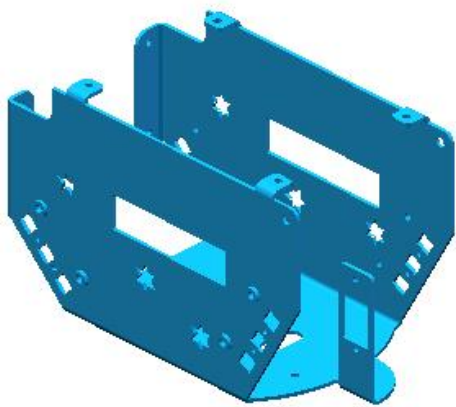

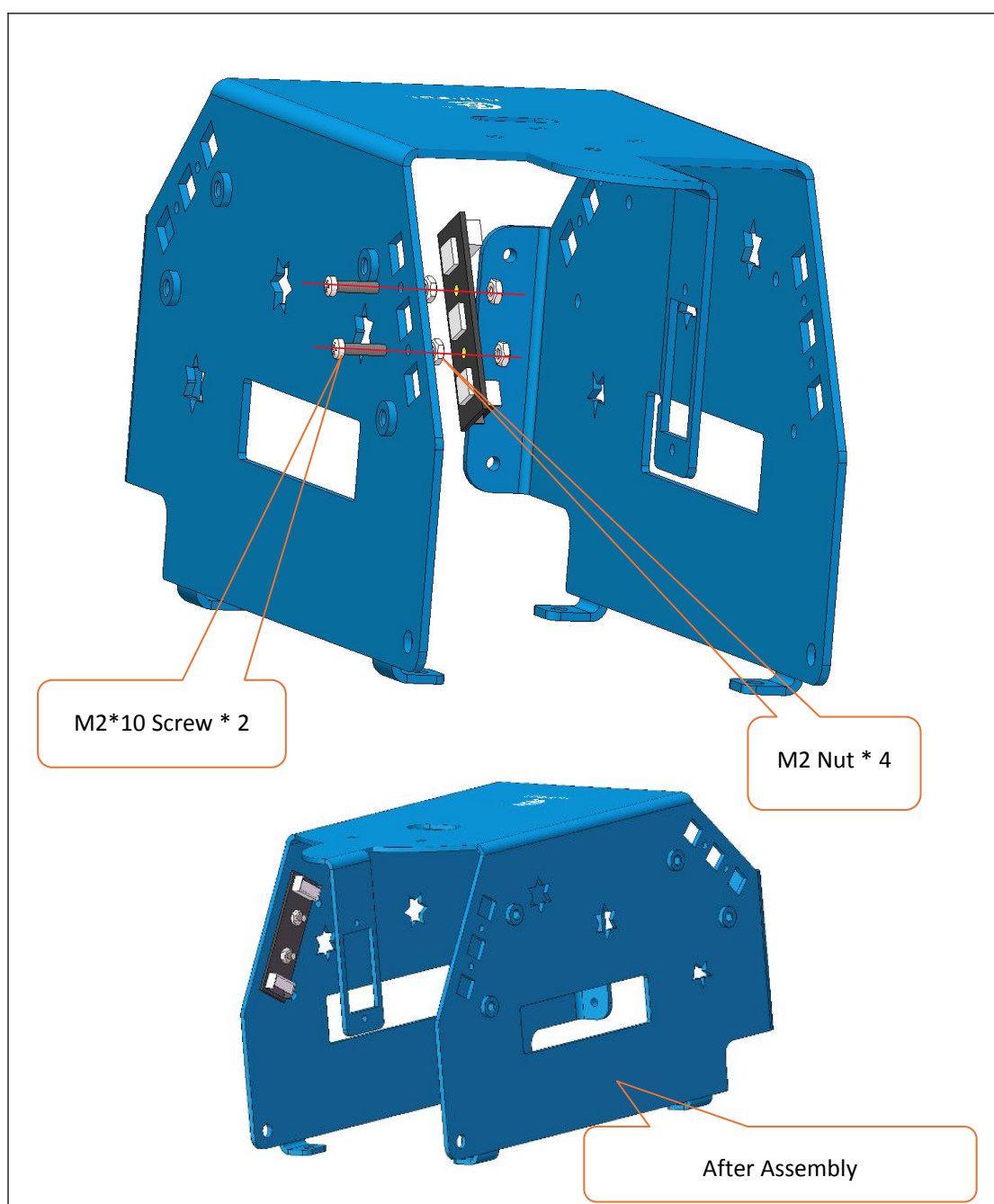


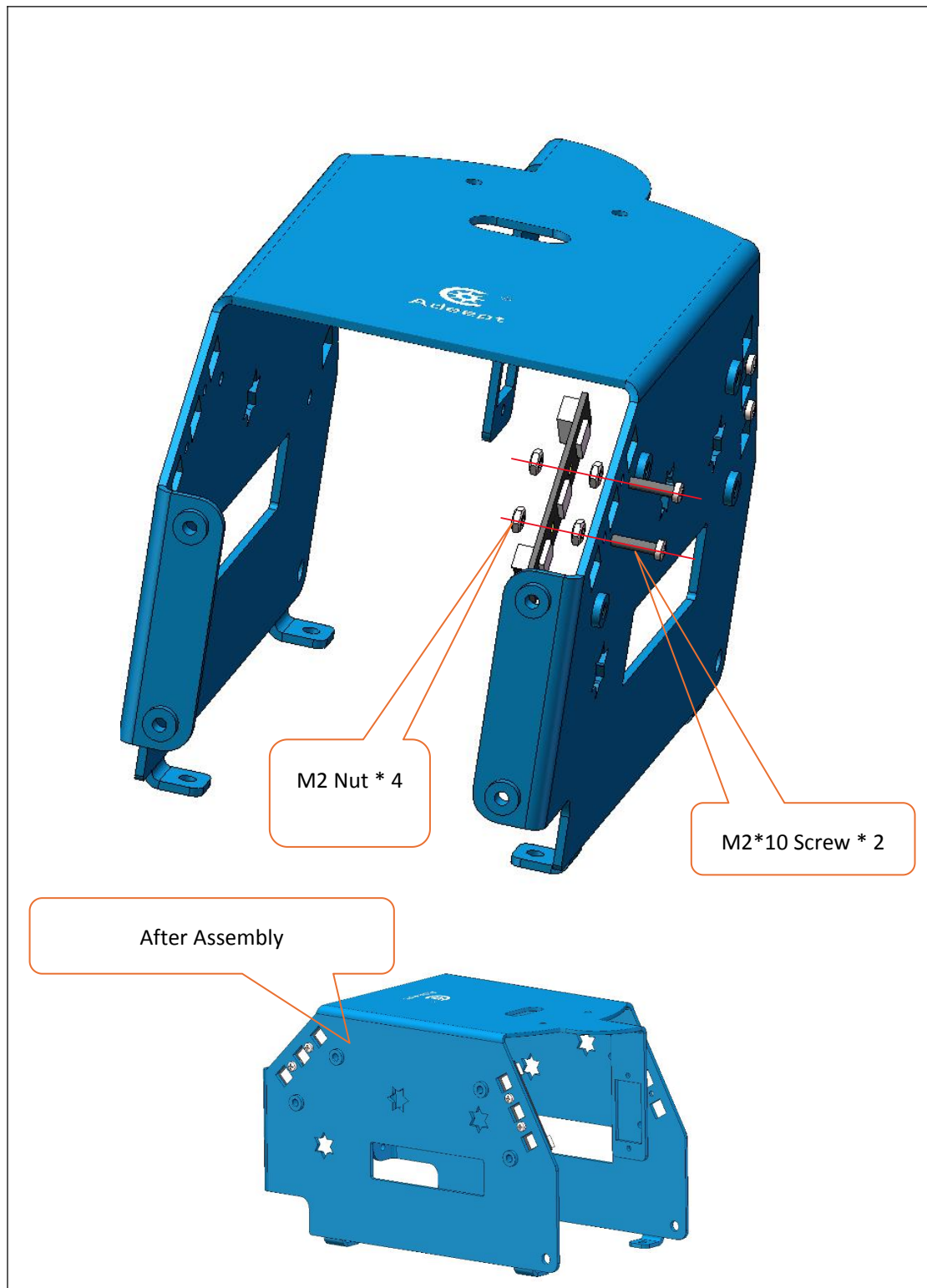
## Lesson 6 Assembly of RaspTank Metal Robot

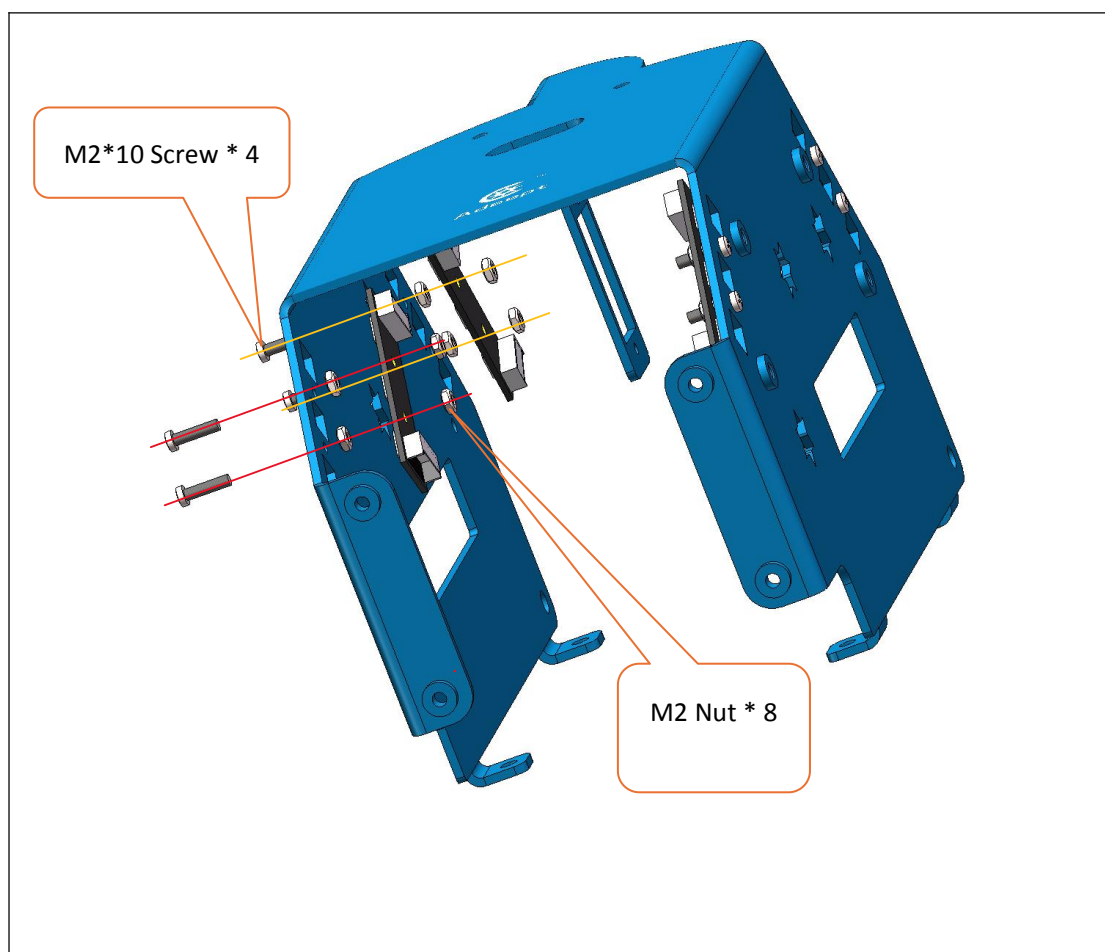
1. Fix four **WS2812 RGB LED** on **A01** with eight **M2\*10 Screws** and sixteen **M2 Nuts**. (NOTE: Please ensure that the cables of the WS2812 light strips are connected properly. The WS2812 light strips has IN and OUT connectors, please connect them in order.)

A01	
WS2812 RGB LED *4	

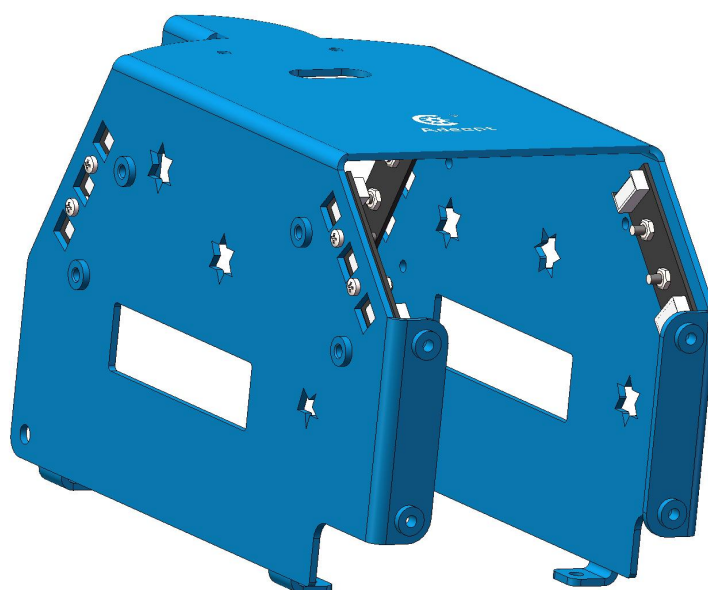
Assemble the following components:



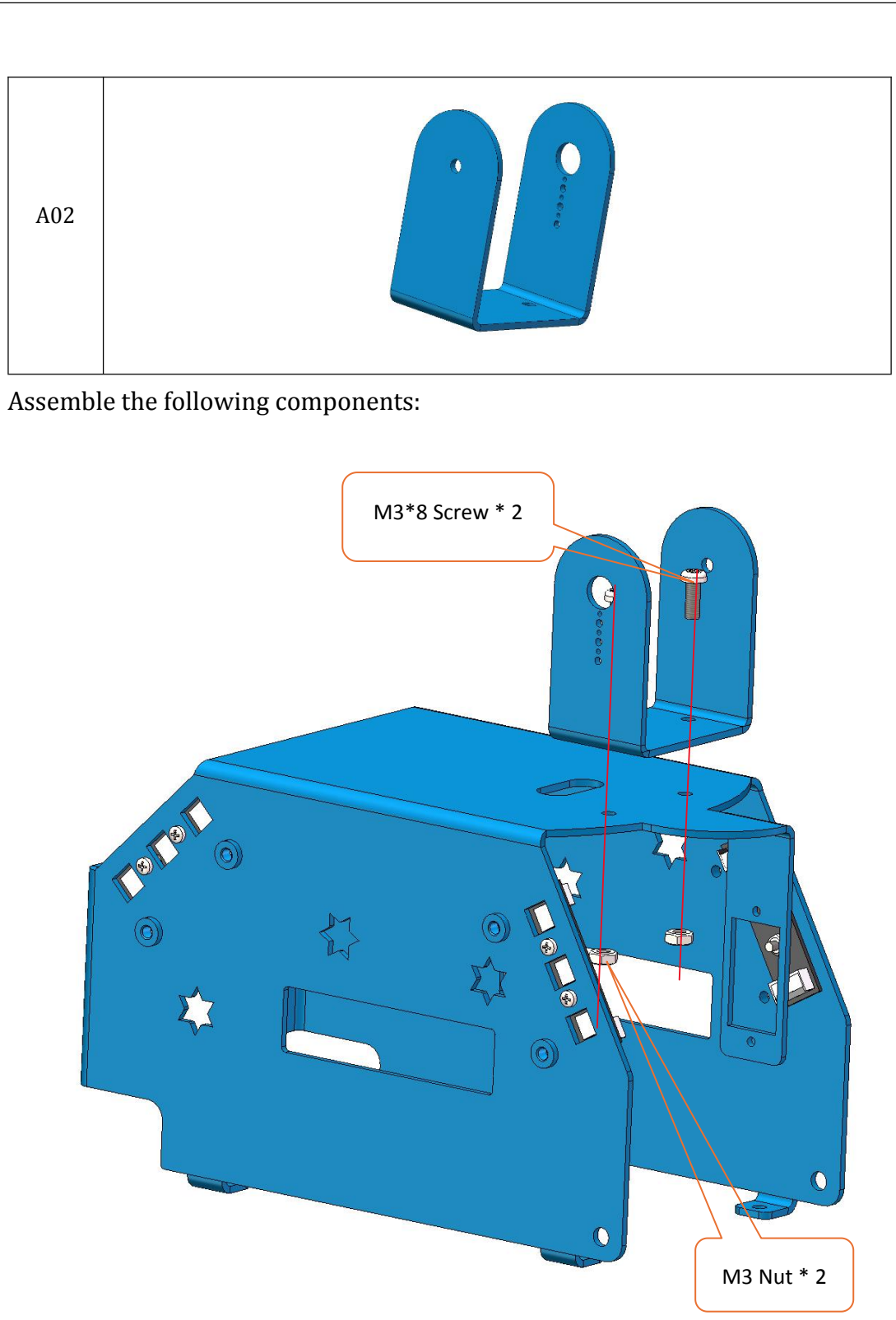




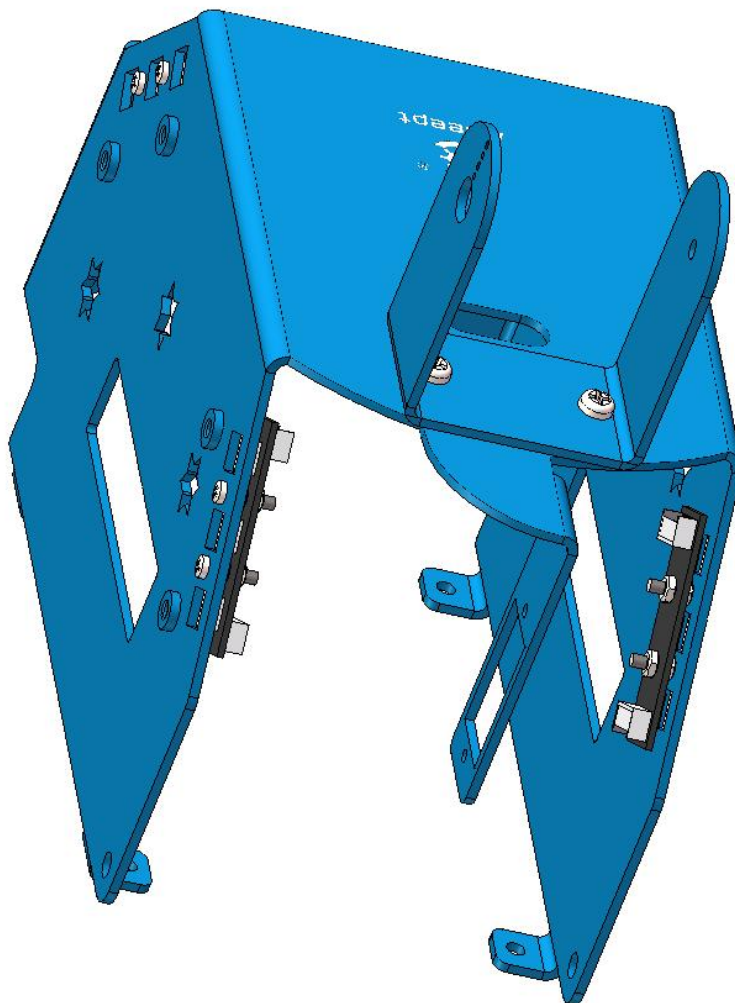
After Assembly:



2. Assemble aluminum alloy accessories **A01** and **A02** together using two **M3\*8 Screws** and two **M3 Nuts**.



After Assembly:



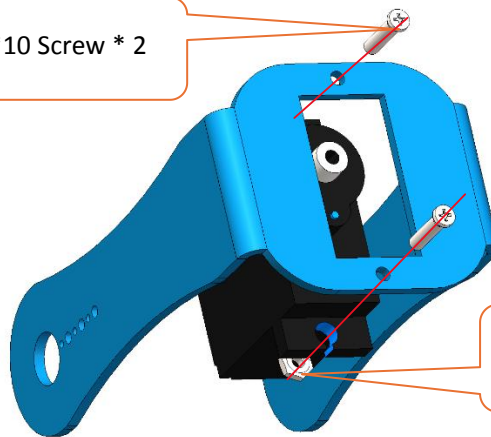
3. Fix the **Servo** to the **A03** with two **M2\*10 screws** and two **M2 nuts**.

A03



Assemble the following components:

M2\*10 Screw \* 2



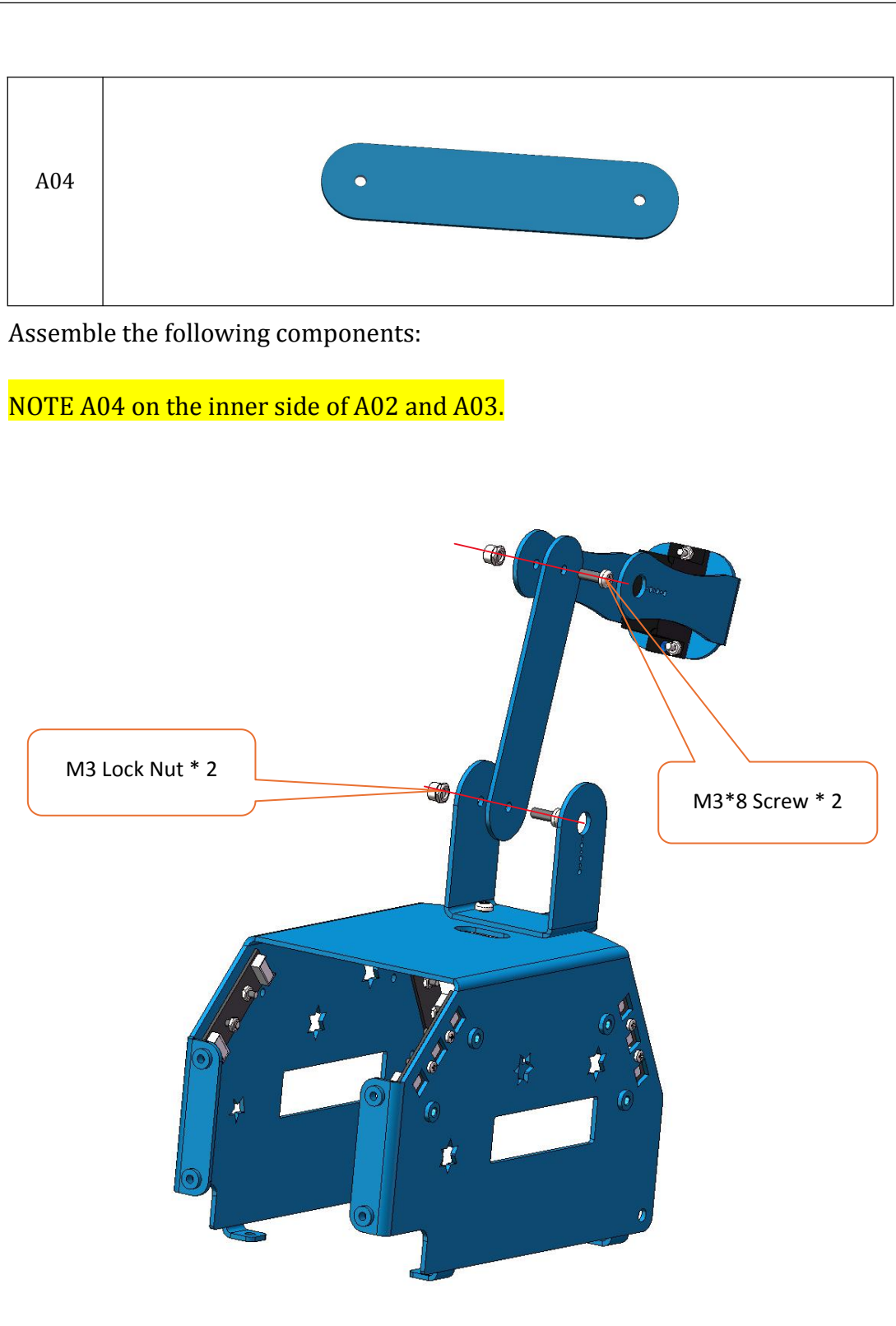
M2 Nut \* 2

After Assembly:



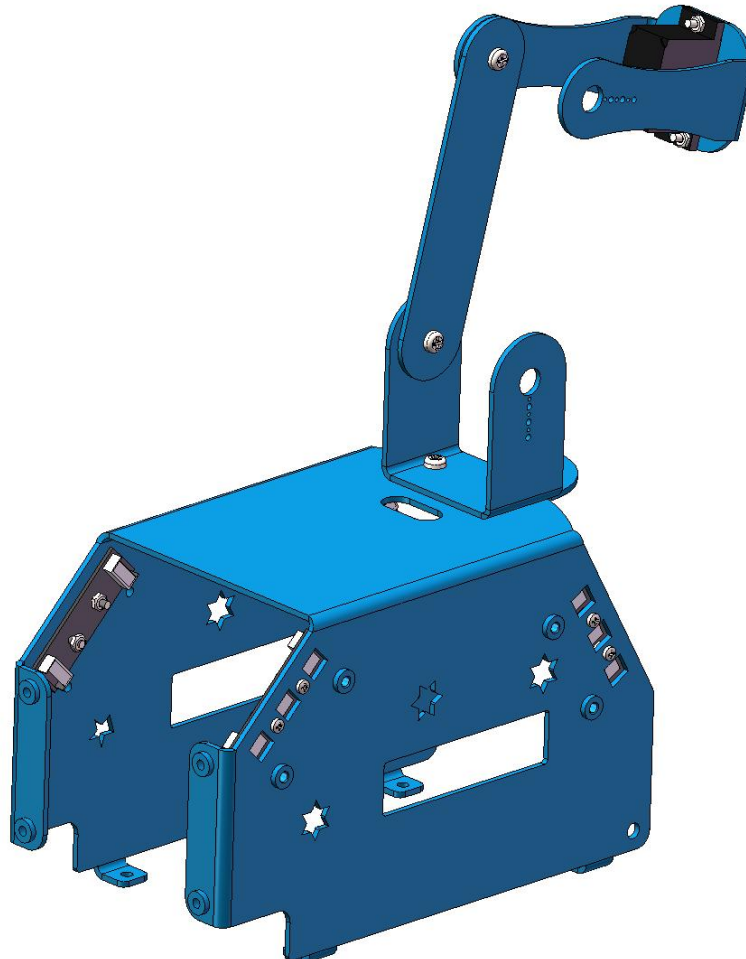


4. Connect **A02**, **A03** and **A04** together using two **M3\*8 Screws** and two **M3 Lock Nuts** (Please do not tighten these two lock nuts too tightly).






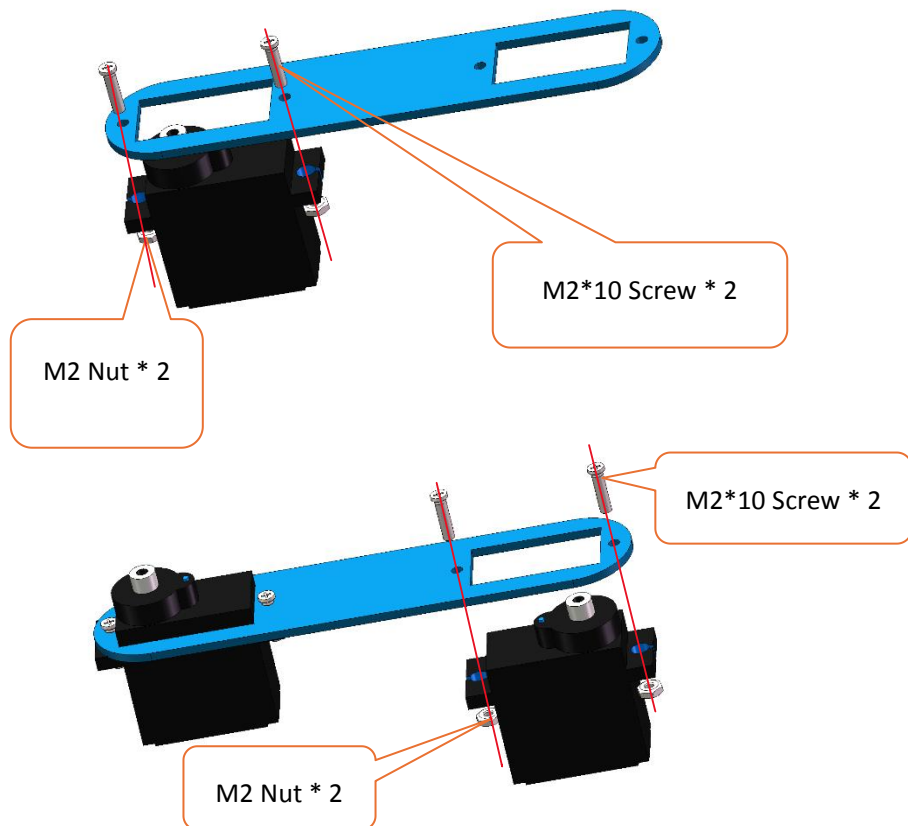
After Assembly:



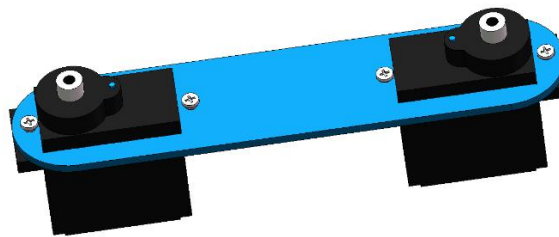
5. Fix two **Servos** to the **A05** with four **M2\*10 screws** and four **M2 nuts**.

A05	
-----	--

Assemble the following components:

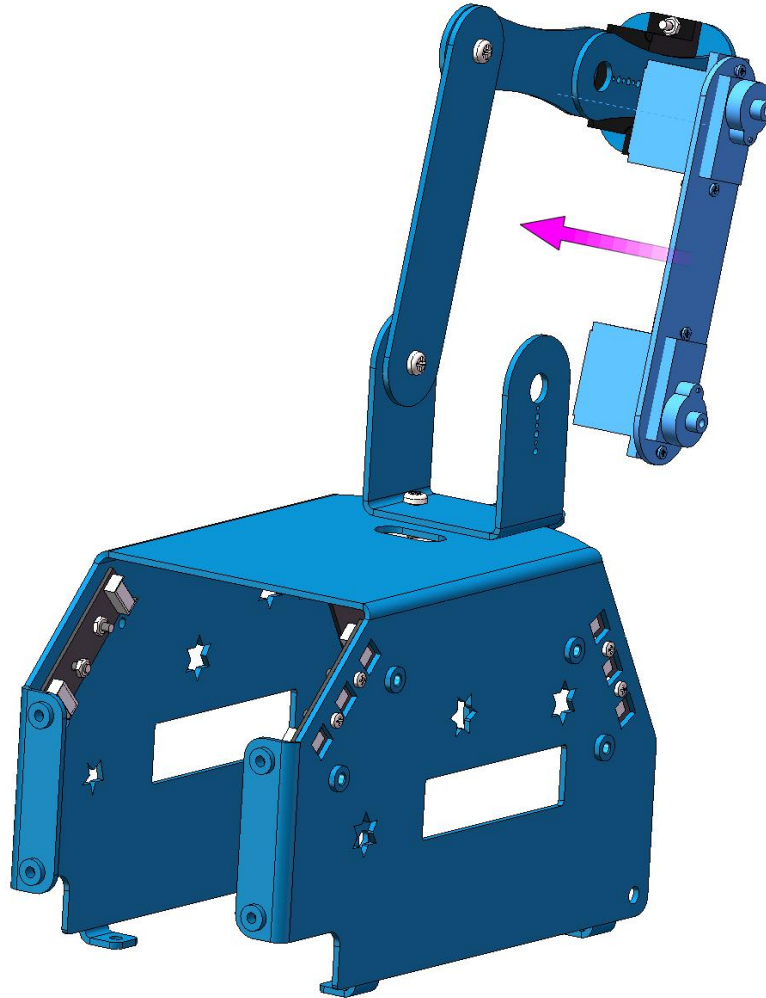


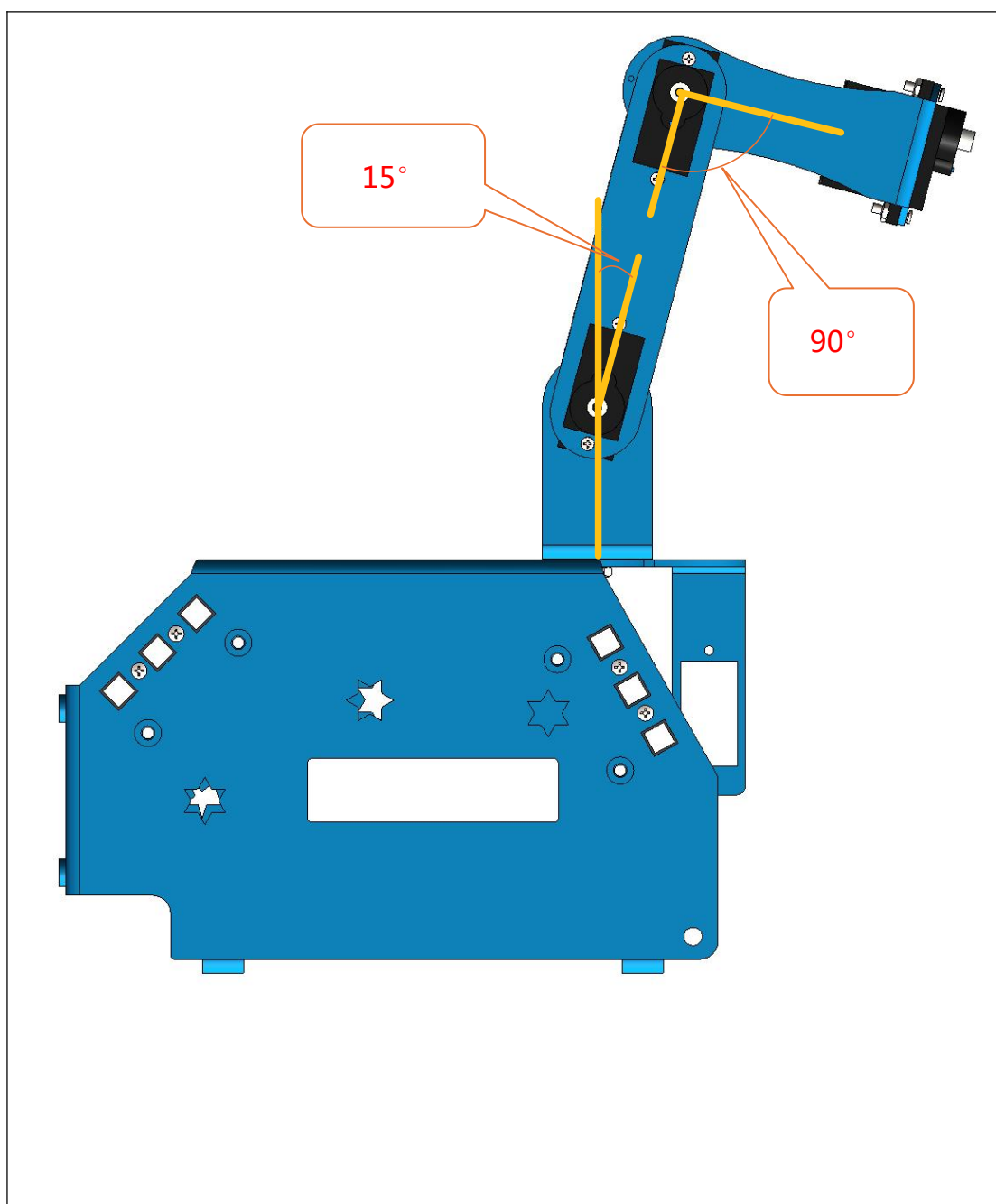
After Assembly:

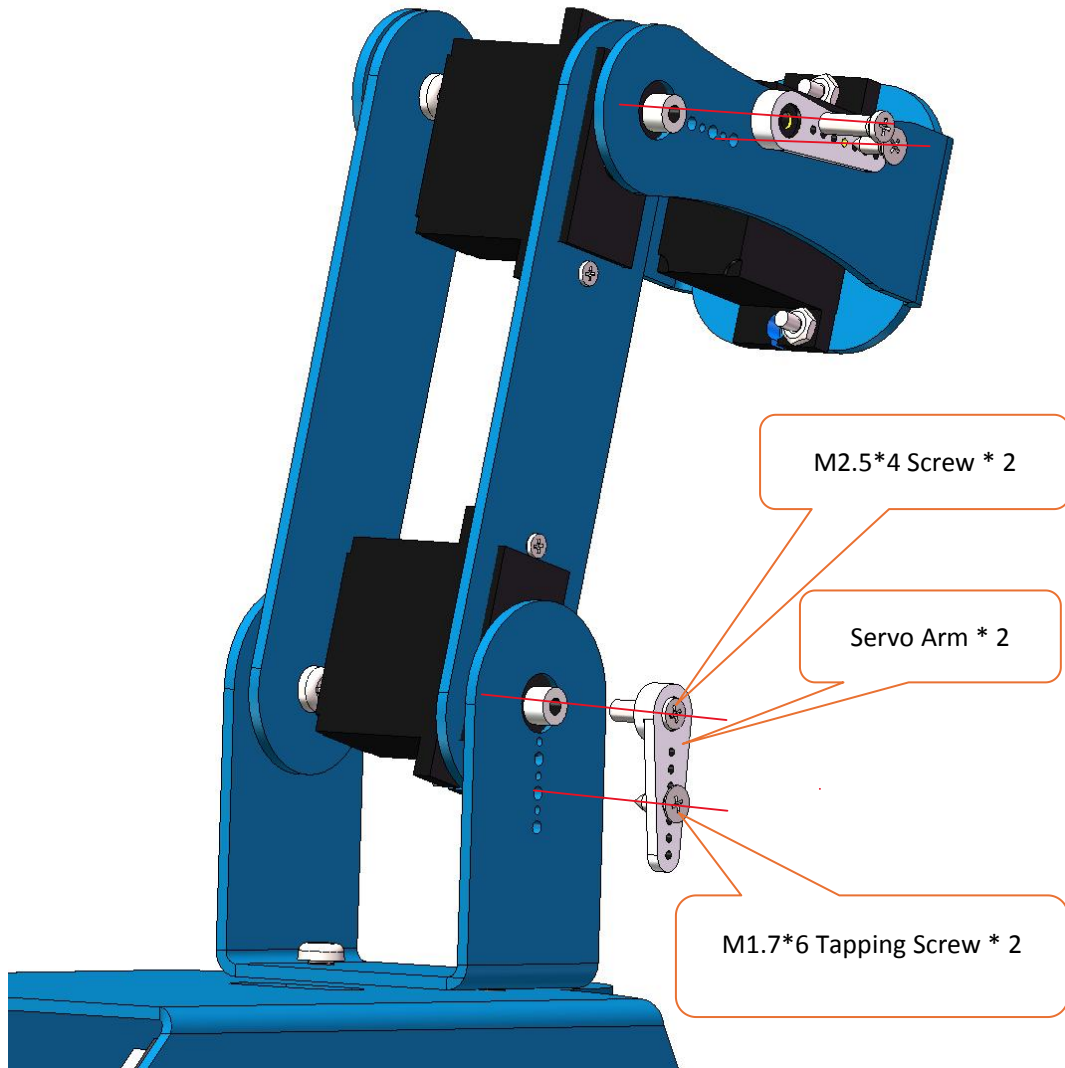


6. Connect **A02**, **A03** and **A05** together using two **M1.7\*6 Tapping Screws**, two **Servo Arms** and two **M2.5\*4 Screws**. (Servo arm and M2.5\*4 screws included in servo kit) Please note that the servo is connected to the Raspberry Pi robot, fix the rocker arm at the angle as shown in the picture.

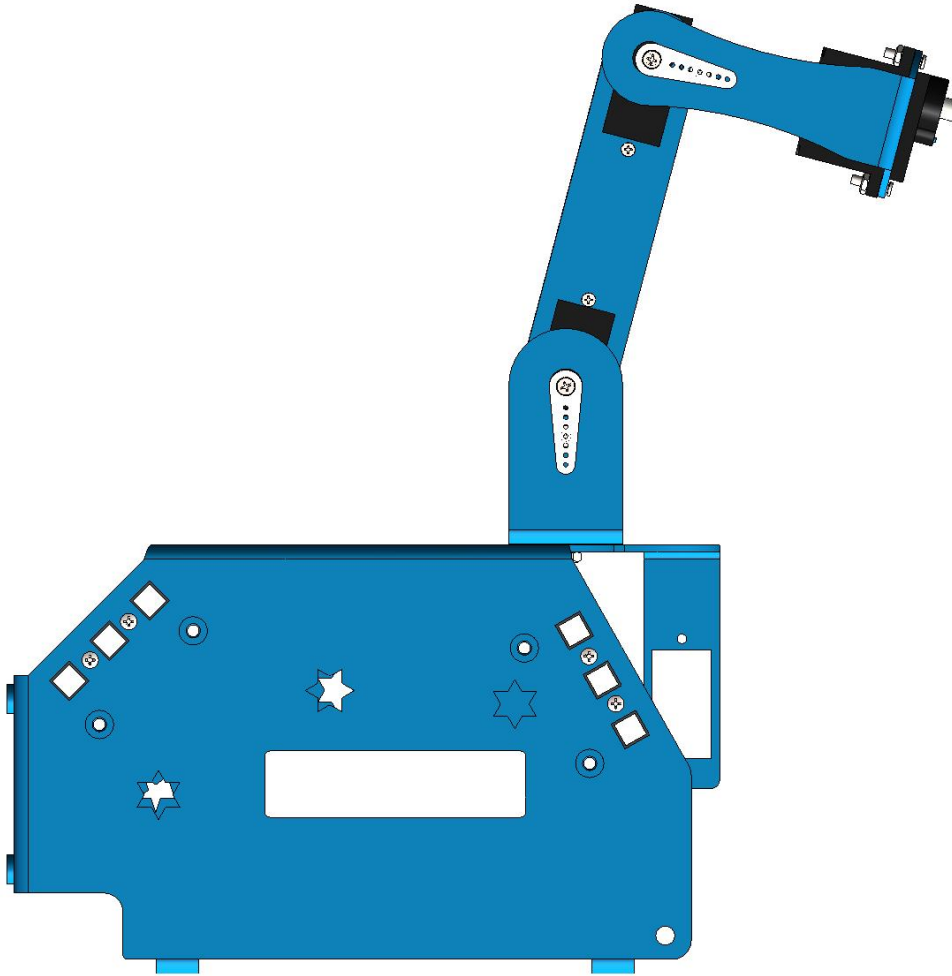
Assemble the following components:





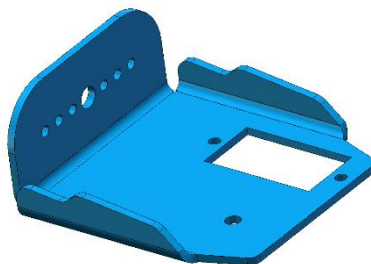


After Assembly:

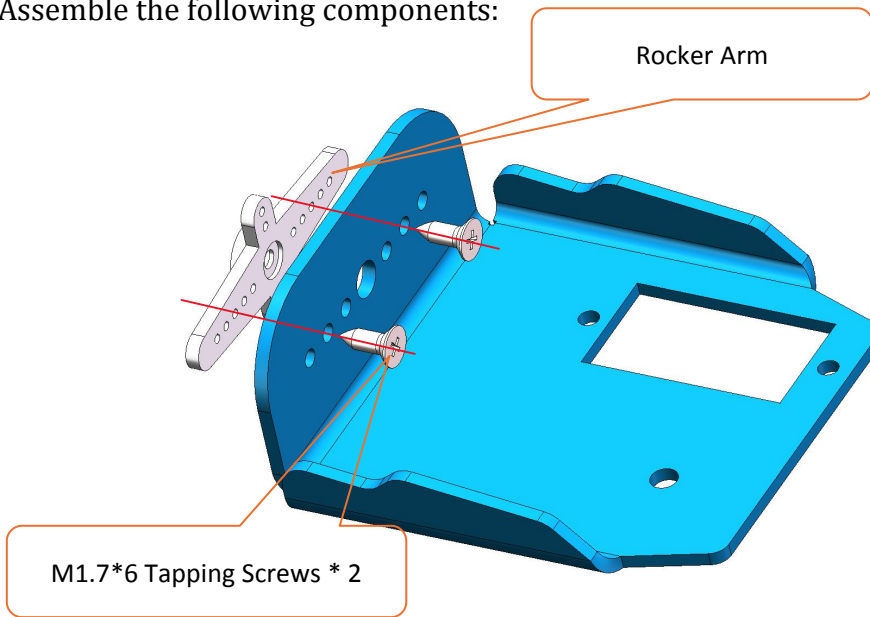


7. Use two **M1.7\*6 Tapping Screws** to fix the **Rocker Arm** of the servo to **A06**.

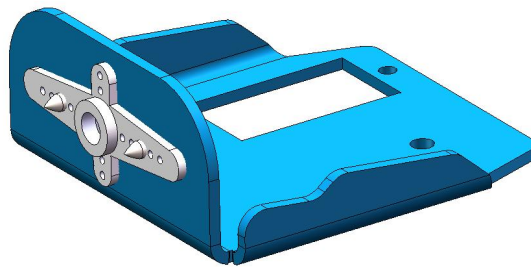
A06



Assemble the following components:

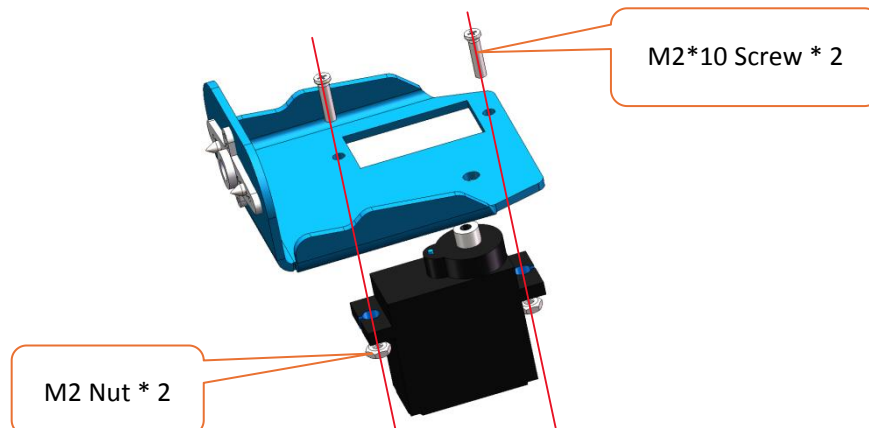


After Assembly:



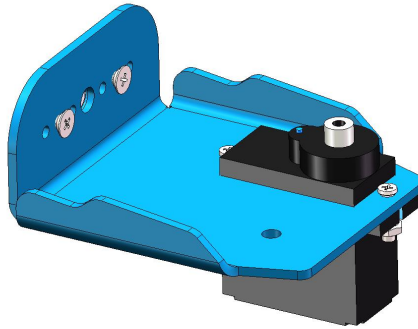
8. Fix the Servo to the **A06** with two **M2\*10** screws and two **M2** nuts.

Assemble the following components:





After Assembly:



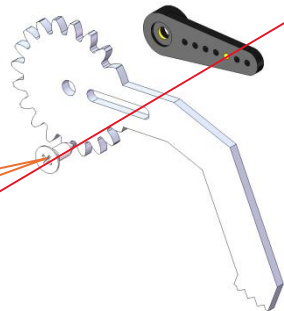
9. Use one **M1.7\*6 Tapping Screw** to fix the **Rocker Arm** of the servo to **A09**.

A09

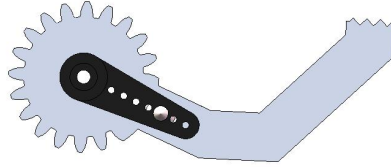


Assemble the following components:

M1.7\*6 Tapping Screw \* 1

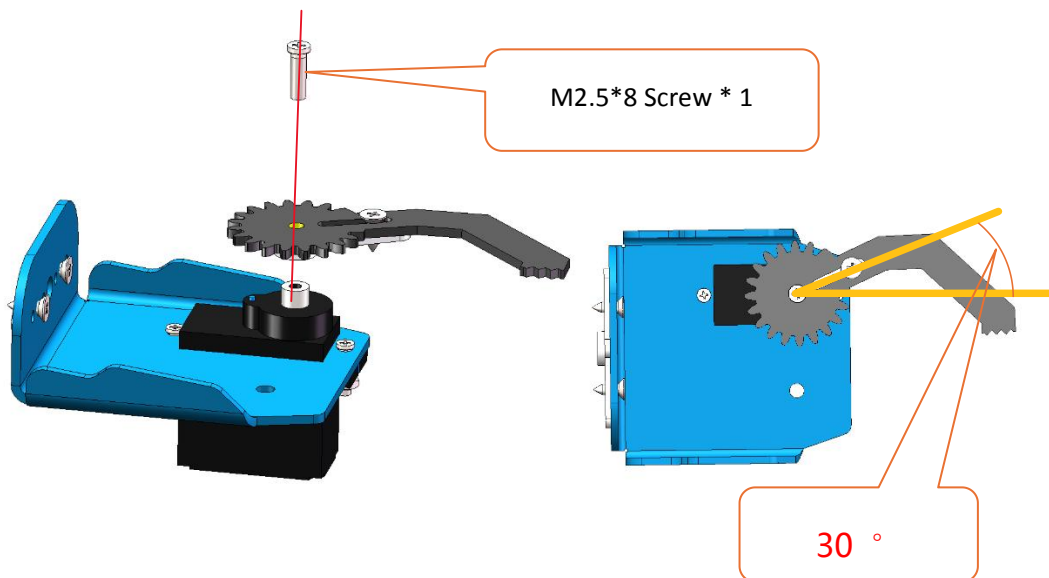


After Assembly:

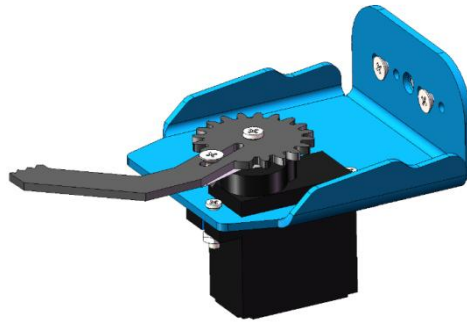


10. Fix the assembled **A09** to the assembled **A06** using one **M2.5\*8 Screw**.  
Please note that the servo is connected to the Raspberry Pi robot, install the rocker arm at the angle as shown in the picture.

Assemble the following components:

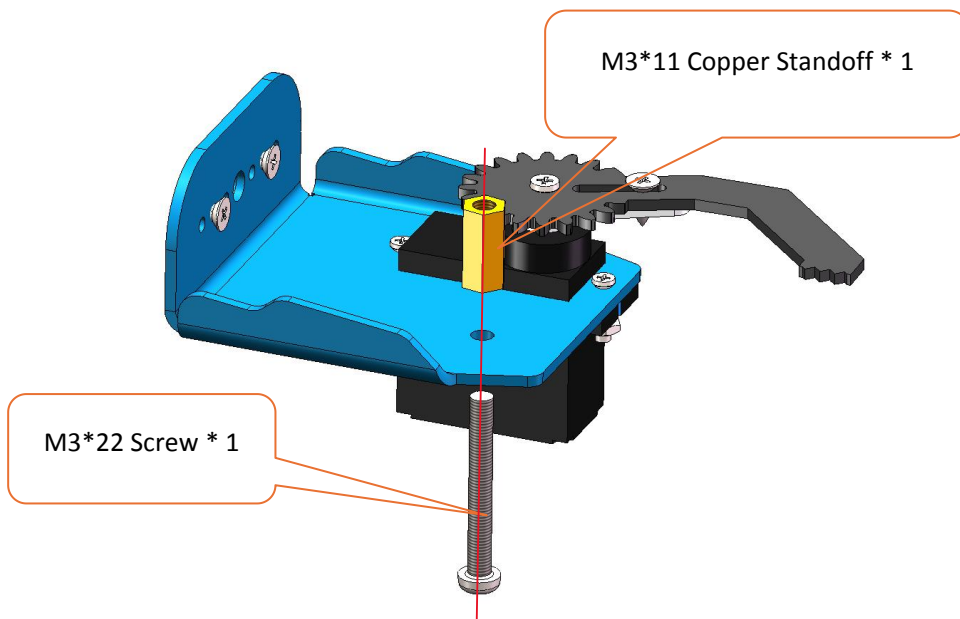


After Assembly:

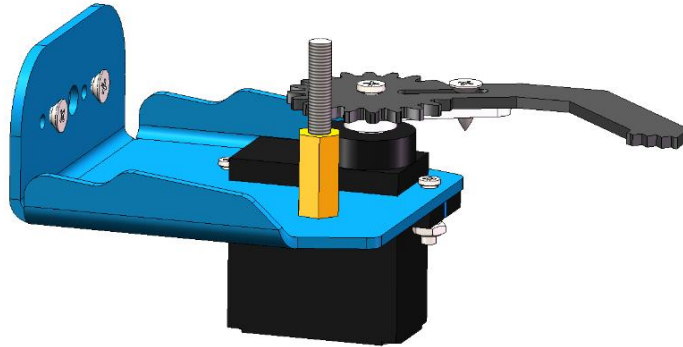


11. Fix one **M3\*11 Copper Standoff** to the assembled **A06** using one **M3\*22 Screw**.

Assemble the following components:

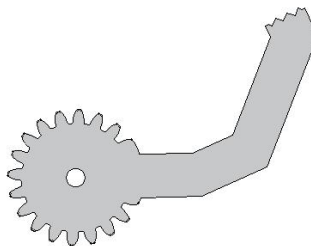


After Assembly:

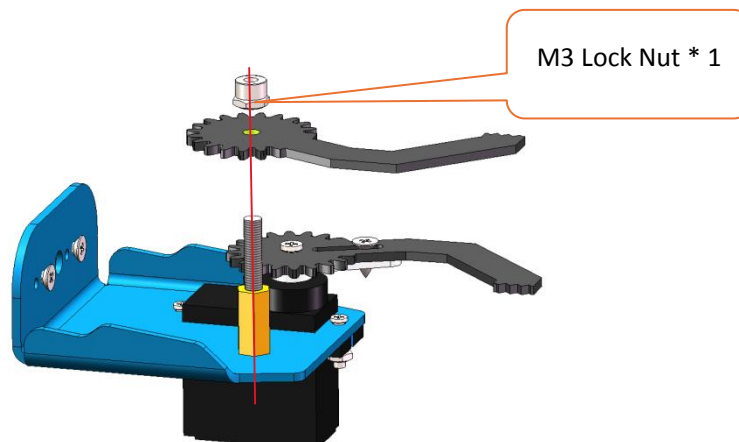


12. Fix **A10** to the assembled **A06** using one **M3 Lock Nut**.

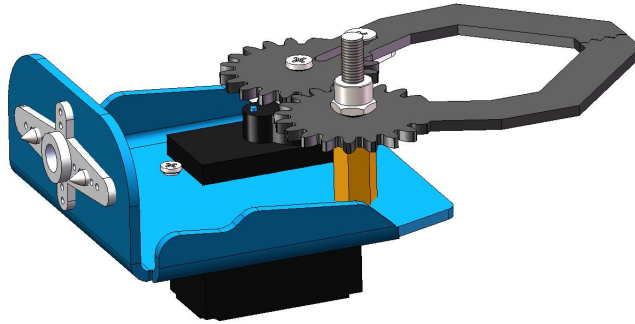
A10



Assemble the following components:

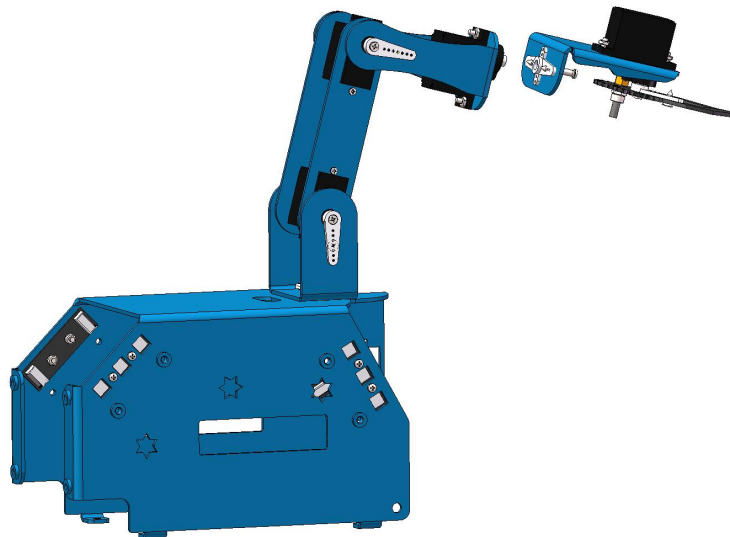


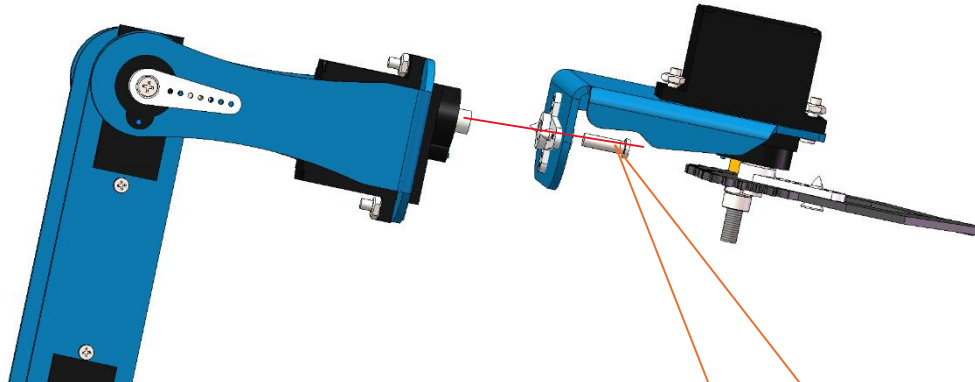
After Assembly:



13. Fix the assembled **A06** to the assembled **A03** using one **M2.5\*4 Screw** (in the servo kit).

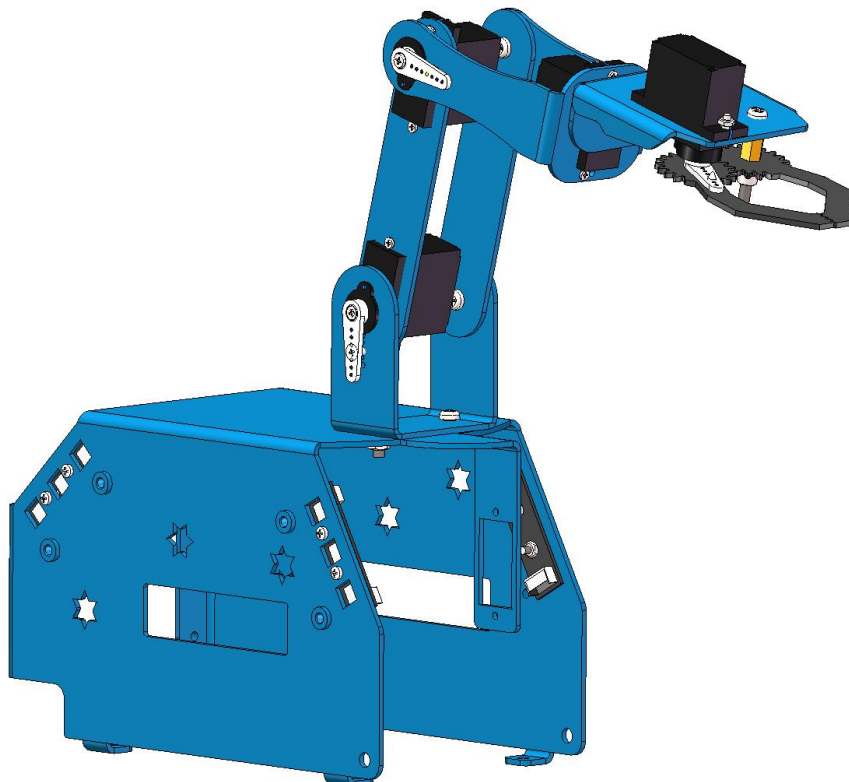
Assemble the following components:



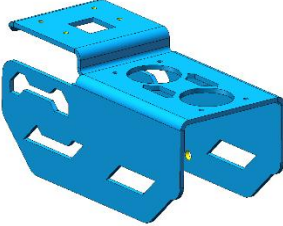



M2.5\*4 Screw \* 1

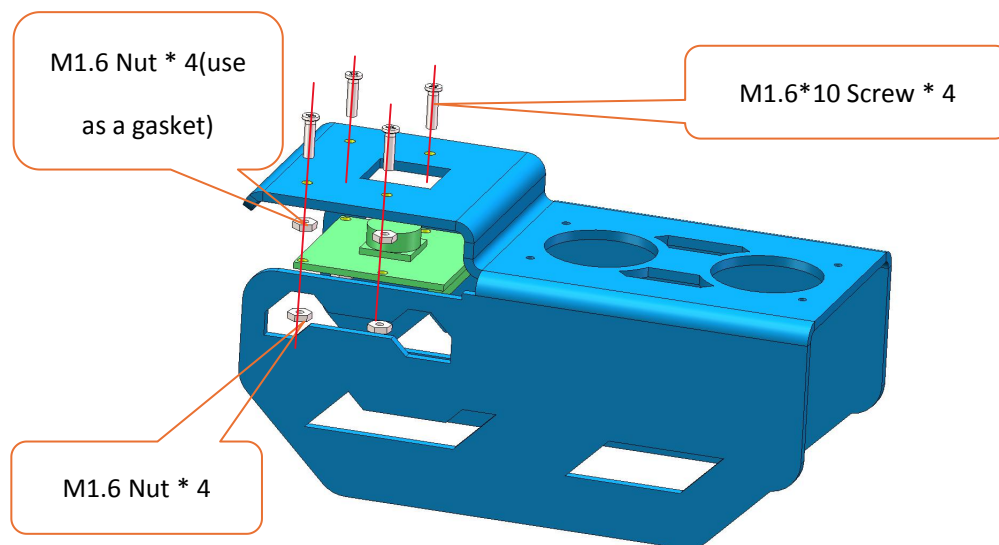
After Assembly:



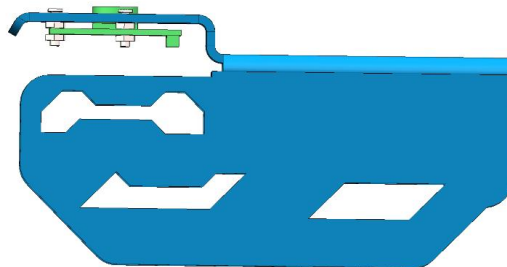
14. Fix the **Camera Module** to **A07** with four **M1.6\*10 Screws** and eight **M1.6 Nuts**.

A07	
Camera Module	

Assemble the following components:

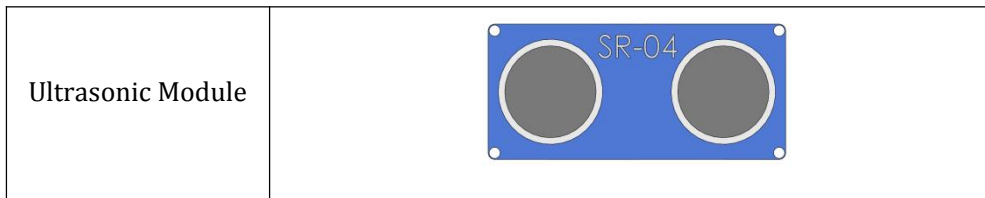


After Assembly:

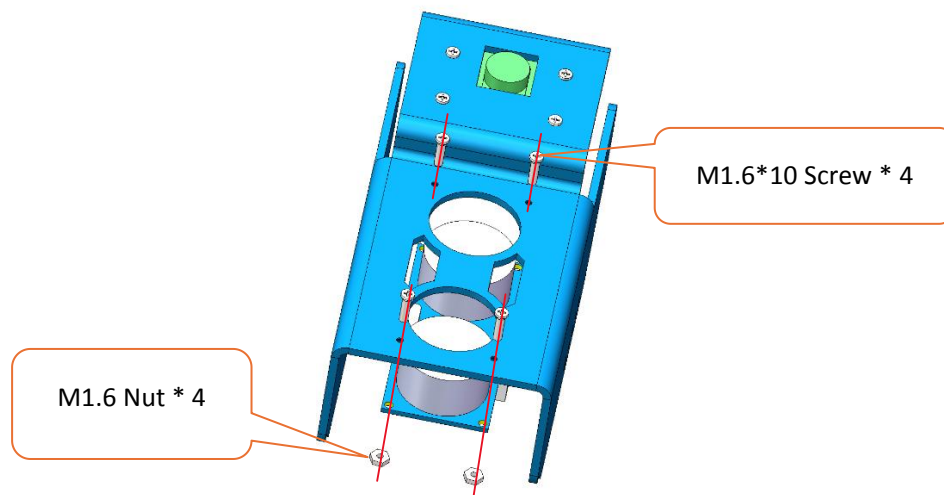




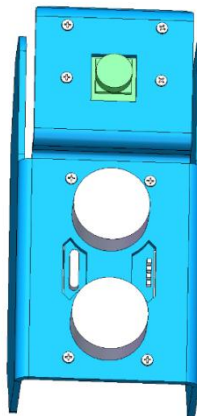
15. Fix the **Ultrasonic Module** to the **A07** with four **M1.6\*10 Screws** and four **M1.6 Nuts**.



Assemble the following components:

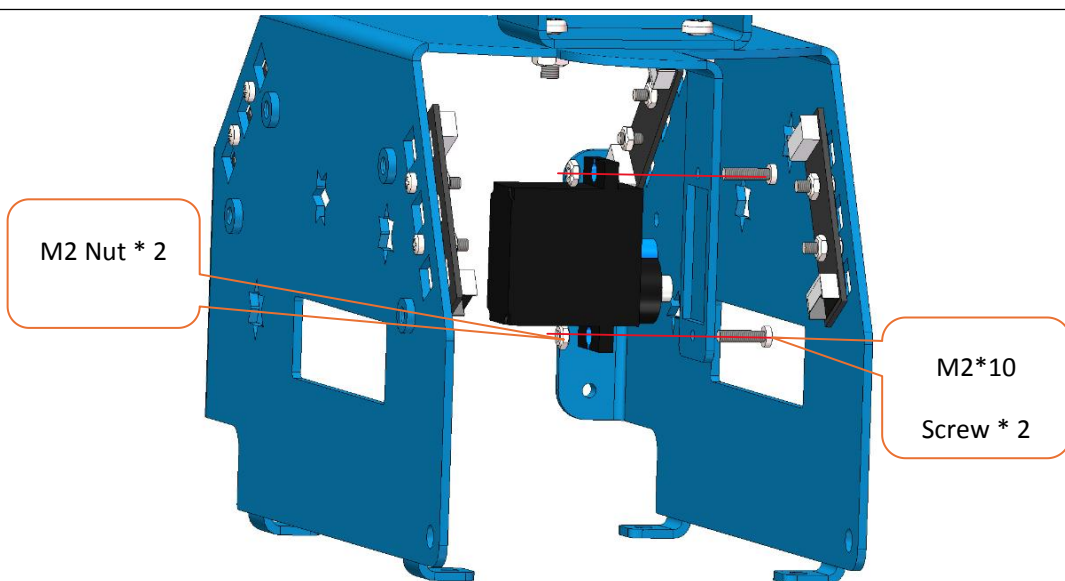
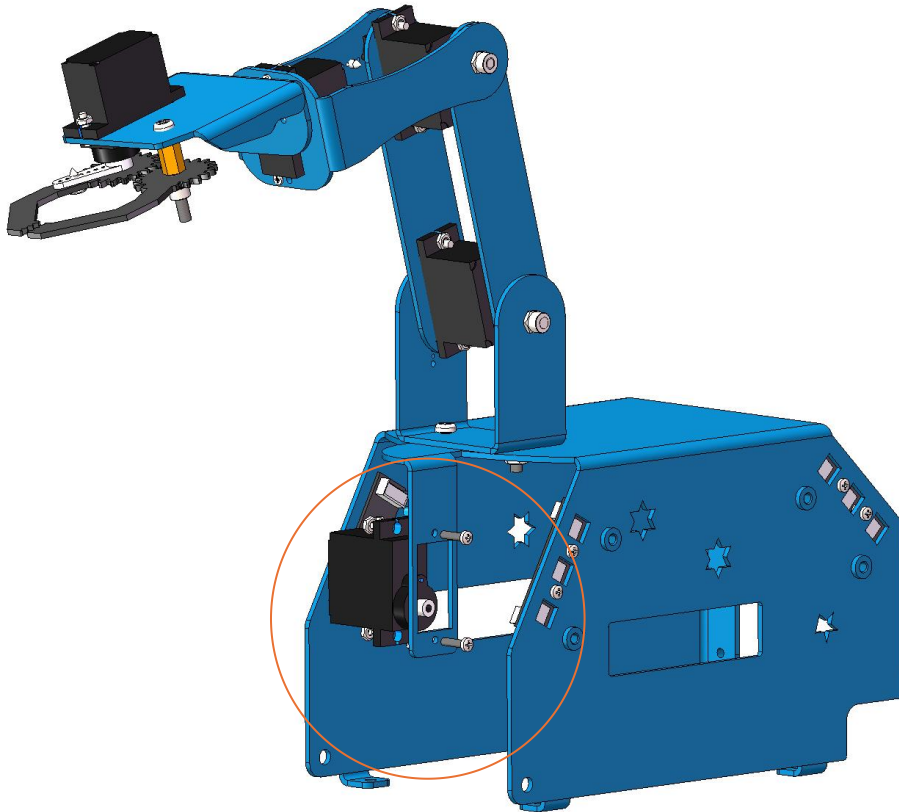


After Assembly:

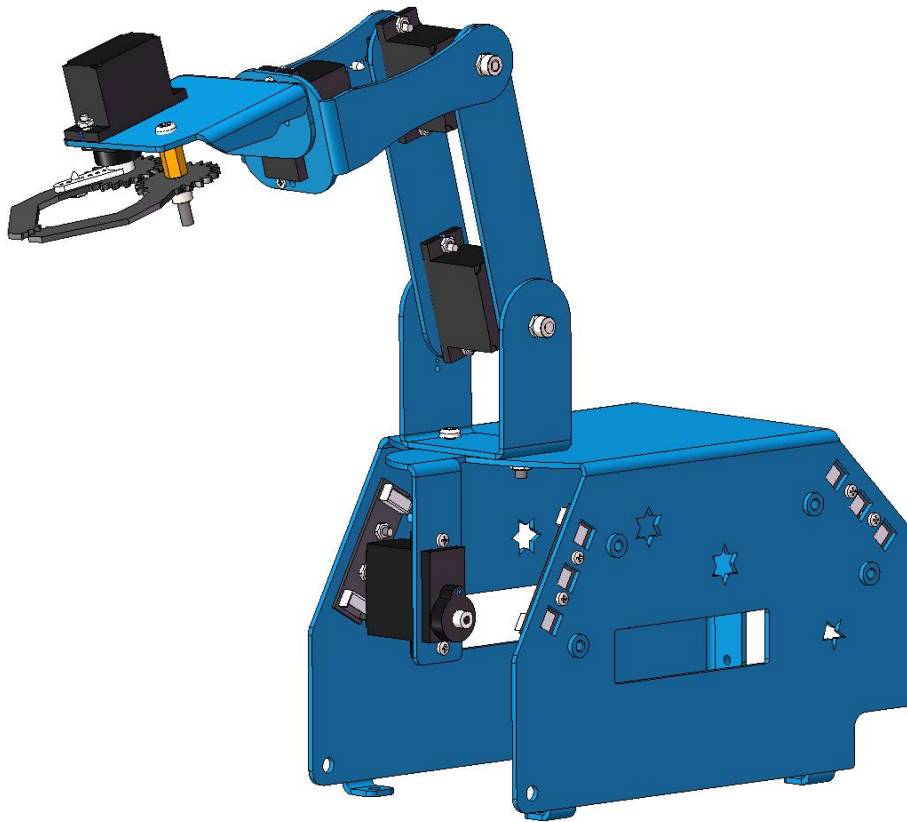


16. Fix the **Servo** to the assembled **A01** with two **M2\*10 Screws** and two **M2 Nuts**.

Assemble the following components:

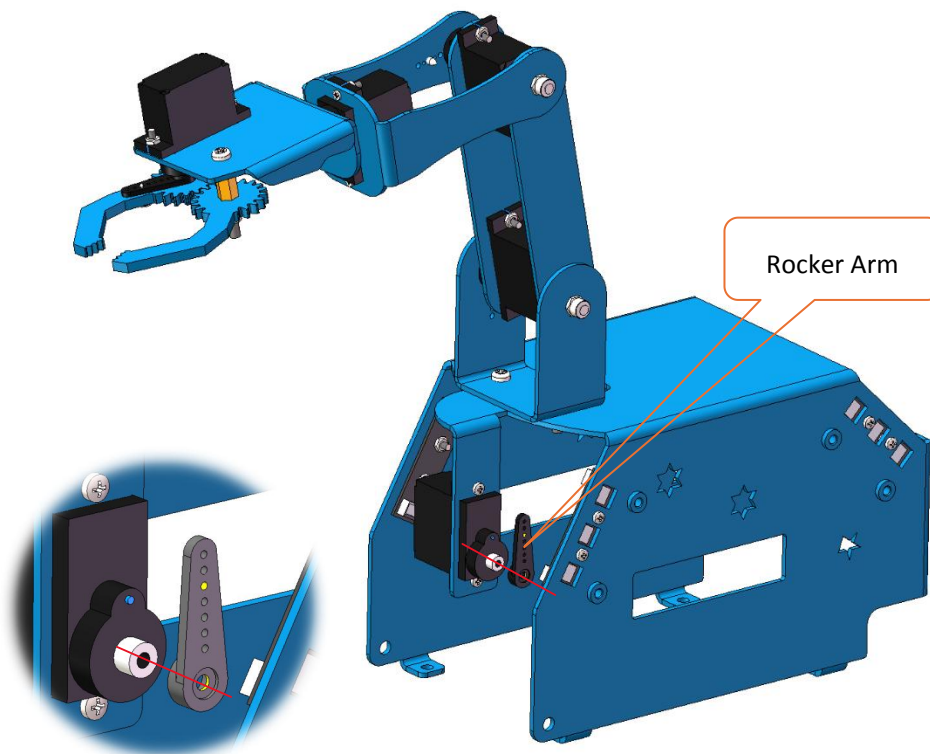


After Assembly:

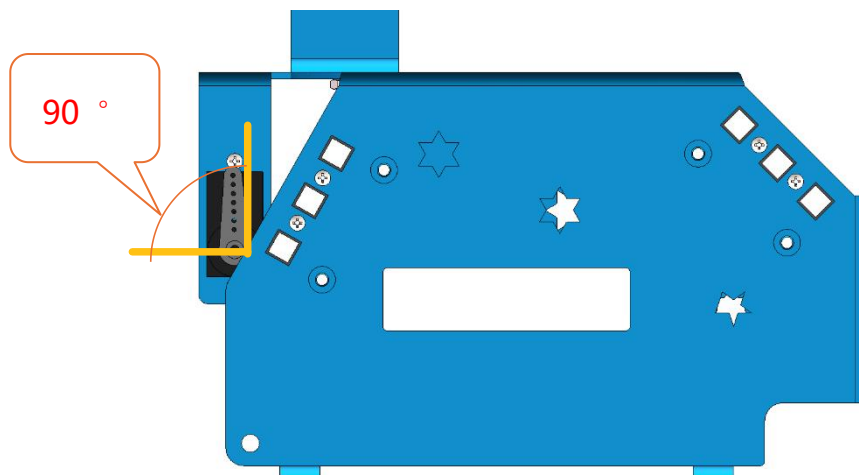


17. First, attach the **Rocker Arm** to the servo on Part **A01**. Next, loosely join the servo, **Rocker Arm**, and Part **A07** using one **M2.5\*8 Screw** (leave the screw slightly loose at this stage to allow adjustment in the subsequent step). Then, secure the **Rocker Arm** to Part **A07** with one **M1.7\*6 Self-tapping Screw** (rotate both Part **A07** and the **Rocker Arm** 90° Counterclockwise to simplify this process). Finally, fully tighten the **M2.5\*8 Screw** and return Part **A07** to its original orientation.

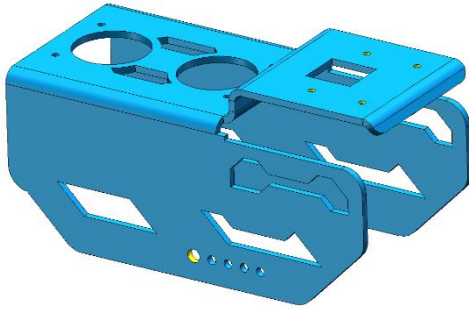
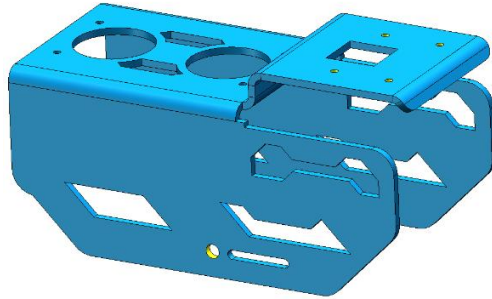
Assemble the following components:



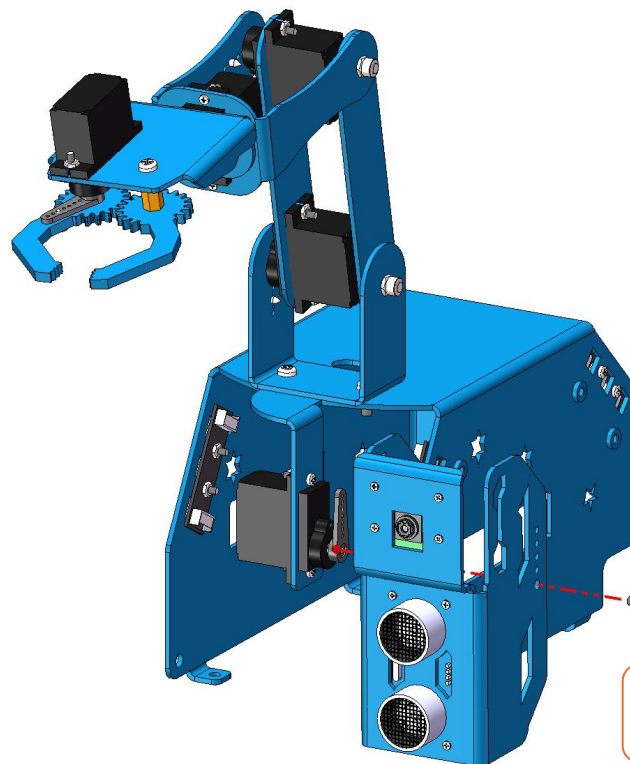
After Assembly:



Please select the corresponding assembly steps according to the actual received part types.

**A****B**

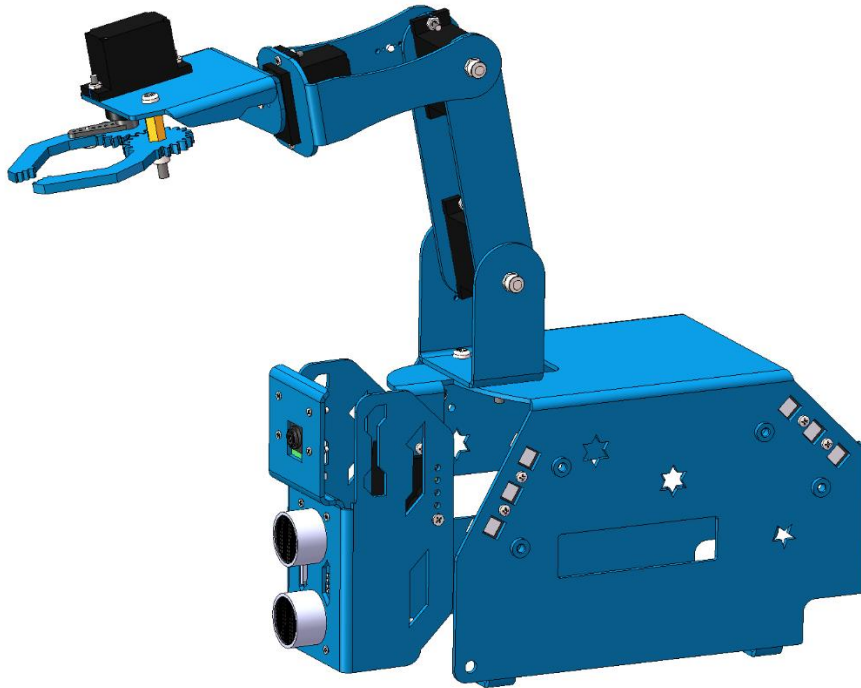
Assemble the following components: **(A)**



M2.5\*8 Screw \* 1

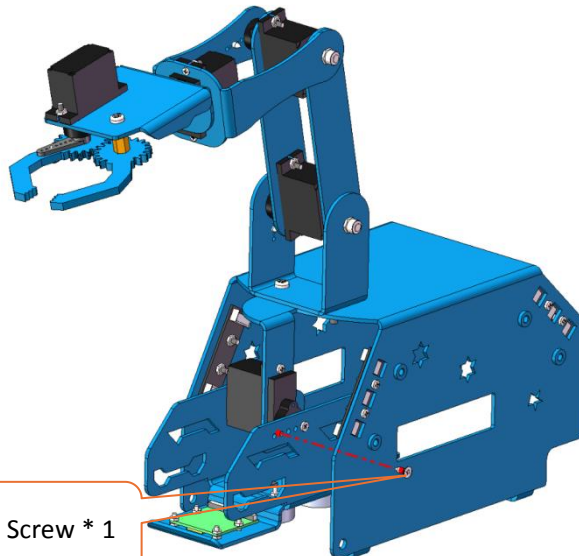
Leave the screw slightly loose at this stage to allow adjustment in the subsequent step.

After Assembly: (A)

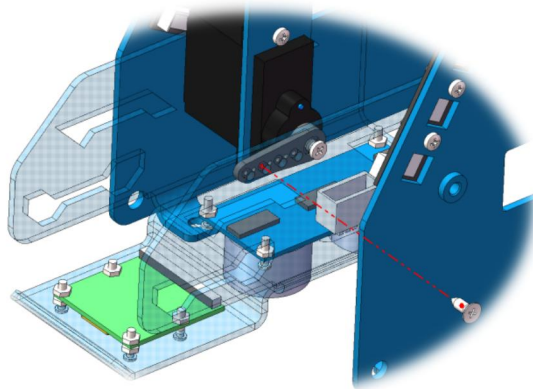


Assemble the following components: (A)

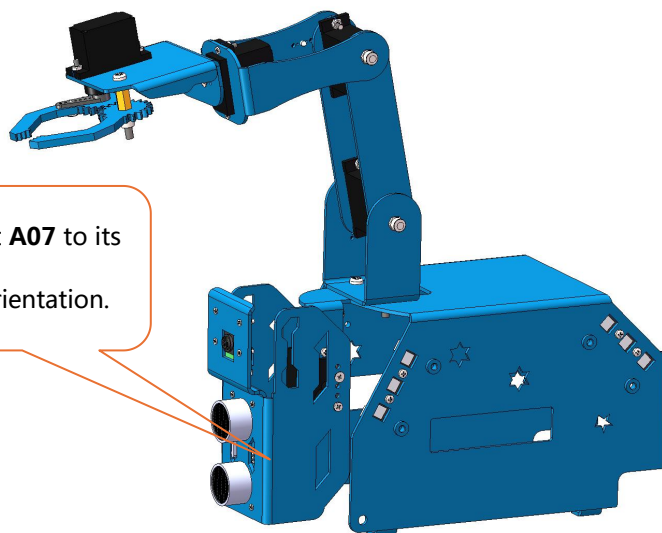
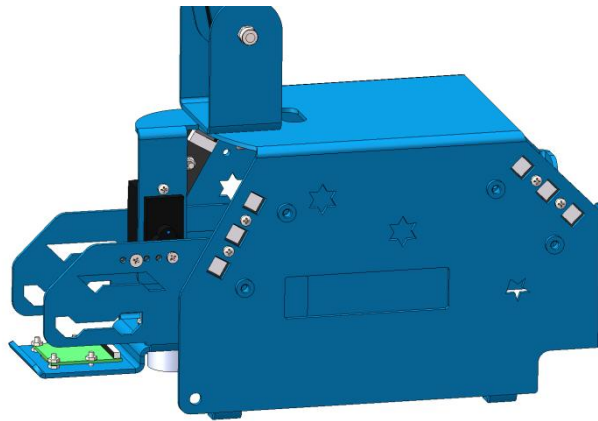
Rotate both Part A07 and the **Rocker Arm** 90° Counterclockwise to simplify this process.



M1.7\*6 Tapping Screw \* 1



After Assembly: (A)



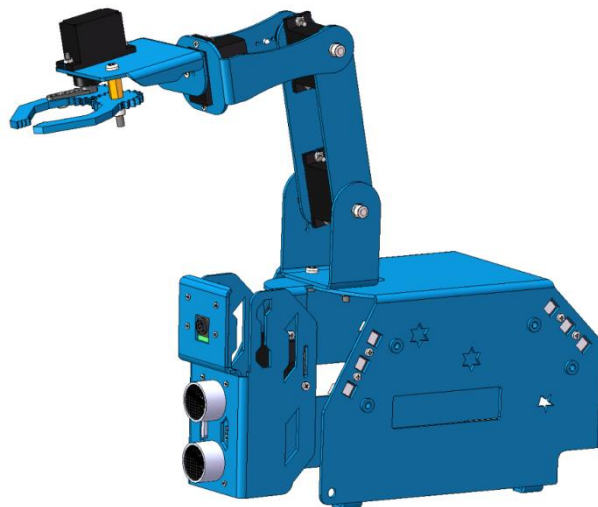


Assemble the following components: **(B)**



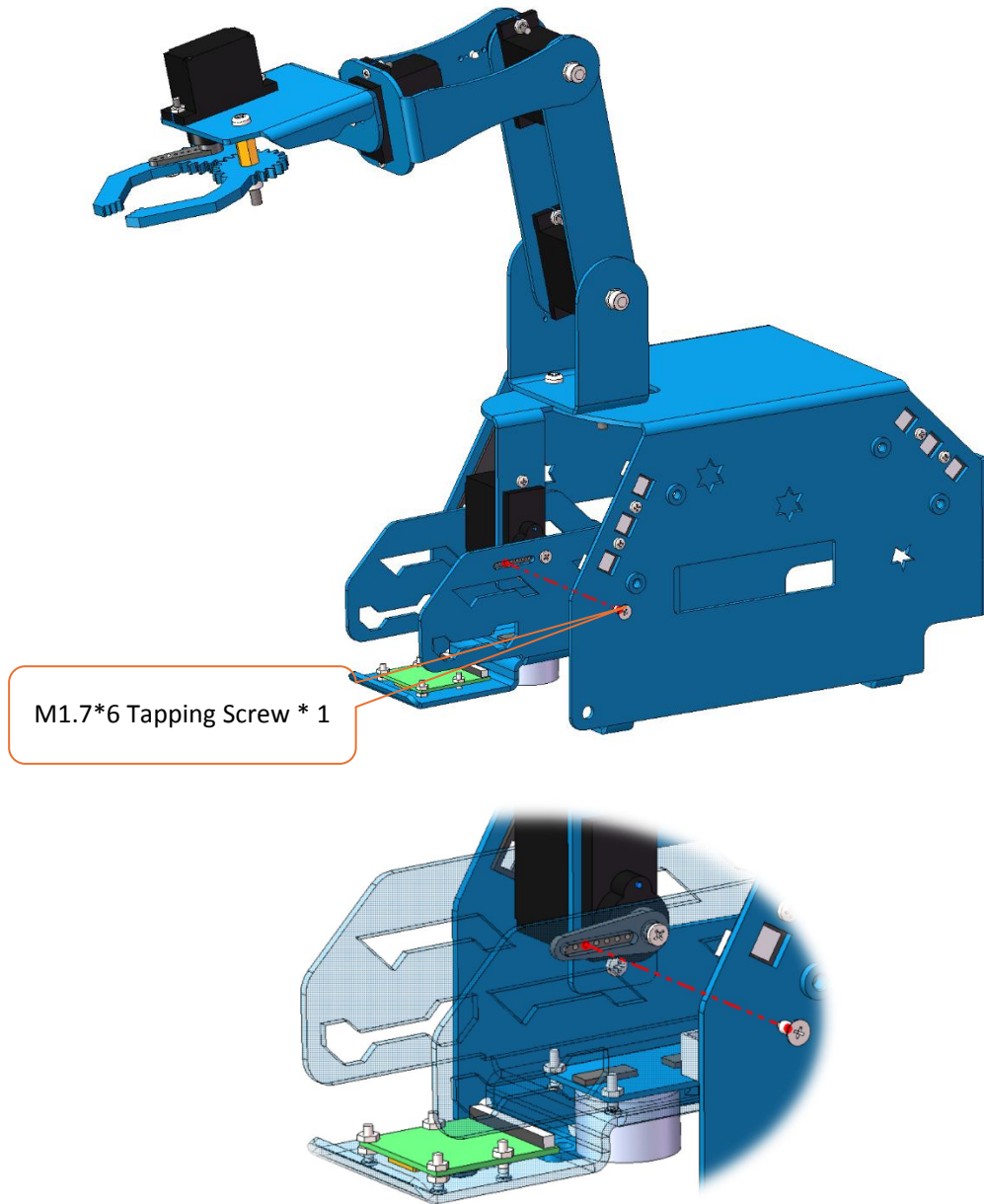
Leave the screw slightly loose at this stage to allow adjustment in the subsequent step.

After Assembly: **(B)**

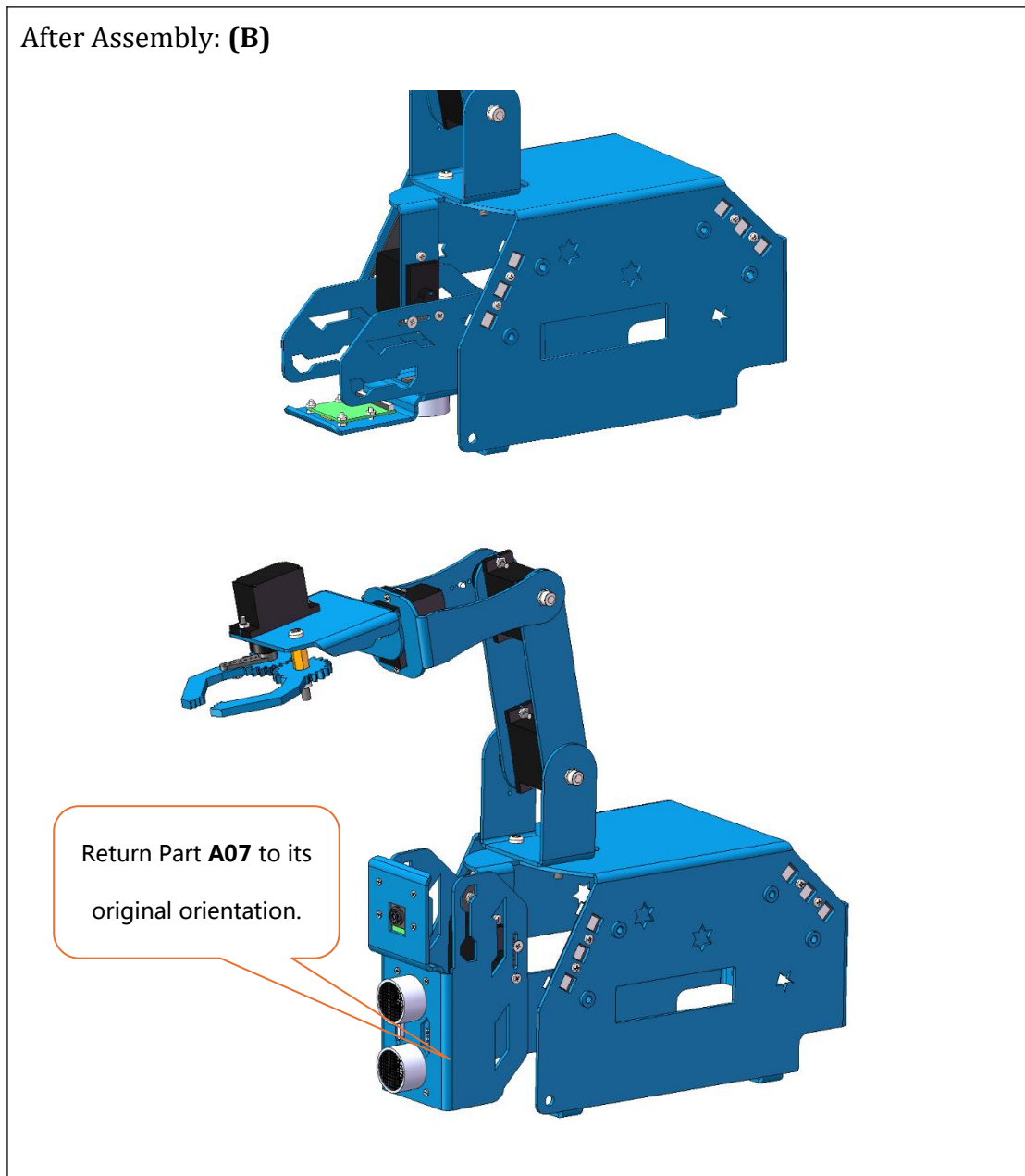


Assemble the following components: **(B)**

Rotate both Part **A07** and the **Rocker Arm** 90° Counterclockwise to simplify this process.

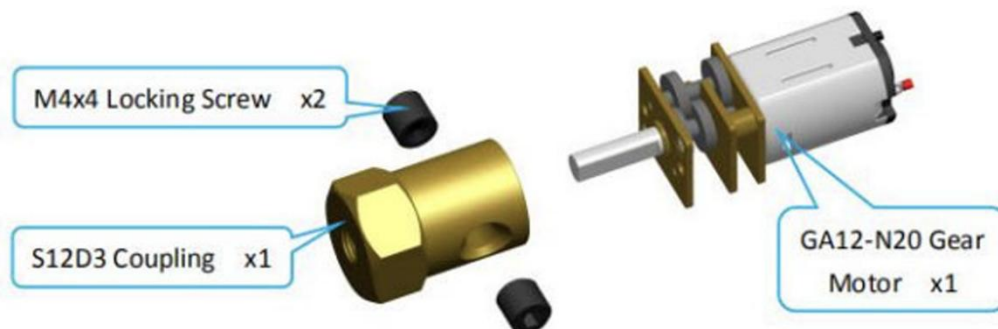


After Assembly: **(B)**



18. Fix the **S12D3 Coupling** to the shaft of the **N20 Gear Motor** with two **M4\*4 Locking Screws** (These screws are package together with the couplings. Please use an L-shaped wrench to tighten the screw). (**Assemble 2 sets**)

Assemble the following components:



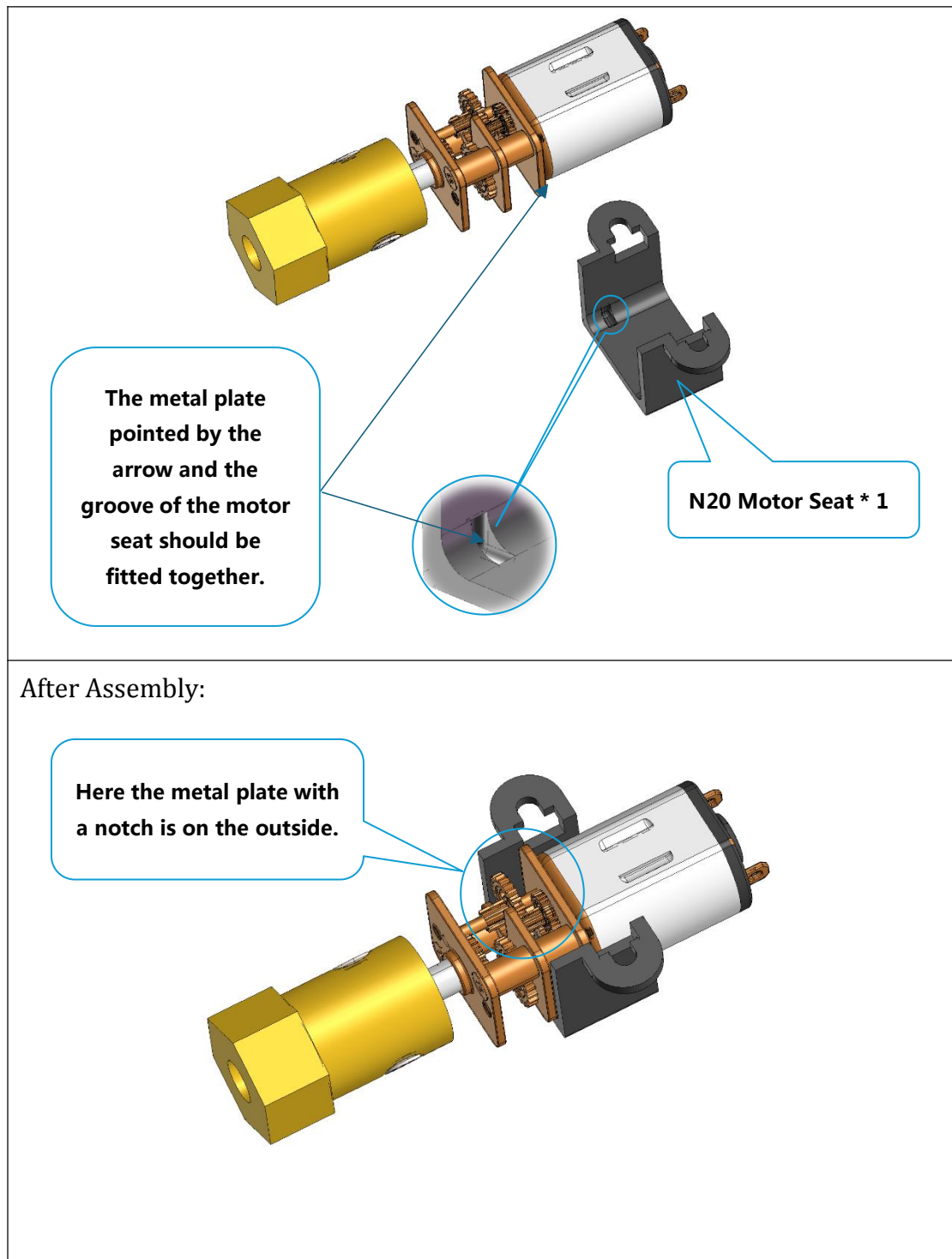
After Assembly:



19. Fix the **N20 Gear Motor** to the **Motor Seat** . (Assemble 2 sets)

Note: Please keep the motor installation position consistent with the picture, which will affect the smoothness of the tracked vehicle's rotation.

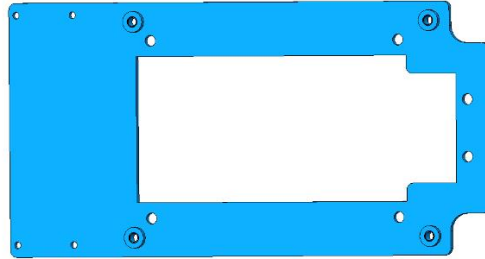
Assemble the following components:



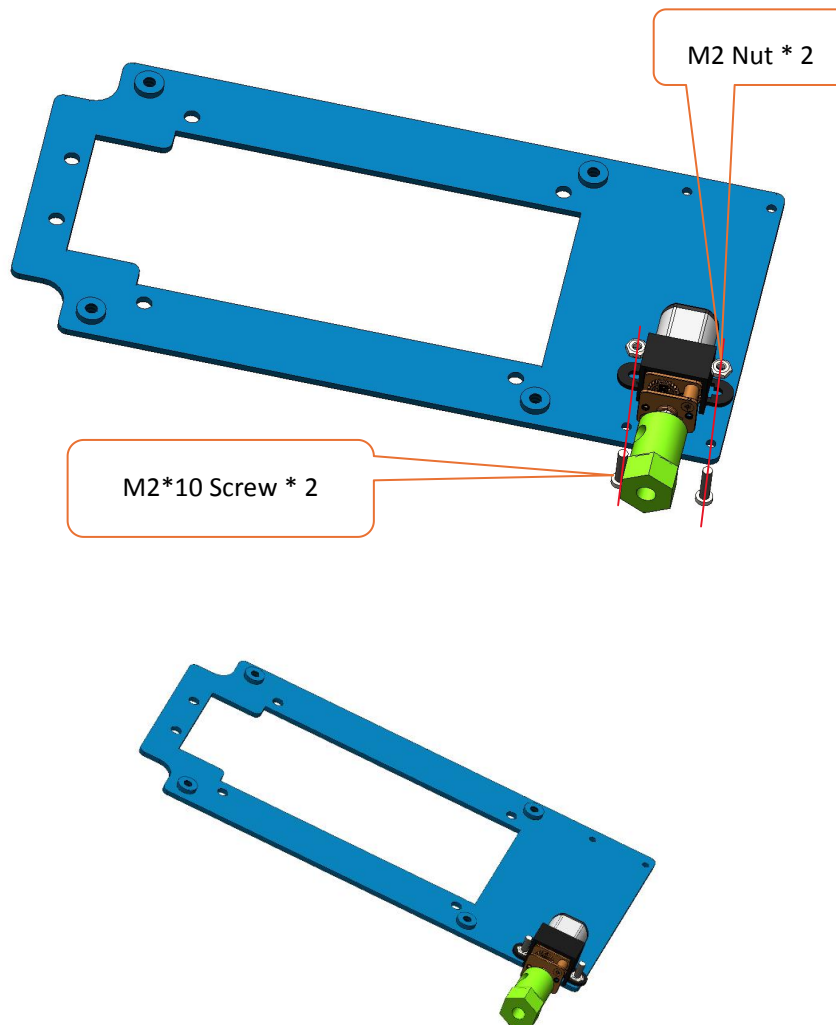
20. Fix the **Motor Seat** to **A08** with four **M2\*10 Screws** and four **M2 Nuts**.

**Note:** Screws, nuts, and N20 Motor Seat are packaged together.

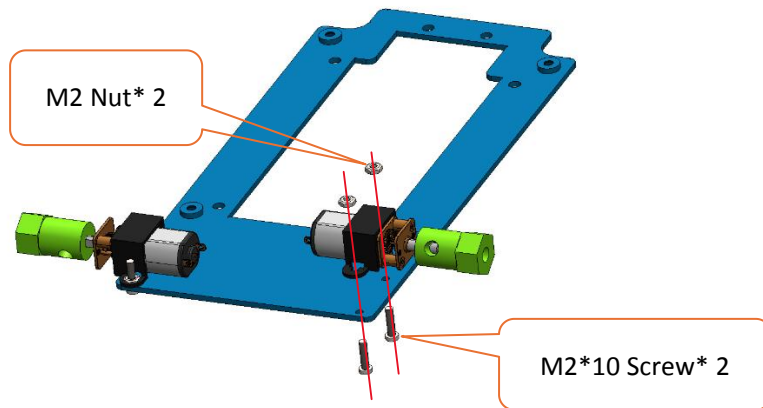
A08



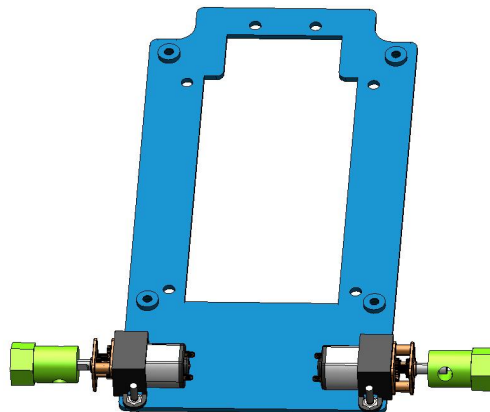
Assemble the following components:



Assembly another N20 Gear Motor in the same way



After Assembly:




21. Fix the **3-CH Line Tracking Module** to A08 with two **M3\*8 Screws**, two **Insulating Gaskets** and two **M3 Nuts**.

3-CH Line Tracking Module

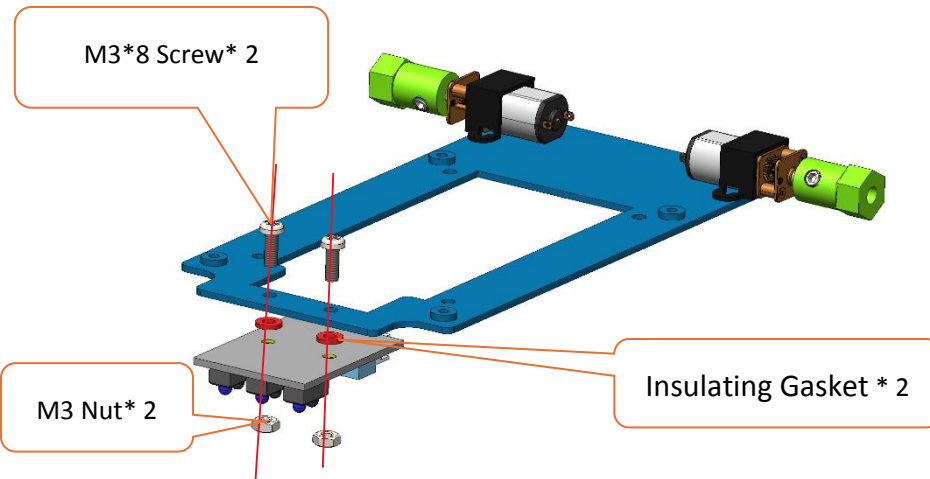




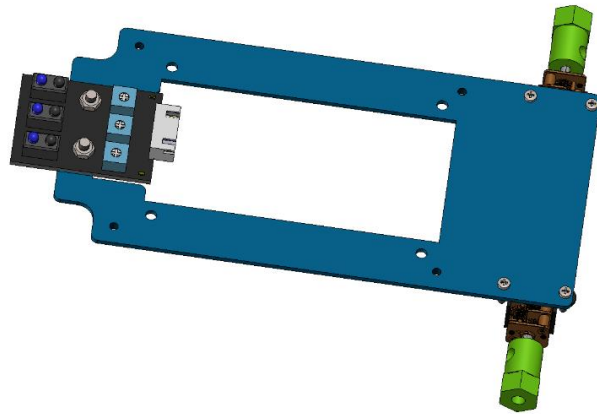
Insulating Gasket	
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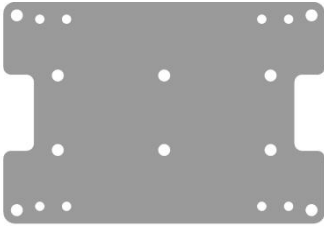
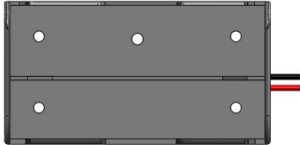
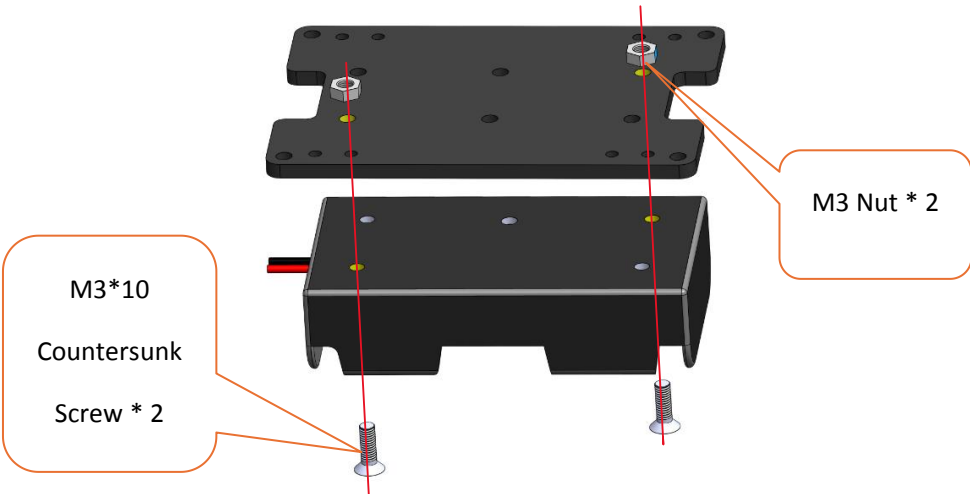

Assemble the following components:



After Assembly:

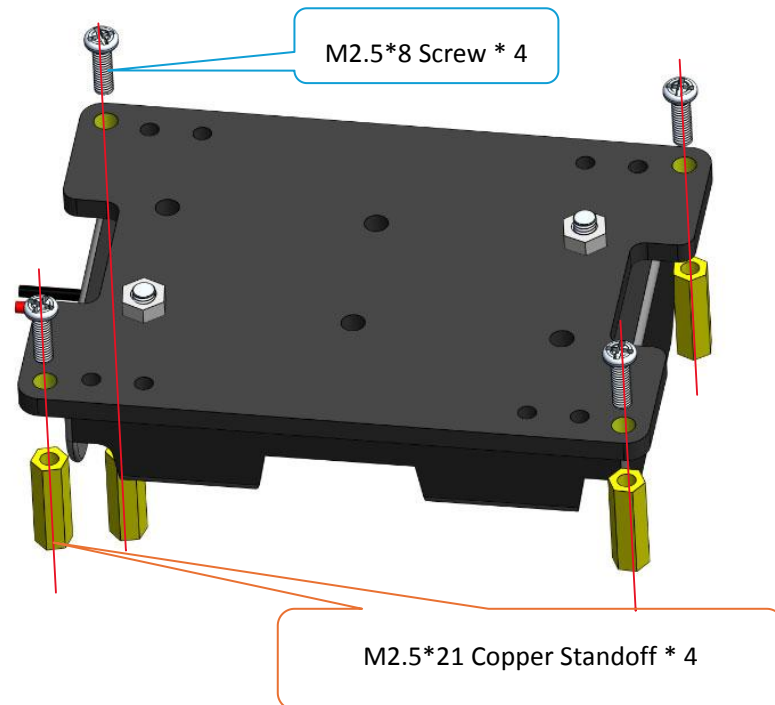


22. Fix the **18650 Battery Holder** to **A11** with two **M3\*10 Countersunk Screws** and two **M3 Nuts**.

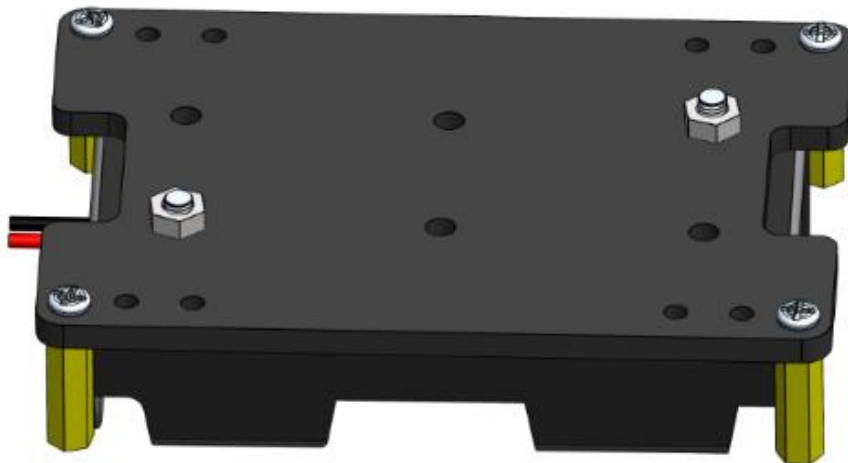
A11	
18650 Battery Holder	
<p>Assemble the following components:</p> 	
<p>After Assembly:</p> 	

23. Fix four **M2.5\*21 Copper Standoffs** to **A11** with four **M2.5\*8 Screws**.

Assemble the following components:

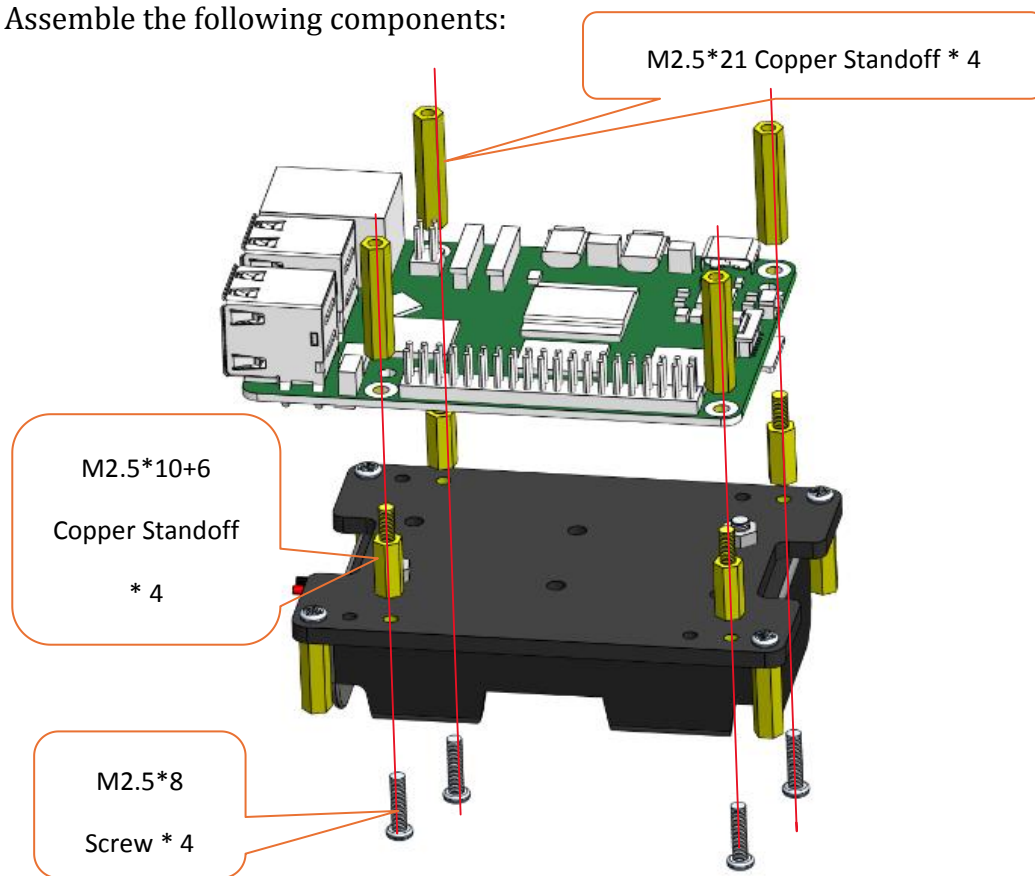


After Assembly:

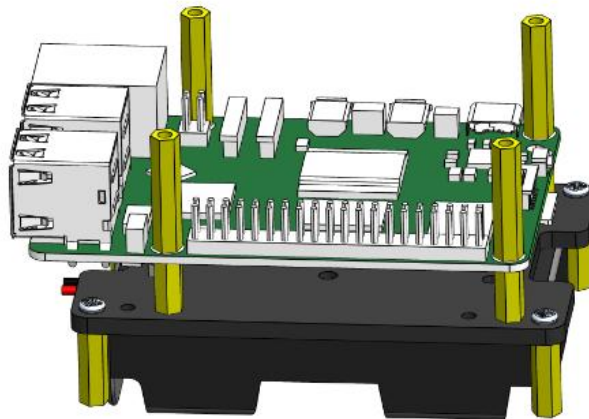


24. Fix the Raspberry Pi Board (**Not included in this kit, you need to purchase**) to **A11** with four **M2.5\*10+6 Copper Standoffs**, four **M2.5\*21 Copper Standoffs**, and four **M2.5\*8 Screws**.

Assemble the following components:

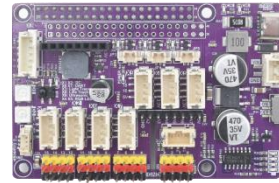


After Assembly:



25. Fix the **Adeept Robot HAT V3.2** to the Raspberry Pi Board with four **M2.5\*8** Screws.

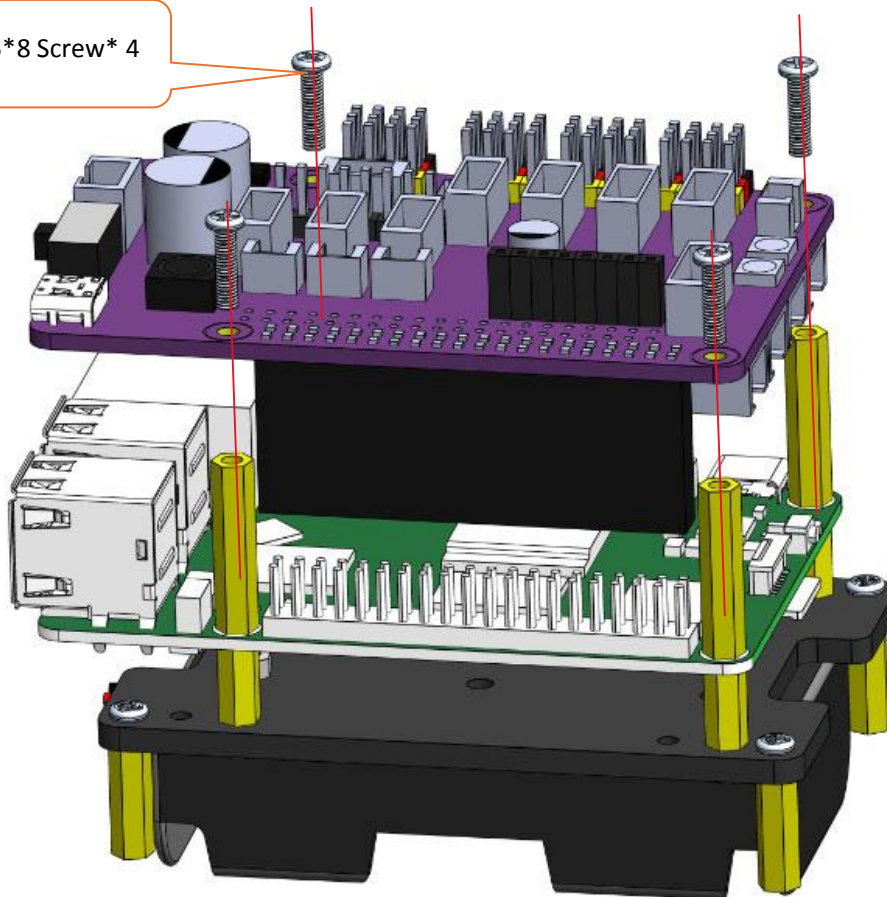
Adeept Robot HAT V3.2



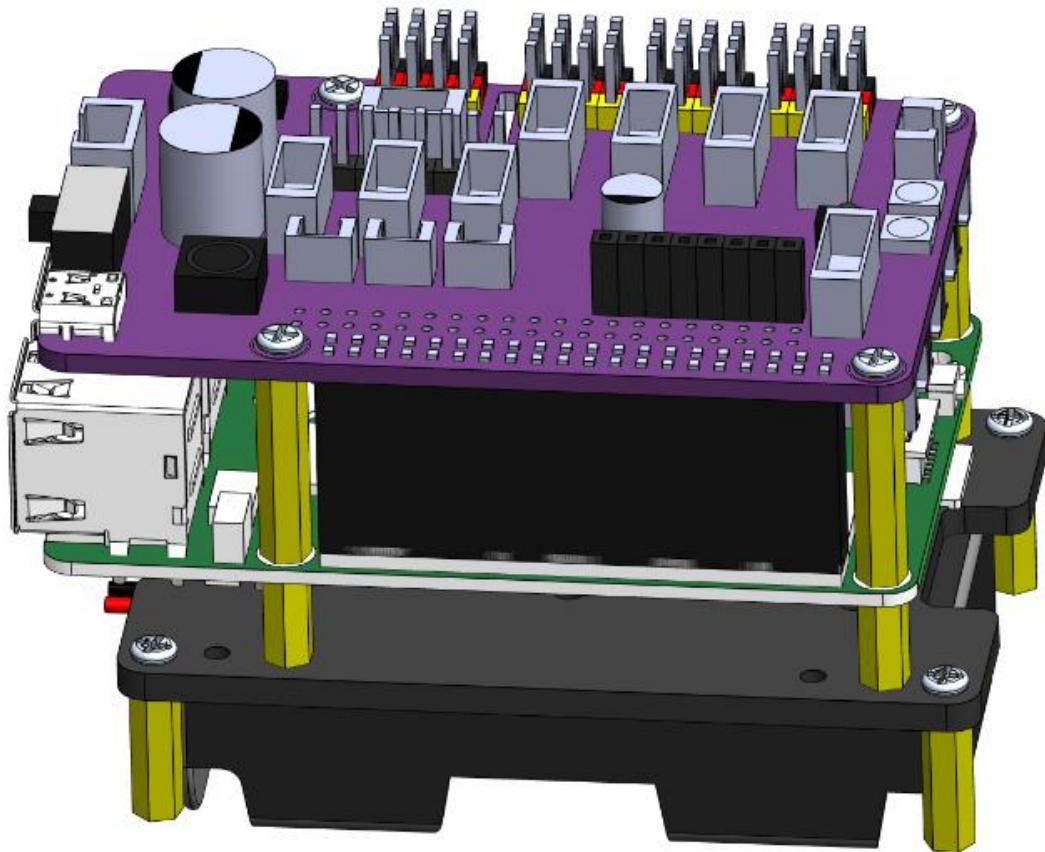
Assemble the following components:

**NOTE: Don't forget to plug the camera cable into the corresponding slot on the Raspberry Pi board!!!**

M2.5\*8 Screw\* 4

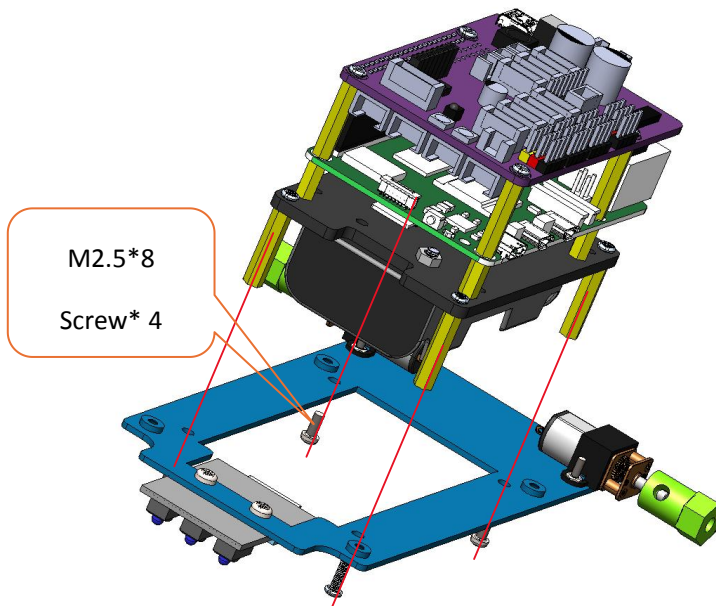


After Assembly:

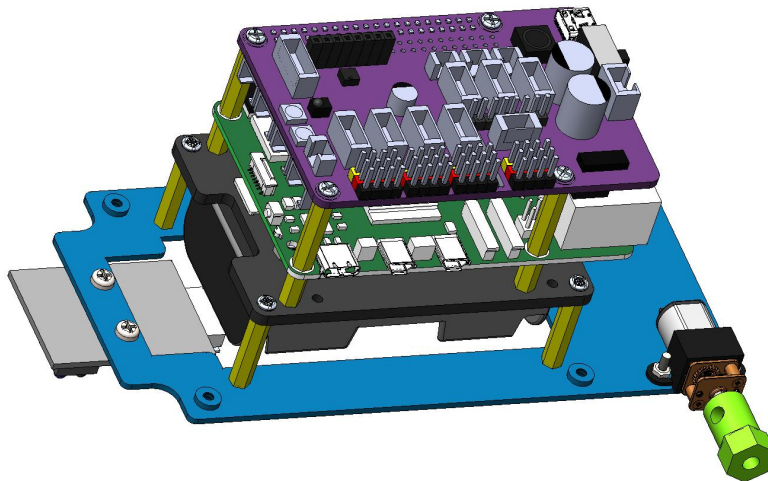


26. Fix the assembled **A11** to the assembled **A08** with four **M2.5\*8 Screws**.

Assemble the following components:



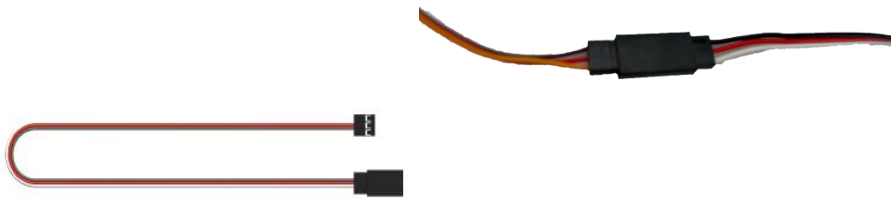
After Assembly:



## Assembly the Adept Robot Control Board

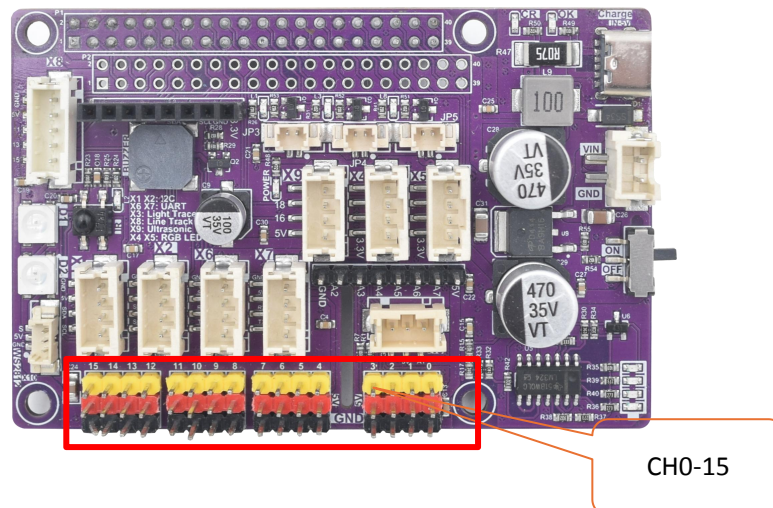


The **Servo D** needs to be connected to the Adept Robot HAT through an **Extension Cable** (included in this kit) because it is too far away from the Adept Robot HAT. connect the yellow wire to the white wire, the red wire to the red wire, and the brown wire to the tan wire.

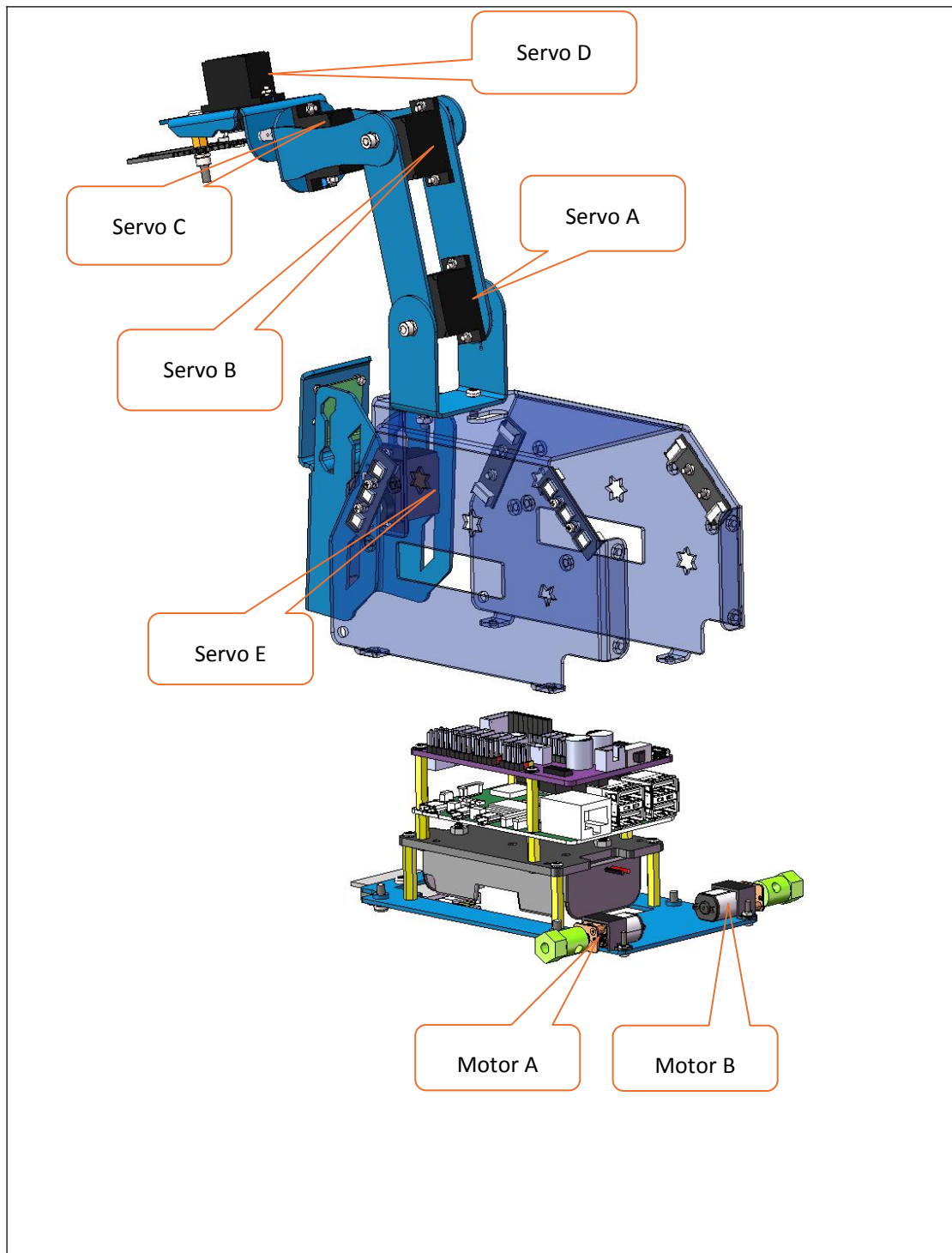


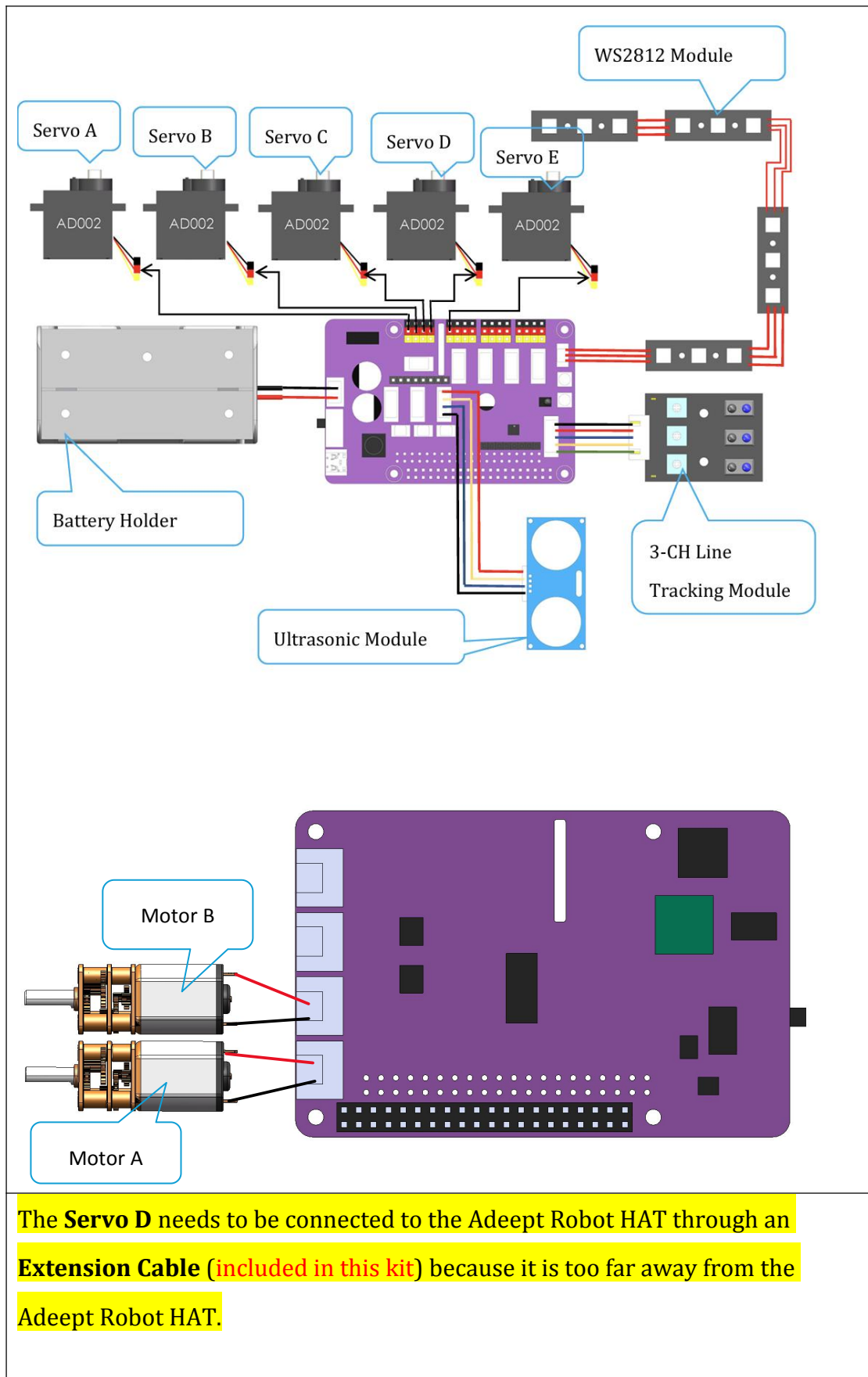
Schematic Diagram of Servo Interface Numbers

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



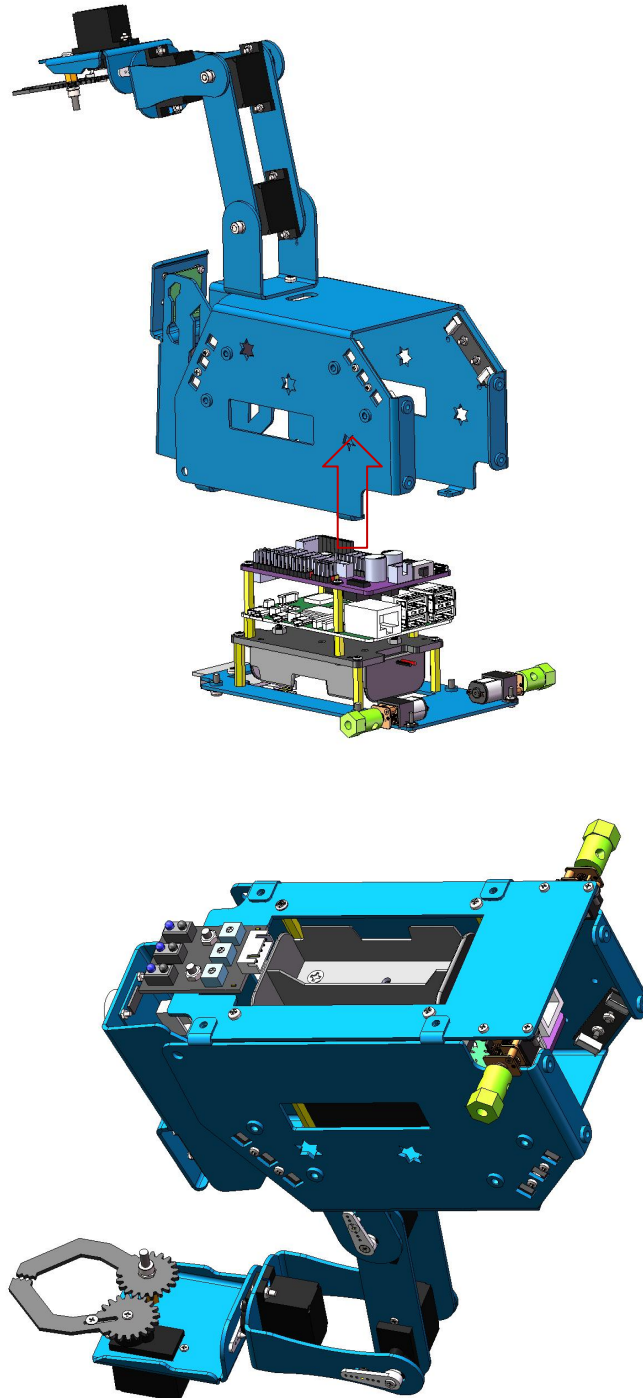


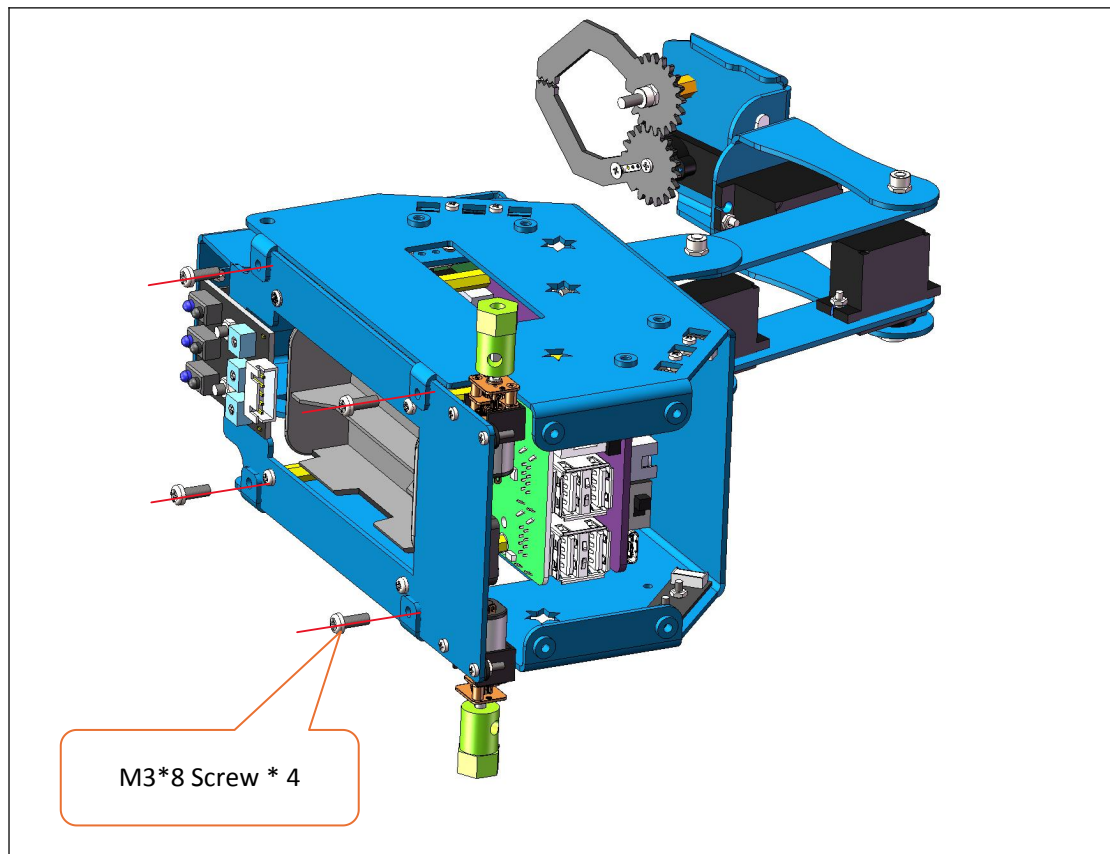




27. Fix the assembled **A01** to the assembled **A08** with four **M3\*8 Screws**.

Assemble the following components:



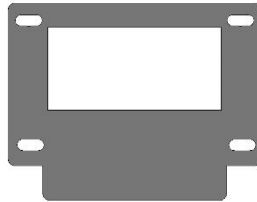


After Assembly:

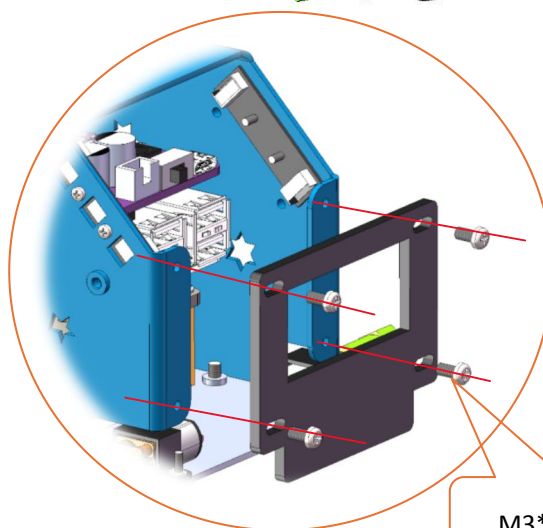


28. Fix the **A12** to the assembled **A01** with four **M3\*8 Screws**.

A12

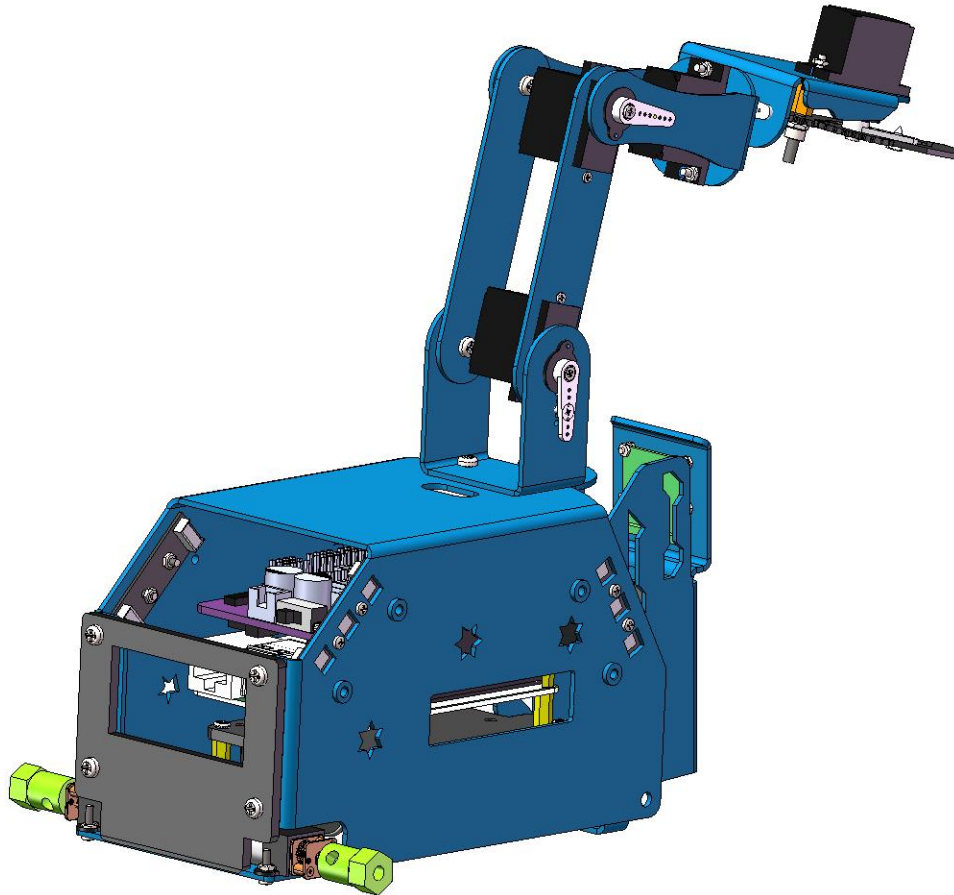


Assemble the following components:

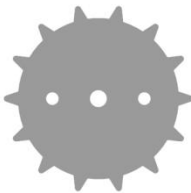




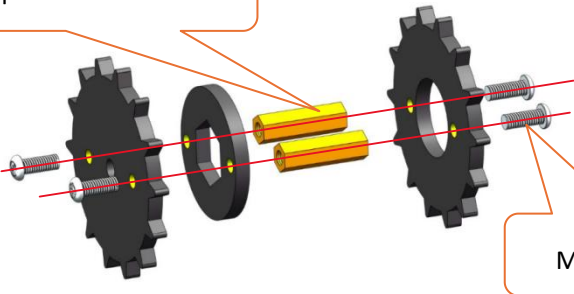
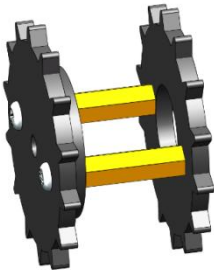
M3\*8 Screw\* 4

After Assembly:

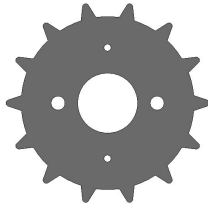
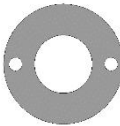


29. Assembly **A13**, **A14** and **A15** as a Drive Wheel with four **M3\*8 Screws** and two **M3\*18 Copper Standoffs**. (Assemble 2 sets)

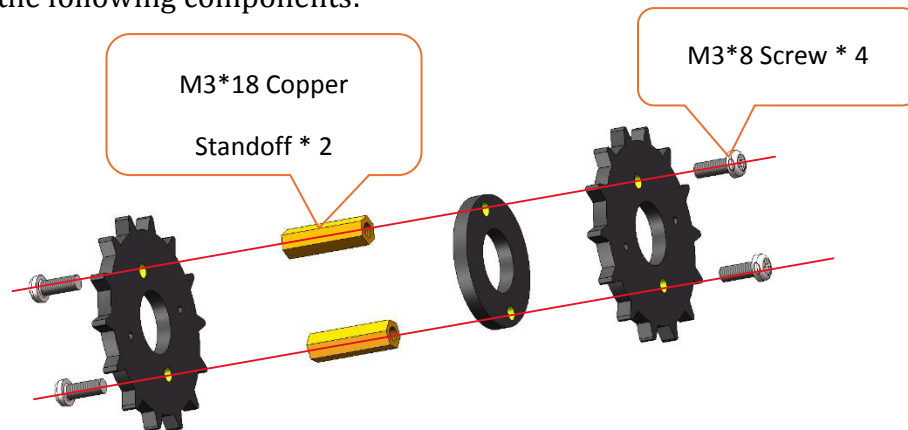
A13	
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A14	
A15	
<p>Assemble the following components:</p> 	
<p>After Assembly:</p> 	

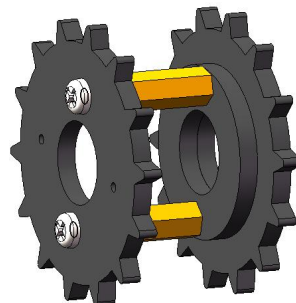
30. Assembly two **A16** and **A17** as a Wheel with four **M3\*8 Screws** and two **M3\*18 Copper Standoffs**. (Assemble 2 sets)

A16*2	
A17	

Assemble the following components:



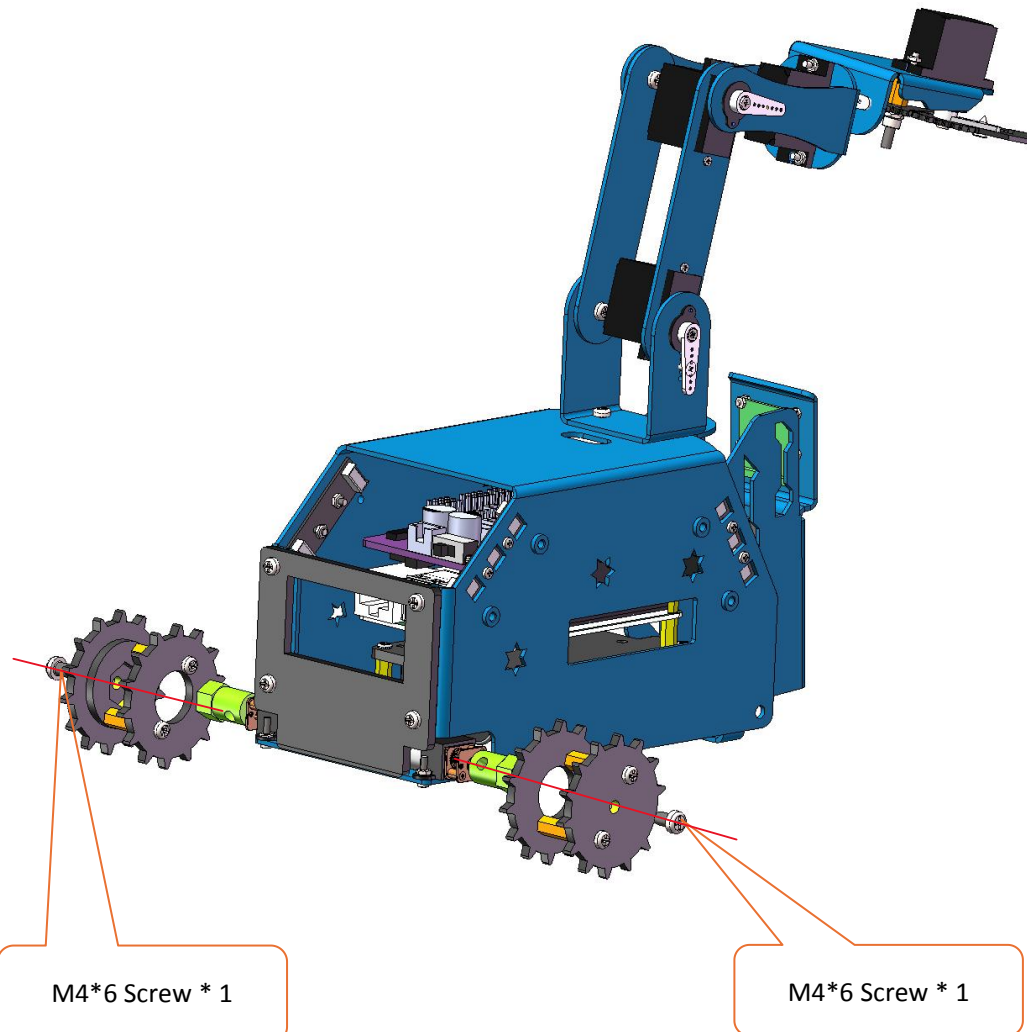
After Assembly:



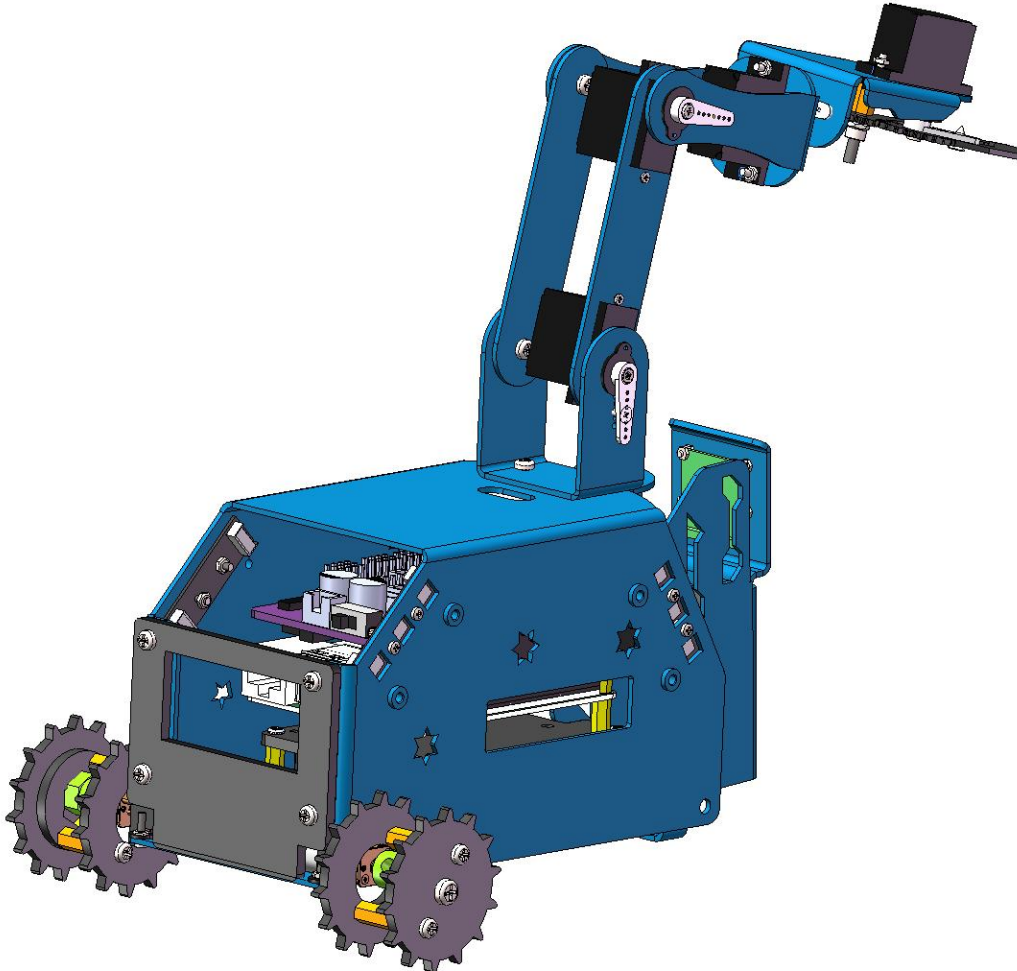


31. Fix the previously assembled **Drive Wheel** to the **S12D3 Coupling** with one **M4\*6 Screw**. (Assemble 2 sets)

Assemble the following components:



After Assembly:



31. Assembly the **Driven Wheel** and track. (Assemble 2 sets)





Before installing the driven wheel, you need to fix the track on the two wheels first, otherwise the track will not be installed. After fixing the driven wheel, try to rotate the track to see if it can rotate smoothly. If it cannot rotate smoothly, this

is caused by the fact that the two wheels are not in the same horizontal plane.

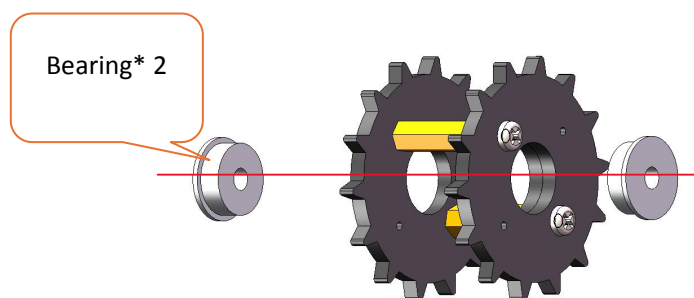
You need to adjust the drive wheel to make the track rotate smoothly.

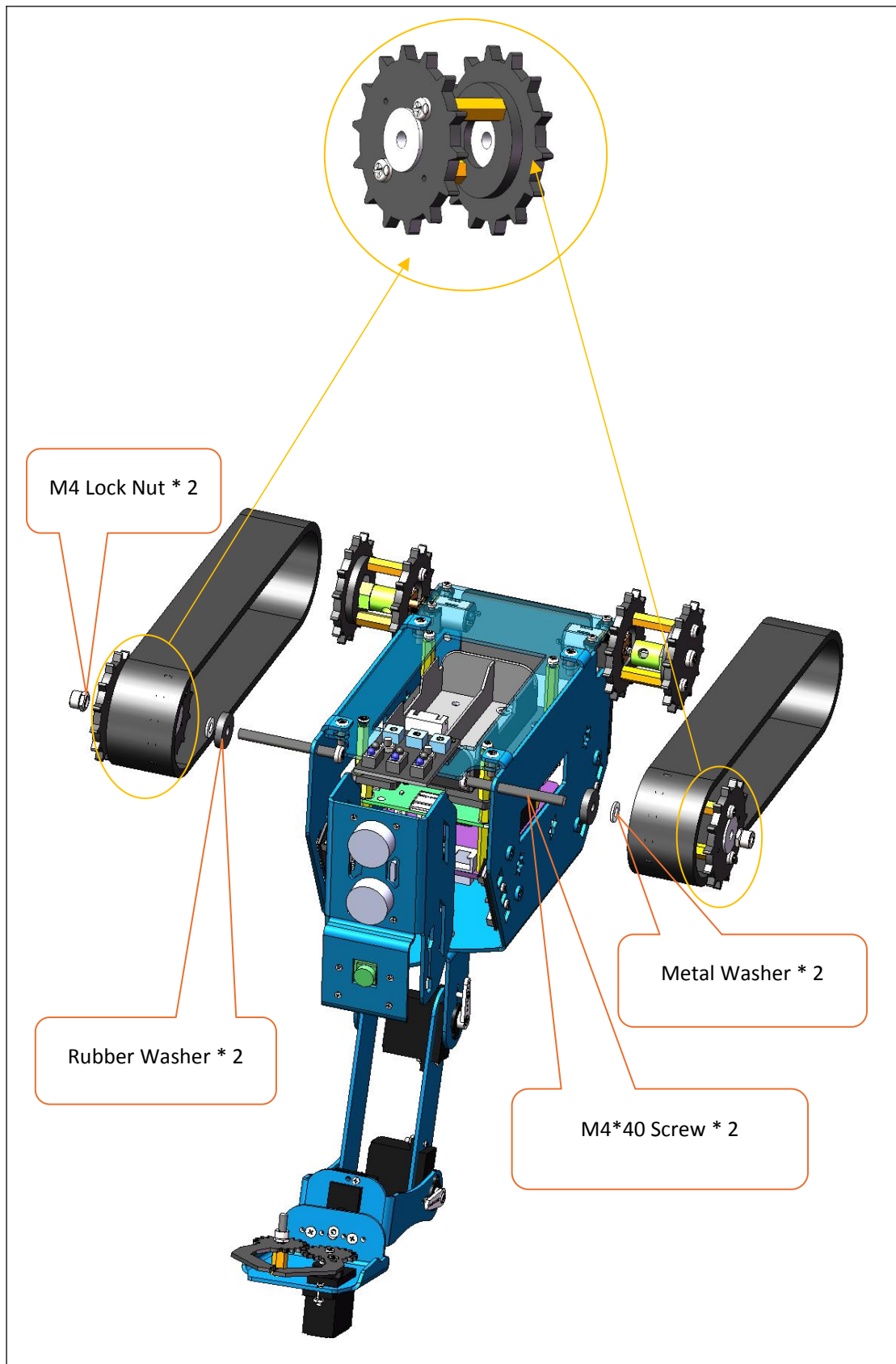
### Assemble the following components:

First fix the two bearings to the drive wheel, second put the track on the drive wheel and the drive wheel, then pass the **M4\*40 Screw** through the drive wheel and fix it with the **M4 Lock Nut, Rubber Washer, Metal Washer**.

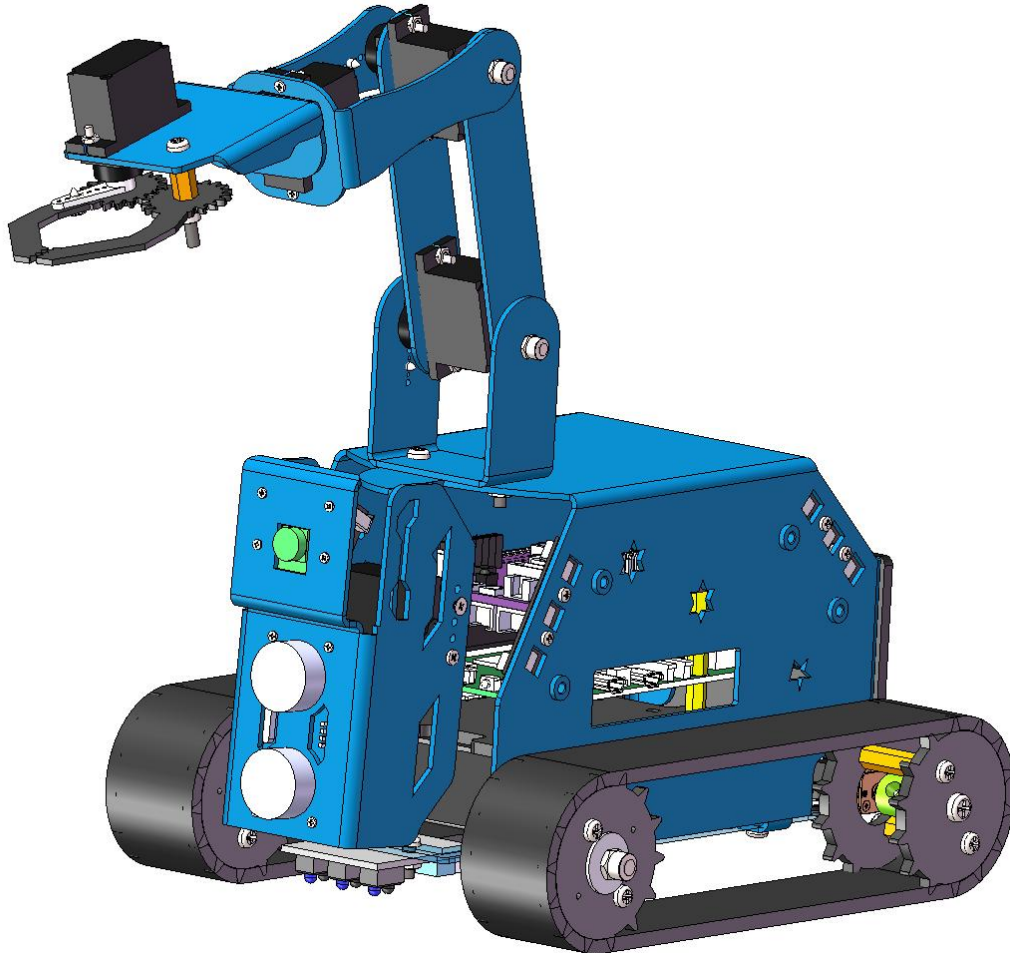
Track*2	
Bearing*4	
Rubber gasket*2	
Washer gasket*2	

### Assemble the following components:





After Assembly:



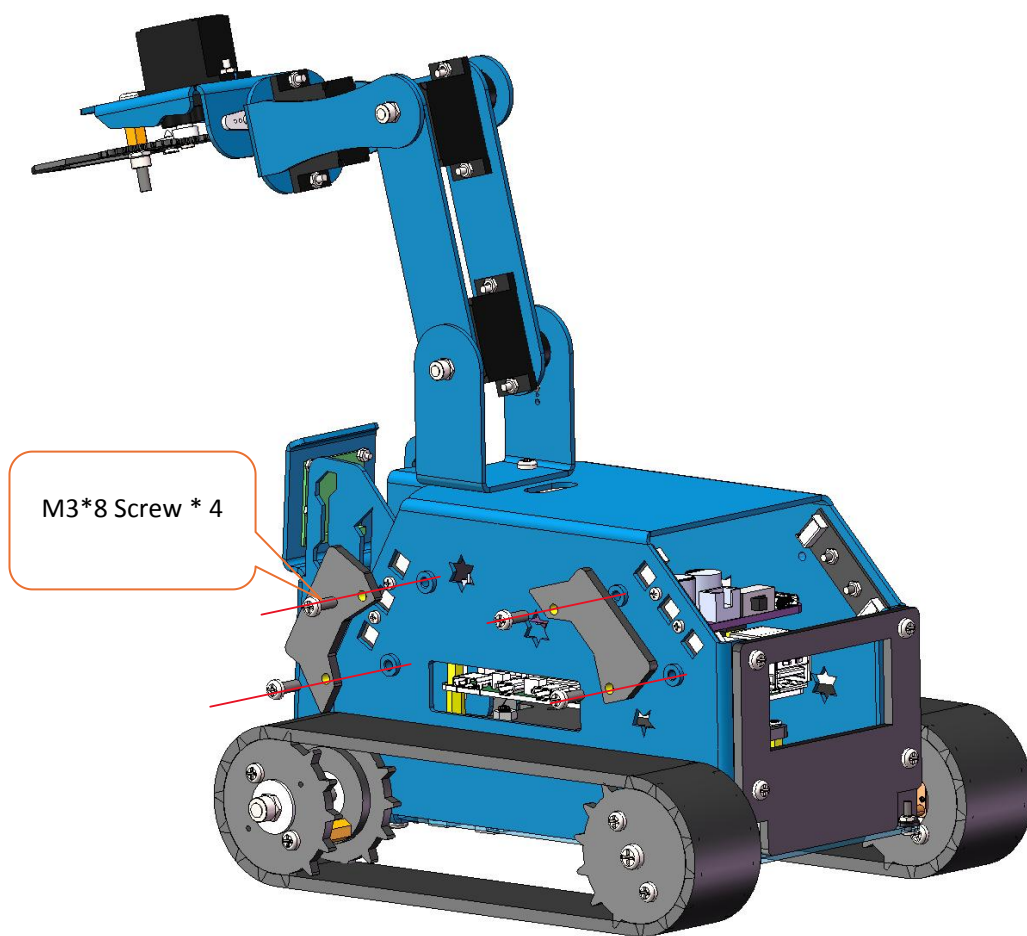
32. Fix four **Acrylic Accessories A18** on the assembled **A01** with eight **M3\*8 Screws**.

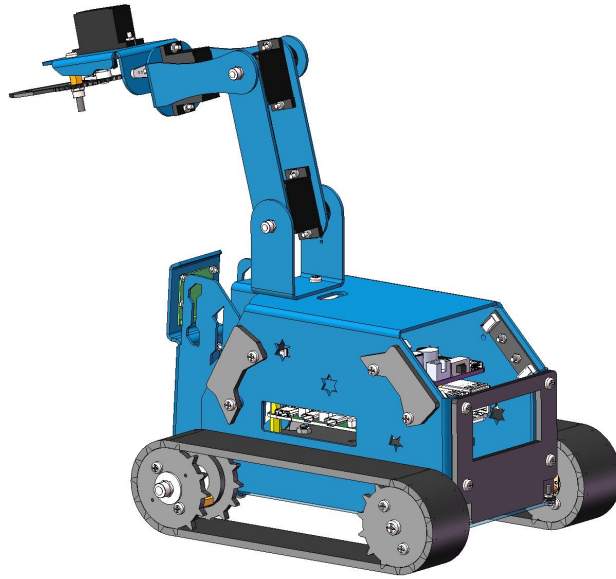
There is a protective paper on the surface of the acrylic, you can tear off the protective paper.

A18\*4

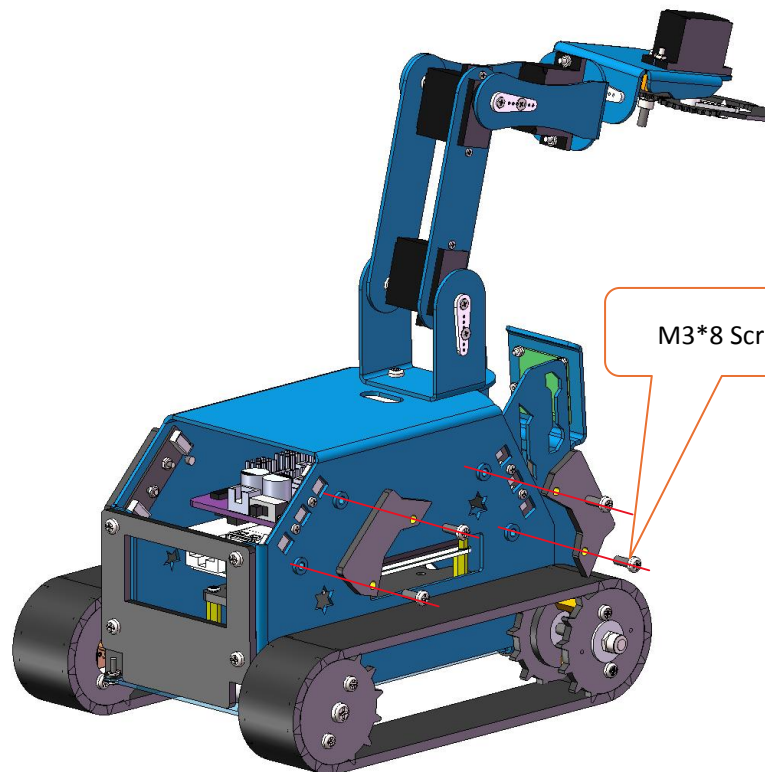


Assemble the following components:





Assemble another A18 in the same way





After Assembly:

