts**.



Assemble the following components:

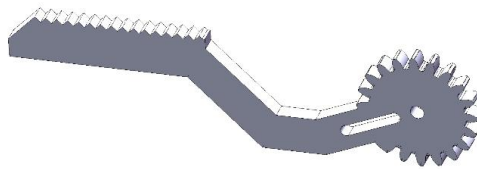


After Assembly:

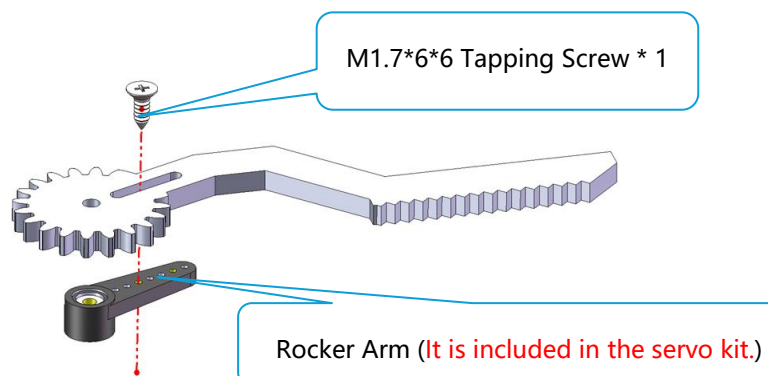


6. Fix the servo's **Rocker Arm** to part **A05** with one **M1.7*6*6 Tapping Screw**.

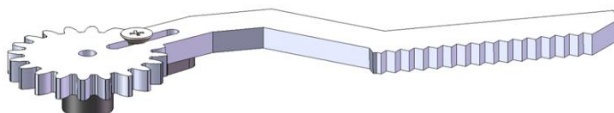
A05



Assemble the following components:



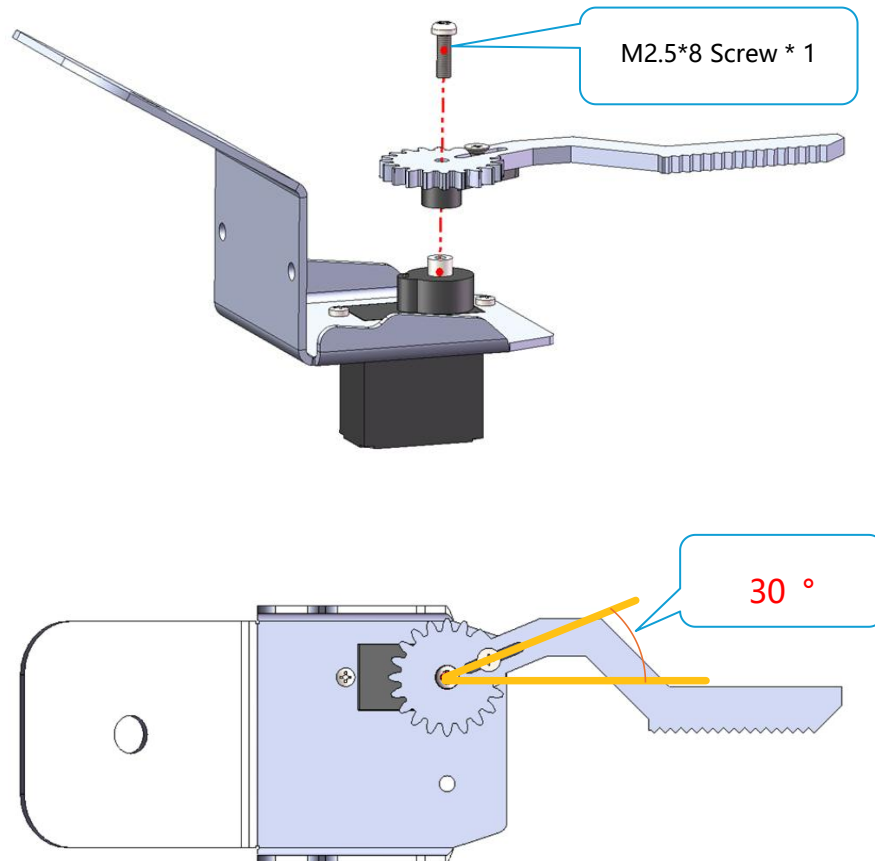
After Assembly:



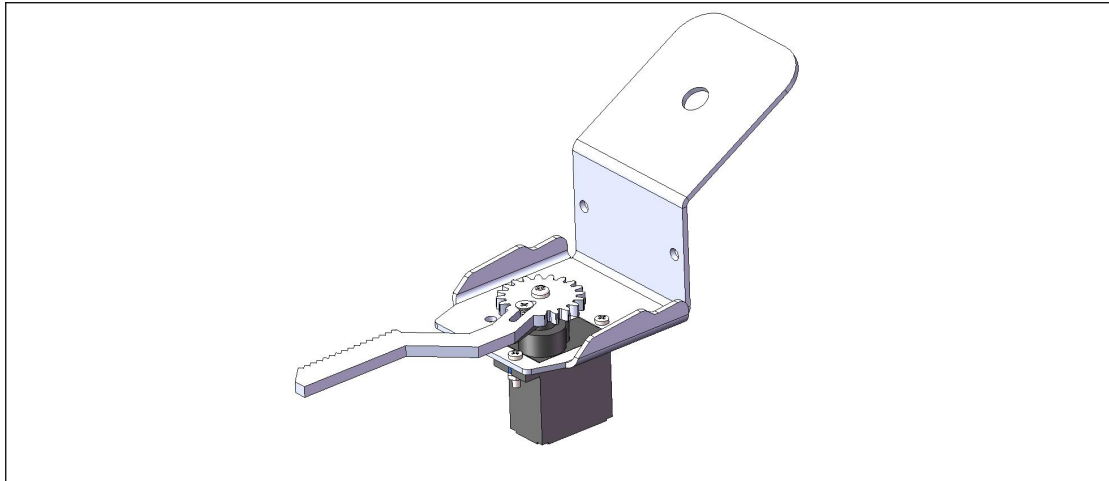
7. Fix the assembled part **A05** to the assembled part **A04** with one **M2.5*8 Screw**.

(Install the rocker arm at the angle depicted in the picture, assembling it as close to a 30 - degree angle as possible.)

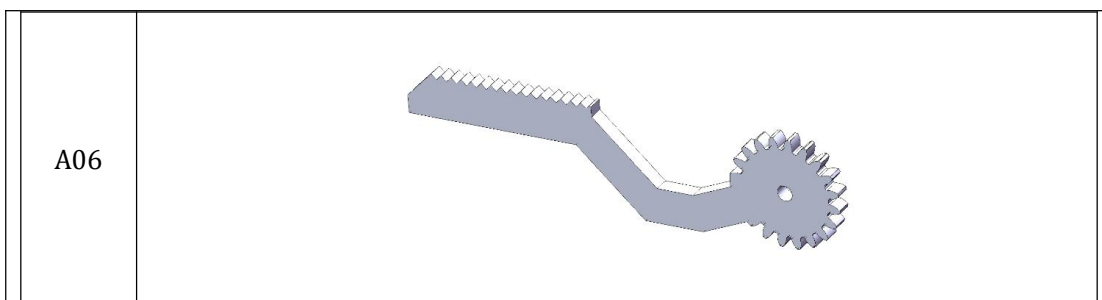
Assemble the following components:



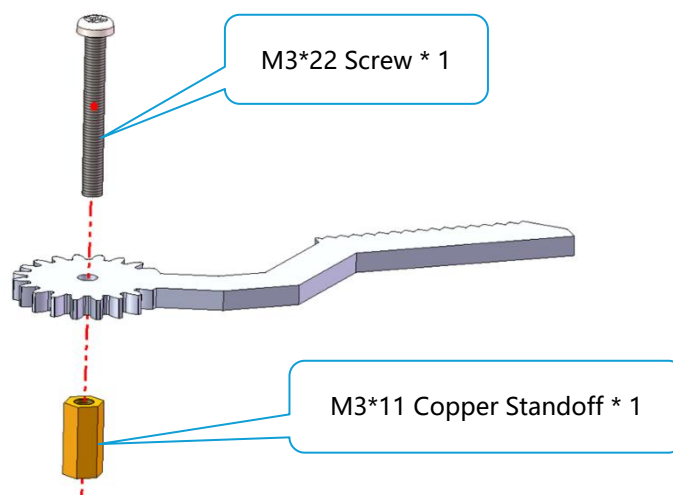
After Assembly:

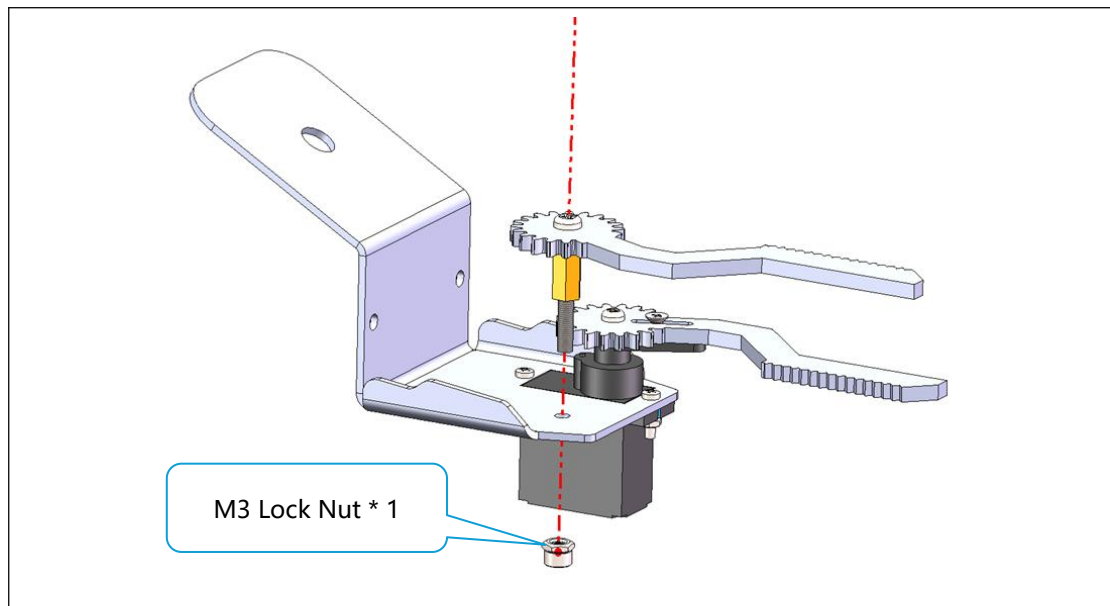


8. Fix one **M3*11 Copper Standoff** and part **A06** to the assembled part **A04** with one **M3*22 Screw** and one **M3 Lock Nut**. (Please note that the lock nut should not be tightened too much.).

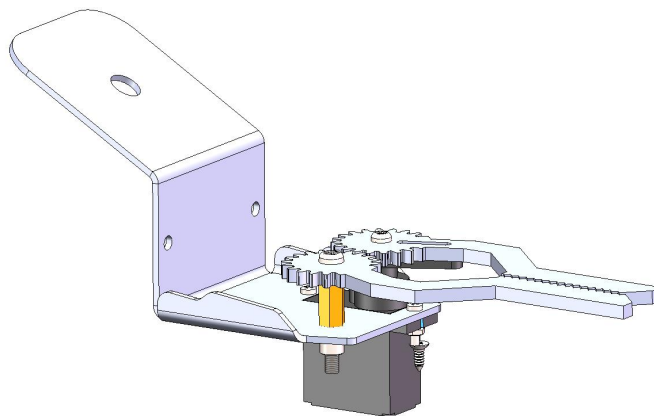


Assemble the following components:



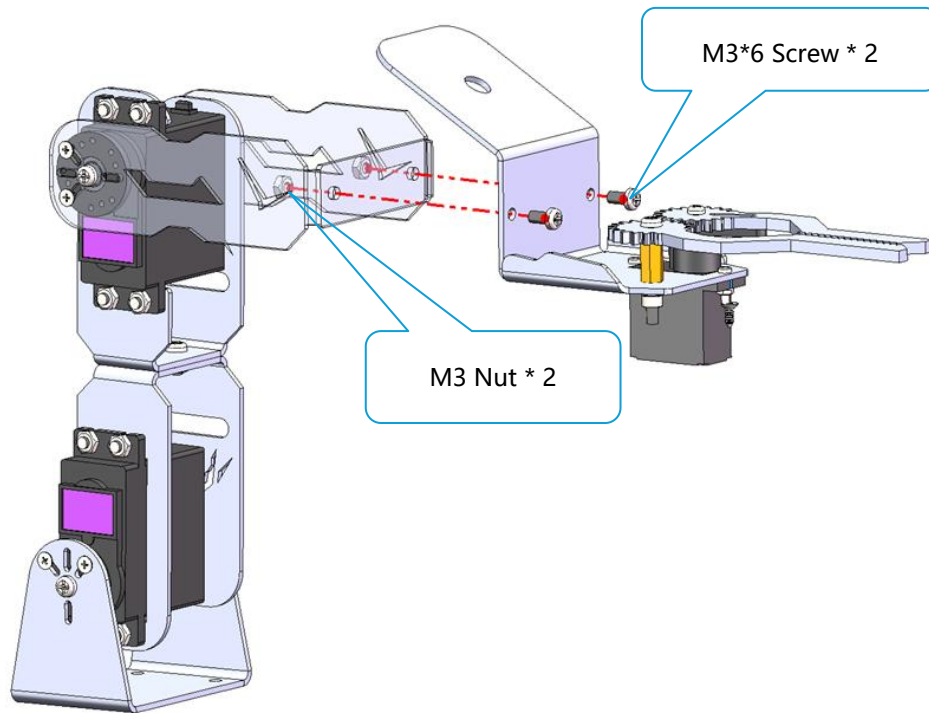


After Assembly:

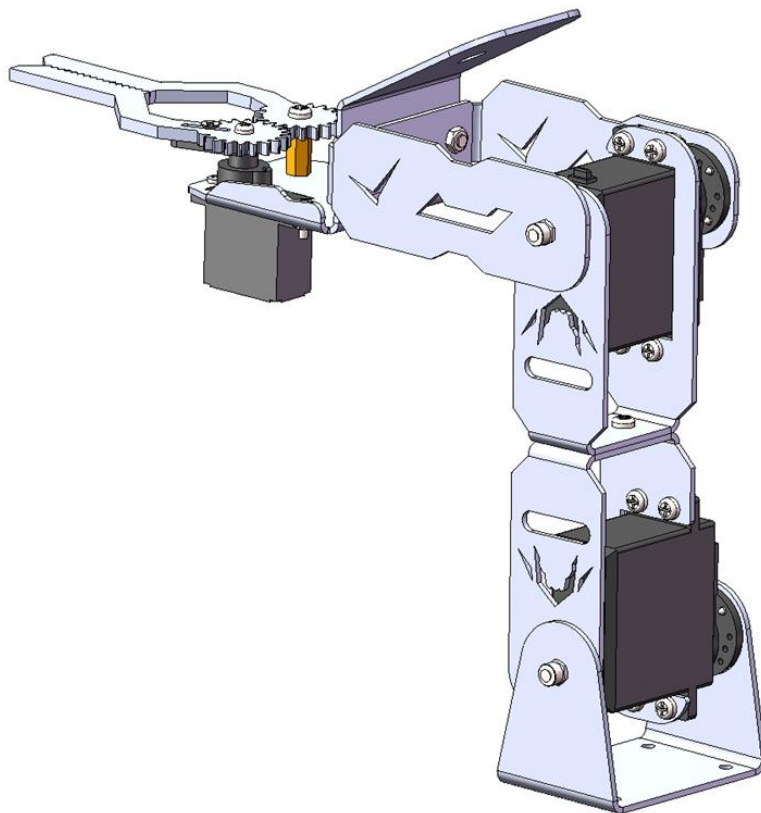


9. Fix the assembled part **A04** to the assembled part **A03** with two **M3*6 Screws** and two **M3 Nuts**.

Assemble the following components:



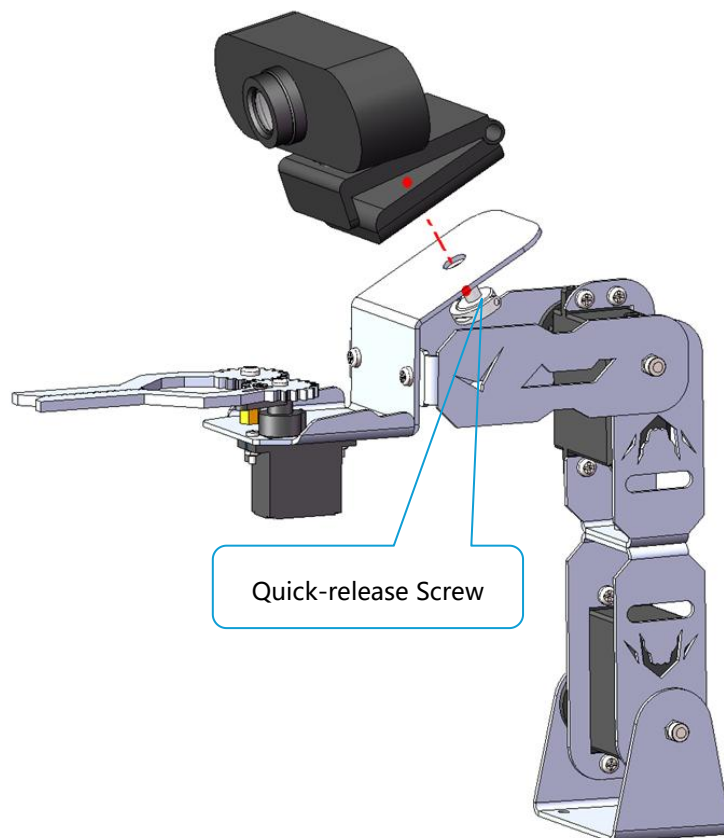
After Assembly:



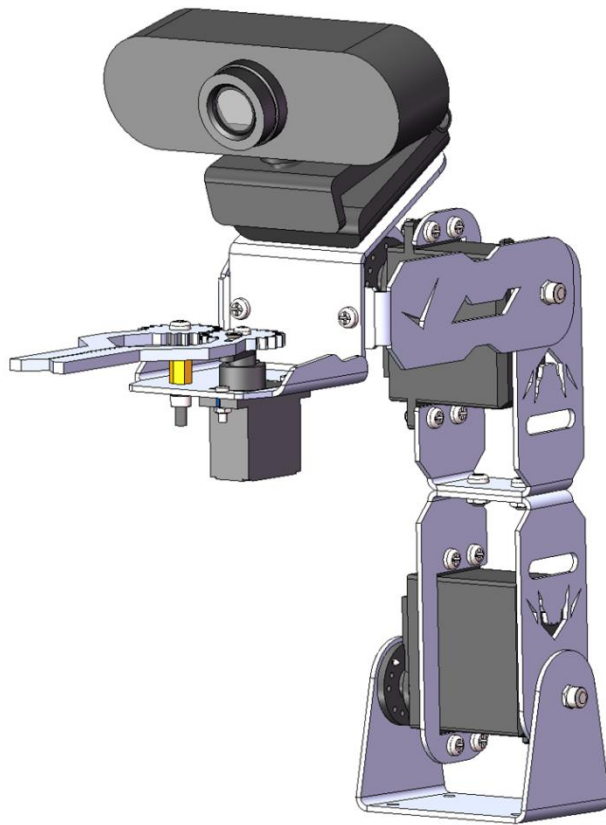
10. Fix the **Camera** to part **A04** with a **Quick - release Screw**.

Camera	
Quick-release Screw	

Assemble the following components:



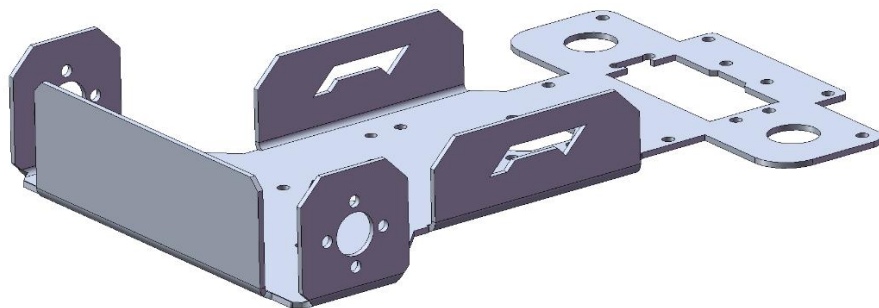
After Assembly:



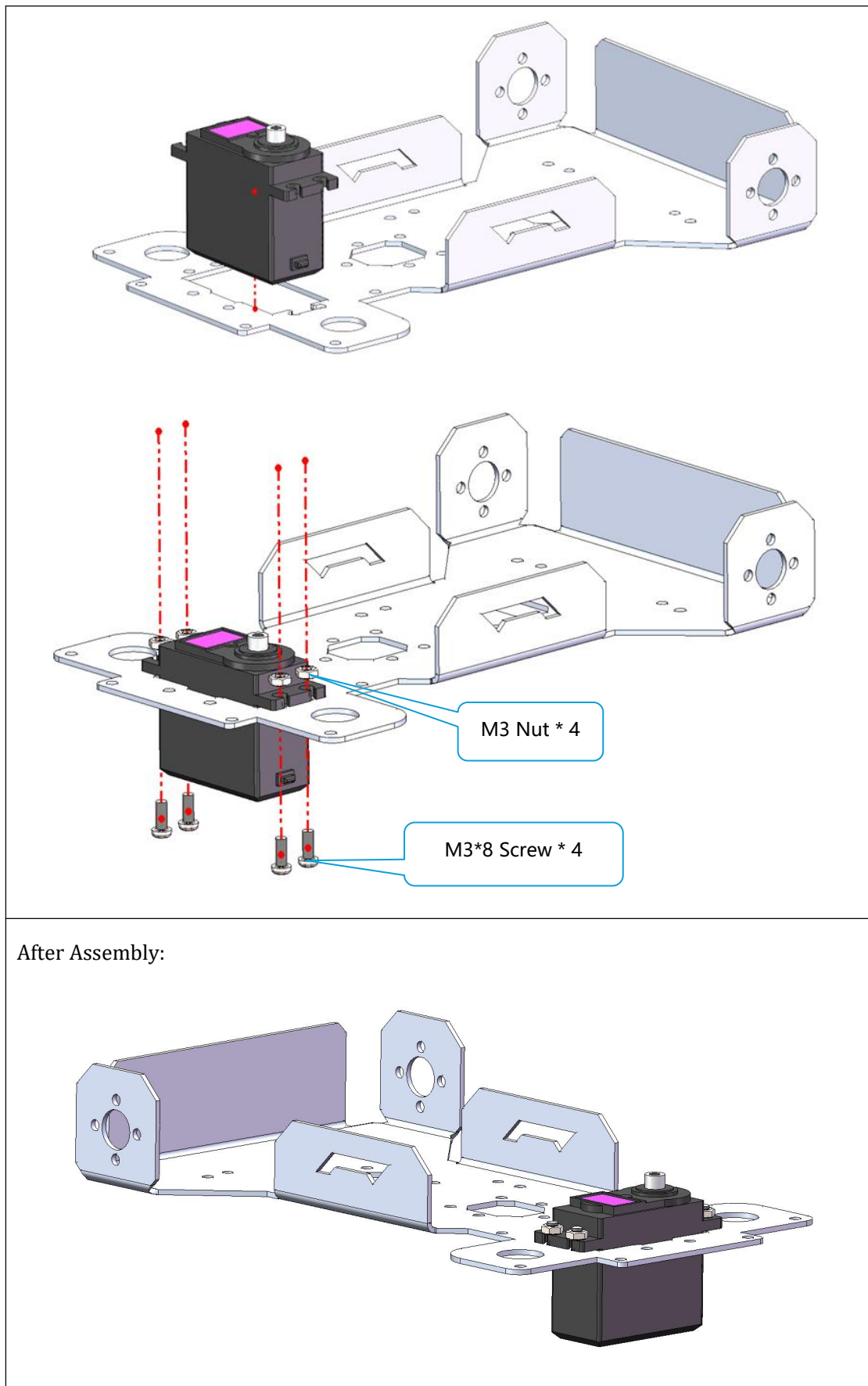
6.2 Assembly of the Car Chassis

1. Fix the **Big Servo** to part **A07** with four **M3*8 Screws** and four **M3 Nuts**.

A07

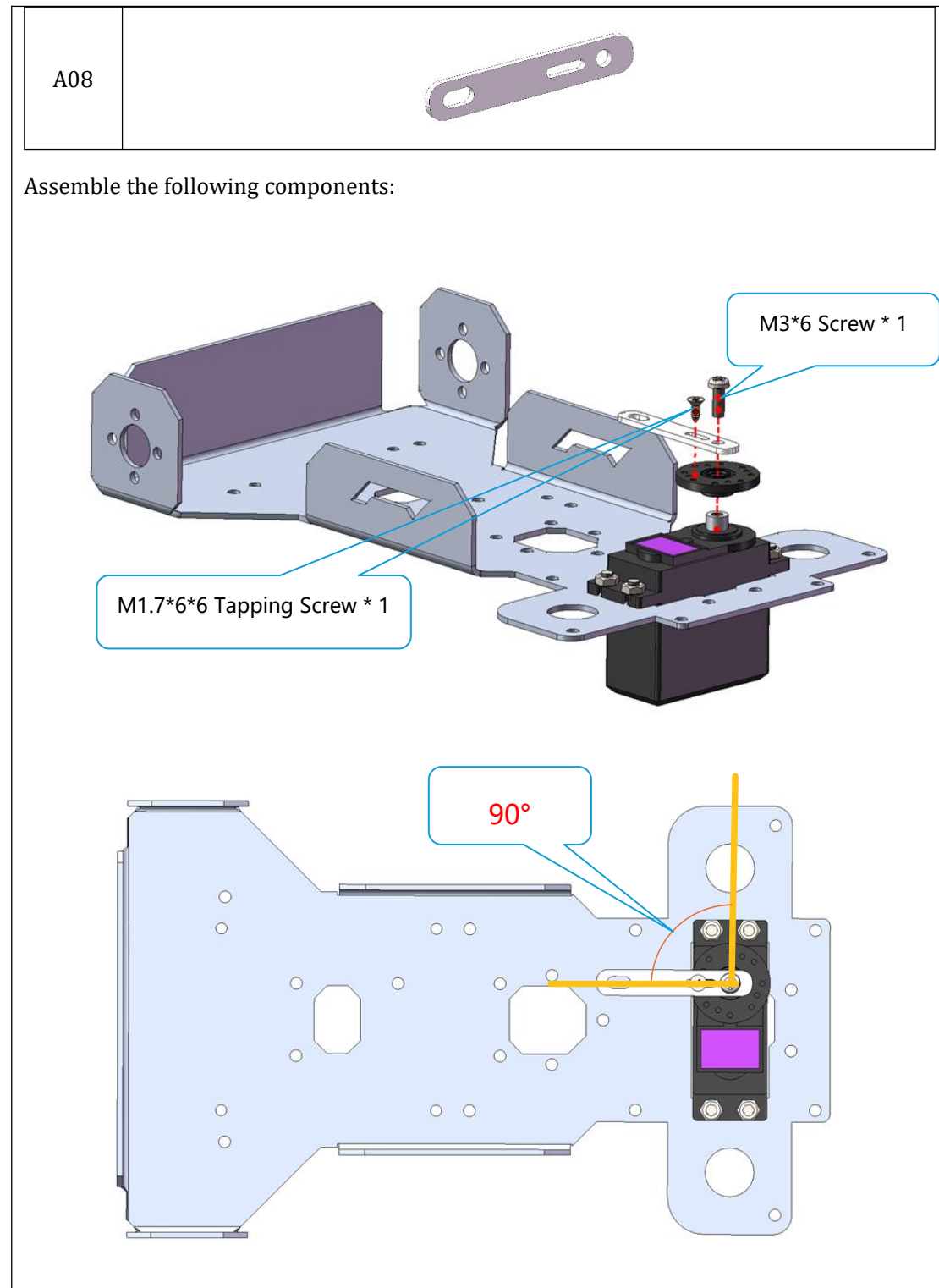


Assemble the following components:

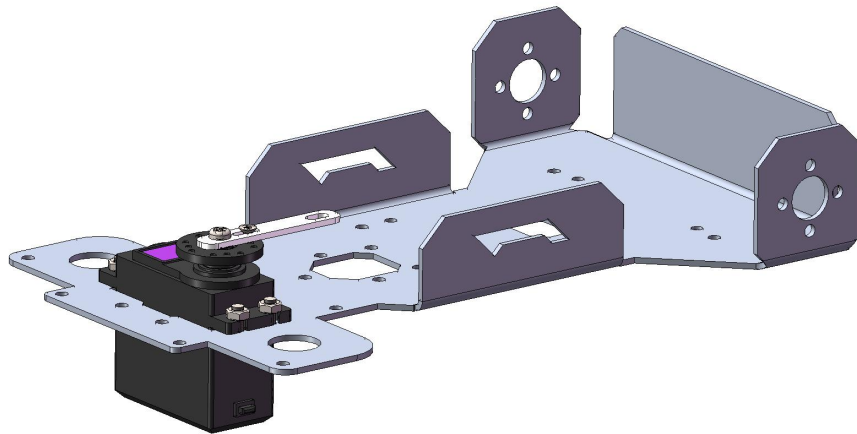


2. Fix the **Disc Servo Arm** and part **A08** to the **Big Servo** with an **M1.7*6*6**

Tapping Screw and an **M3*6 Screw**. (Install part A08 at the angle depicted in the picture, assembling it as close to a 90 - degree angle as possible.)



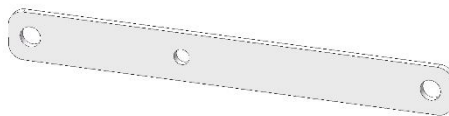
After Assembly:



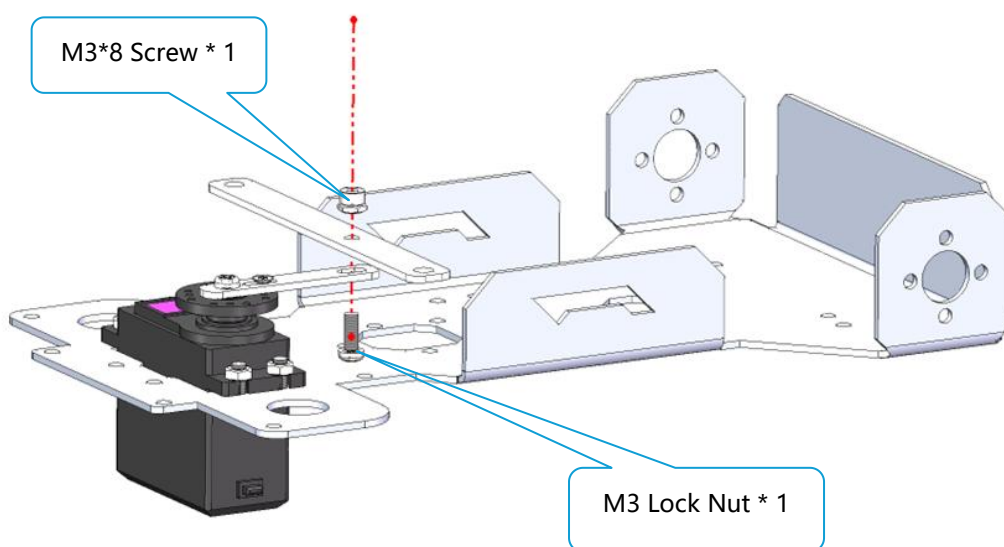
3. Connect part **A07** and part **A09** using an **M3*8 Screw** and an **M3 Lock Nut**.

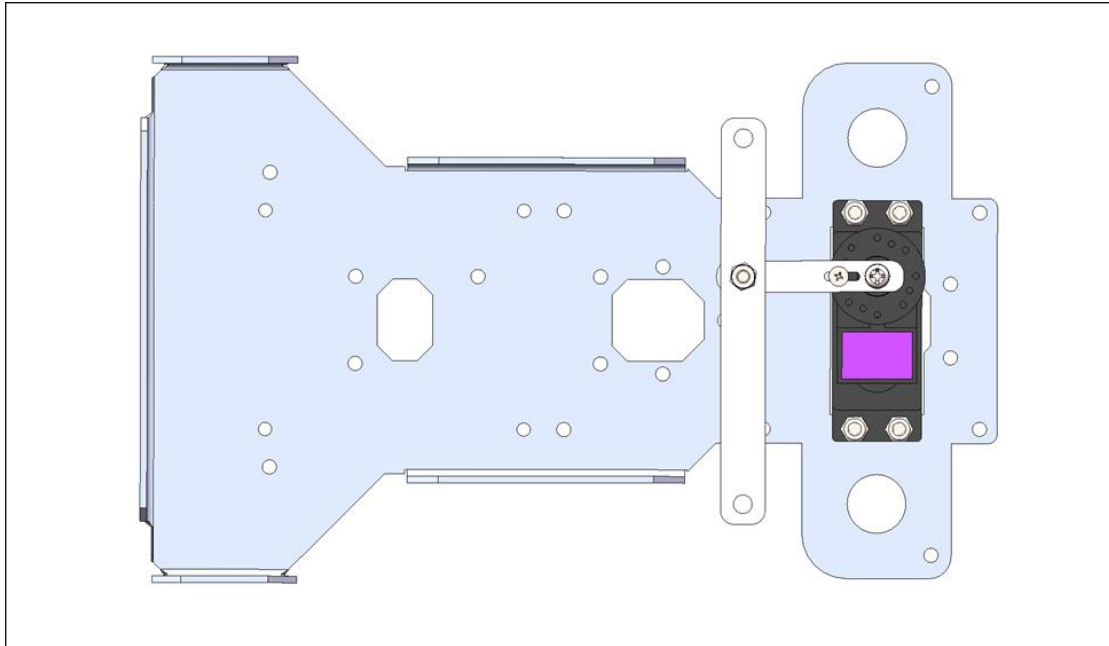
(Please note that the lock nut should not be tightened too much.)

A09

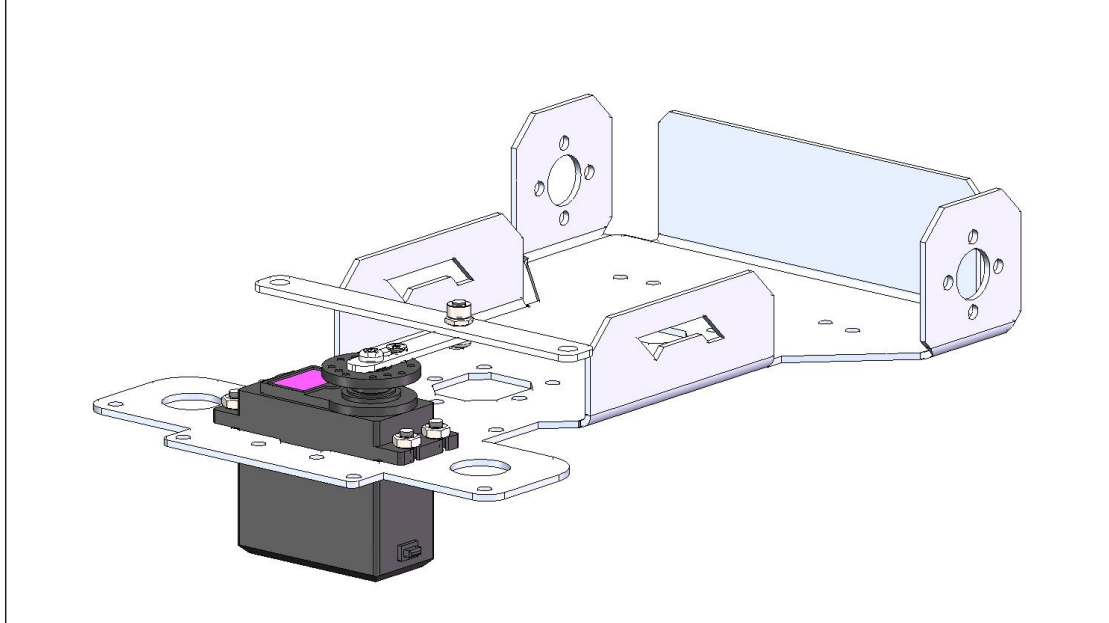


Assemble the following components:



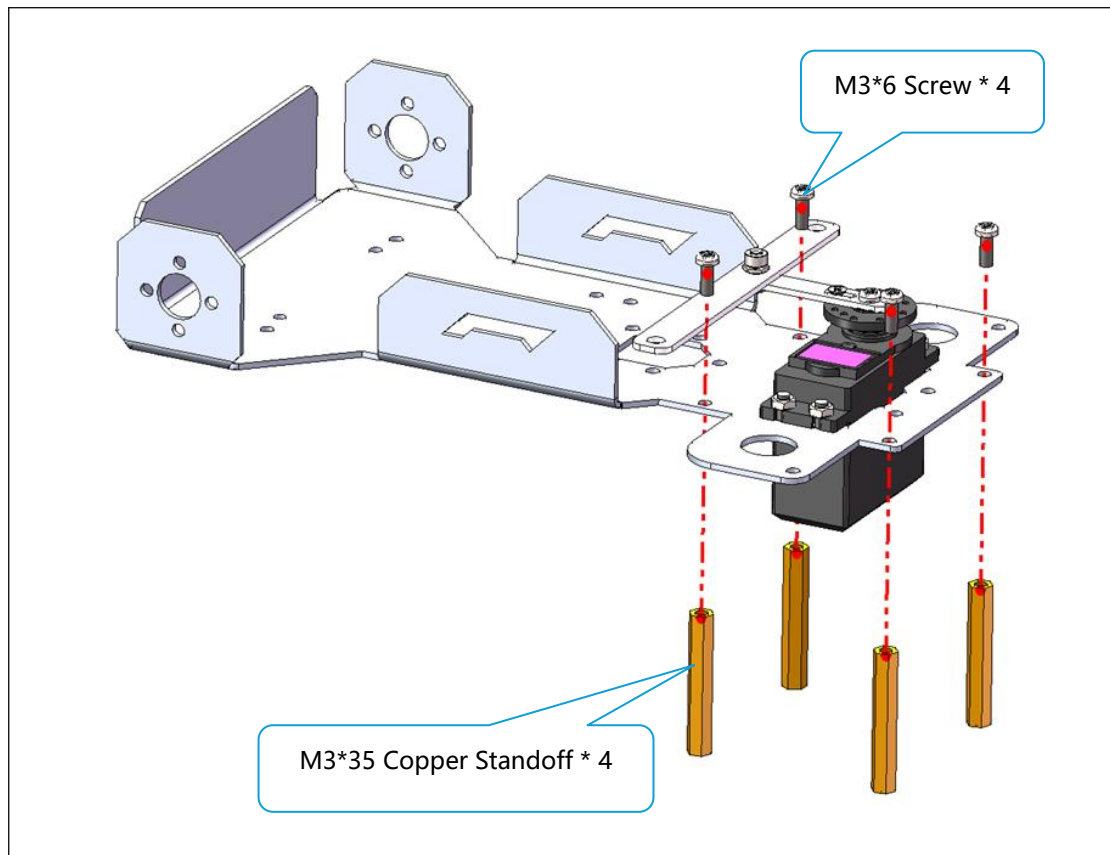


After Assembly:

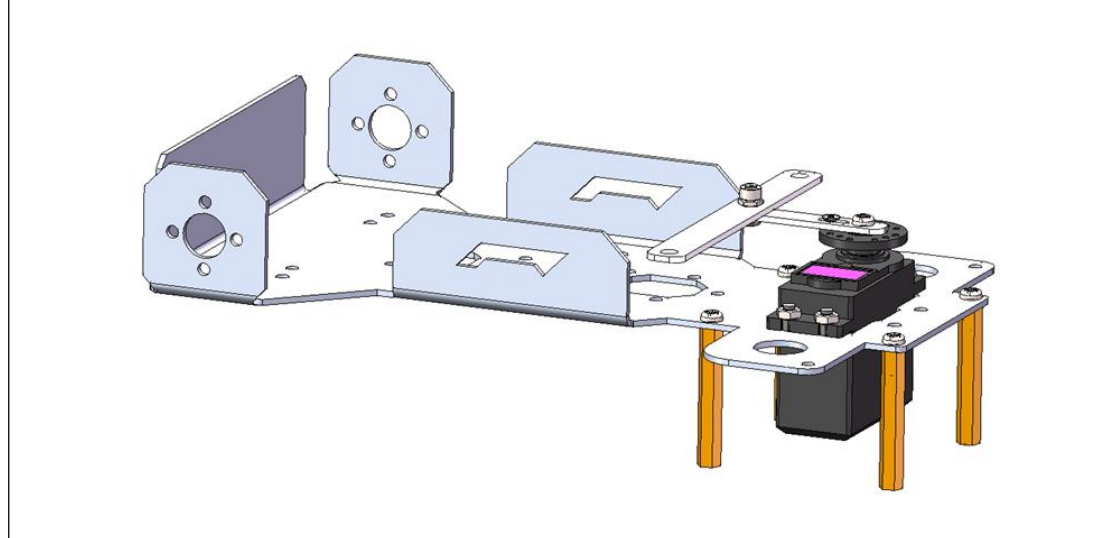


4. Fix four **M3*35 Copper Standoffs** to the assembled part **A07** with four **M3*6 Screws**.

Assemble the following components:



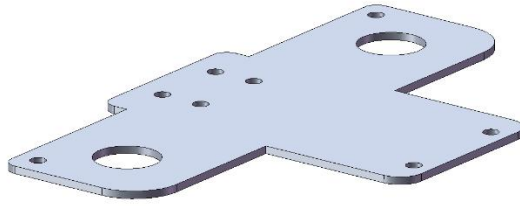
After Assembly:



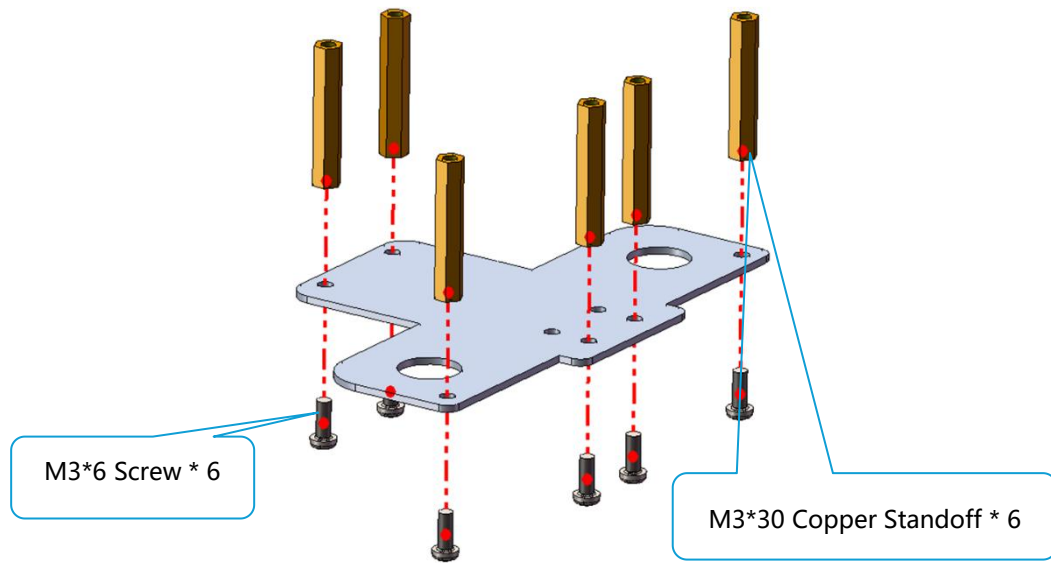
5. Fix six **M3*30 Copper Standoffs** to the part **A10** with six **M3*6 Screws**.



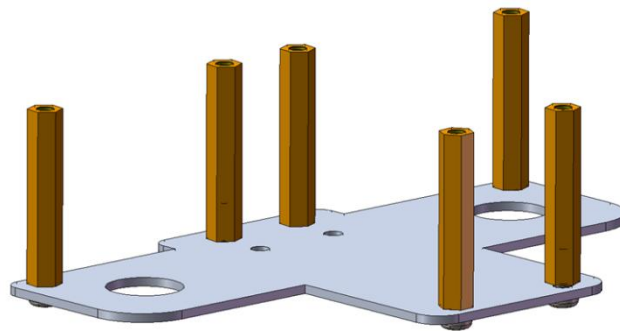
A10



Assemble the following components:

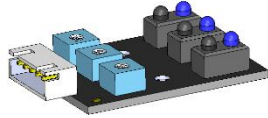



After Assembly:

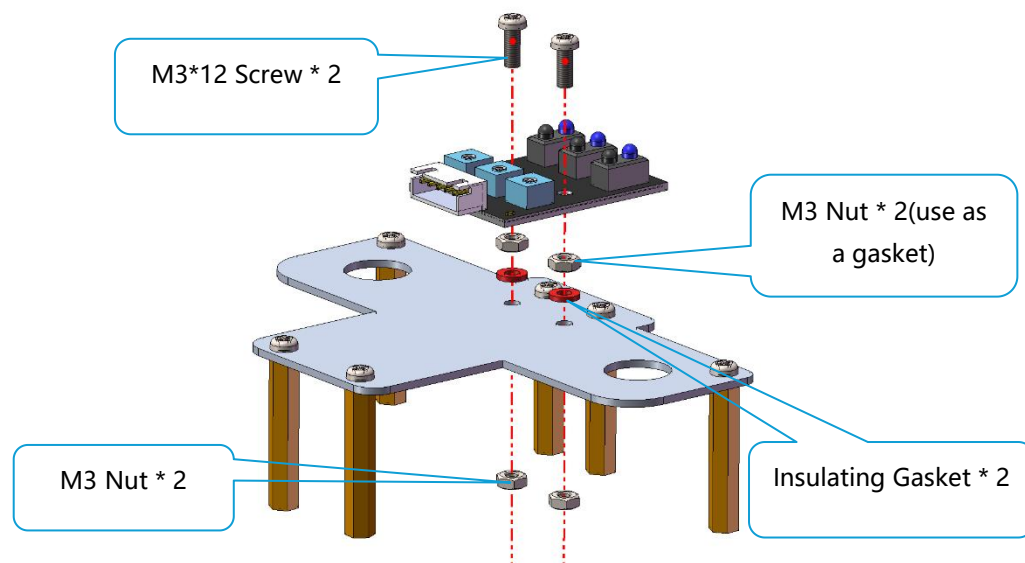


6. Fix the **3-CH Line Tracking Module** to part **A10** with two **M3*12 Screws**, two

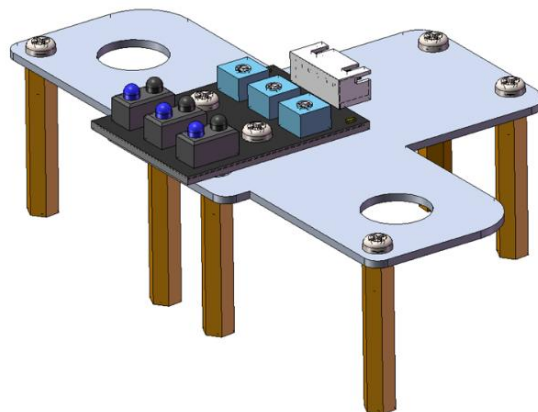
Insulating Gaskets and four M3 Nuts.

3-CH Line Tracking Module	
Insulating Gasket	

Assemble the following components:



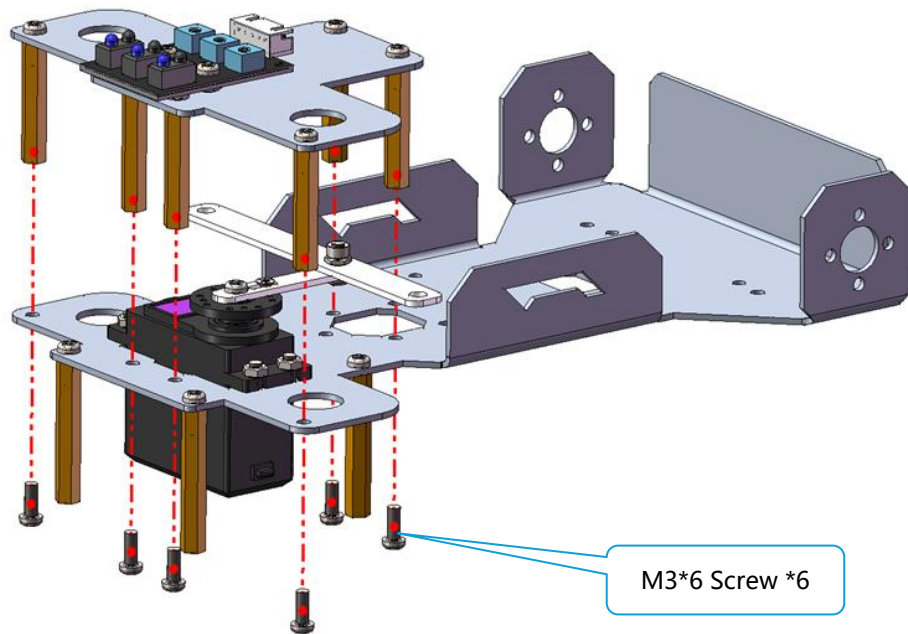
After Assembly:



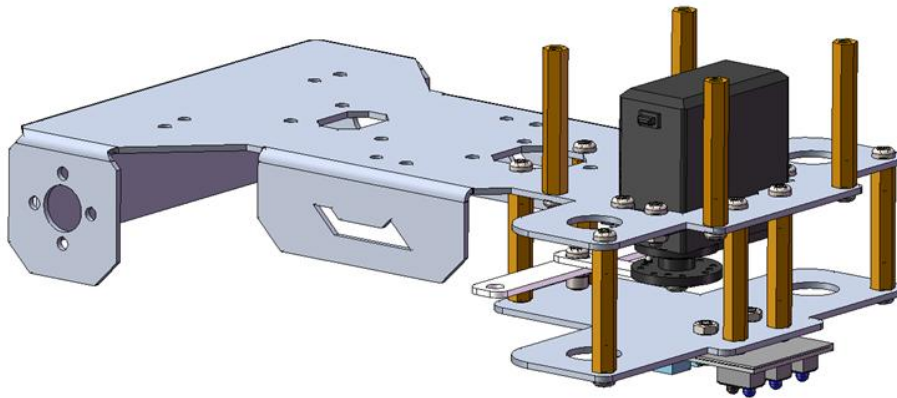
7. Connect the assembled part **A07** to the assembled part **A10** with six **M3*6**

Screws.

Assemble the following components:

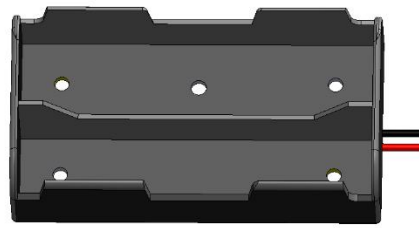


After Assembly:

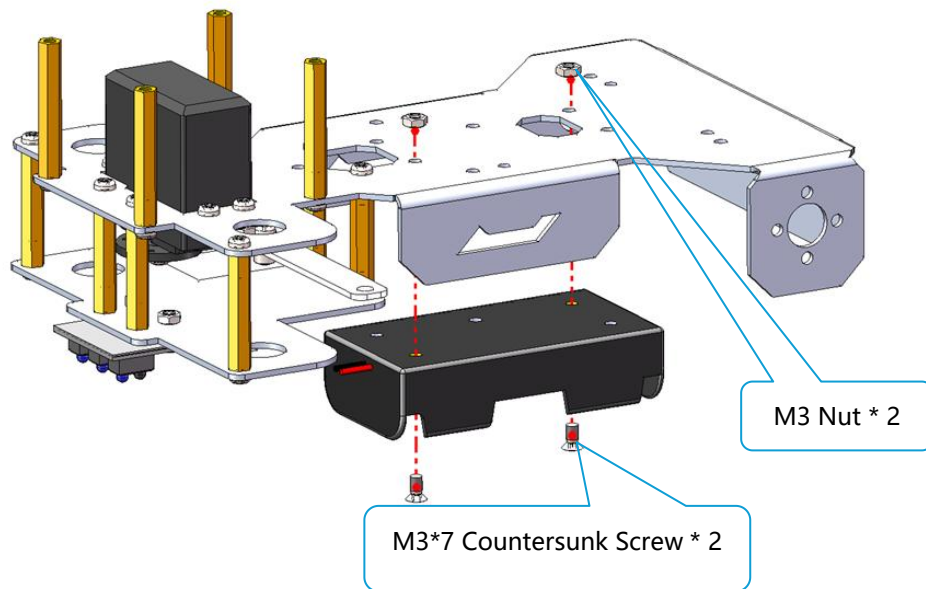


8. Fix the **18650 Battery Holder** to part **A07** using two **M3*7 Countersunk Screws** and two **M3 Nuts**.

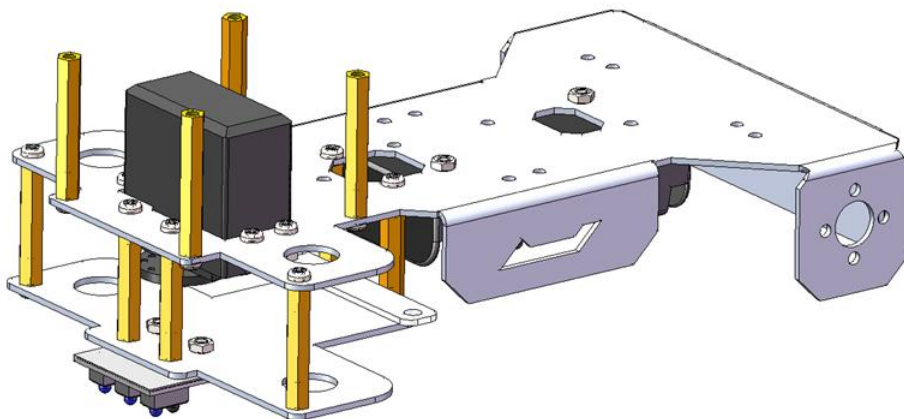
18650 Battery Holder



Assemble the following components:

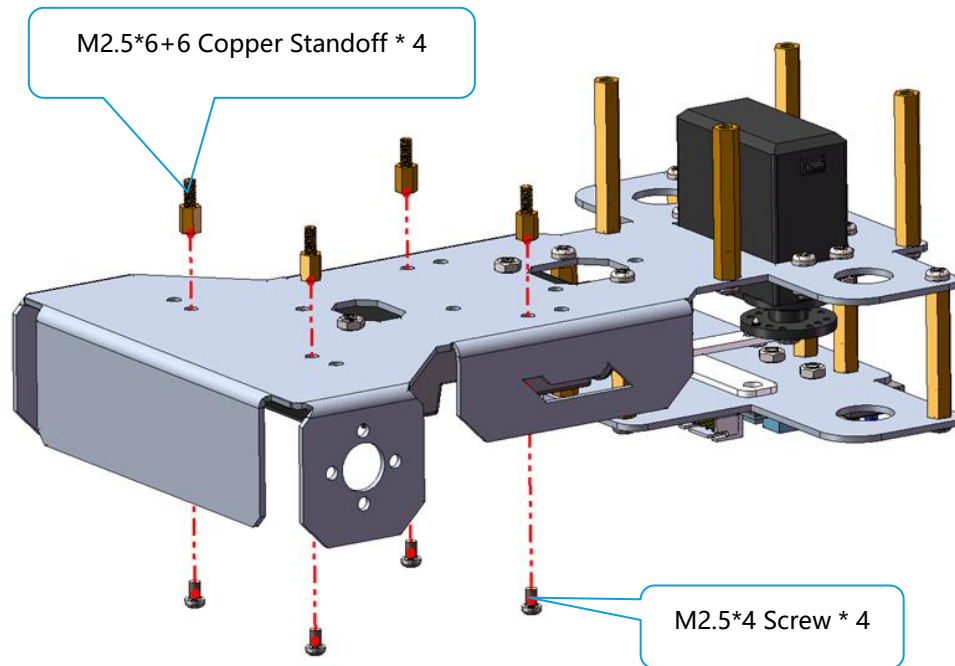


After Assembly:

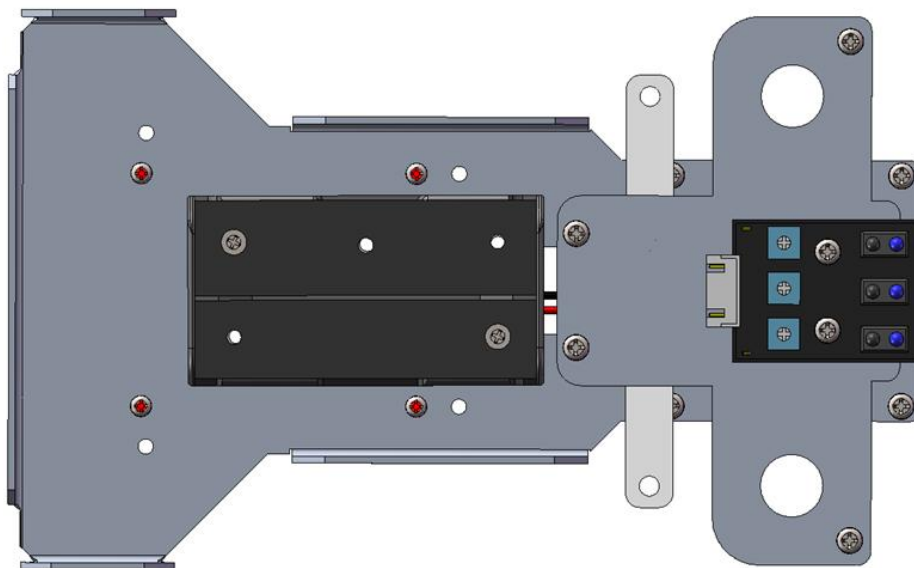


9. Fix four **M2.5*6+6 Copper Standoffs** to the assembled part **A07** with four **M2.5*4 Screws**.

Assemble the following components:



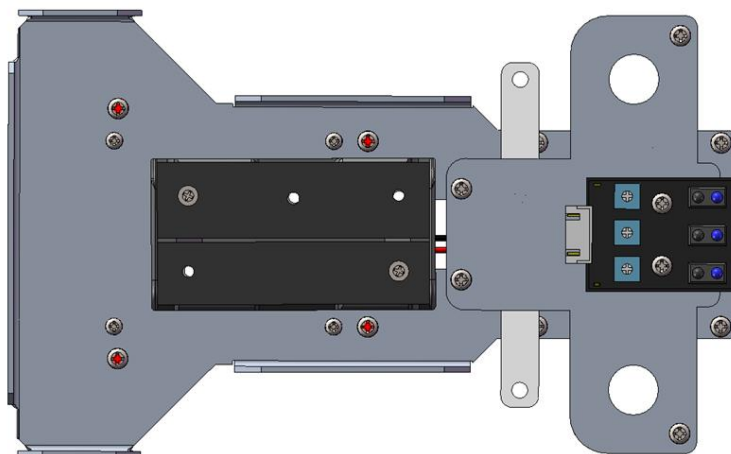
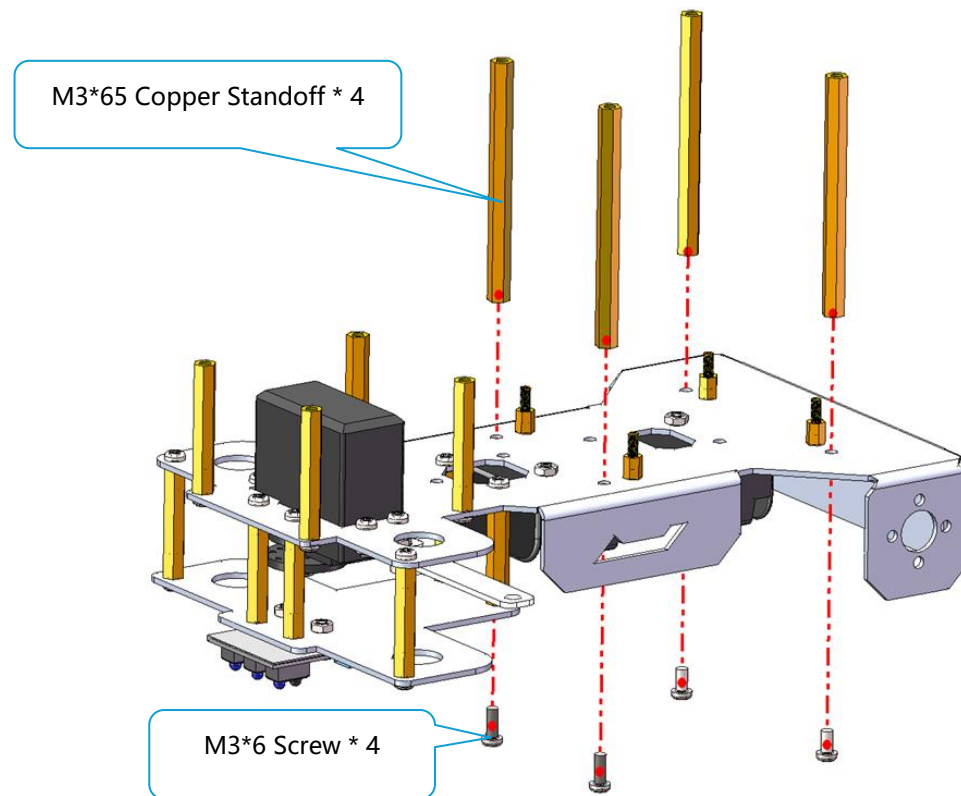
After Assembly:



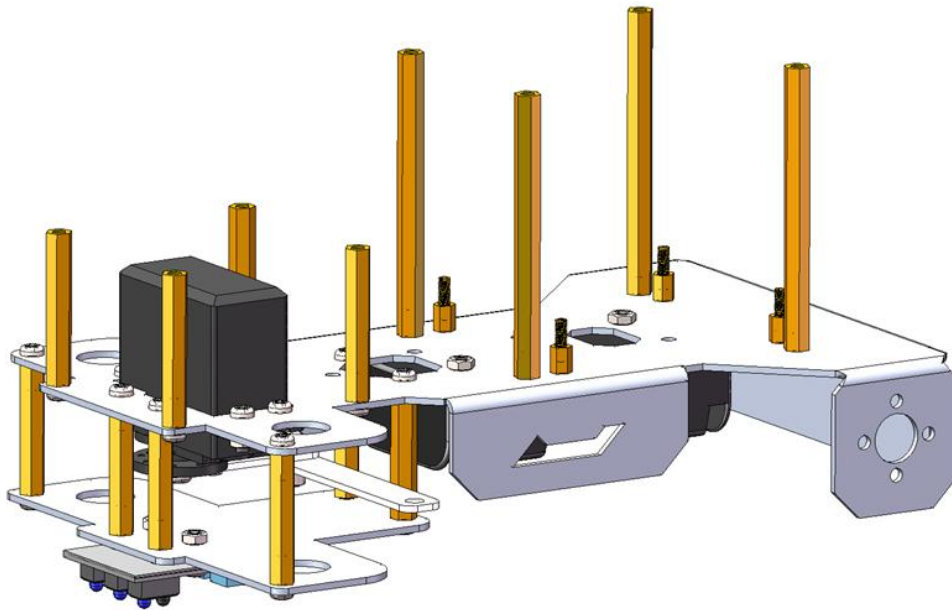
10. Fix four **M3*65 Copper Standoffs** to the assembled part **A07** with four **M3*6**

Screws.

Assemble the following components:

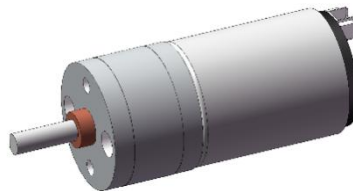


After Assembly:

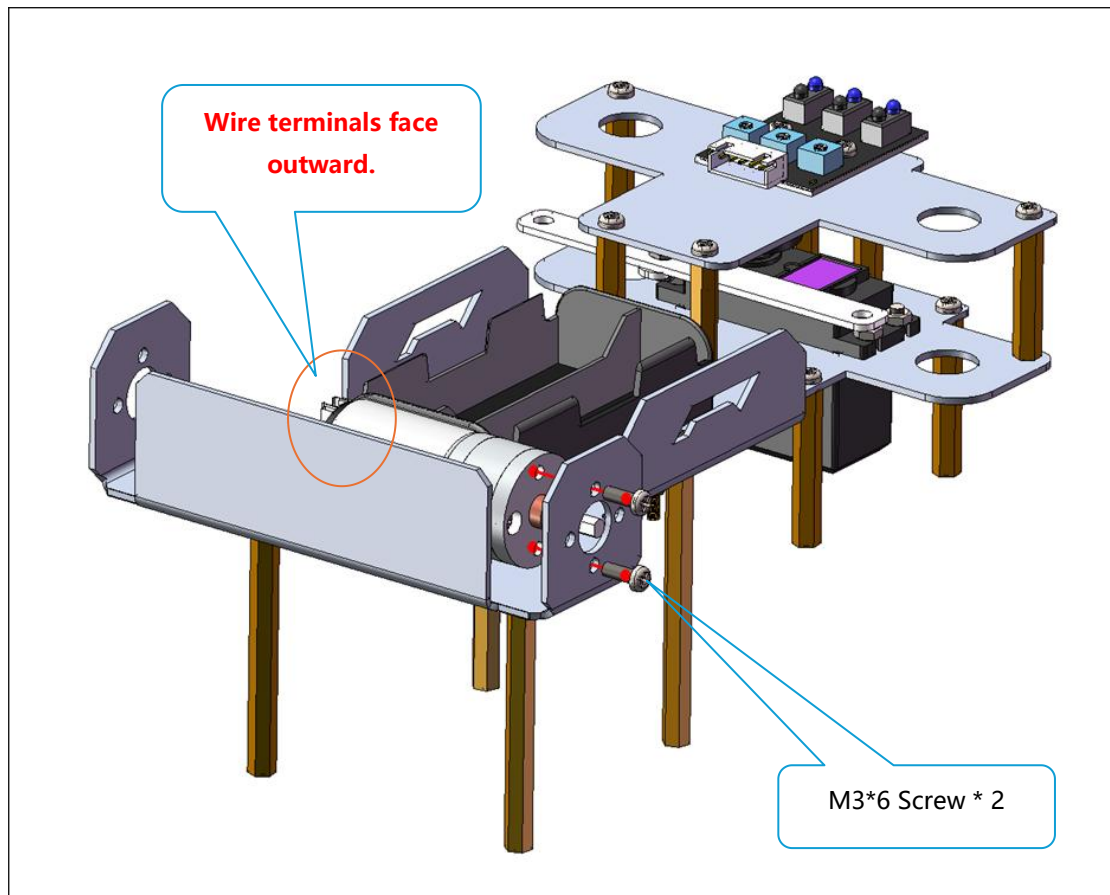


11. Fix the **DC Gear Motor** to assembled part **A07** with two **M3*6 Screws**.

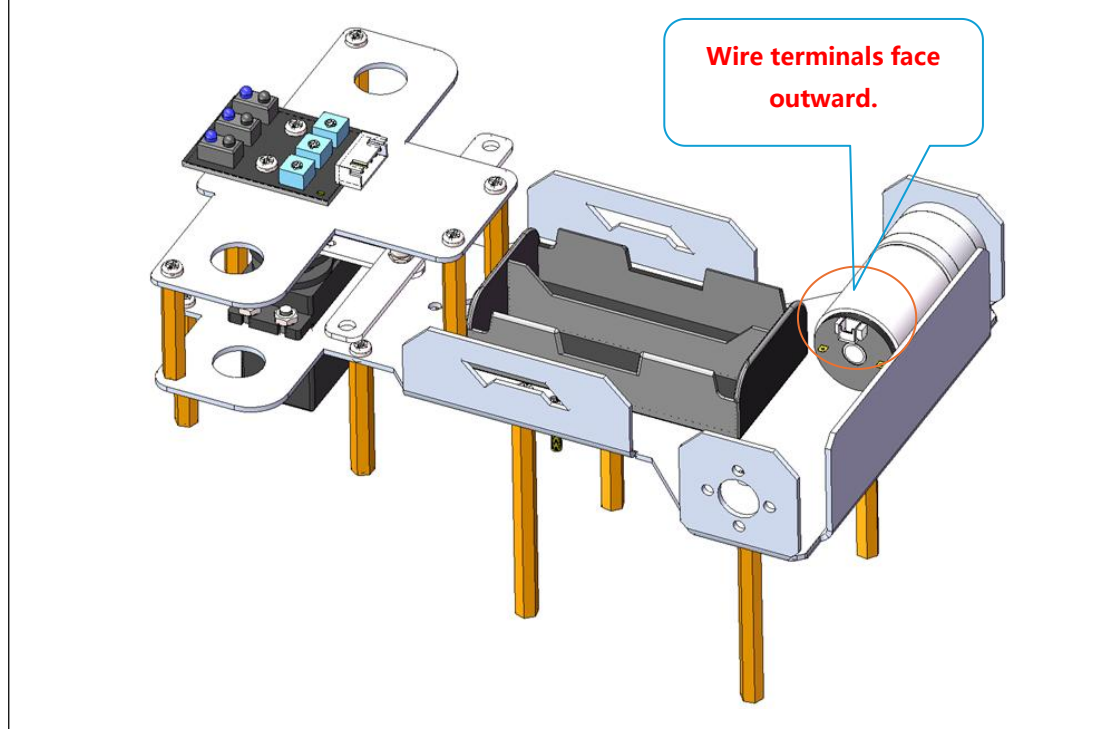
DC Gear Motor



Assemble the following components:



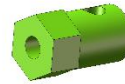
After Assembly:



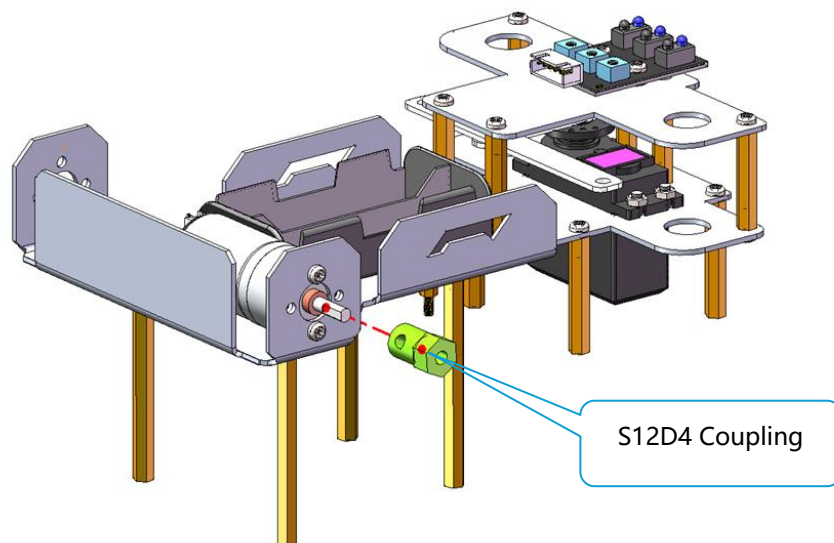
12. Fix the **S12D4 Coupling** to the shaft of the **DC Gear Motor** using two **M4*4**

Locking Screws. (The screws are packaged along with the couplings. Utilize an L - shaped wrench to tighten the screws.)

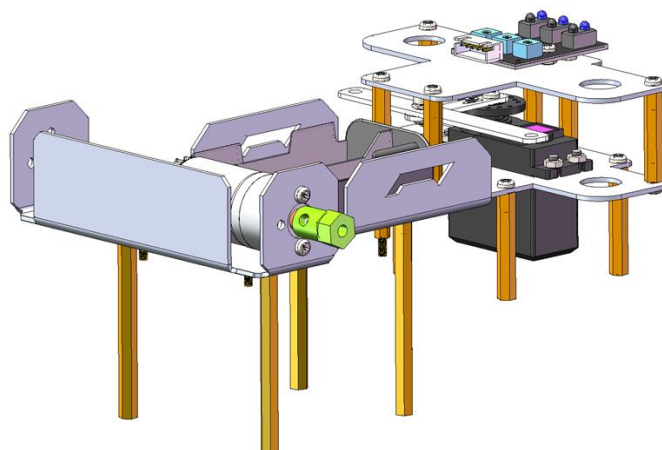
S12D4 Coupling



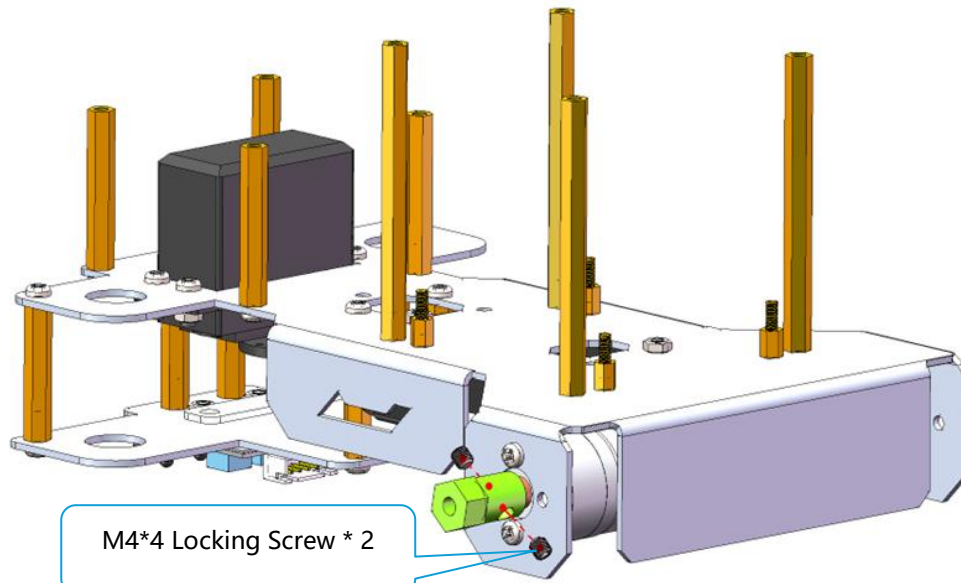
Assemble the following components:



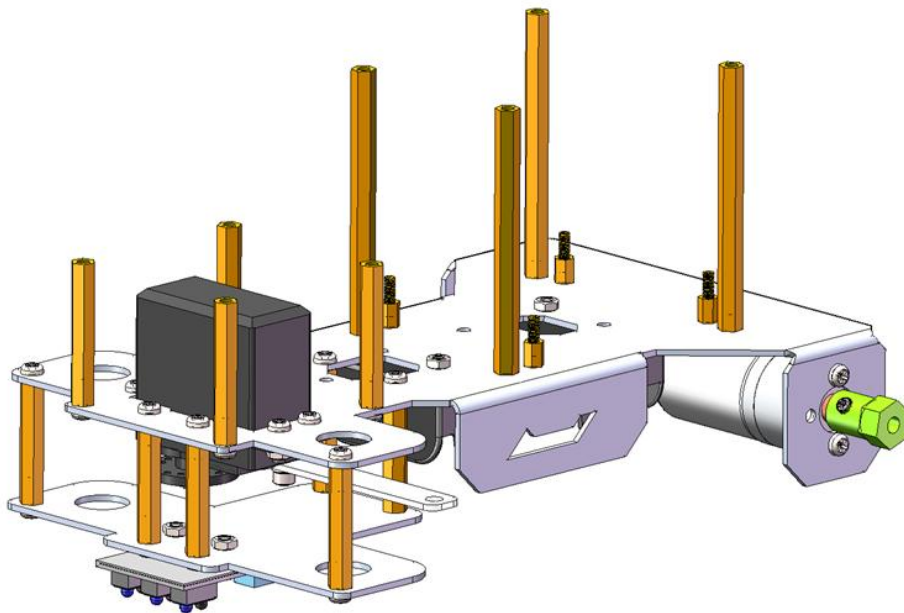
After Assembly:



Assemble the following components:

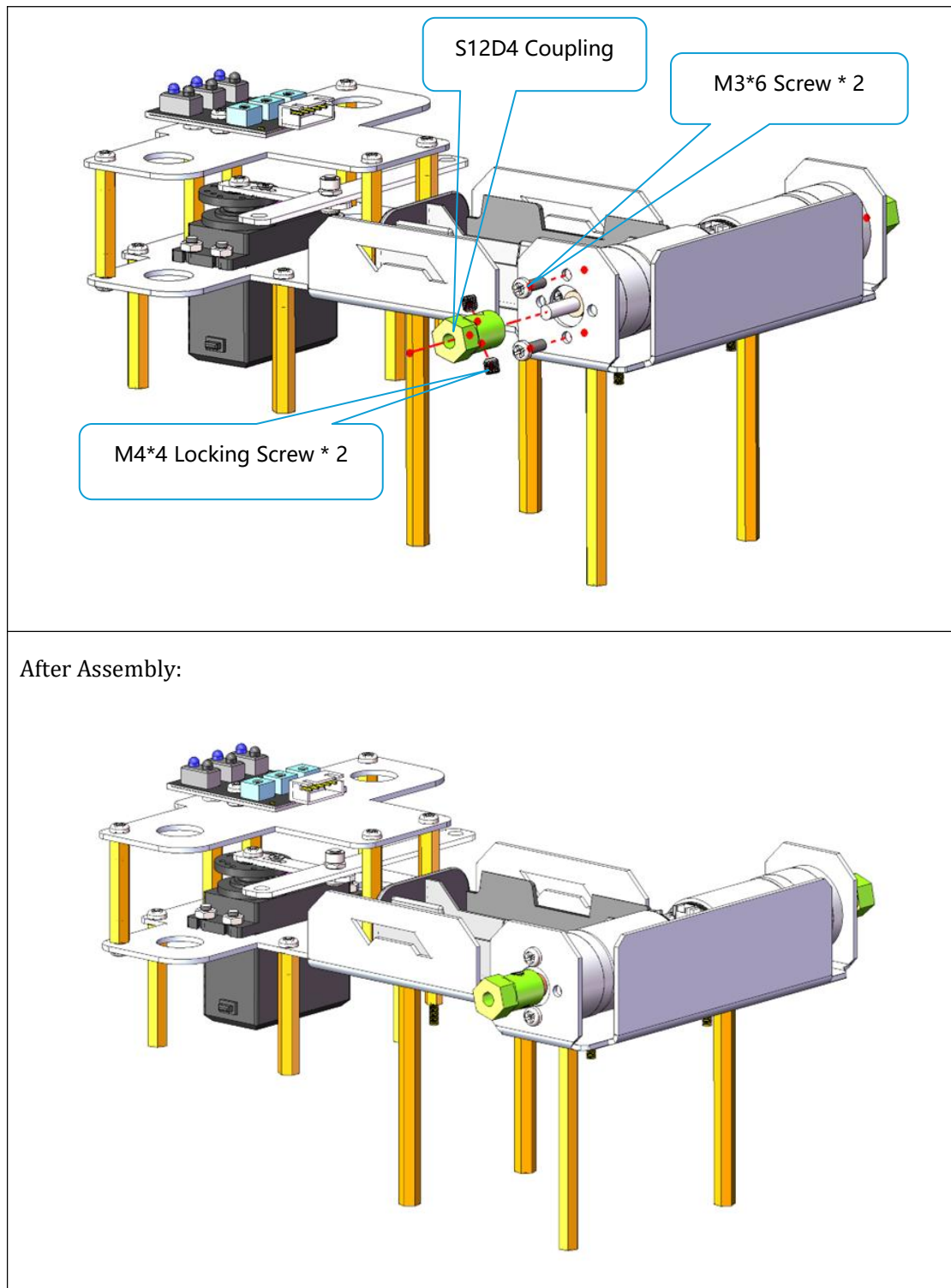


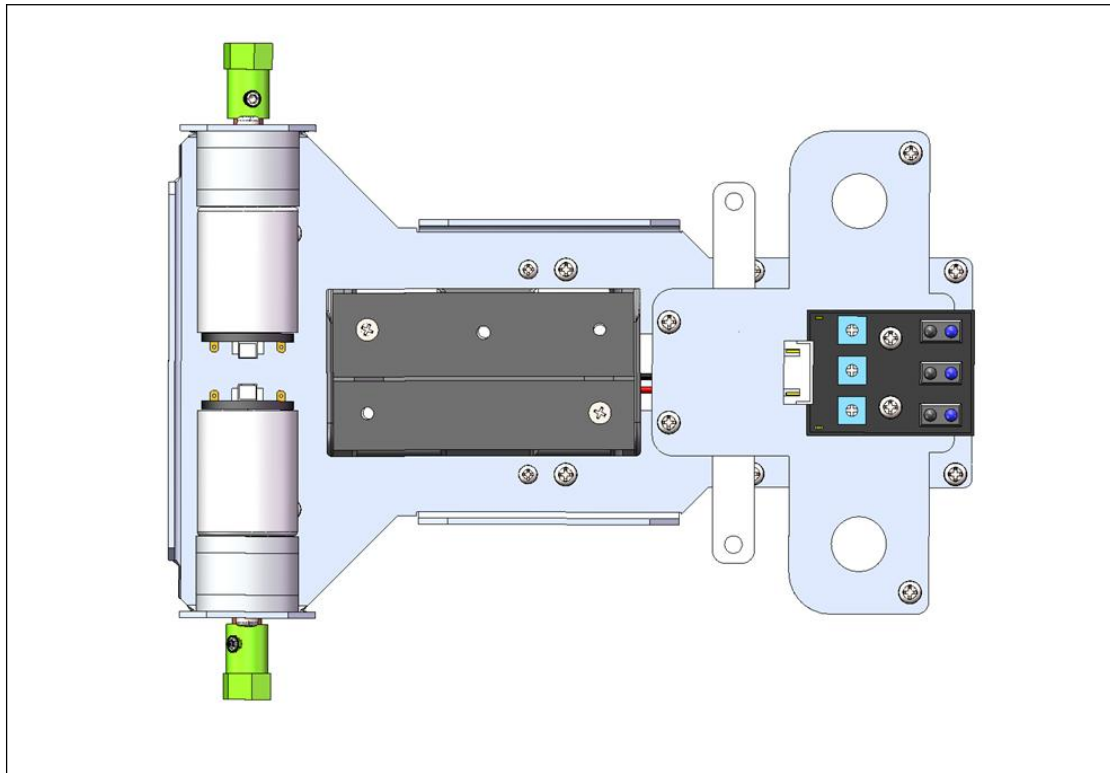
After Assembly:



Fix an additional **DC Gear Motor** and **S12D4 Coupling** following the exact same procedure as that used for the previously installed **DC Gear Motor** and **S12D4 Coupling**.



Assemble the following components:



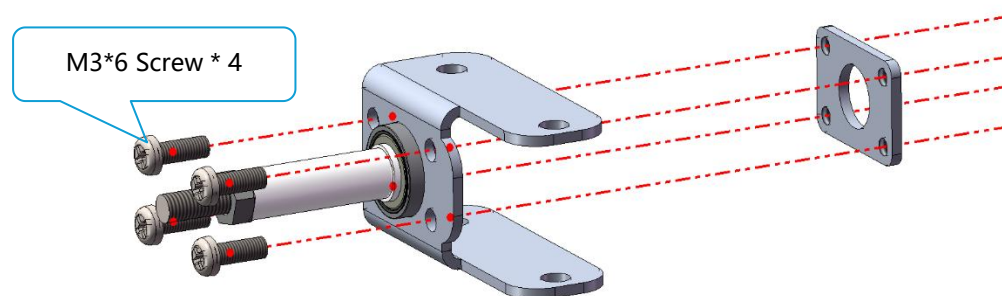
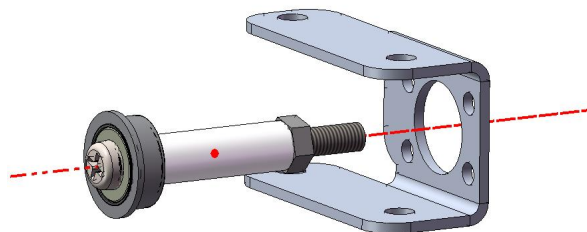
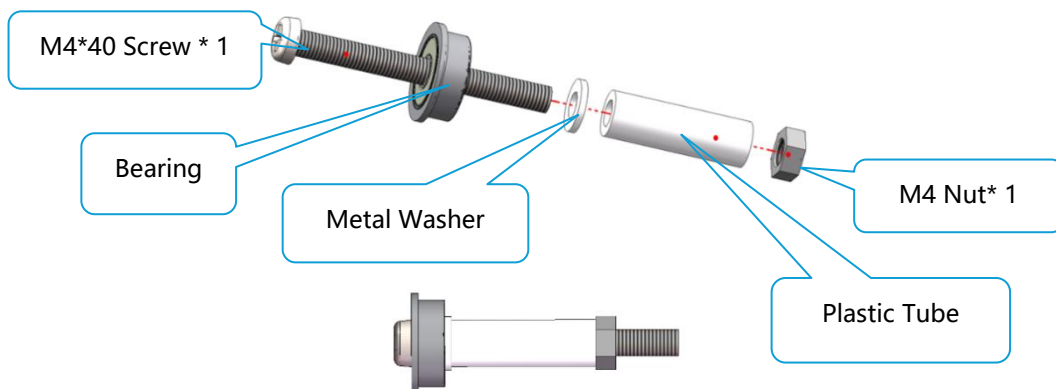


13. Assemble part **A11**, part **A12**, the **Bearing**, the **Washer Gasket**, and the **Plastic Tube** into a wheel rack with four **M3*6 Screws**, one **M4*40 Screw**, and one **M4 Nut**. (Assemble 2 sets)

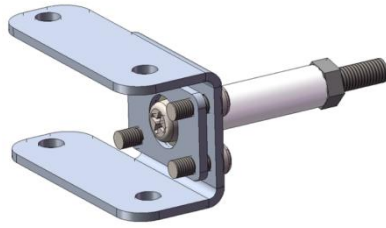
A11	
A12	
Bearing	

Metal Washer	
Plastic Tube	

Assemble the following components:



After Assembly:



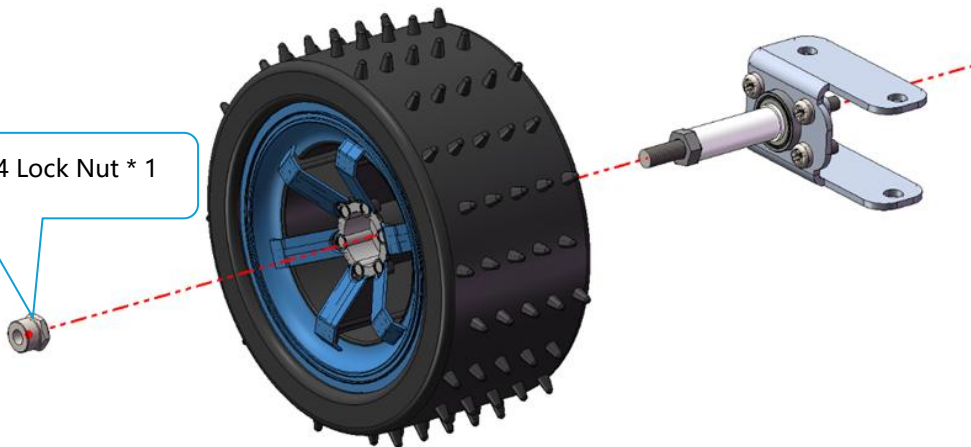
14. Assemble the assembled part **A11** and the **Big Wheel** into a steering wheel using one **M4 Lock Nut**. (Assemble 2 sets)

Big Wheel

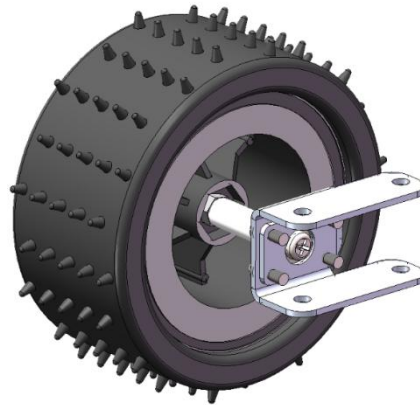


Assemble the following components:

M4 Lock Nut * 1

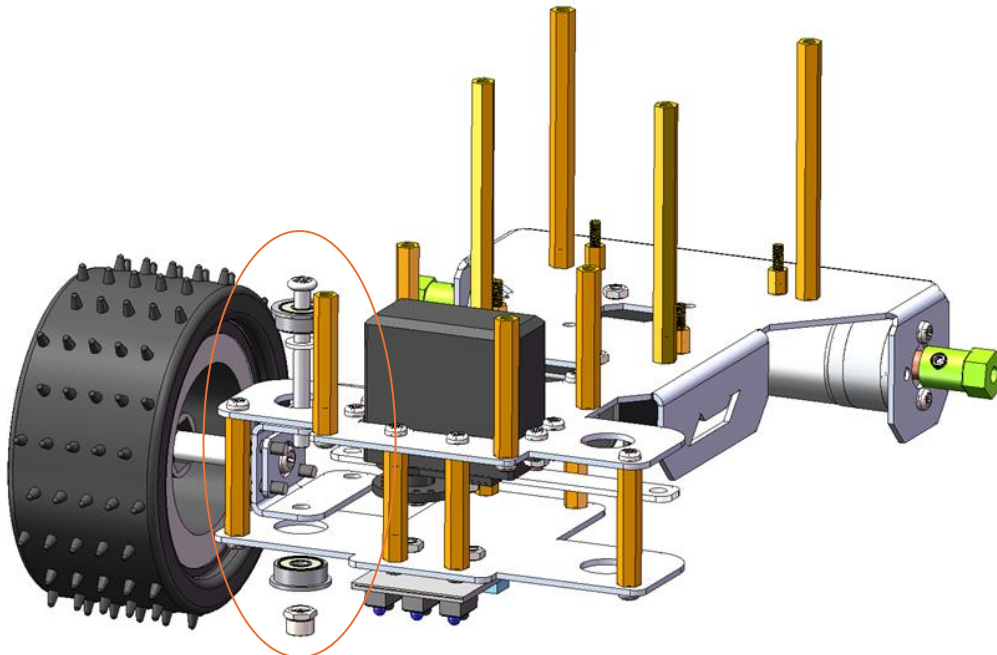


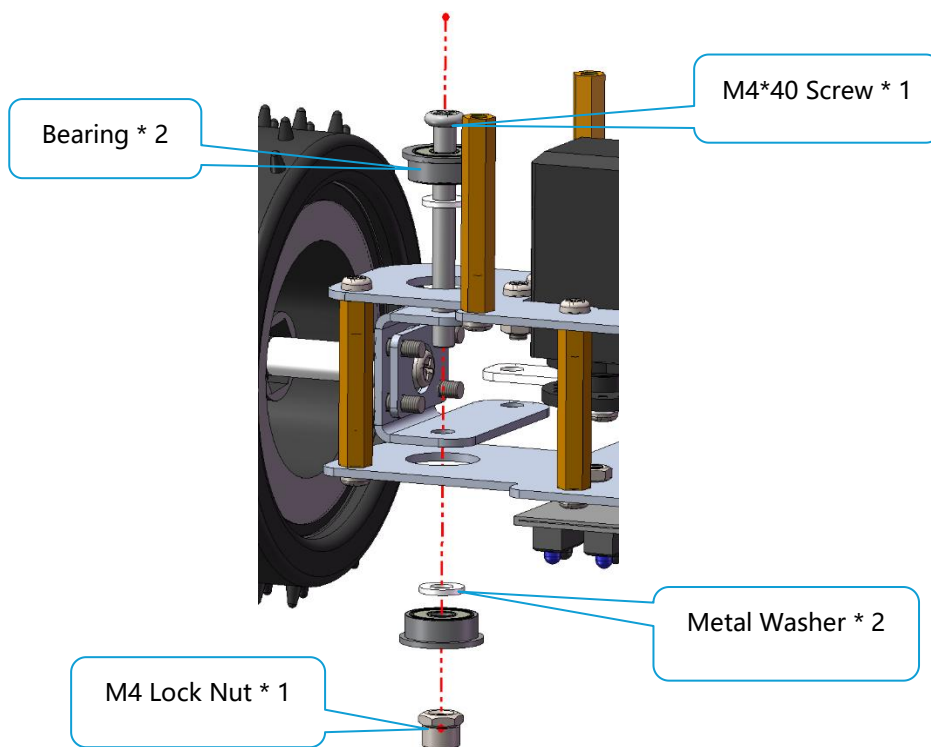
After Assembly:



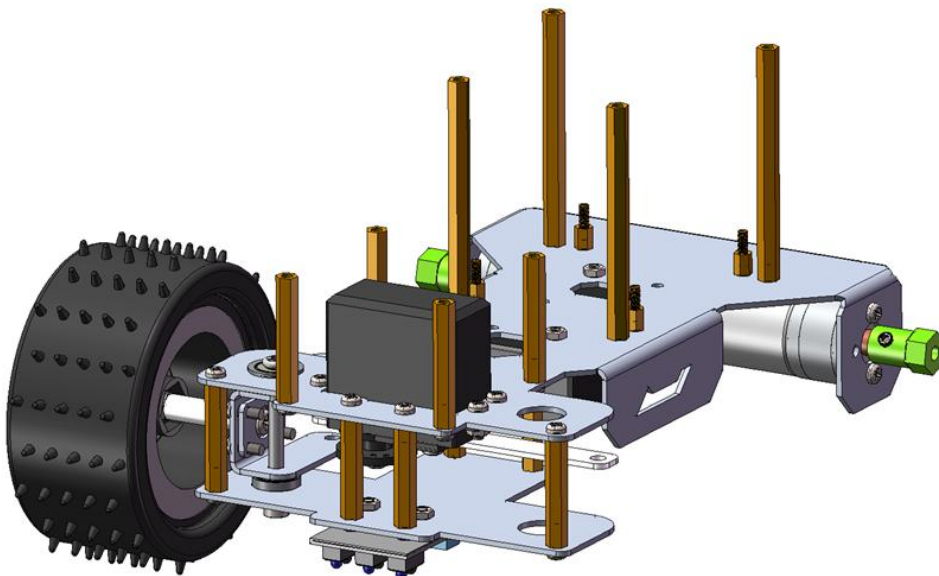
15. Fix the steering wheel to the assembled part **A07** using an **M4*40 screw**, two **Bearings**, two **Metal Washers**, and an **M4 Lock Nut**. (Please note that the lock nut should not be tightened too much.)

Assemble the following components:





After Assembly:



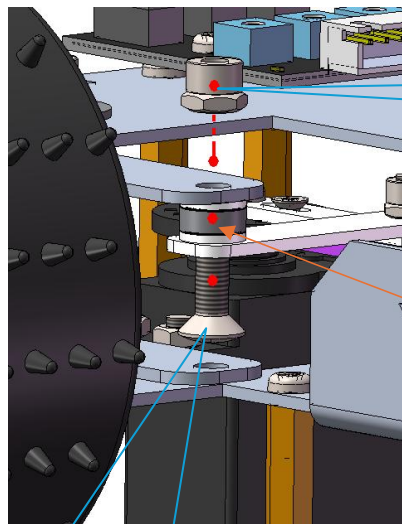
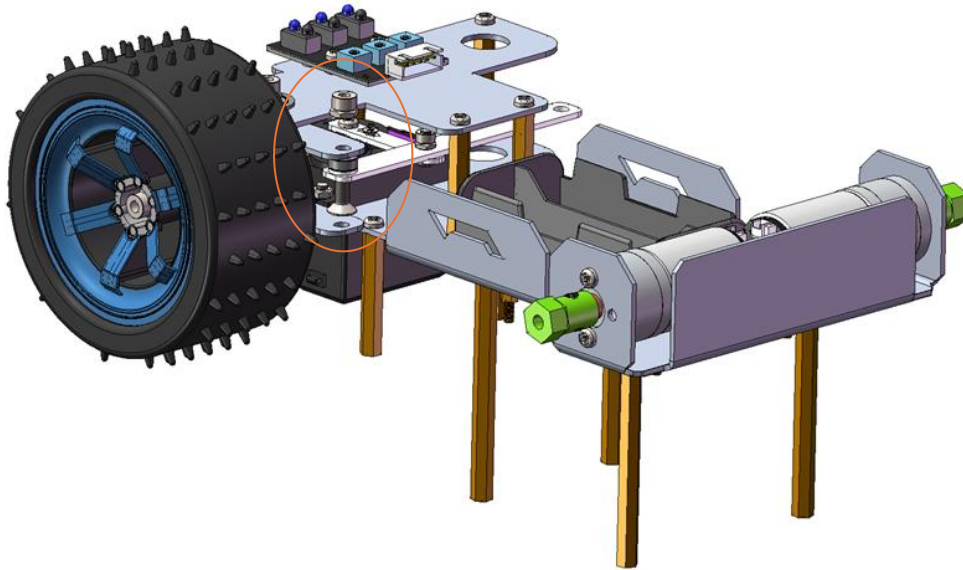
16. Connect the assembled part **A09** to the assembled part **A11** by using an **M4*14 Countersunk Screw**, an **M4 Lock Nut**, a **Small Bearing**, and two **Metal**

Washers.(Please note that the lock nut should not be tightened too much.)

Small Bearing



Assemble the following components:



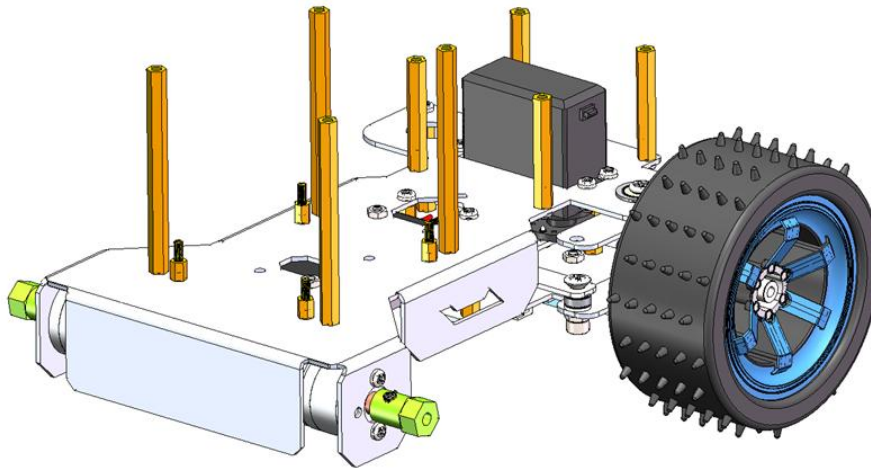
M4 Lock Nut * 1

Metal Washer * 2

M4*14 Countersunk Screw * 1

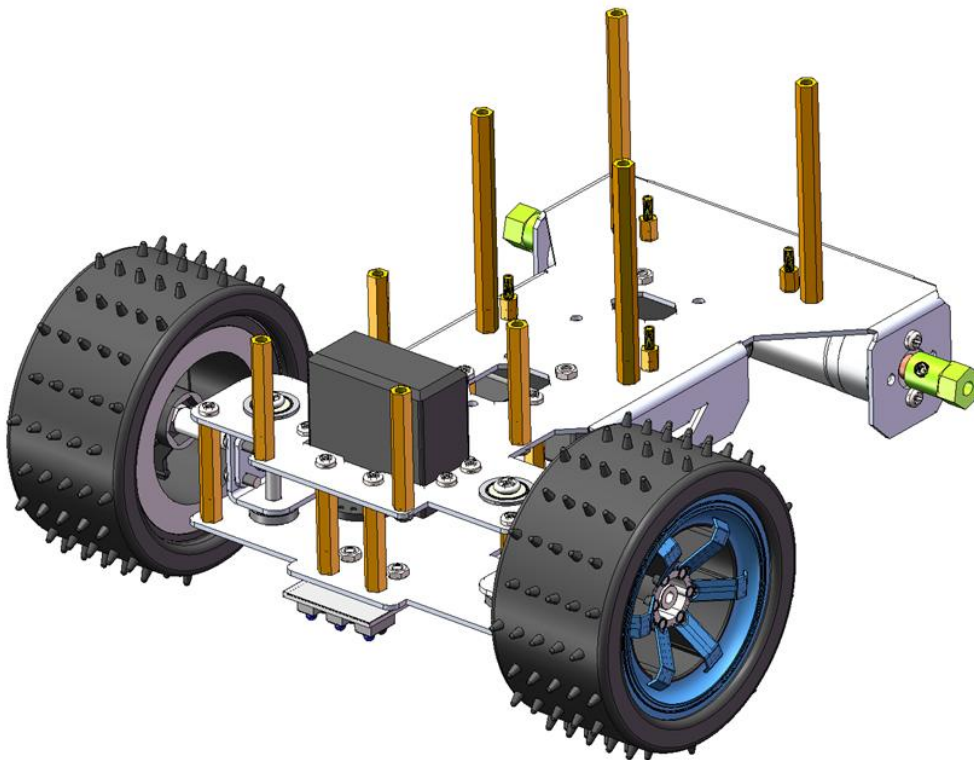
Small Bearing * 1

After Assembly:



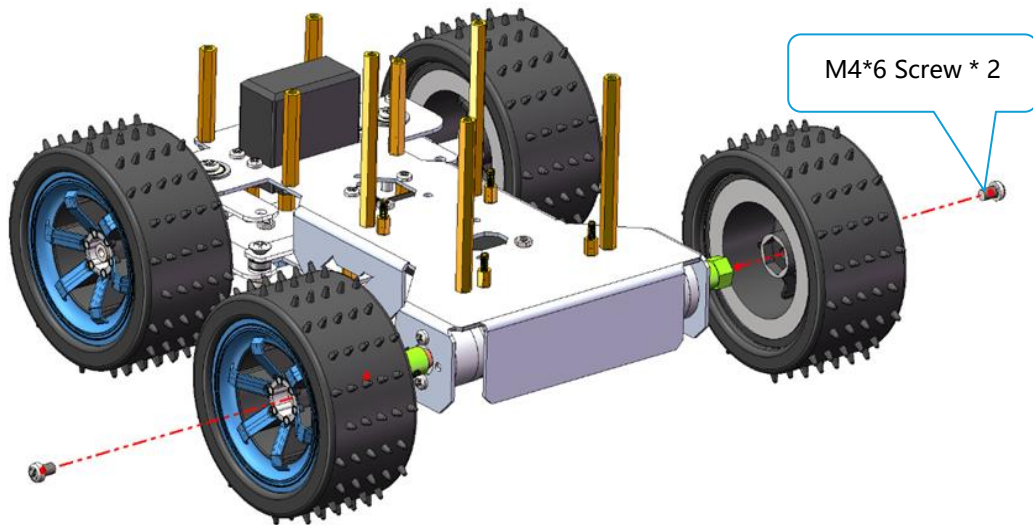
Fix another steering wheel in the same way as the first one.

After Assembly:

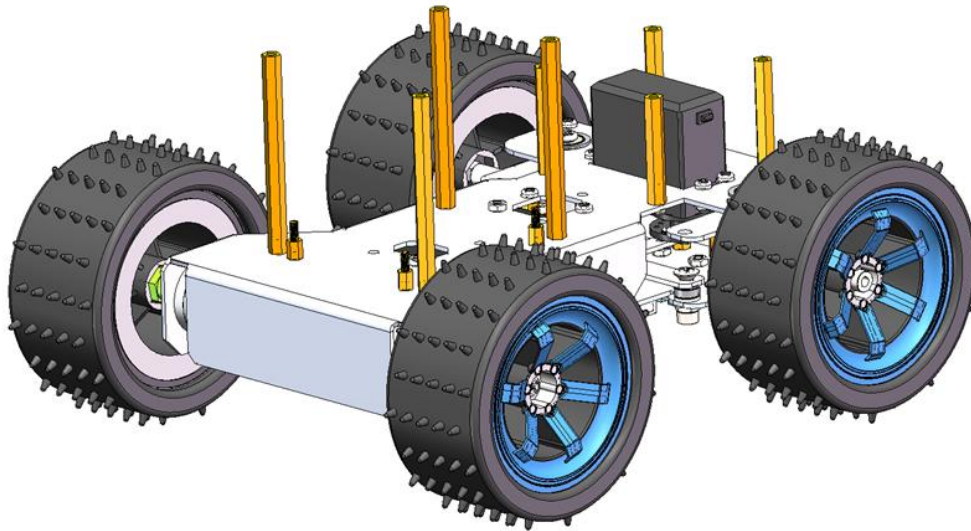


17. Connect the assembled part **A07** to the two **Big Wheels** with two **M4*6 Screws**.

Assemble the following components:

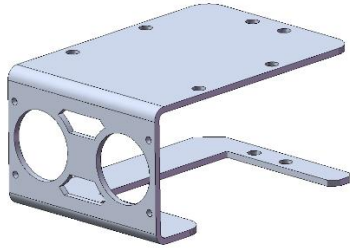



After Assembly:

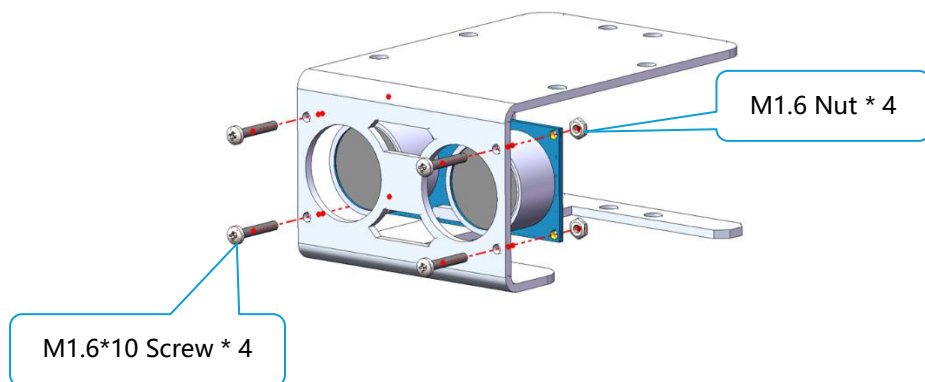


6.3 Assembly of Robot Head

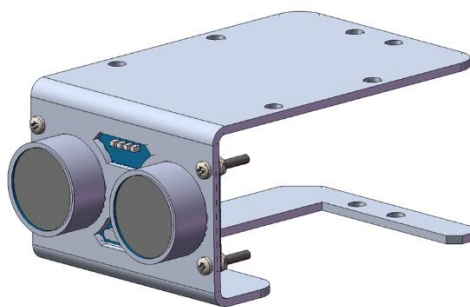
1. Fix the **Ultrasonic Module** to part **A13** with four **M1.6*10 Screws** and four **M1.6 Nuts**.

A13	
Ultrasonic Module	

Assemble the following components:

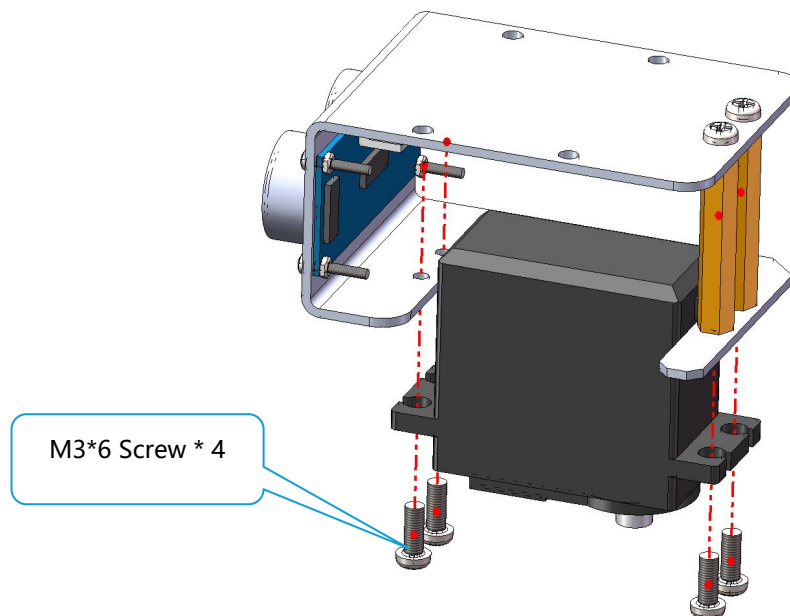
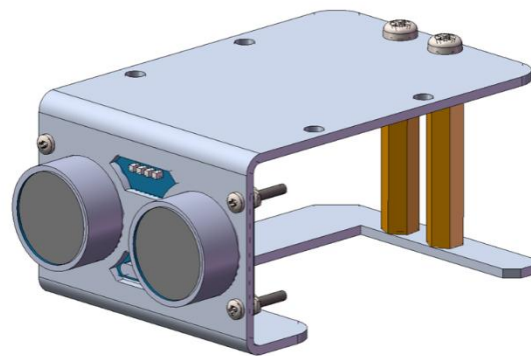
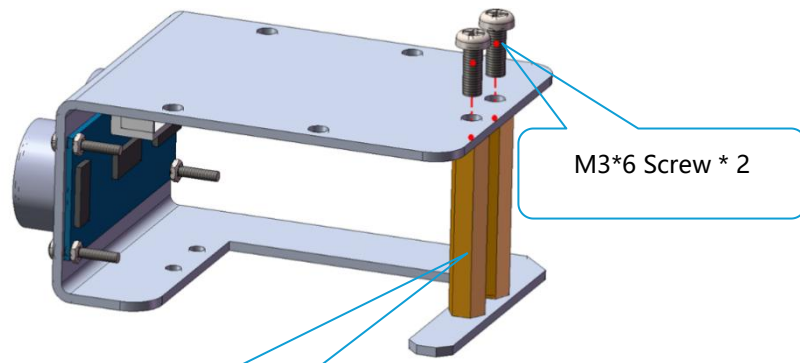


After Assembly:

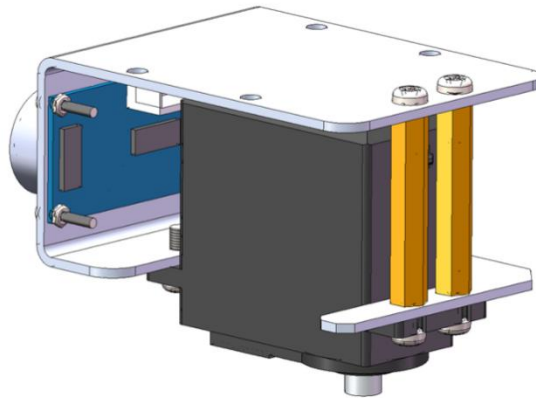


2. Fix a **Big Servo** to part **A13** using six **M3*6 Screws** and two **M3*30 Copper Standoffs**.

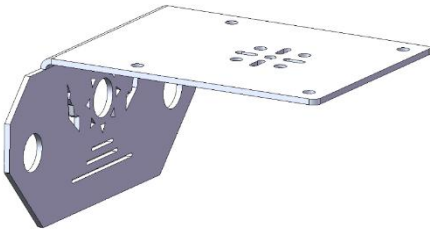
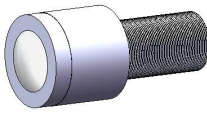
Assemble the following components:



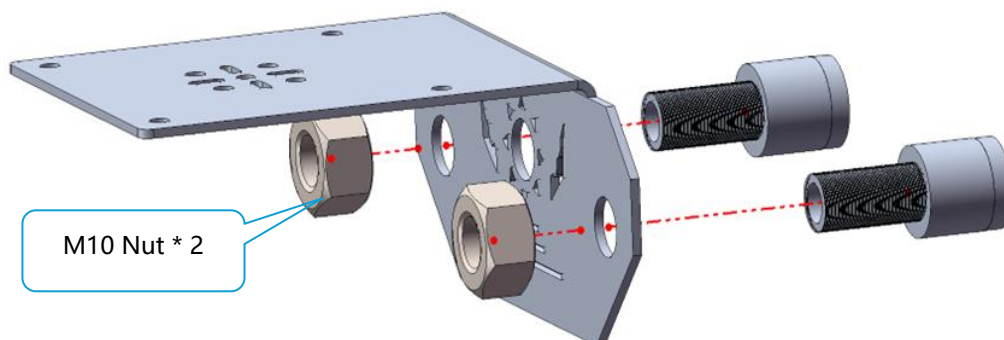
After Assembly:



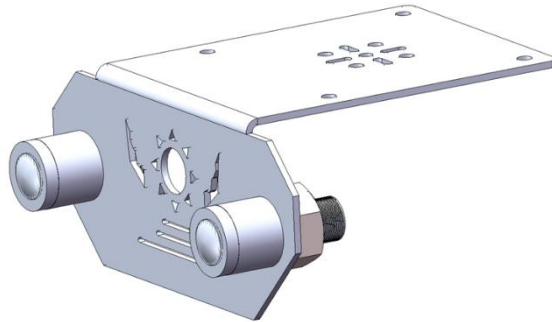
3. Fix two **LED Lights** to part **A14** using two **M10 Nuts**.

A14	
LED Light	

Assemble the following components:

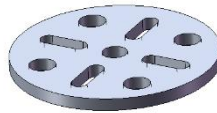


After Assembly:

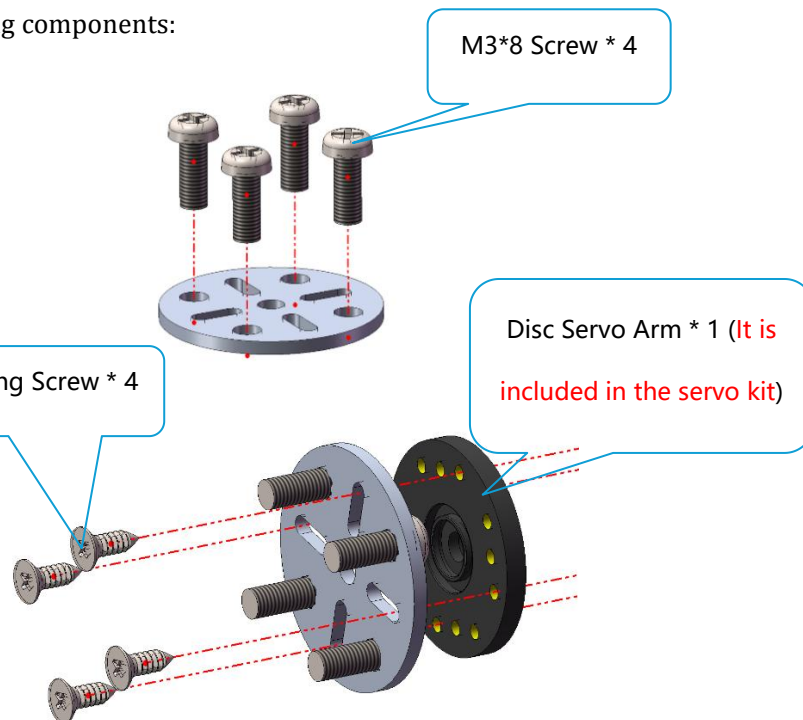


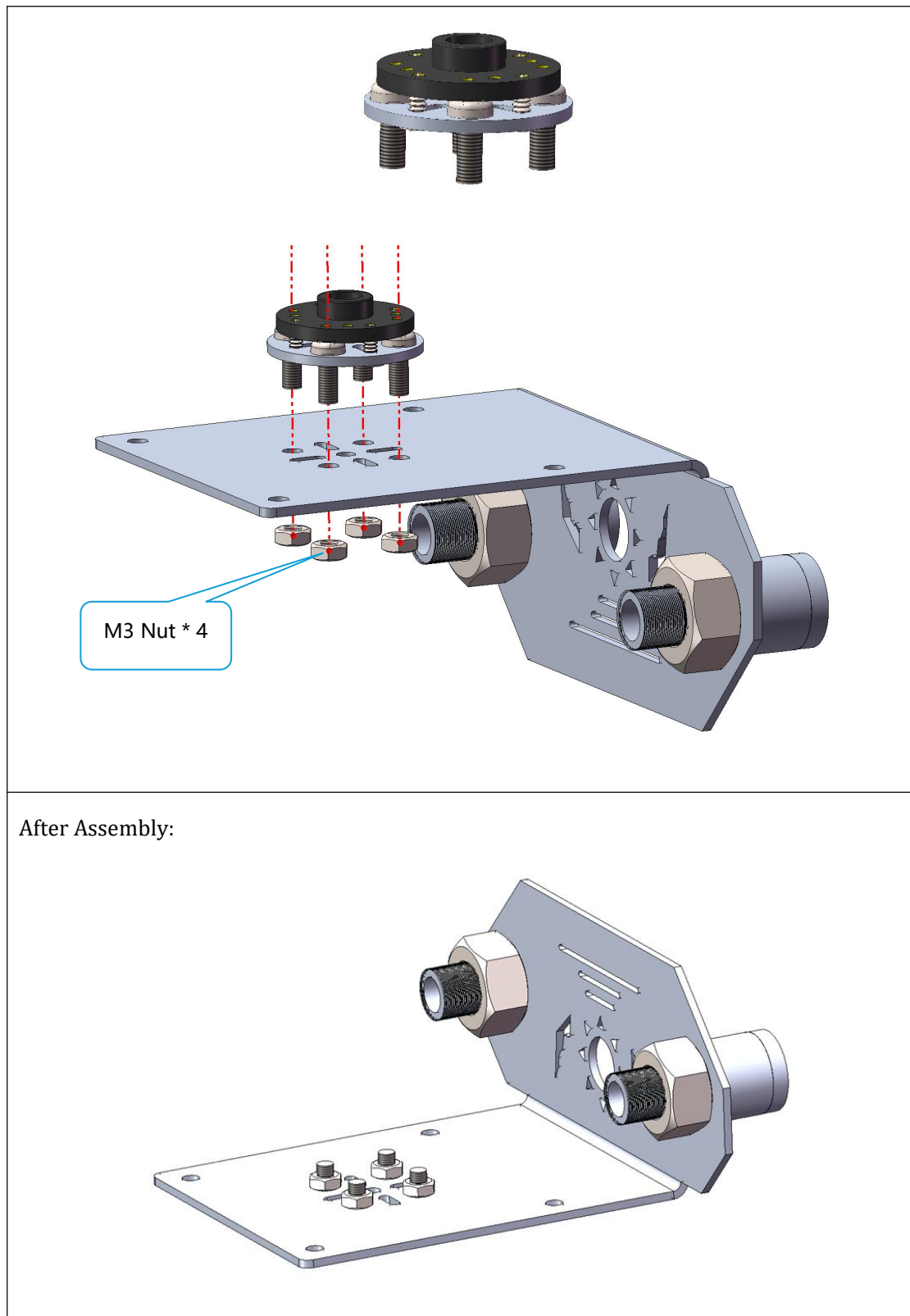
4. Connect part **A14**, part **A15** and **Disc Servo Arm** using four **M3*8 Screws**, four **M3 Nuts** and four **M1.7*6*6 Tapping Screws** .

A15

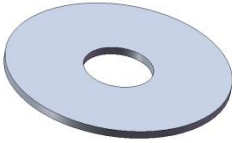
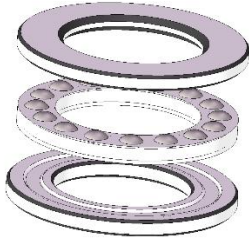


Assemble the following components:

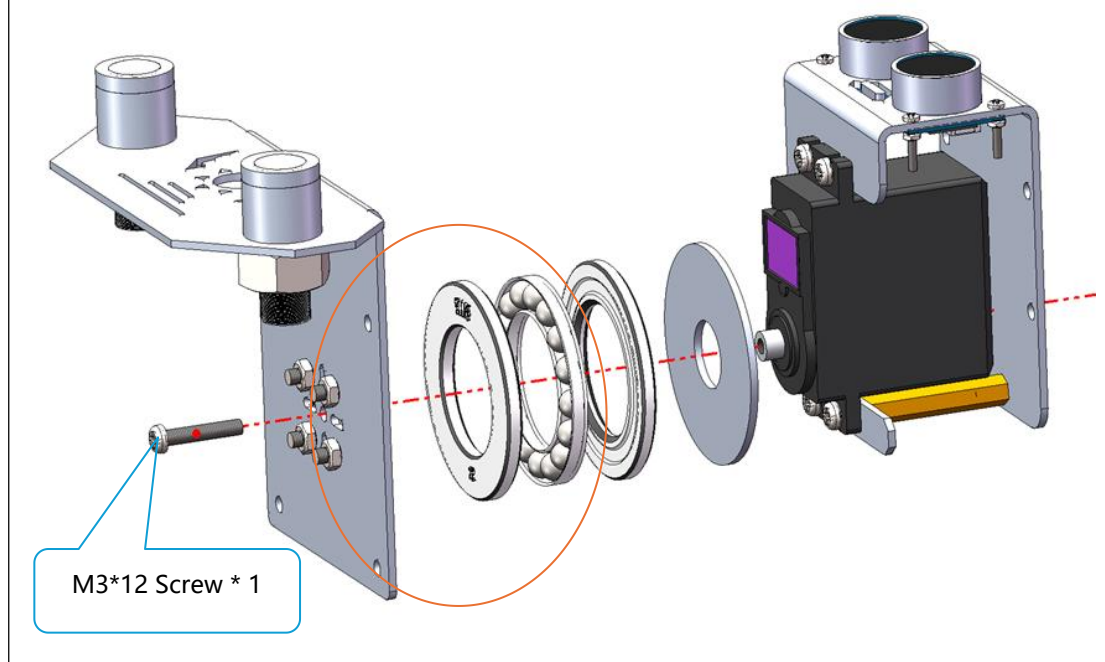


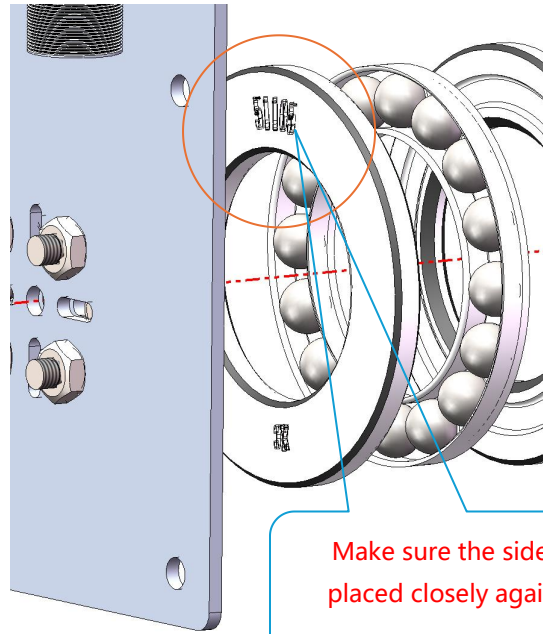


5. Connect part **A16**, part **A14** and the **Ball Bearing** with an **M3*12 Screw**.

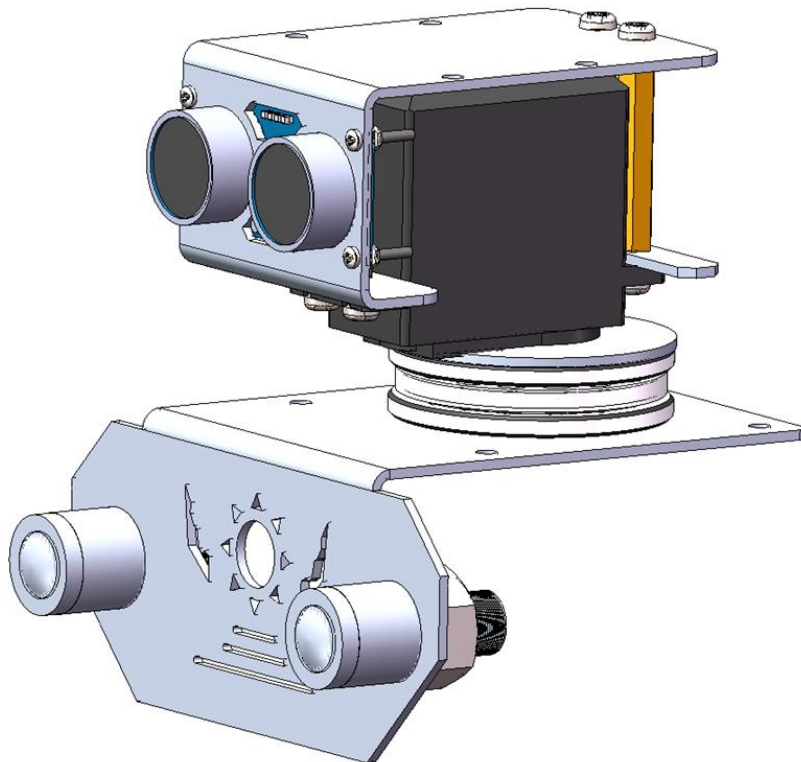
A16	
Ball Bearing	

Assemble the following components:





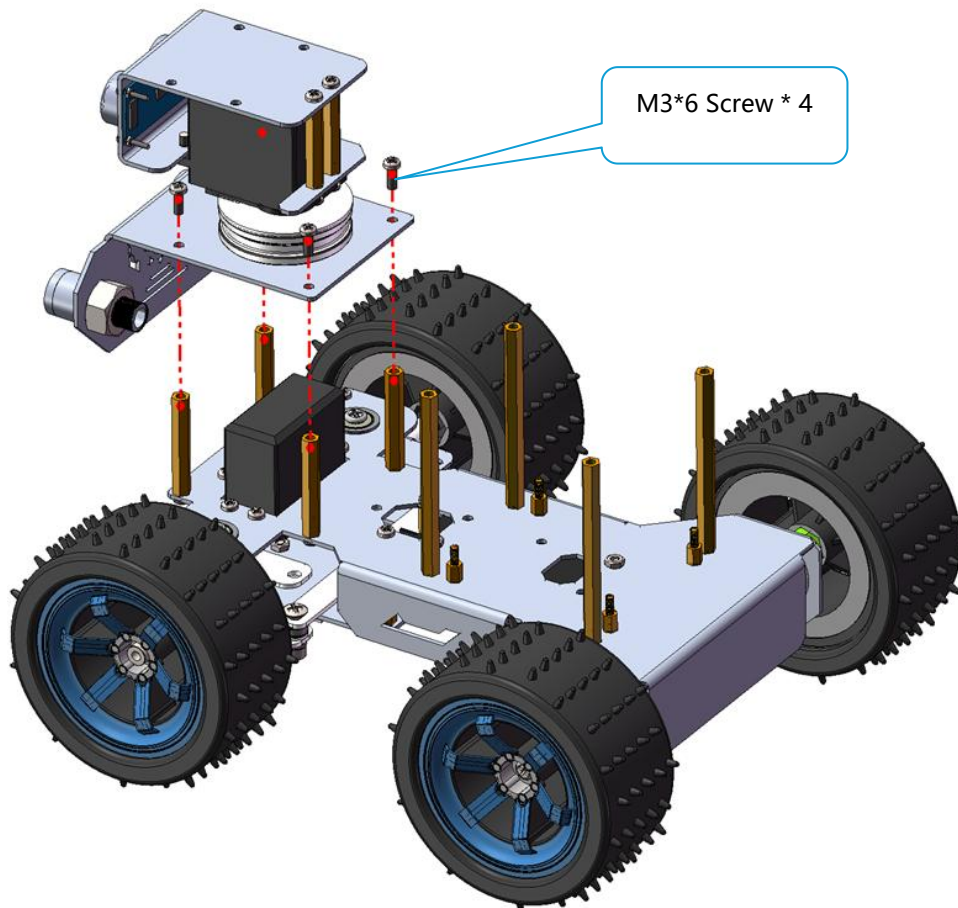
After Assembly:



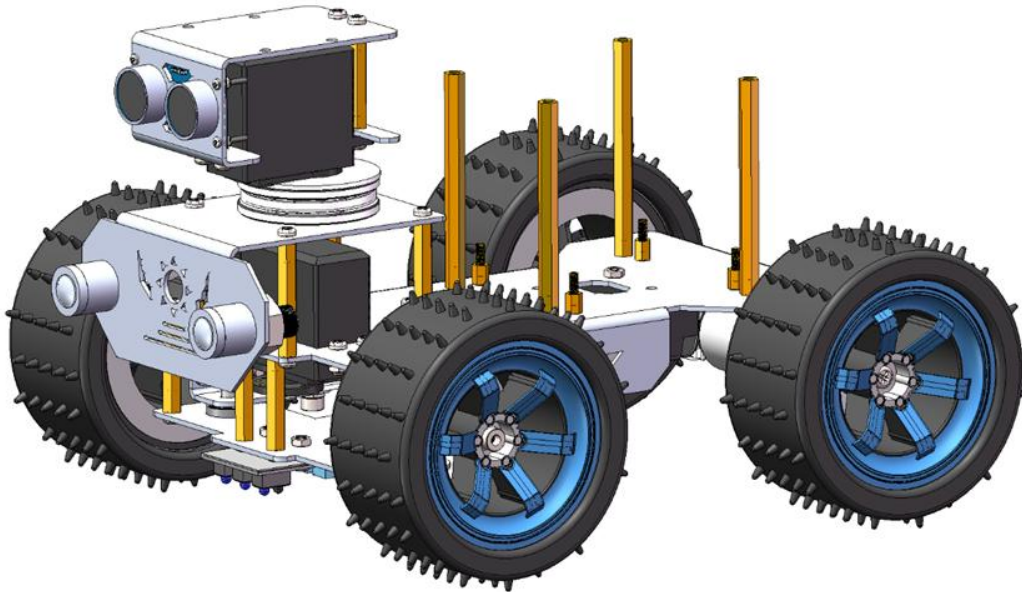
6.4 Assembly of Robot Body

1. Connect the assembled part **A07** to the assembled part **A14** with four **M3*6** Screws.

Assemble the following components:

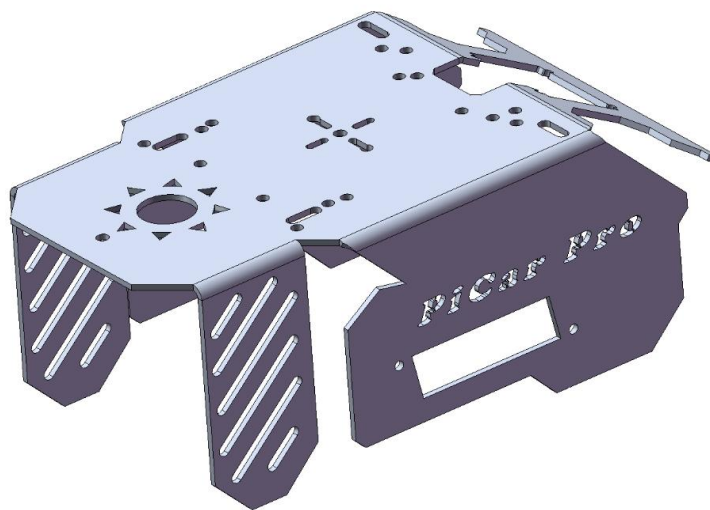


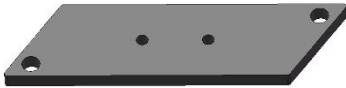
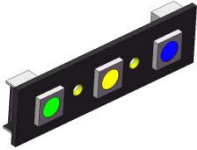
After Assembly:



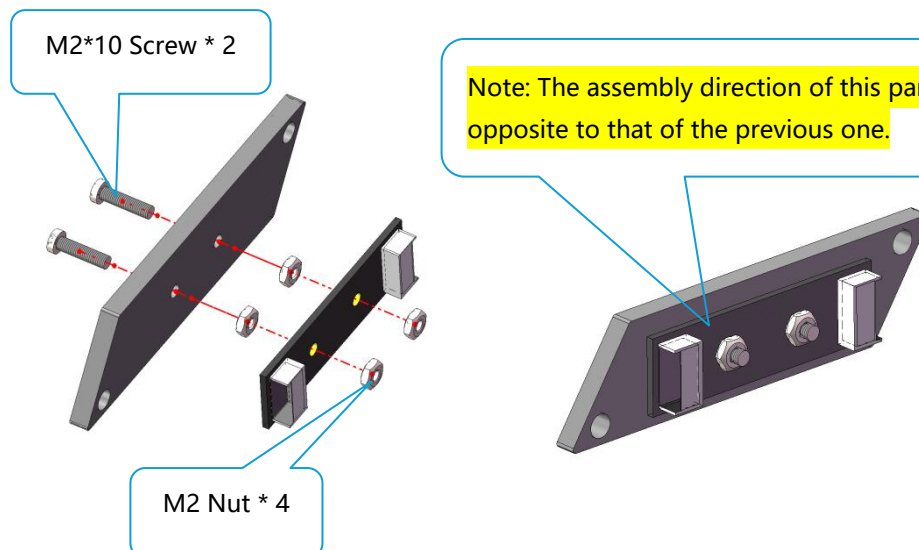
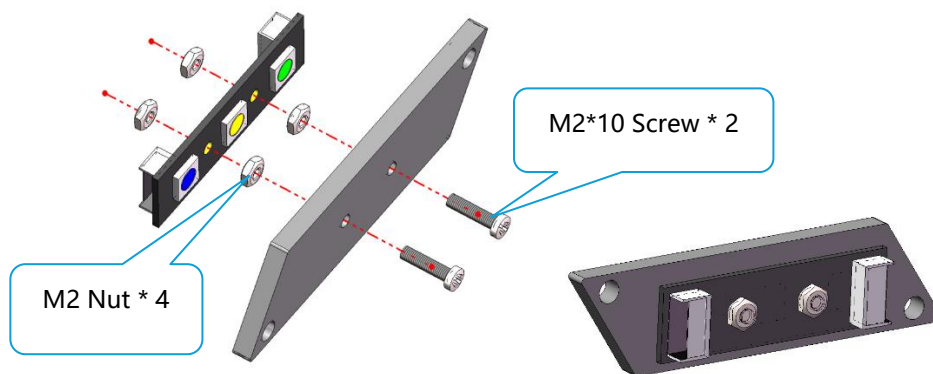
2. Connect part **A17**, part **A18** and **WS2812 RGB LED** with four **M2*10 Screws**, eight **M2 Nuts** and four **M3*8 Screws**. (Part A18 is an acrylic component, with a piece of protective paper adhered to its surface. You can tear off the protective paper.)

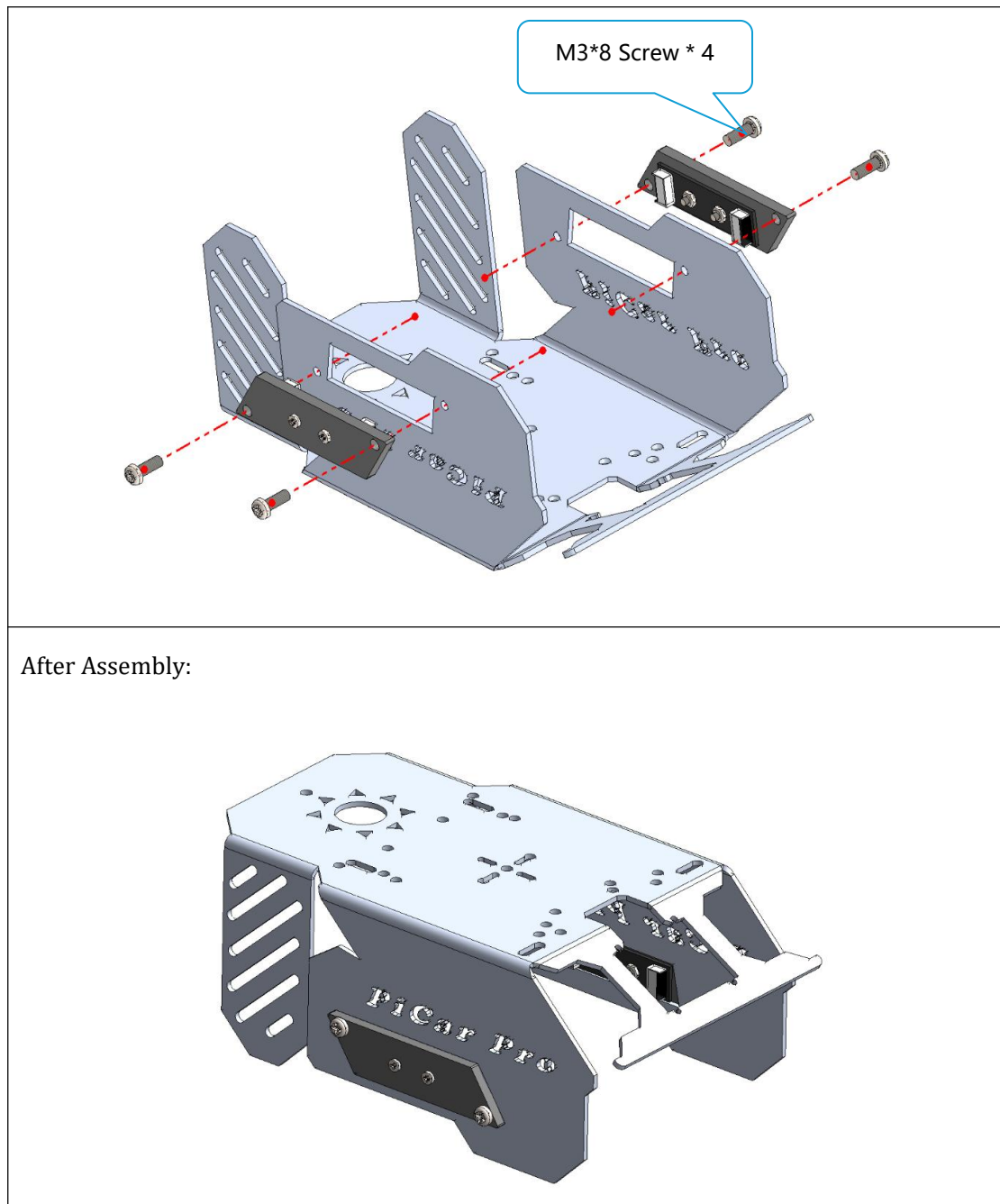
A17



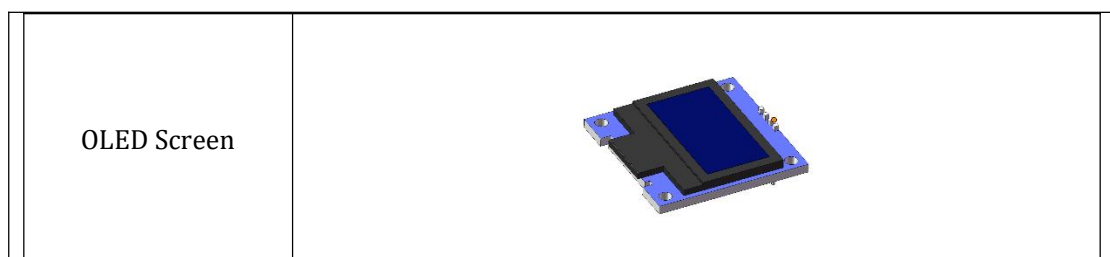
A18	
WS2812 RGB LED	

Assemble the following components:

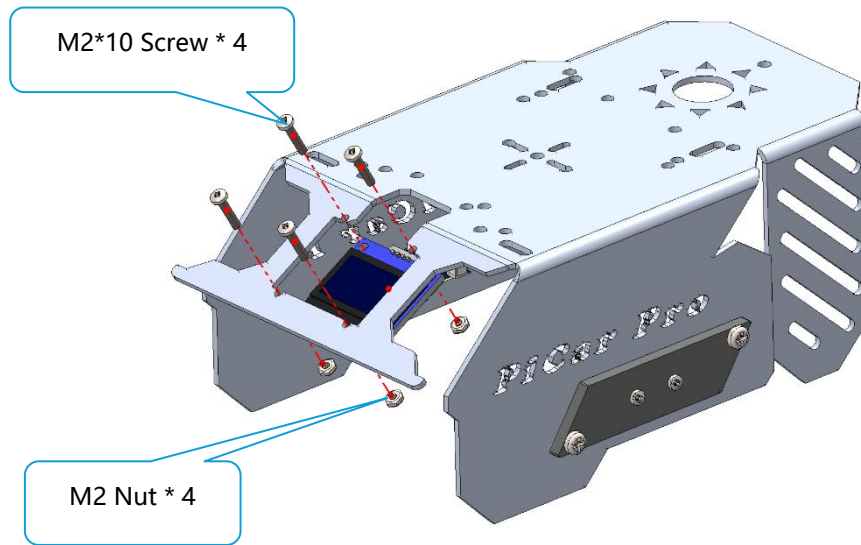




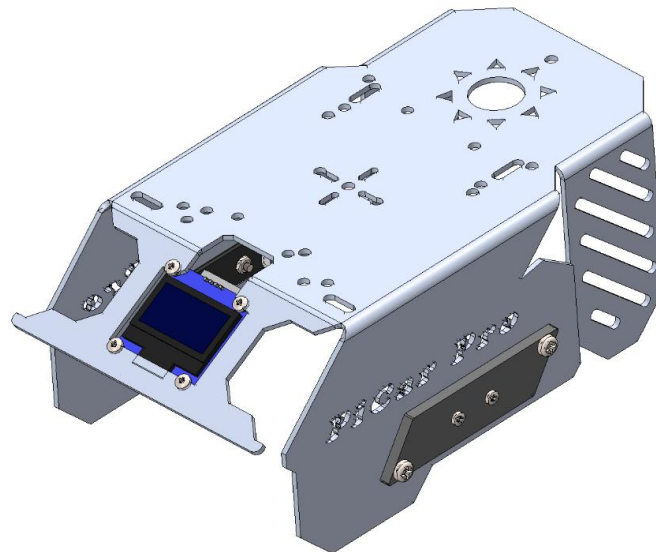
3. Fix the **OLED Screen** onto part **A17** with four **M2*10 Screws** and four **M2 Nuts**.



Assemble the following components:

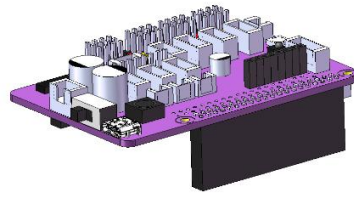


After Assembly:

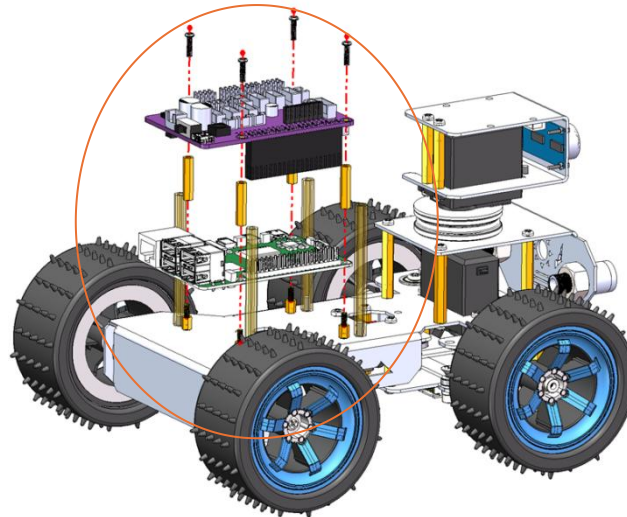


4. Fix the **Adept Robot HAT V3.2** to the **Raspberry Pi Board** (which is not included in this kit and needs to be purchased separately) with four **M2.5*21 Copper Standoffs** and four **M2.5*4 Screws**.

Adeept Robot HAT V3.2

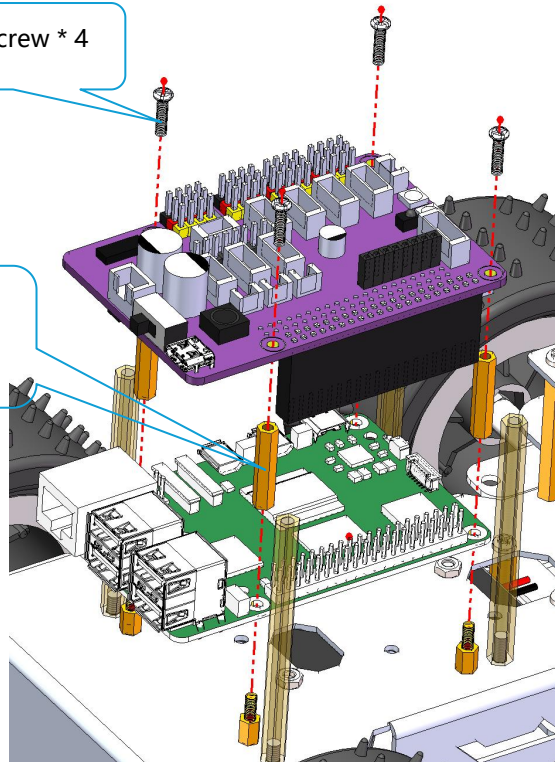


Assemble the following components:

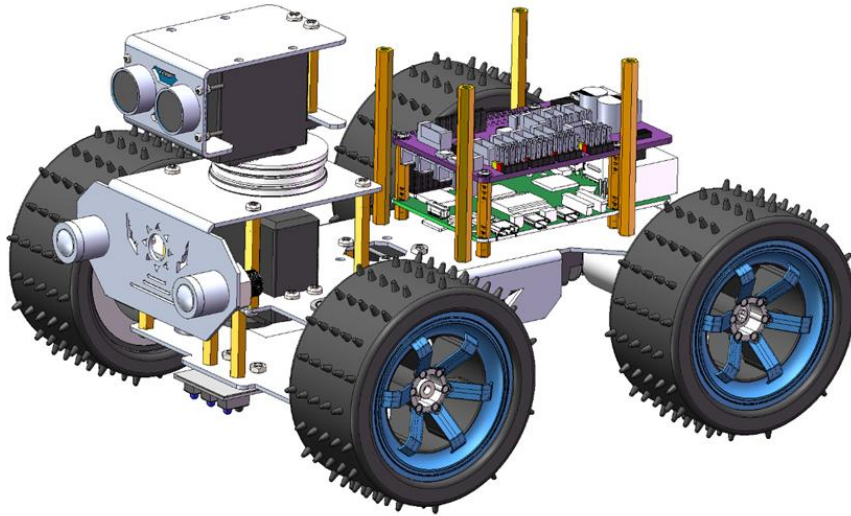


M2.5*4 Screw * 4

M2.5*21 Copper
Standoff * 4

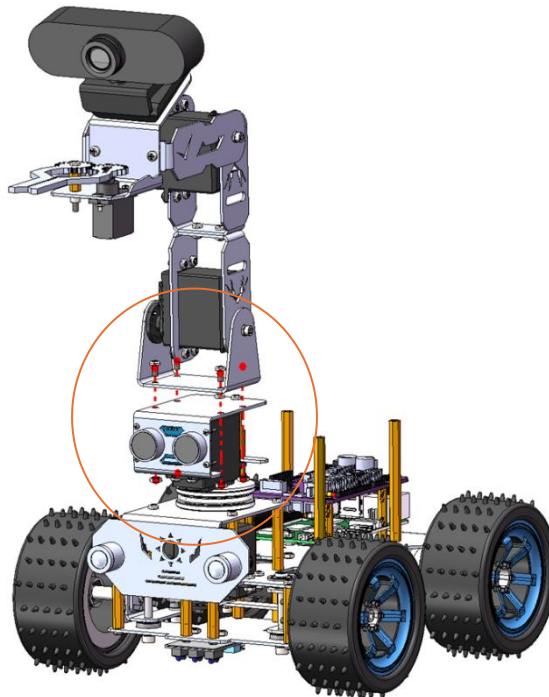


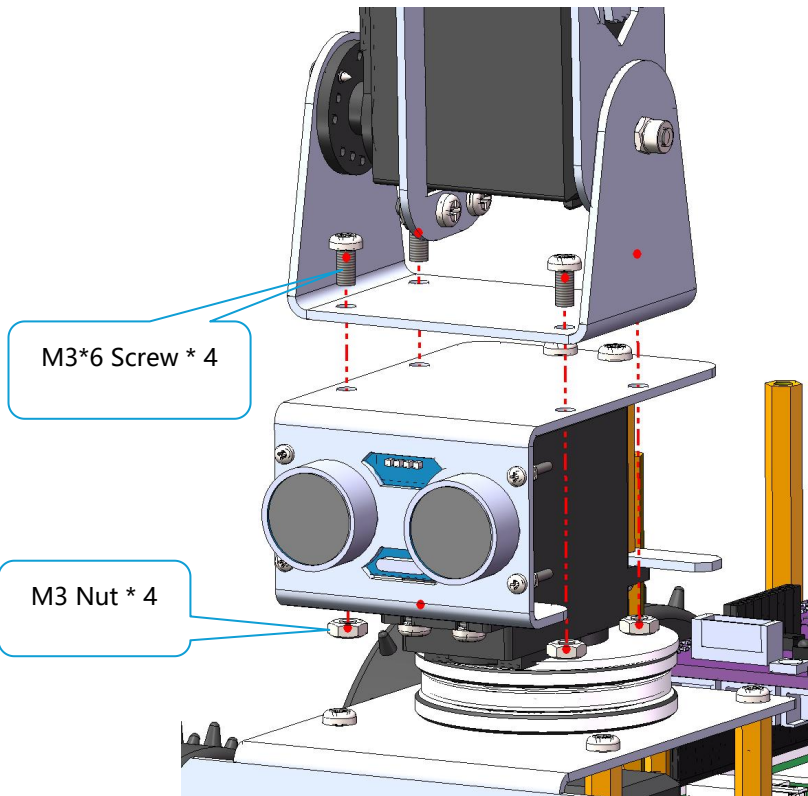
After Assembly:



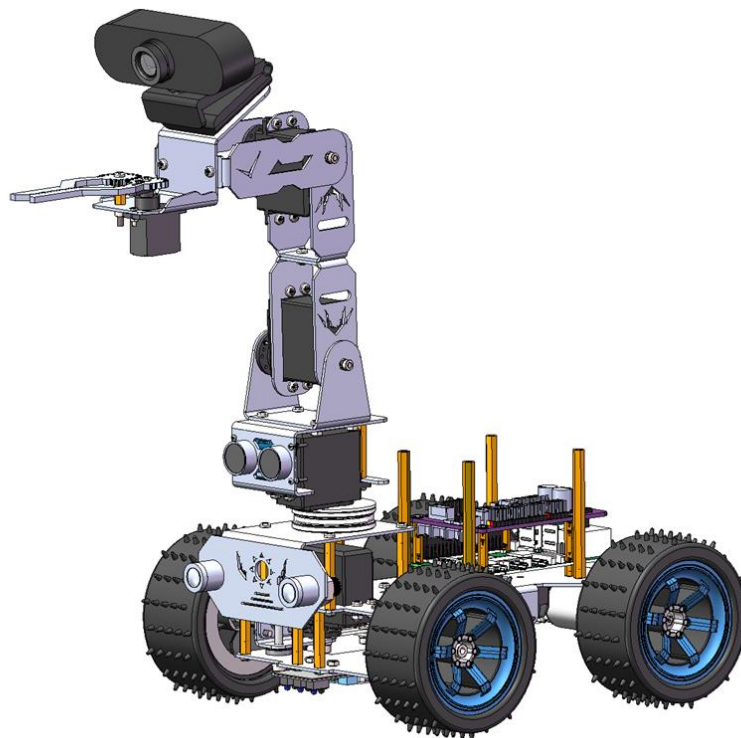
5. Connect the assembled part **A02** and the assembled part **A13** with four **M3*6** Screws and four **M3 Nuts**.

Assemble the following components:



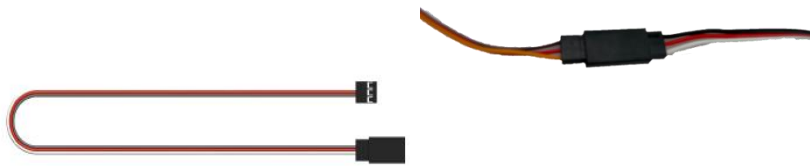


After Assembly:



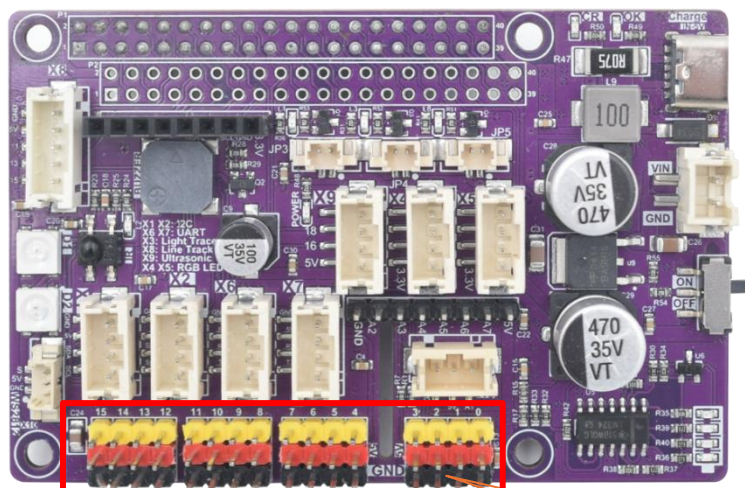
6.5 Assembly the Adeept Robot Control Board

Servo D and **Servo E** need to be connected to the Adeept Robot HAT via an **Extension Cable** (which is included in this kit) because they are too far away from the Adeept Robot HAT. connect the yellow wire to the white wire, the red wire to the red wire, and the brown wire to the black wire.

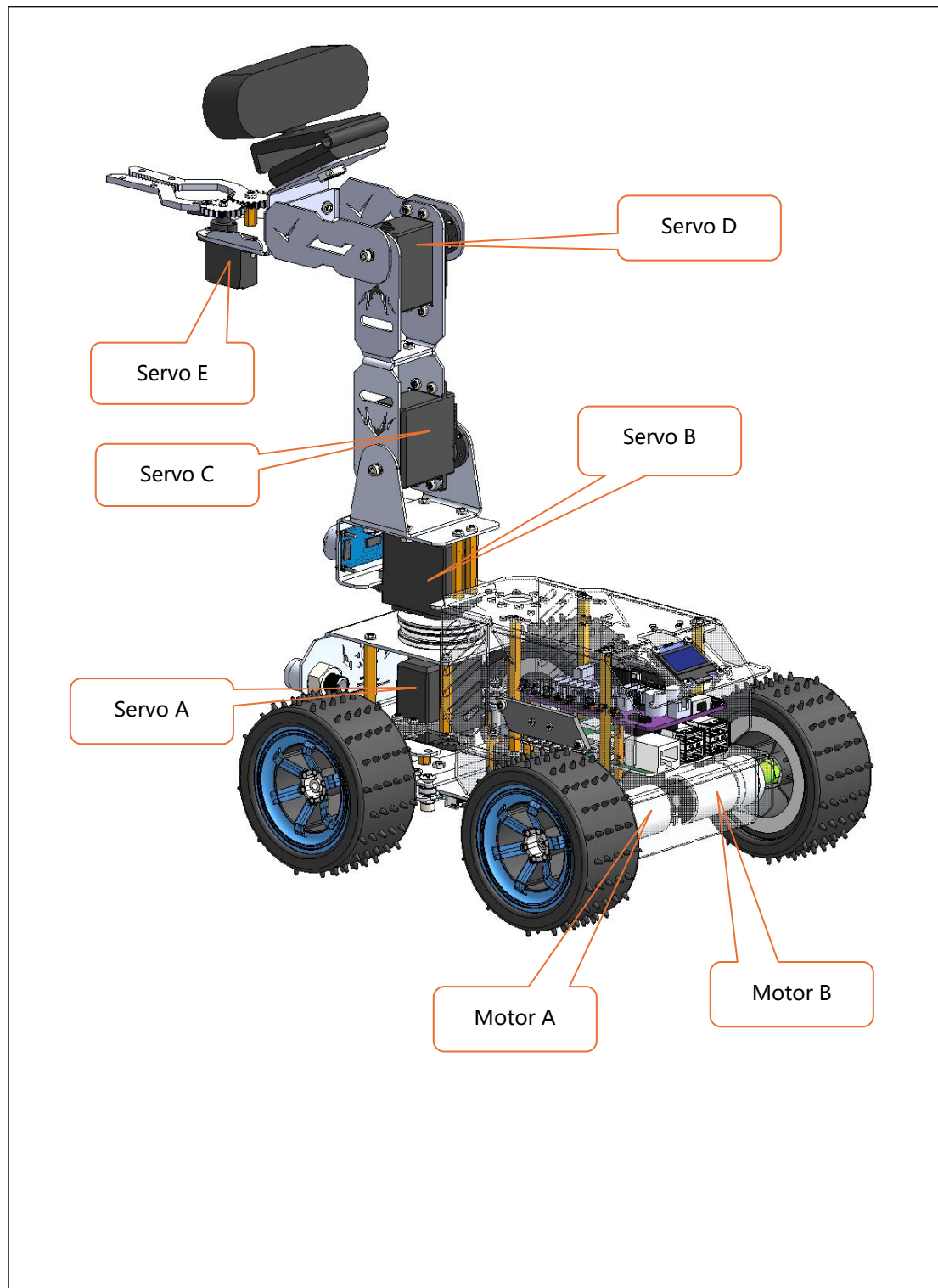


Schematic Diagram of Servo Interface Numbers

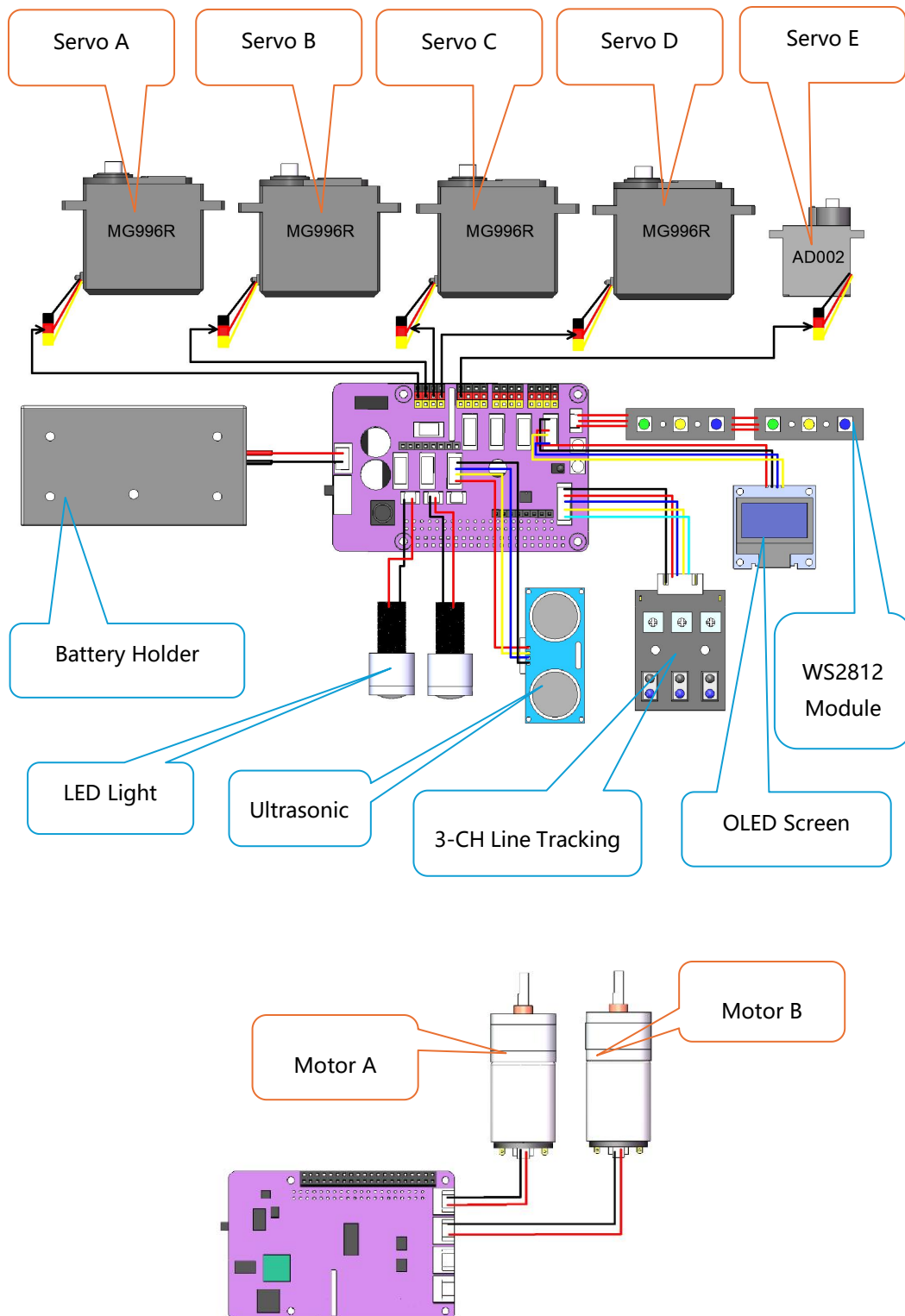
Servo A	Servo B	Servo C	Servo D	Servo E
CH0	CH1	CH2	CH3	CH4

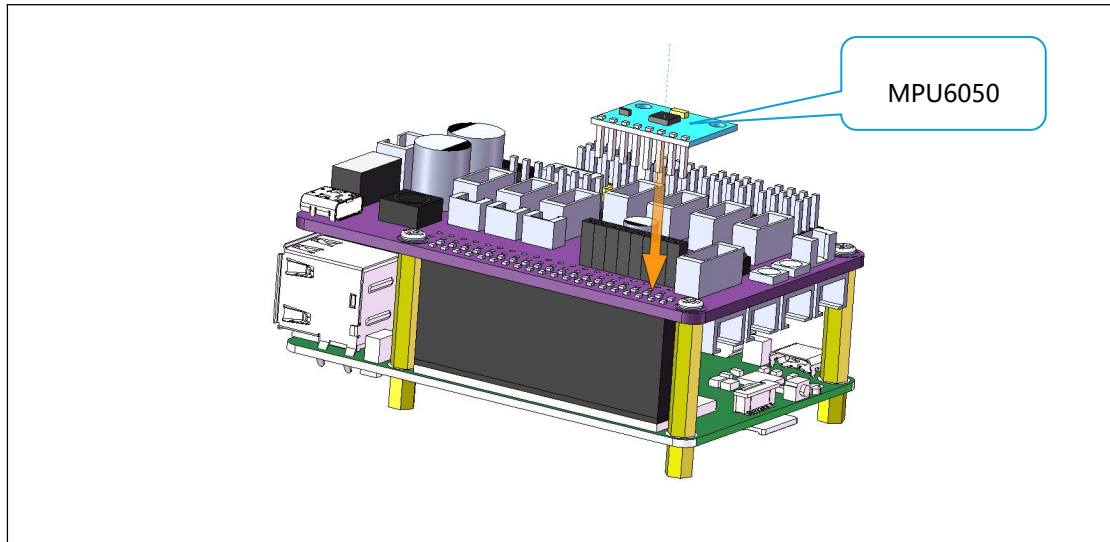


CH0-15



Connect the components as shown in the figure. The cables must be matched with the ports.

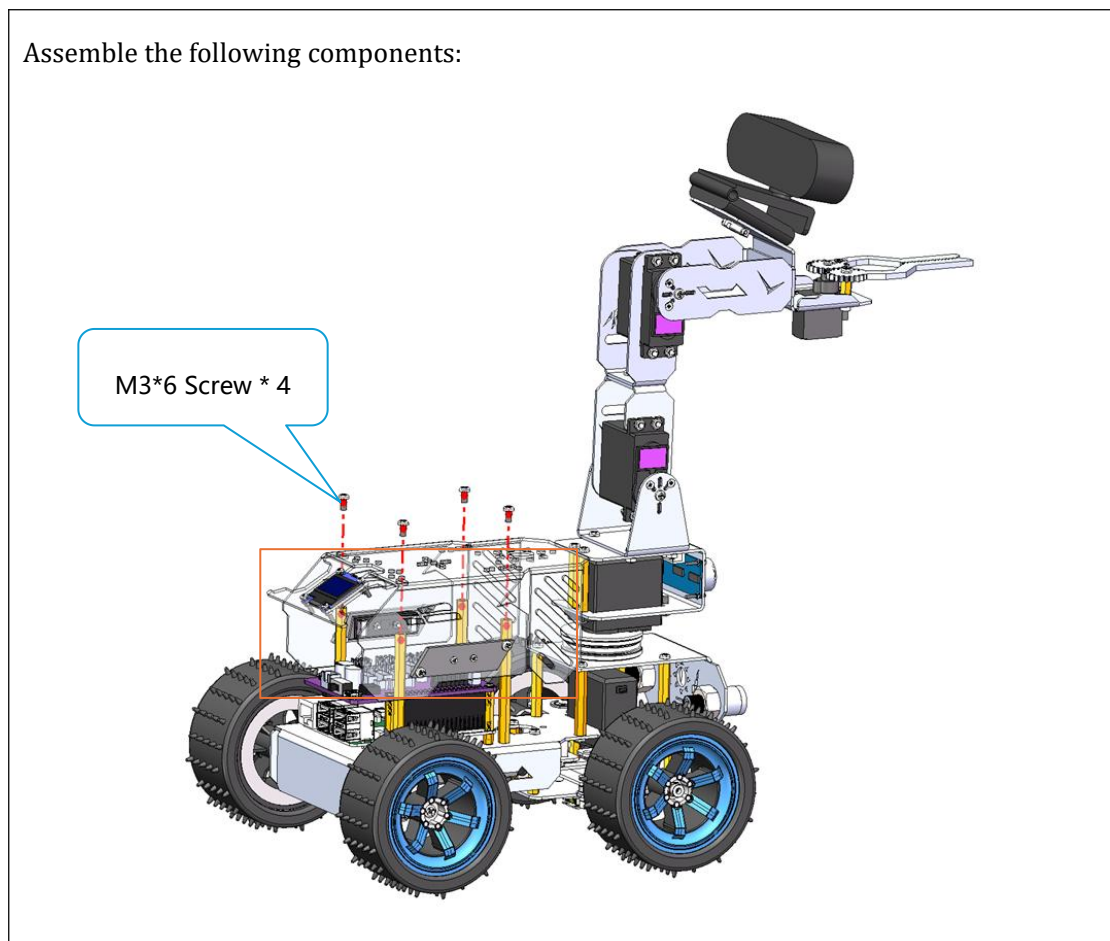


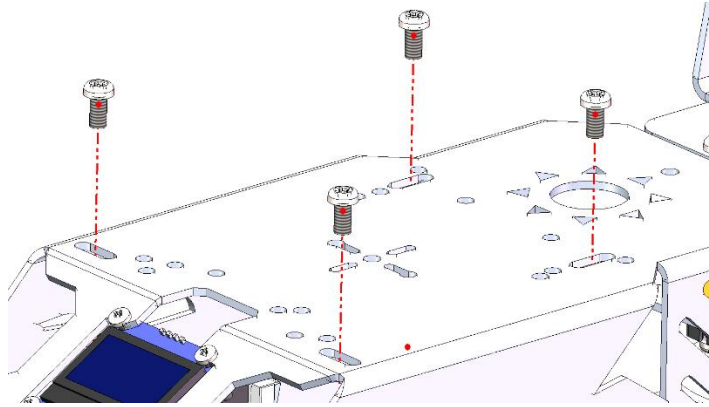


6.6 Assembly of Cover

1. Fix the assembled part **A17** to the assembled part **A07** with four **M3*6 Screws**.

Assemble the following components:





After Assembly:

