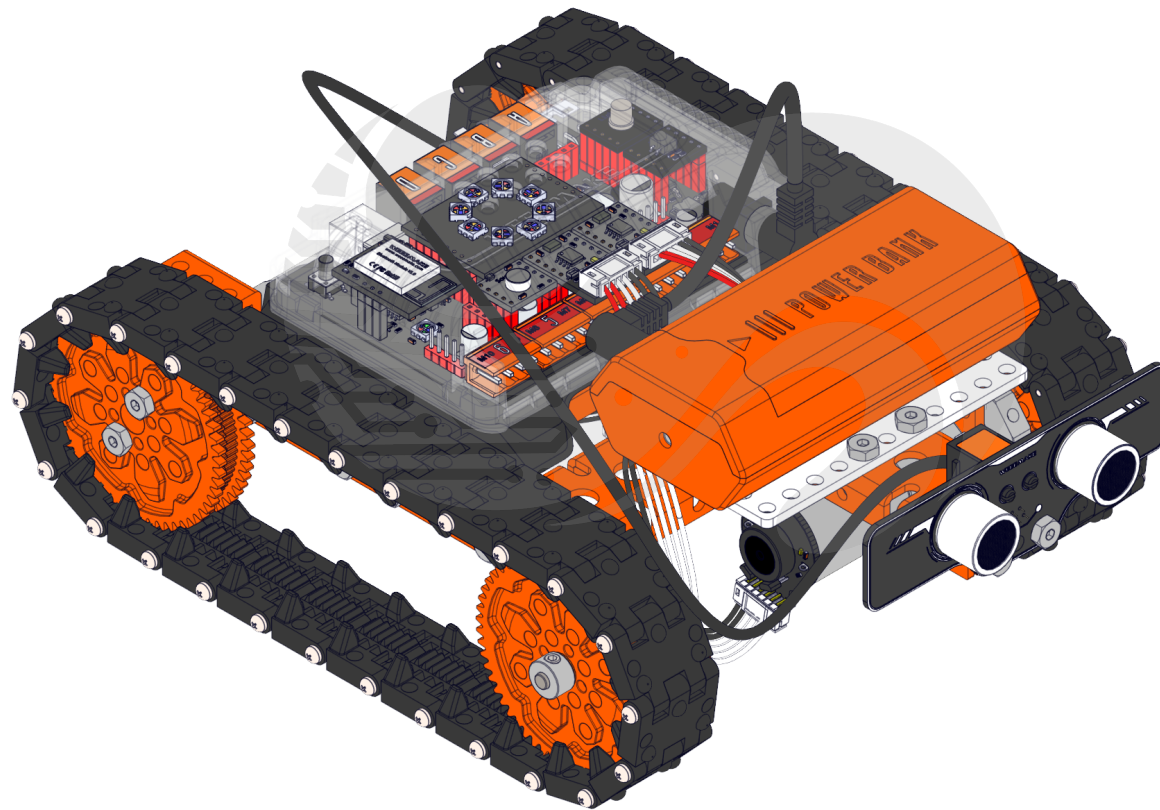


「 Chapter 9 Detection Robot 」



0.Common Module Installation—Assembly Guide of Mainboard ELF



1x328P MicroChip Module V1.0



1xWeeeMake Bluetooth 4.1 Module



1xLight Sensor (Pin)



1xIR Receiver (Pin)



1xSound Sensor (Pin)



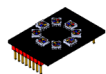
1xELF Mainboard



1xELF Mainboard Lid



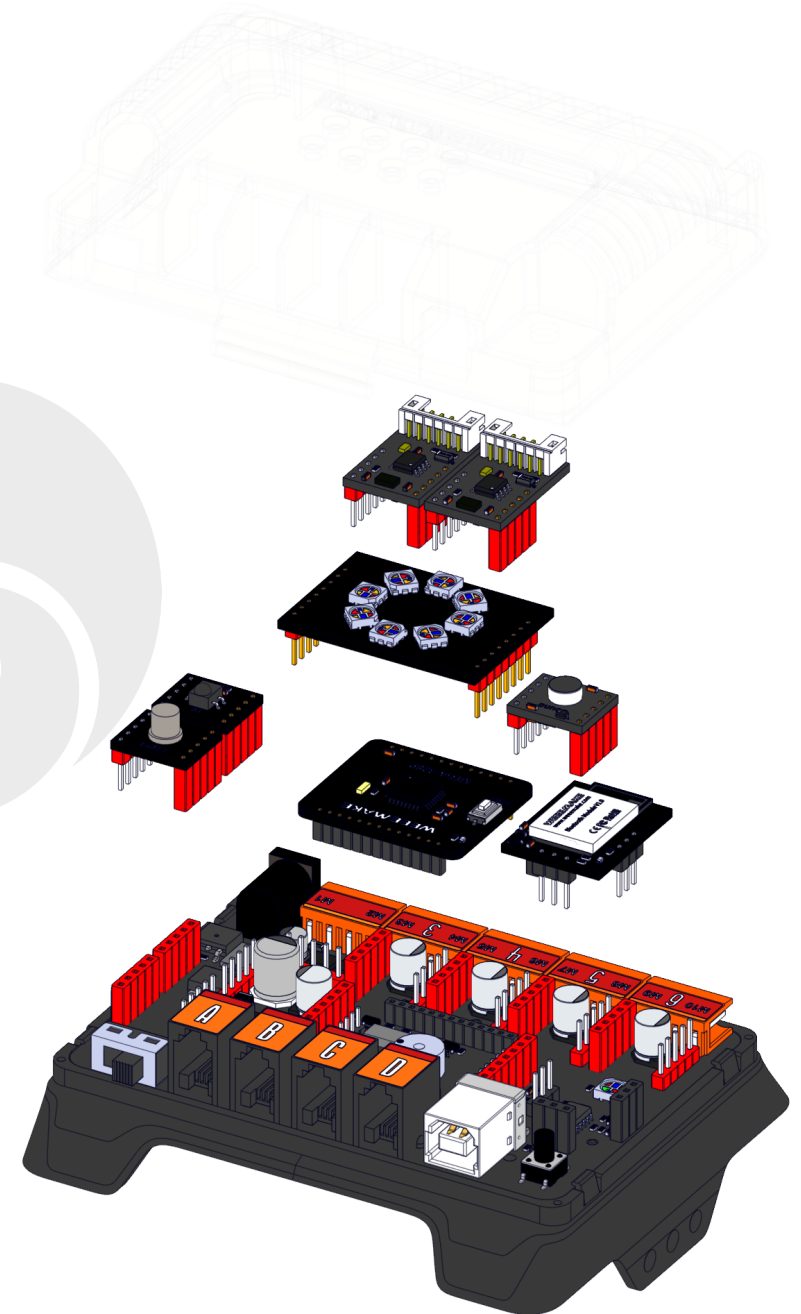
1xELF Mainboard Base



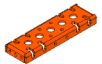
1xRGB LED - 8 (Pin)

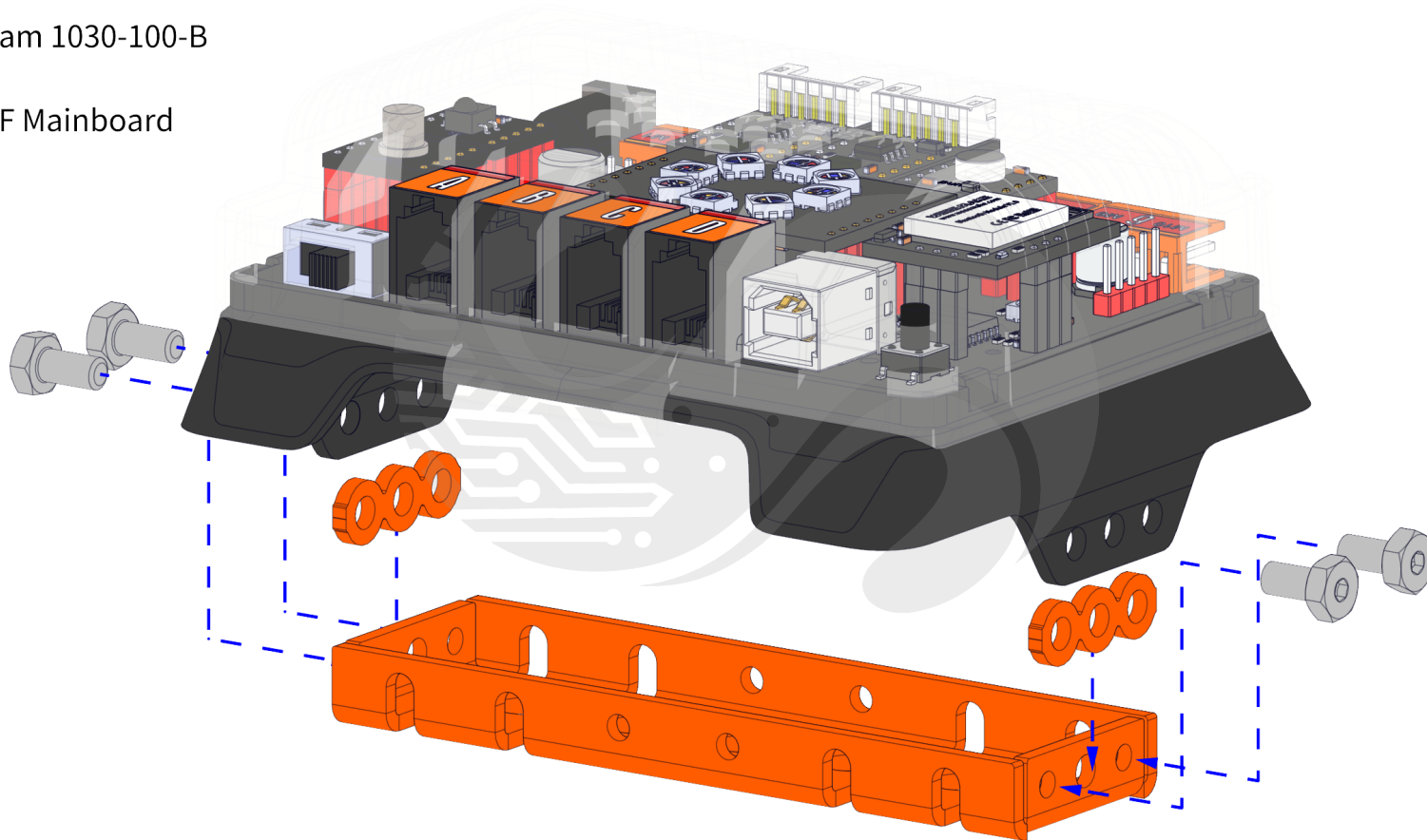


2xDC/Encoder Motor Driver

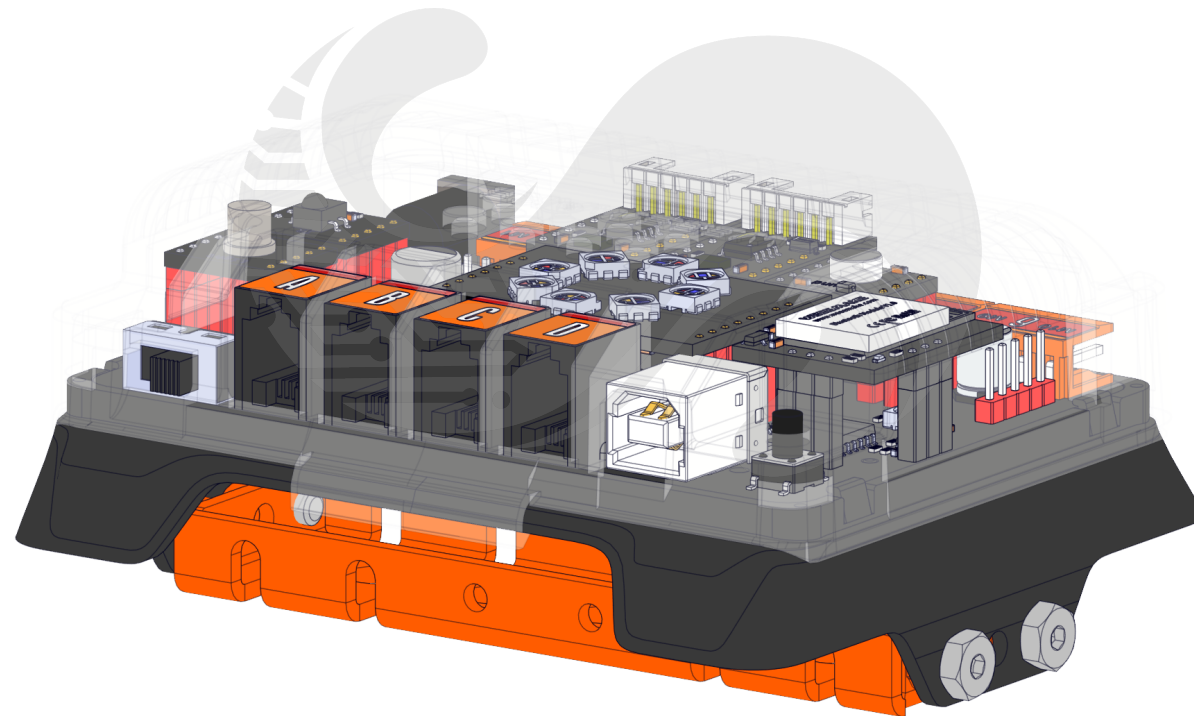


0.Common Module Installation—Assembly Guide of Mainboard ELF

-  4xScrew M4*8
-  2xLinkage 0208-24
-  1xBeam 1030-100-B
-  1xELF Mainboard



0.Common Module Installation—Assembly Guide of Mainboard ELF



Tips:

The default sensors on mainboard ELF is installed as follows:

Port 1 - Light Sensor Port 2 - IR Receiver Port 3 & 4 - DC/Encoder Motor Driver Port 5 - Sound Sensor

MCU Port - 328P Micro Chip

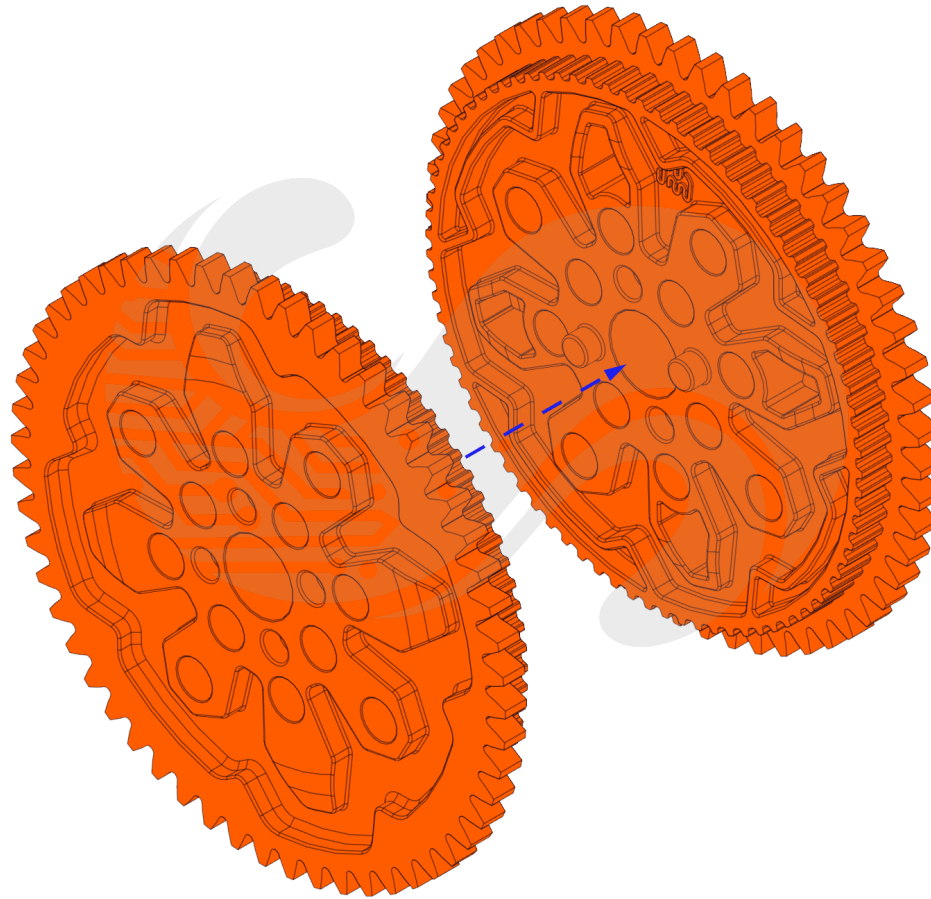
Communication Port - Bluetooth Module

Special port - RGB LED -8 Module

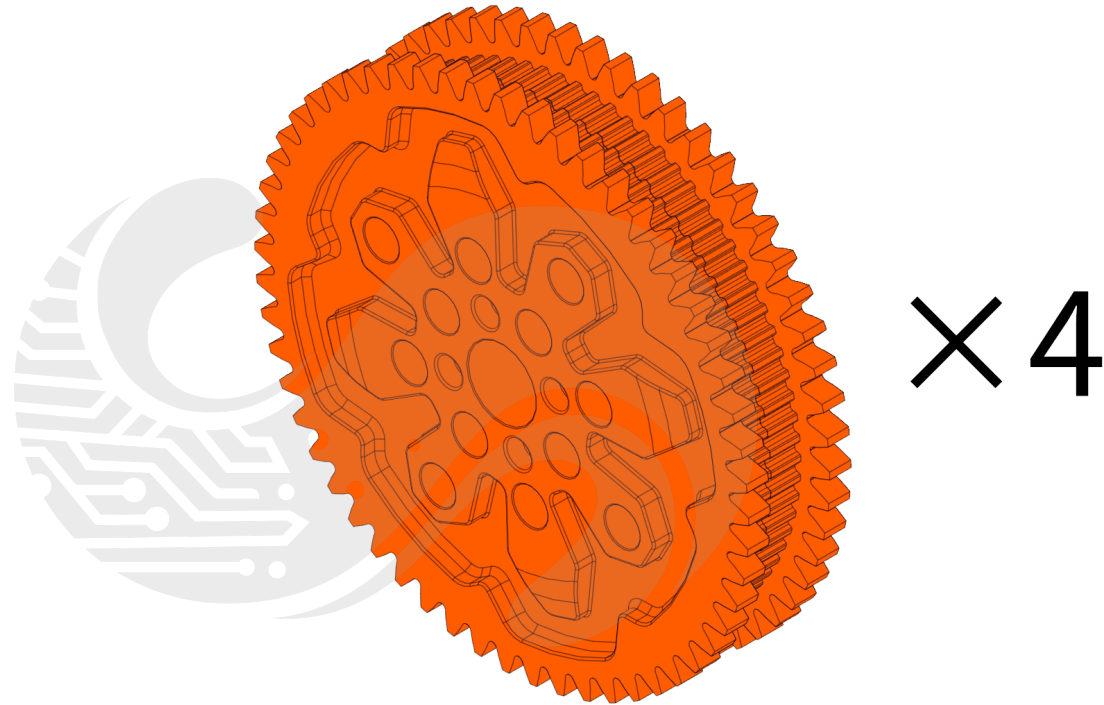
1.Assemble 56T Plastic Gear



2x56T-Plastic Gear



1.Assemble 56T Plastic Gear

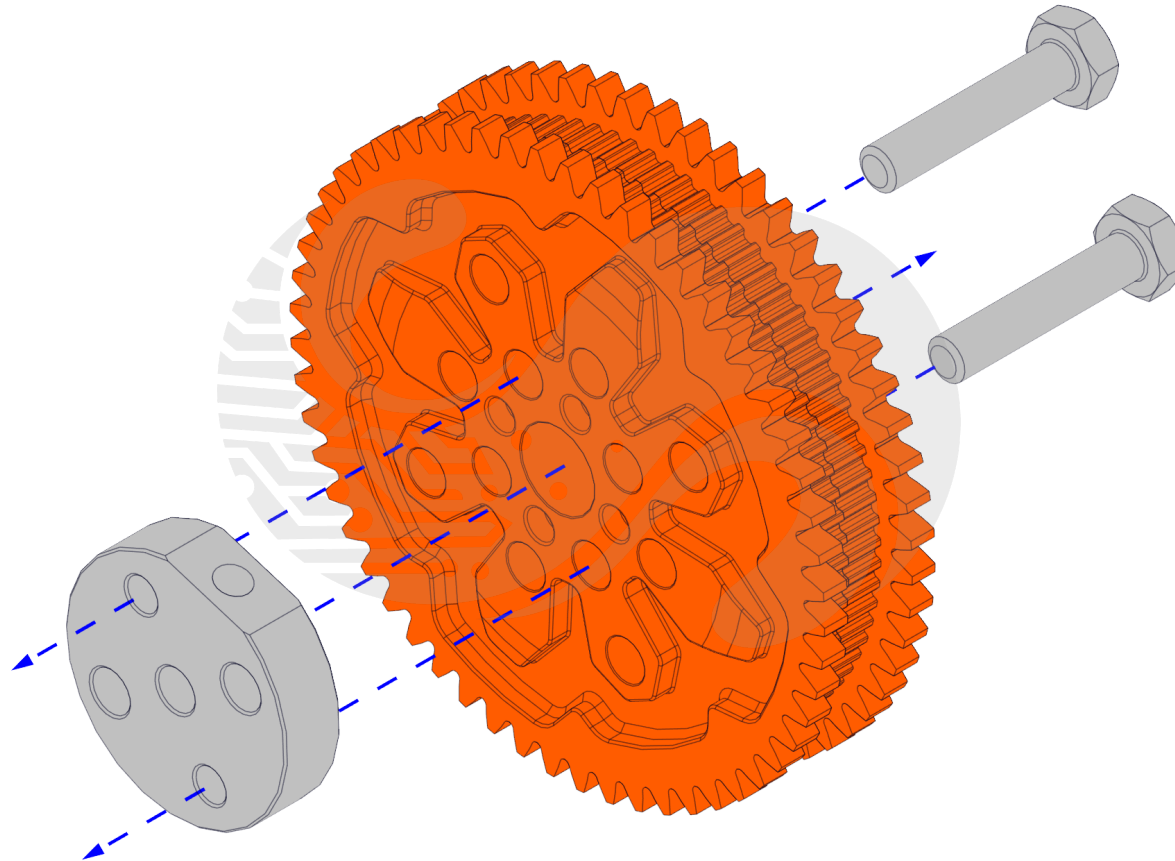


2.Assembly Active Wheel

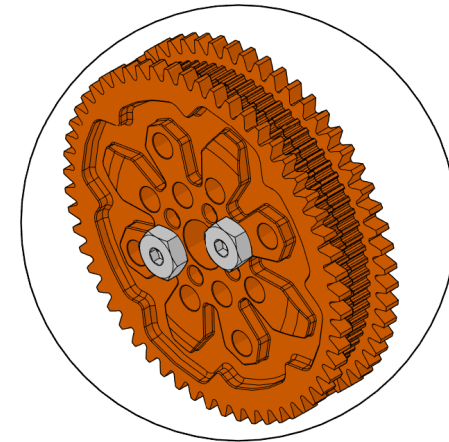
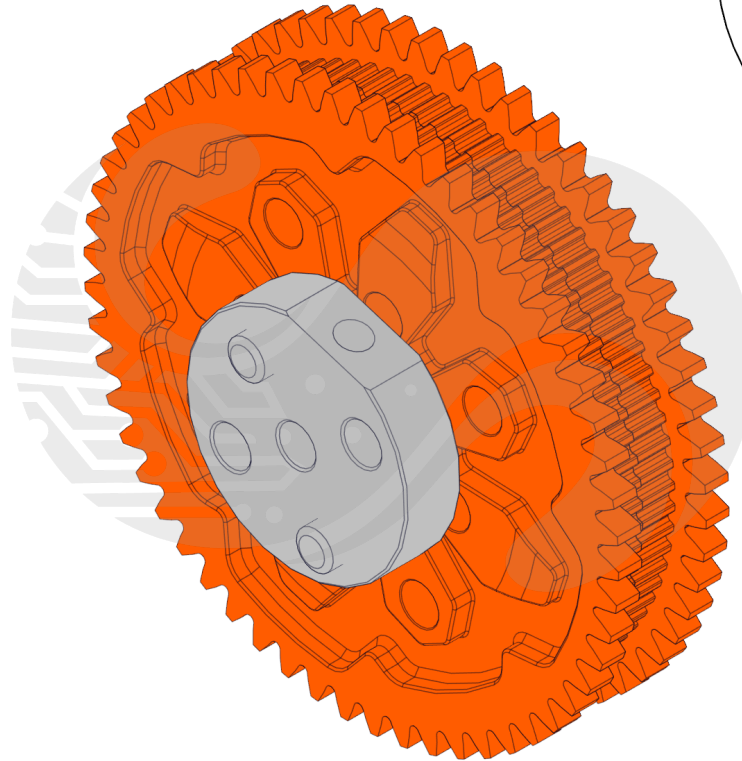
 1xDriving Flange Hub 4mm

 1x56T-Plastic Gear Assembly

 2xScrew M4*20



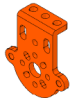
2.Assembly Active Wheel



Reference view

× 2

3.Assemble Encoder DC Motor-25



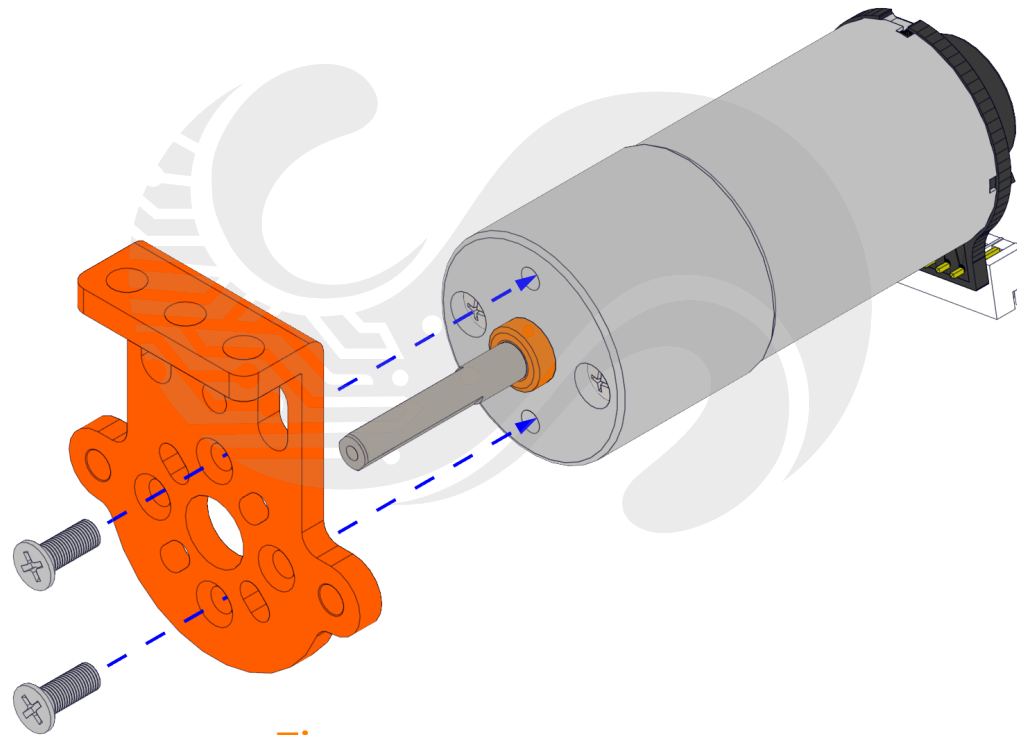
1x25 Motor Bracket



1xEncoder DC Motor-25 9V188RPM

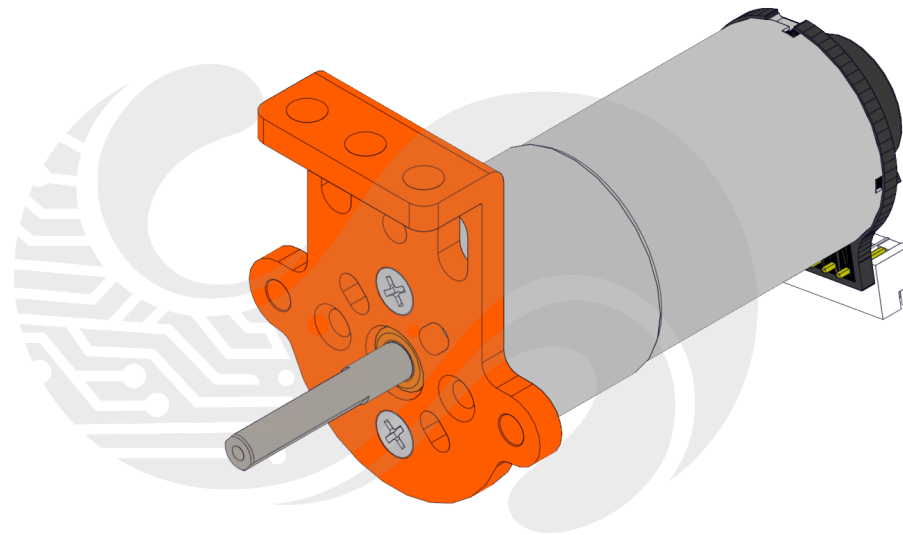


2xCountersunk Head Screw M3*6



Tips:
Please pay attention to the hole position and direction.

3.Assemble Encoder DC Motor-25



× 2

4.Assemble Base Structure



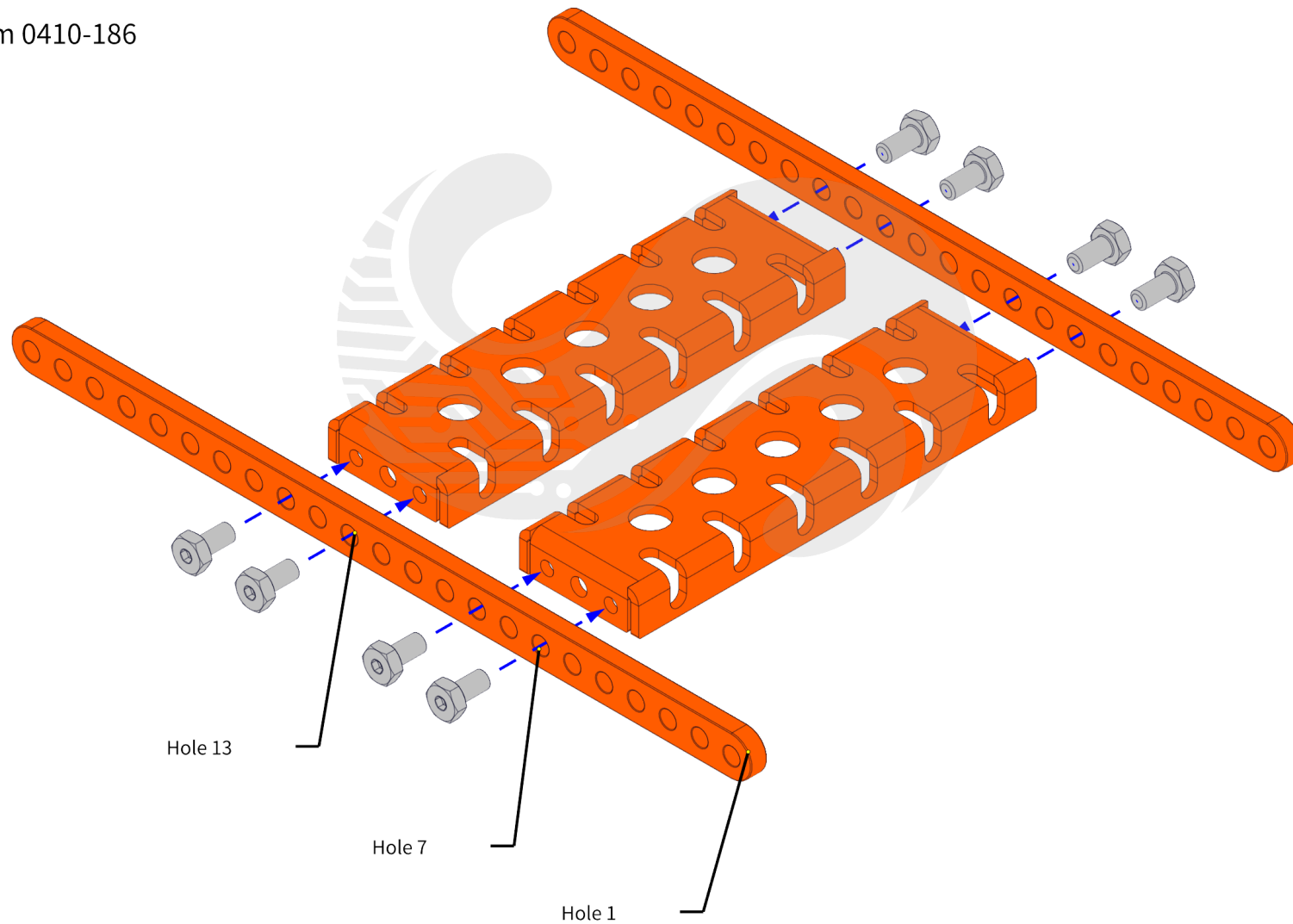
8xScrew M4*8



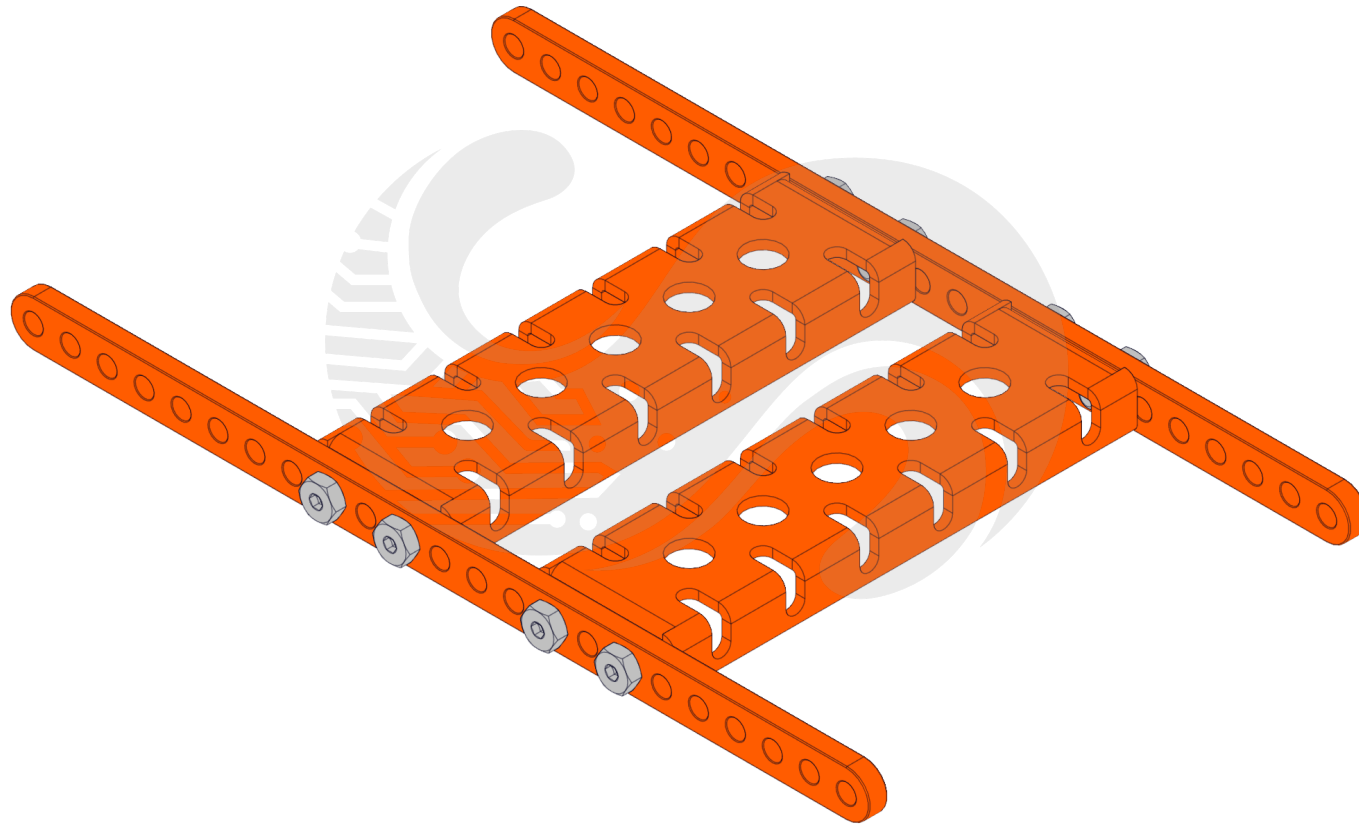
2xBeam 1030-100



2xBeam 0410-186



4.Assemble Base Structure



5.Assemble Driven Wheel



2x56T-Plastic Gear Assembly



2xShaft Collar - 4mm



4xFlange Copper Bearing 4*8*3.5



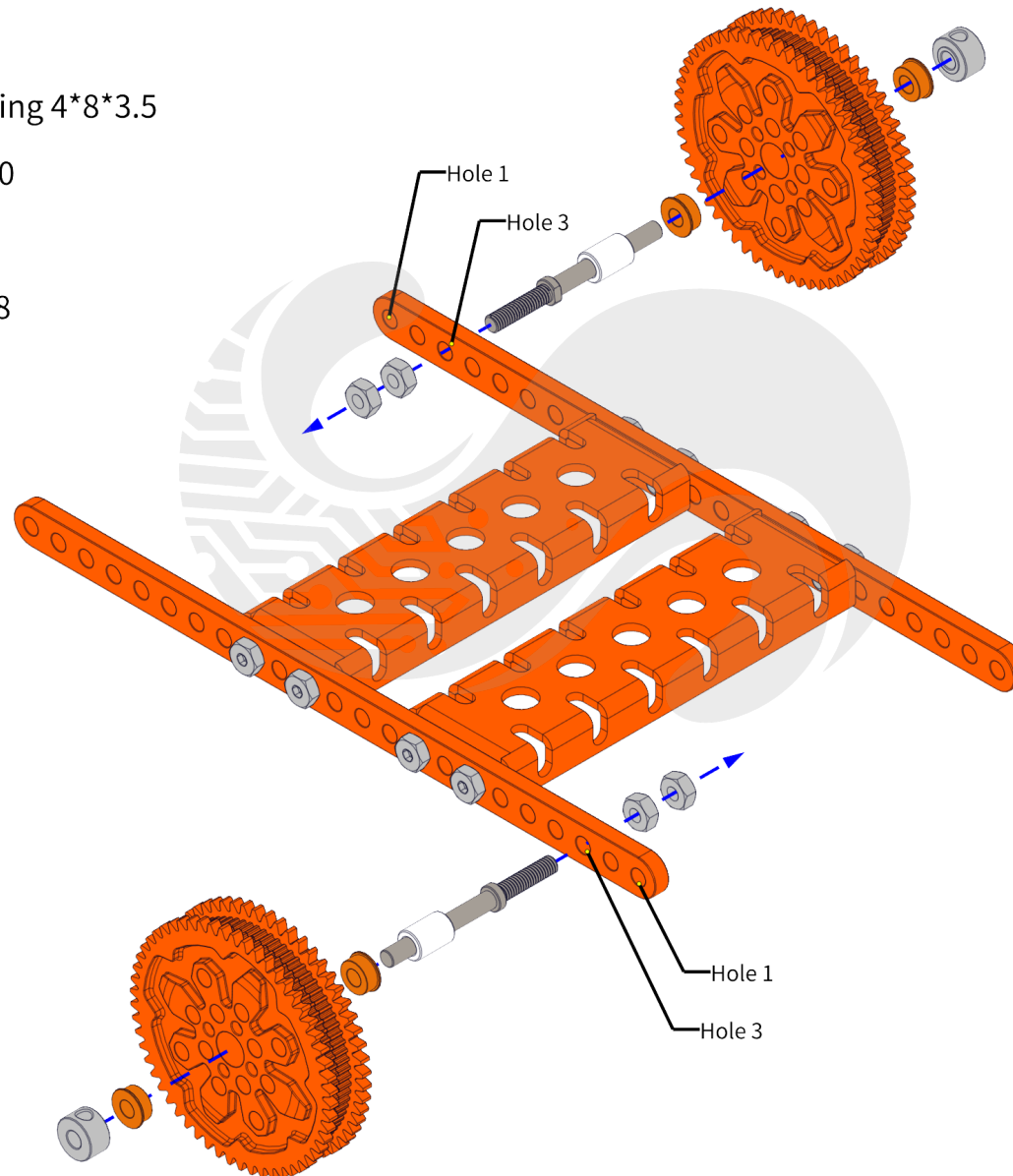
2xNylon Spacer 4*7*10



4xNut M4

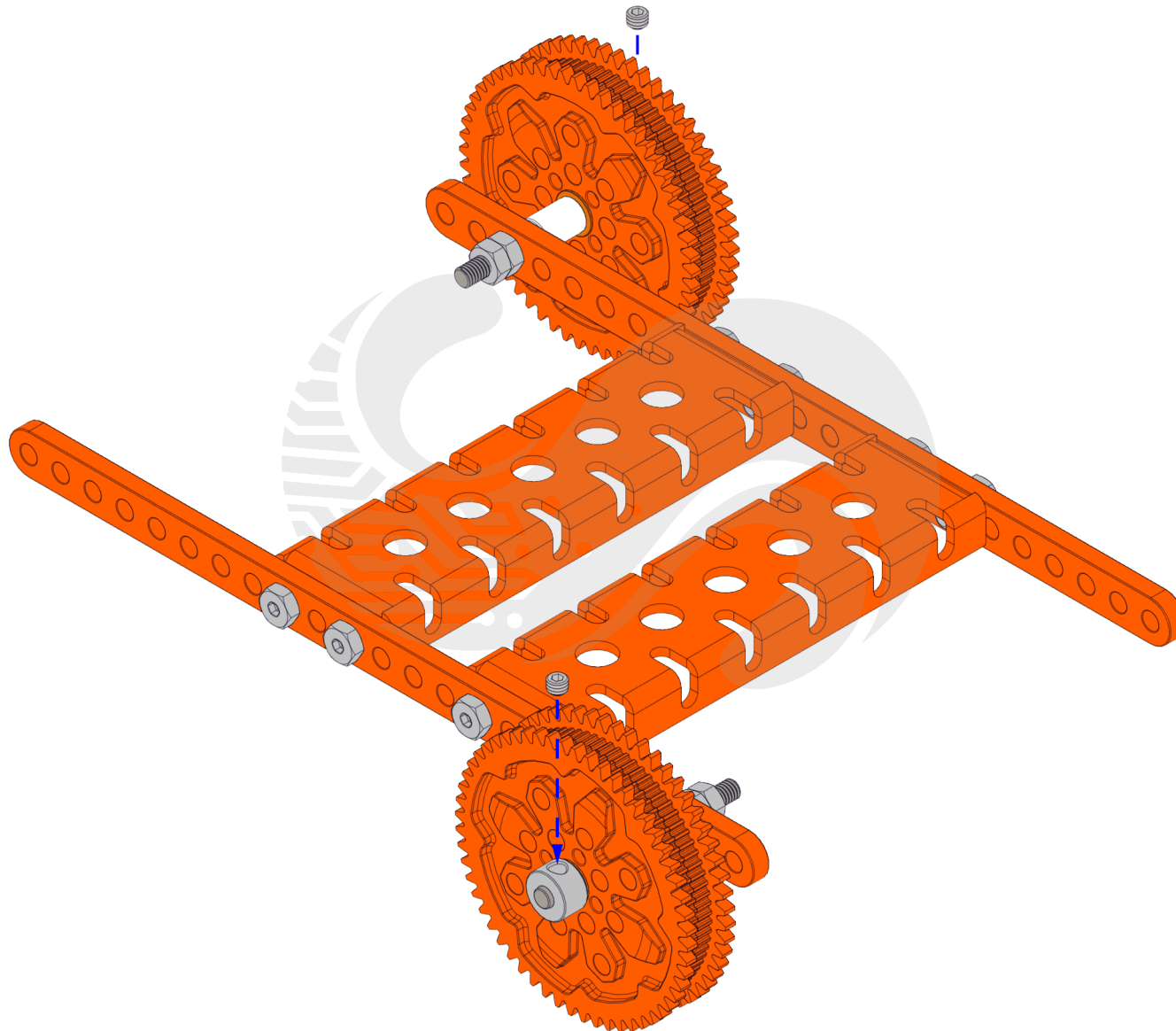


2xThreaded shaft 4-48

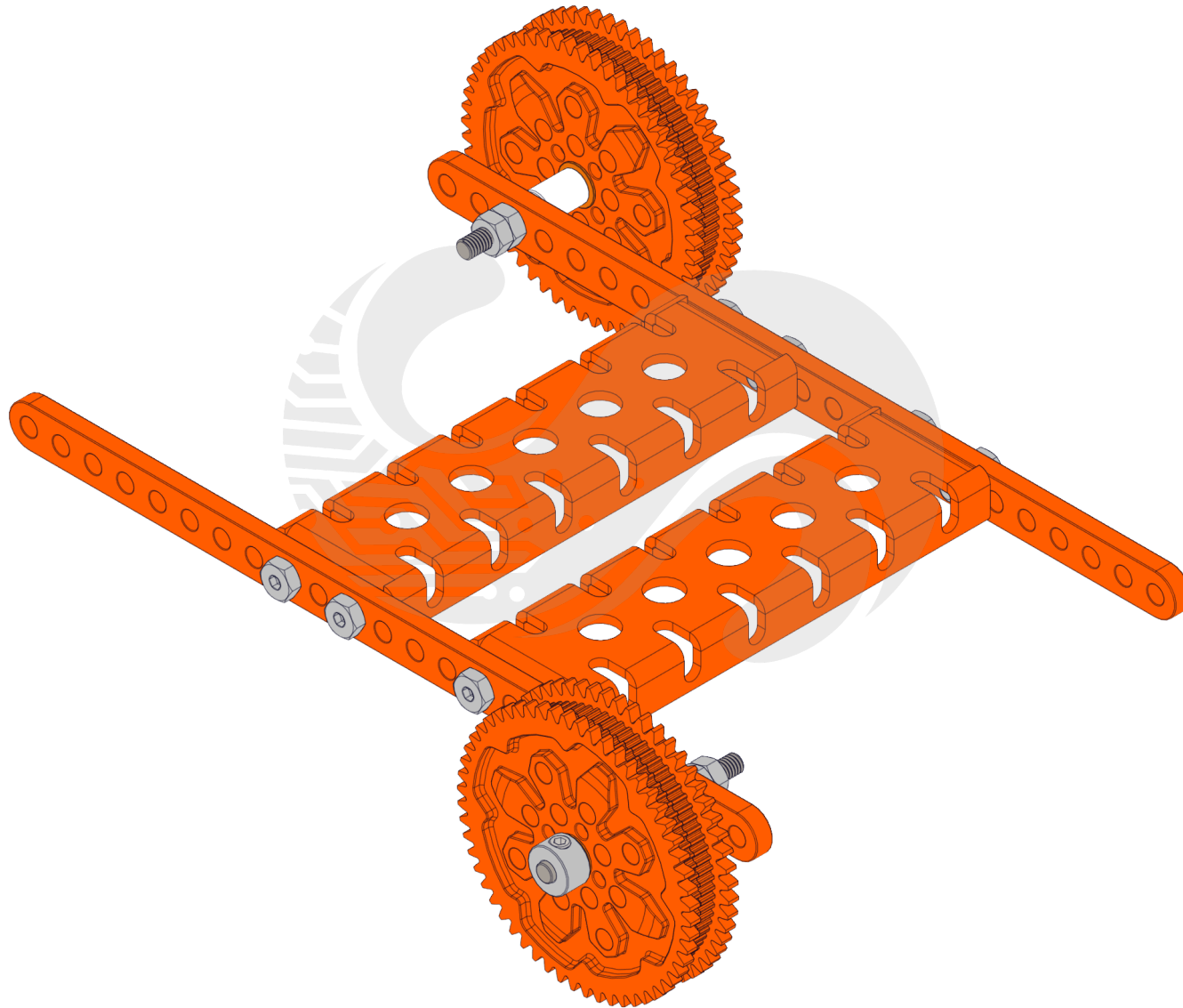


5. Assemble Driven Wheel

 2xHeadless Screw M4*5

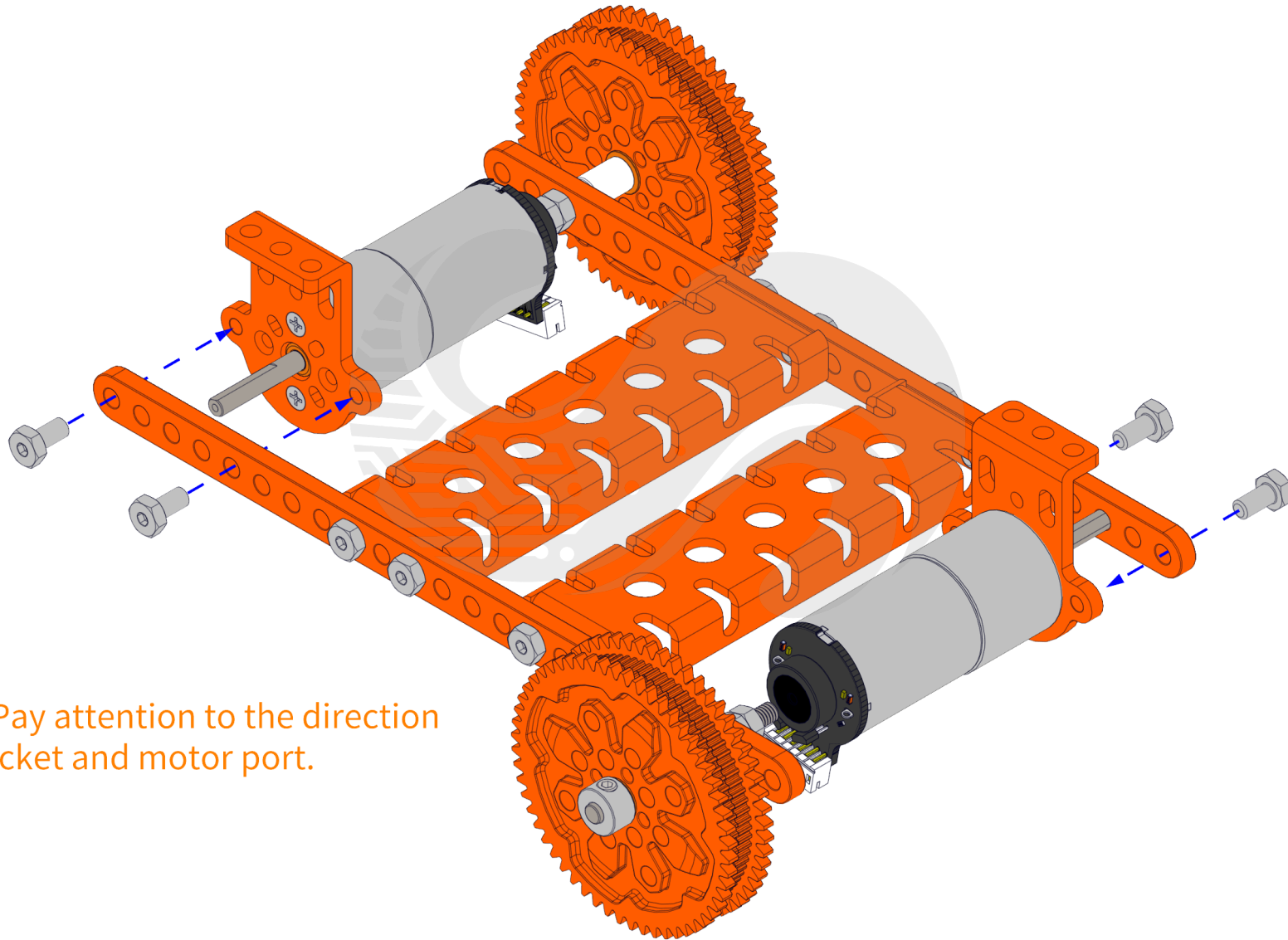


5.Assemble Driven Wheel



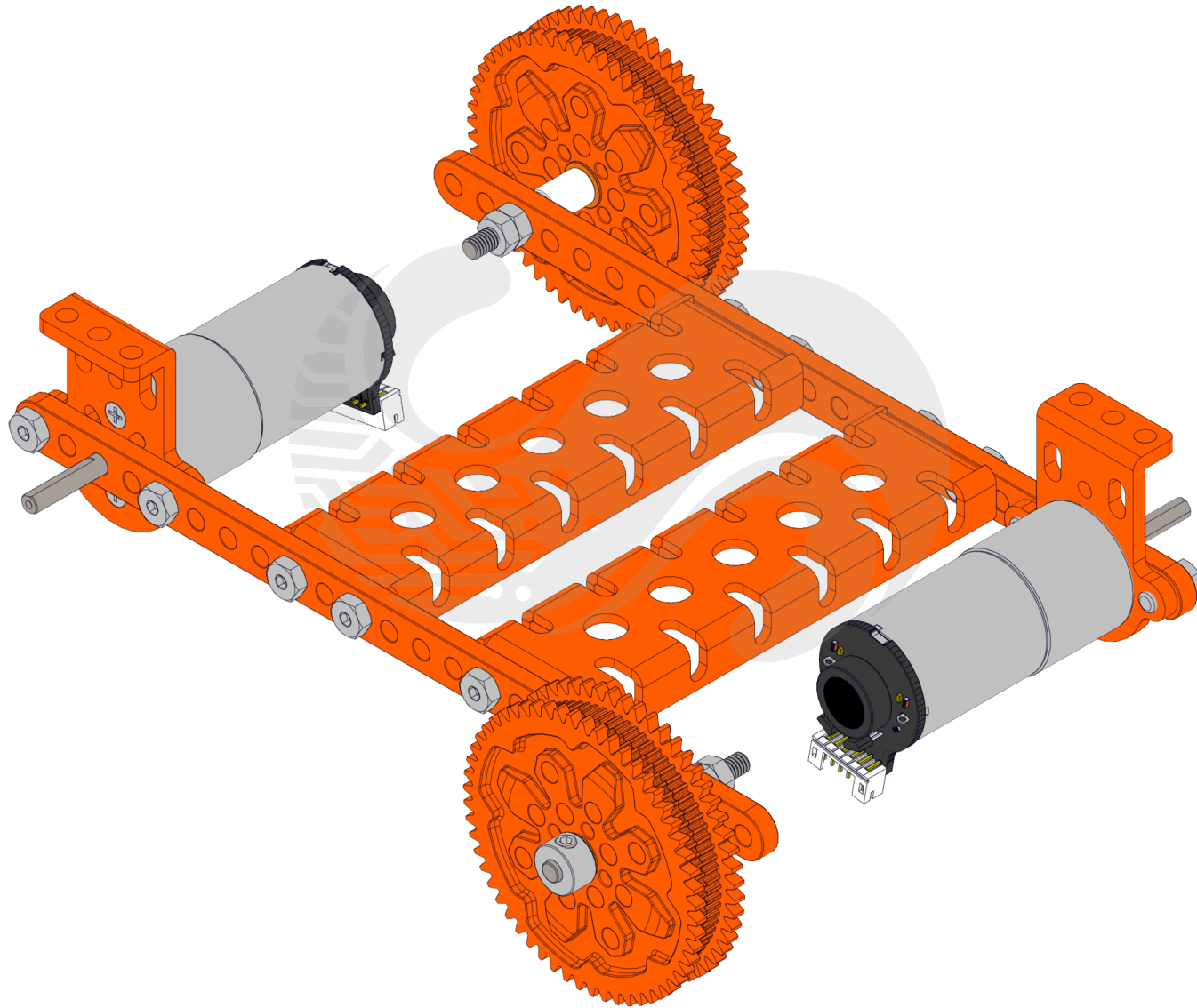
6. Assemble Motor to Base Structure

 4xScrew M4*8



Tips: Pay attention to the direction of bracket and motor port.

6.Assemble Motor to Base Structure



7.Assemble Active Wheel to Motor Shaft



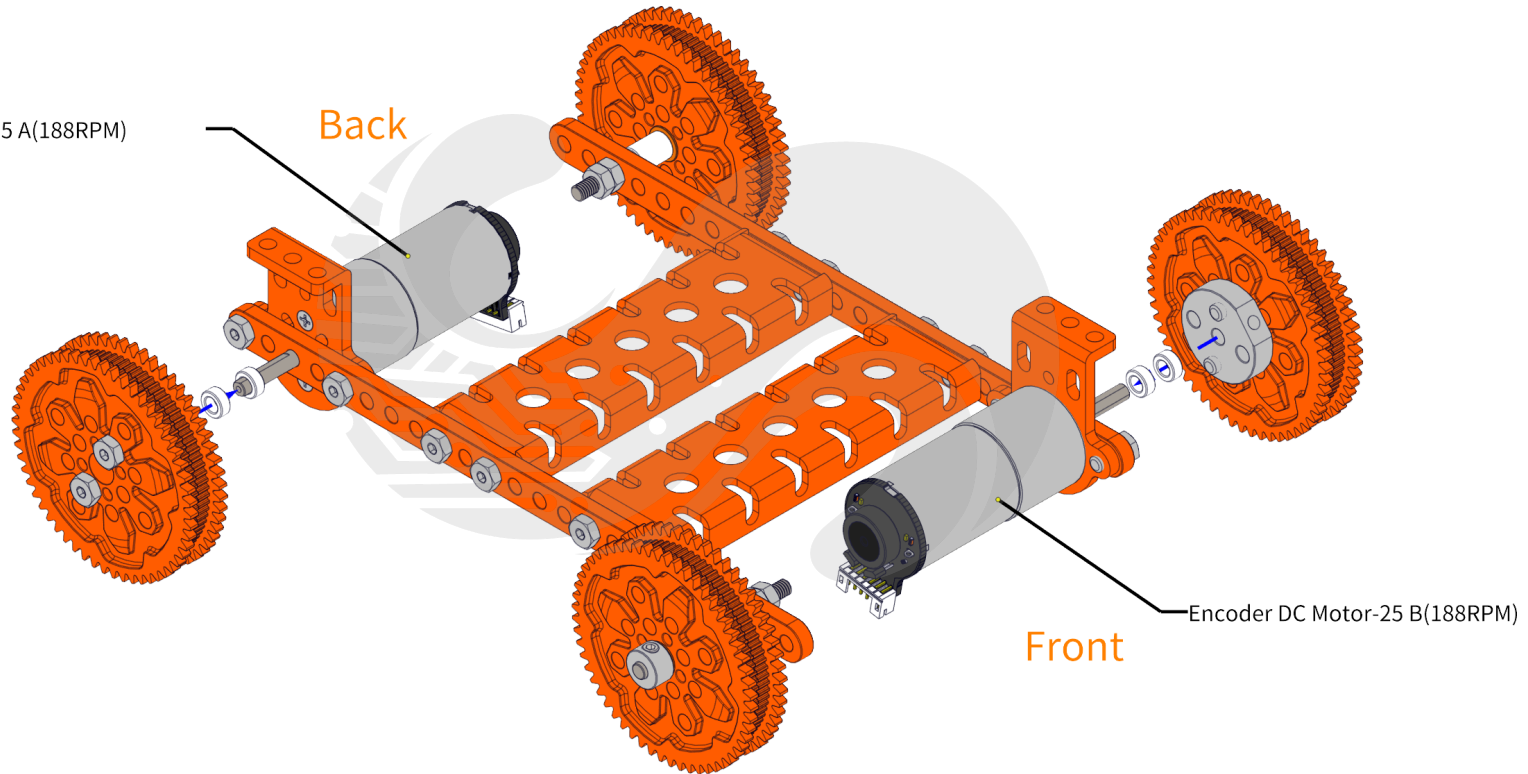
4xNylon Spacer 4*7*3



2xActive Wheel

Encoder DC Motor-25 A(188RPM)

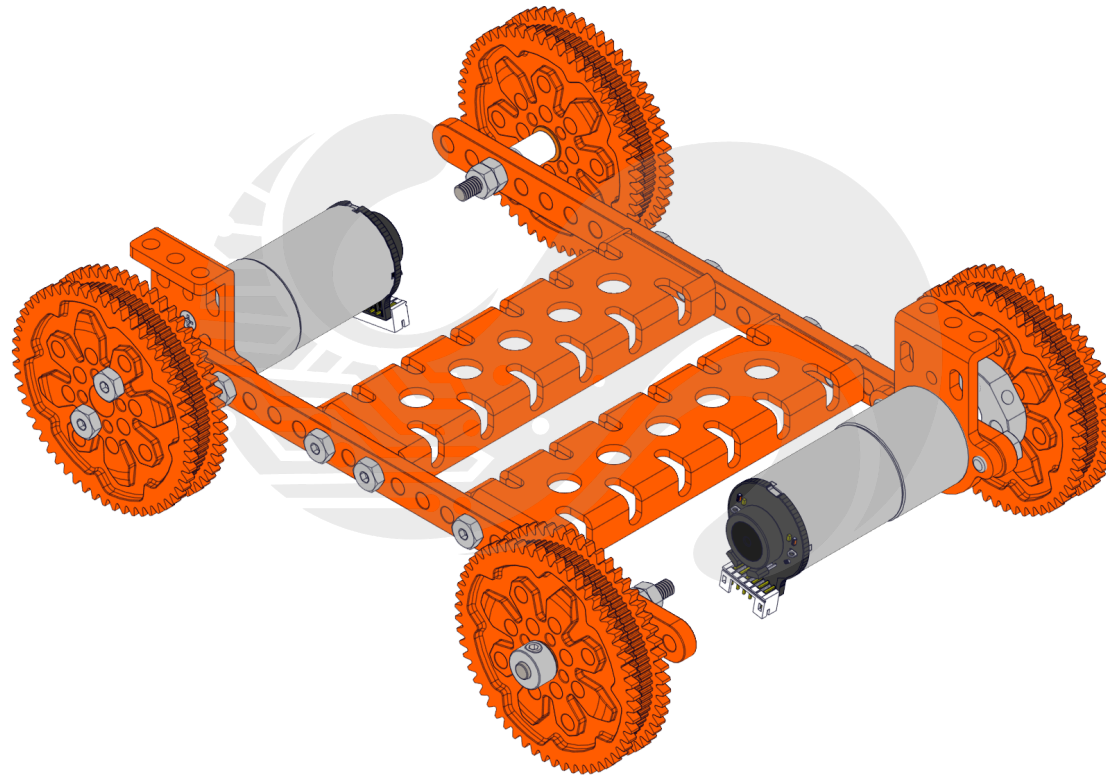
Back



Encoder DC Motor-25 B(188RPM)

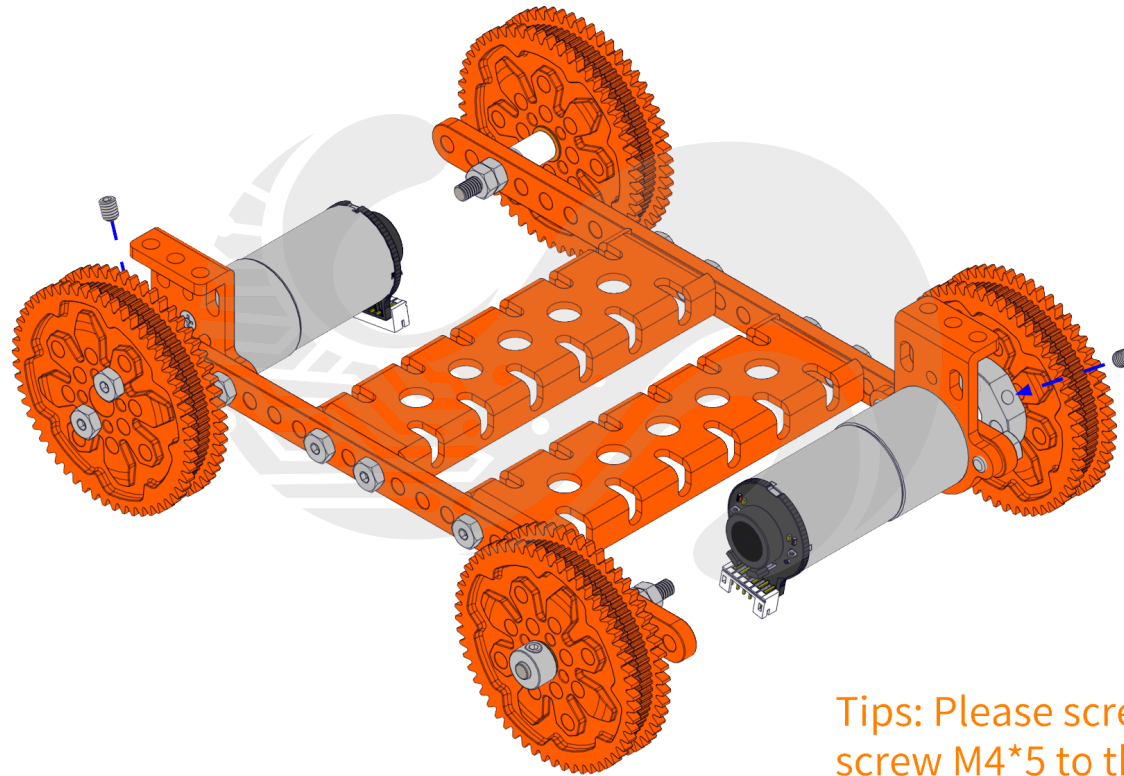
Front

7.Assemble Active Wheel to Motor Shaft



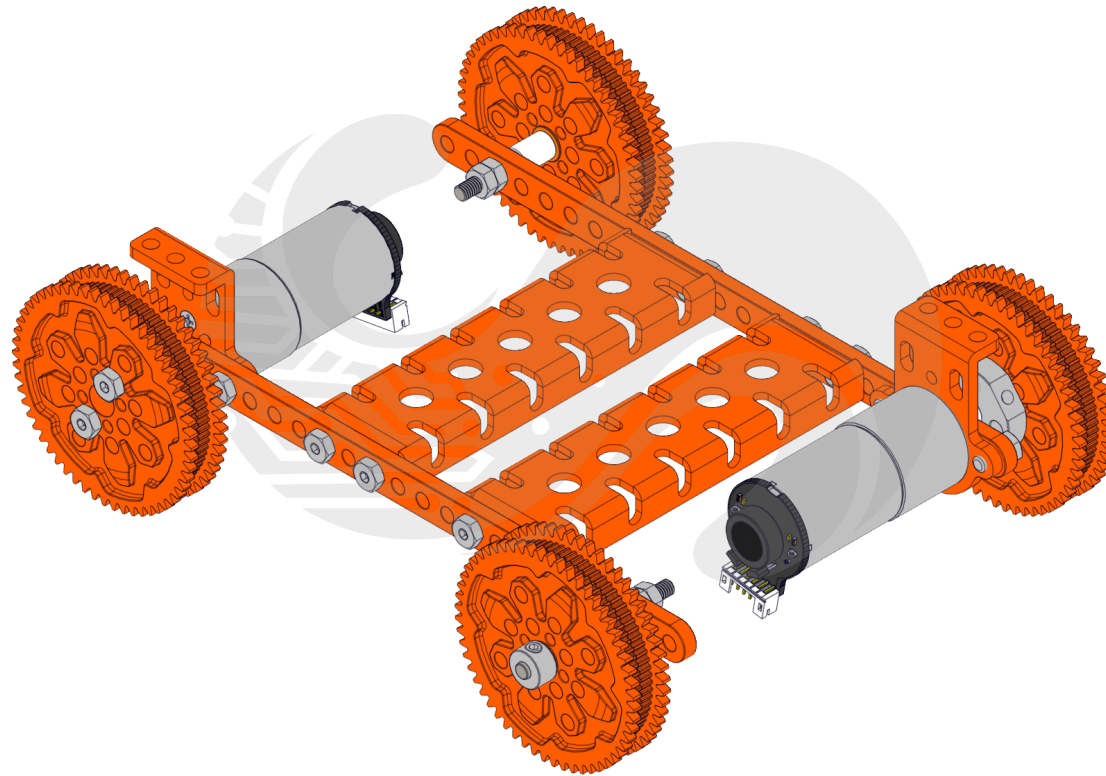
7.Assemble Active Wheel to Motor Shaft

 2xHeadless Screw M4*5



Tips: Please screw the headless screw M4*5 to the flat surface of motor shaft.

7.Assemble Active Wheel to Motor Shaft



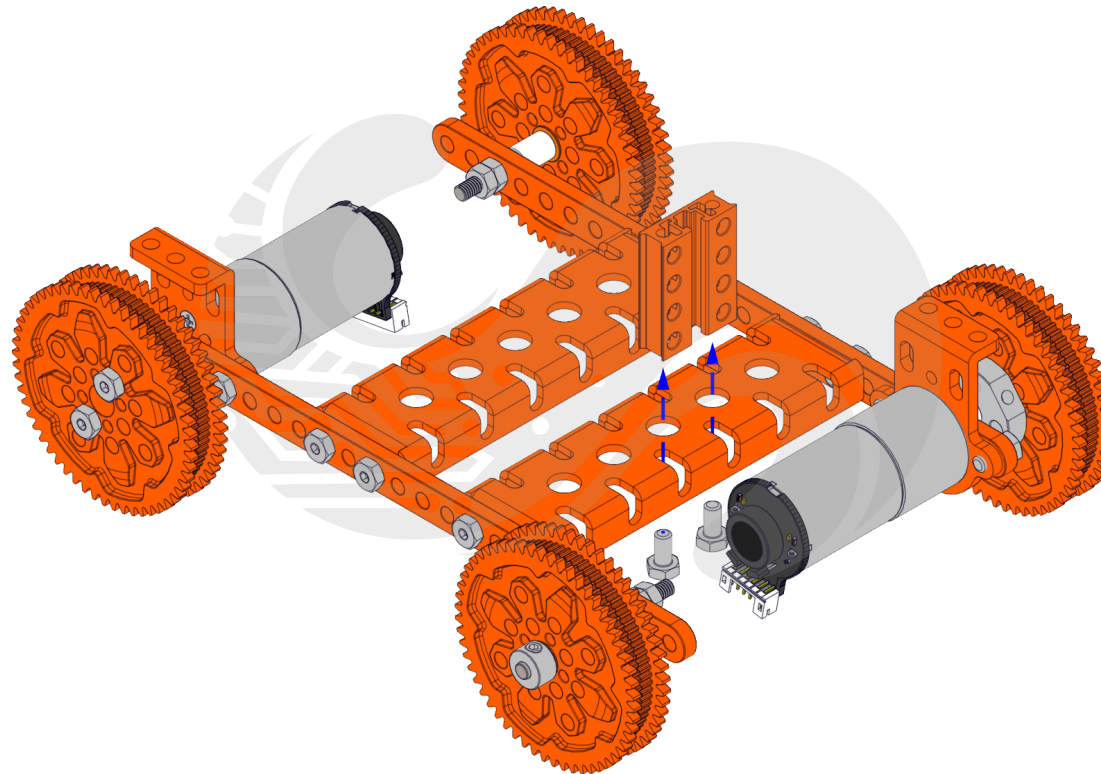
8.Assemble Slide Beam 0824-32



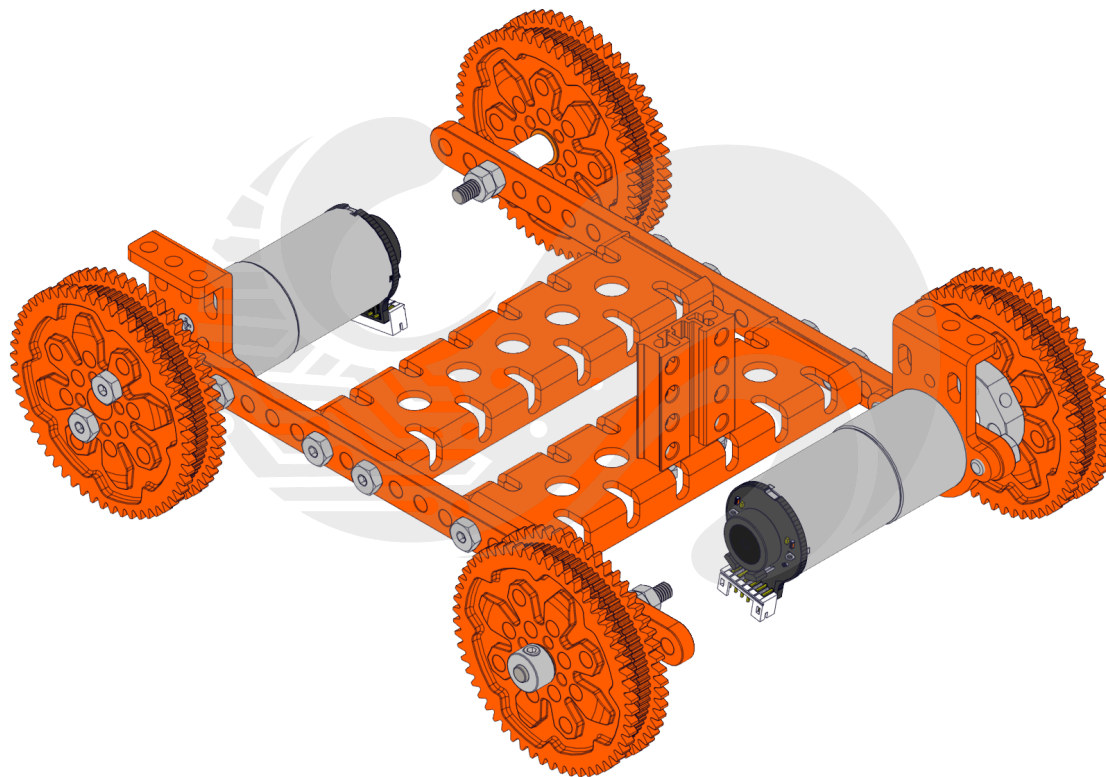
2xScrew M4*8



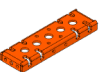
1xSlide Beam 0824-32

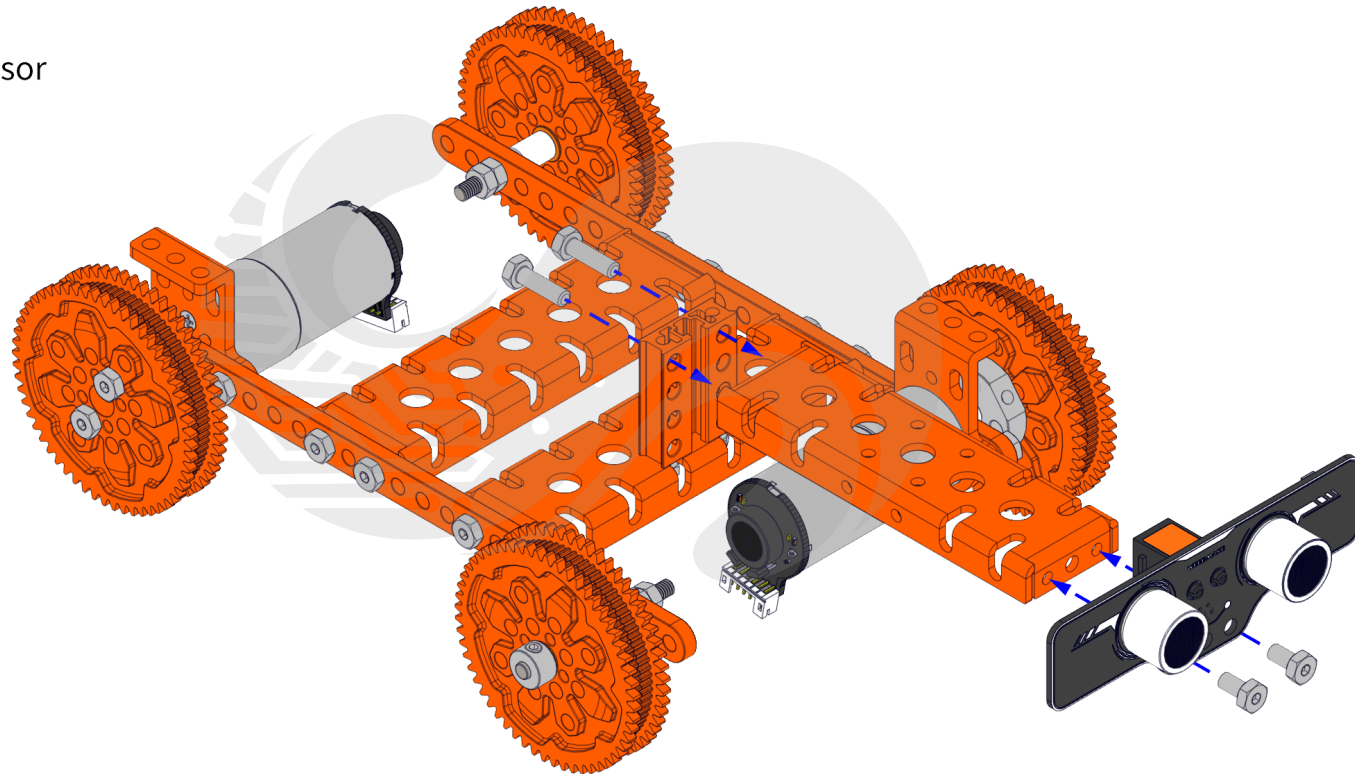


8.Assemble Slide Beam 0824-32

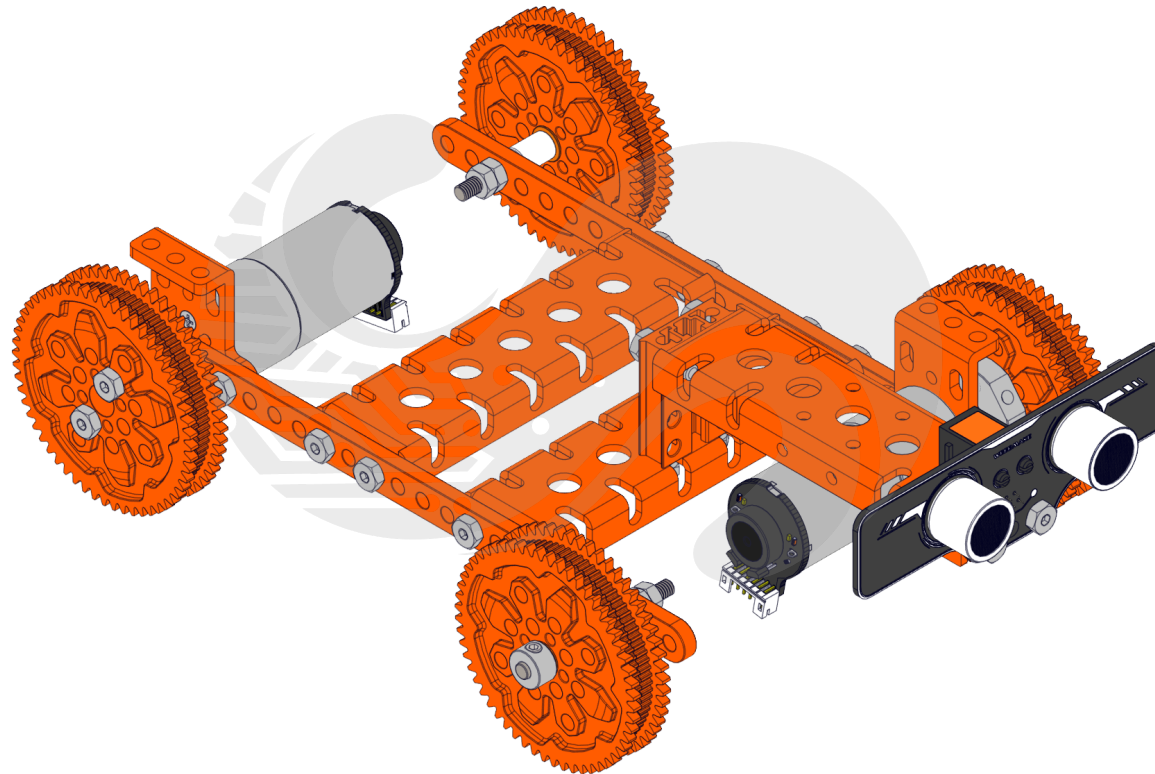


9. Assemble the RGB Ultrasonic Sensor

-  2xScrew M4*8
-  2xScrew M4*14
-  1xBeam 1030-100-B
-  1xRGB Ultrasonic Sensor



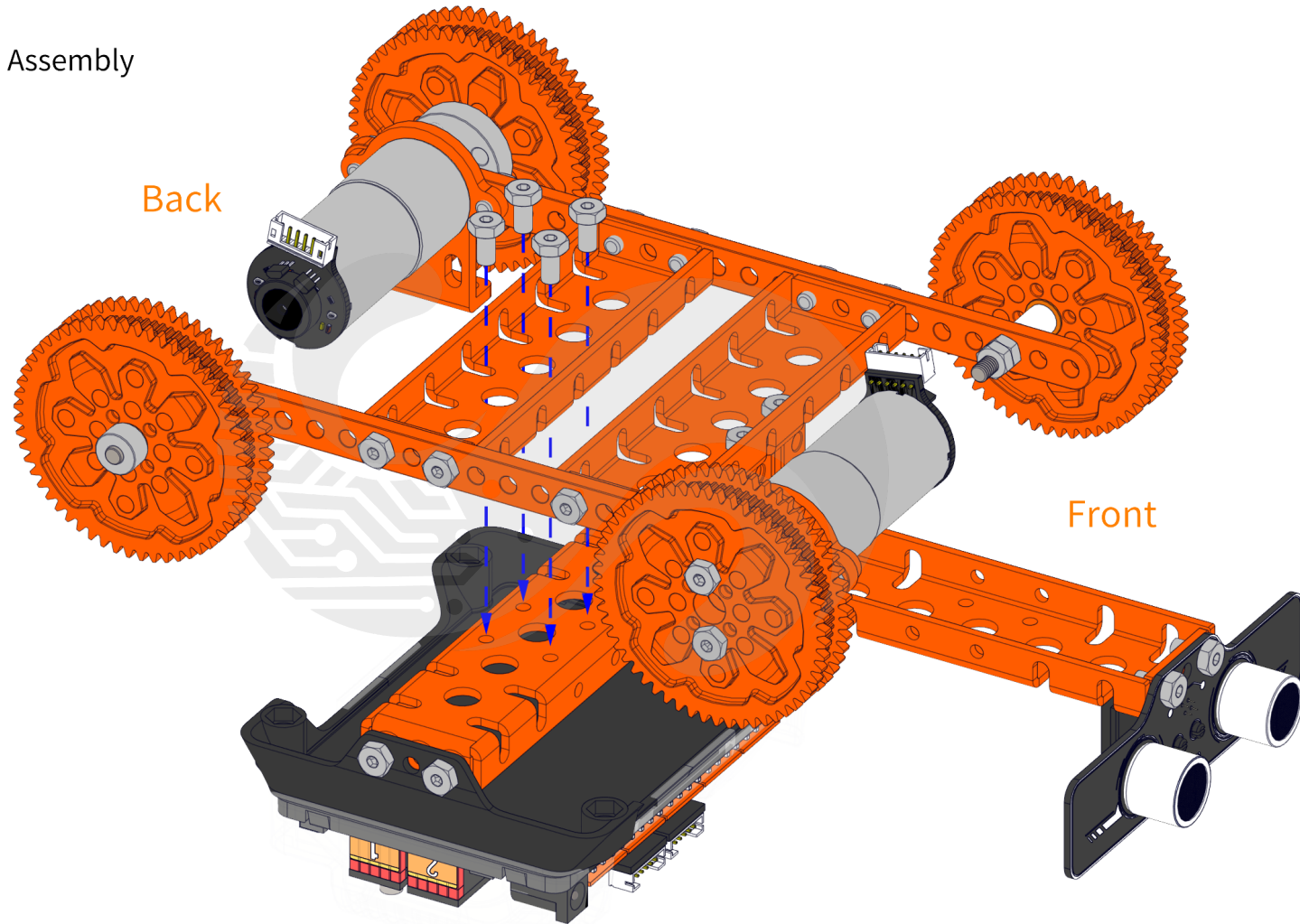
9. Assemble the RGB Ultrasonic Sensor



10. Assemble the Mainboard ELF

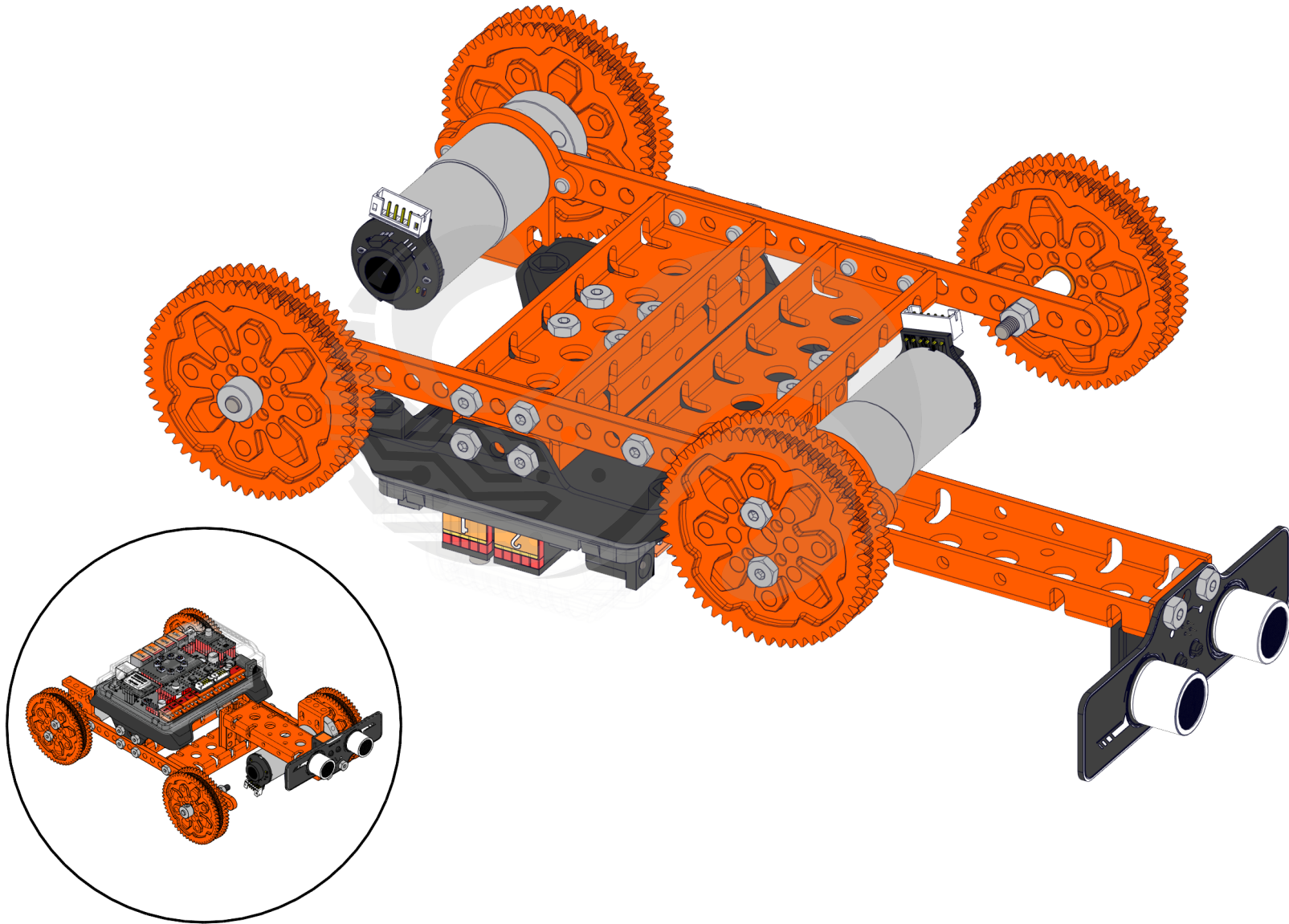
 4xScrew M4*8

 1xELF Mainboard Assembly



Tips: USB port towards front.

10. Assemble the Mainboard ELF



Reference view

11. Assemble the mini Acrylic Bracket



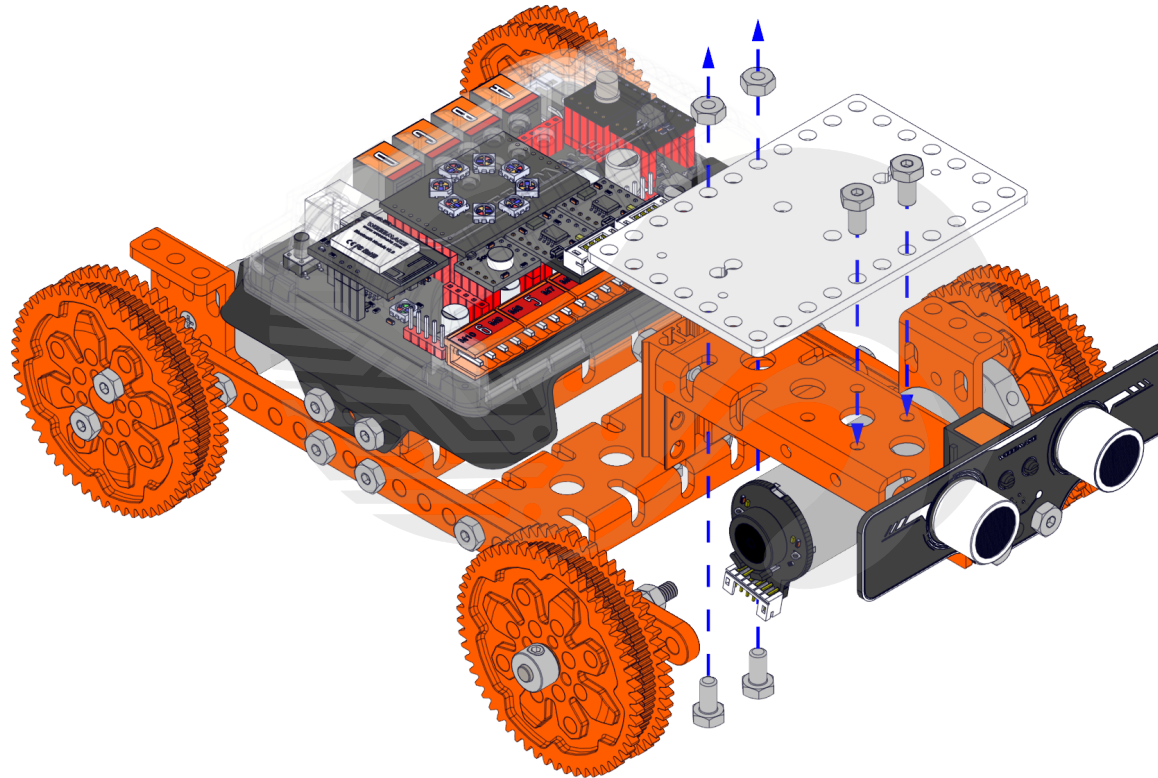
4xScrew M4*8



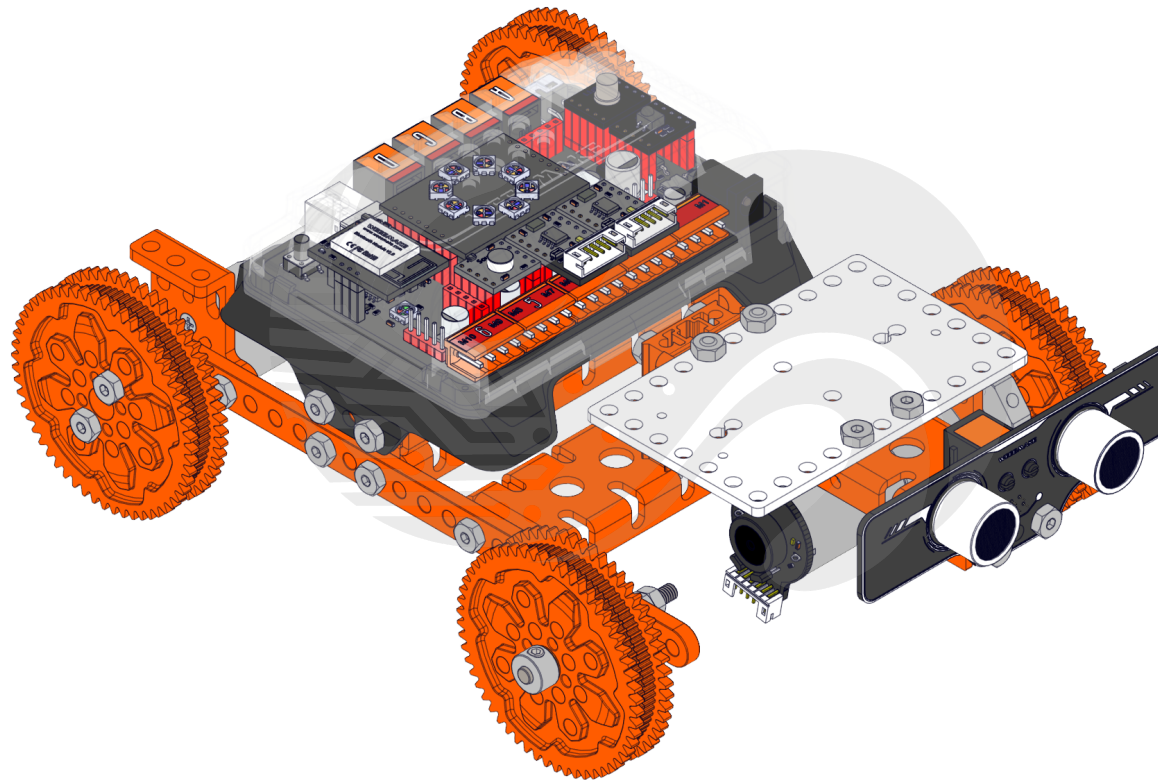
2xScrew Nut M4



1xELF mini Acrylic Bracket



11. Assemble the mini Acrylic Bracket



12. Assemble the 18650 Lithium Battery Holder

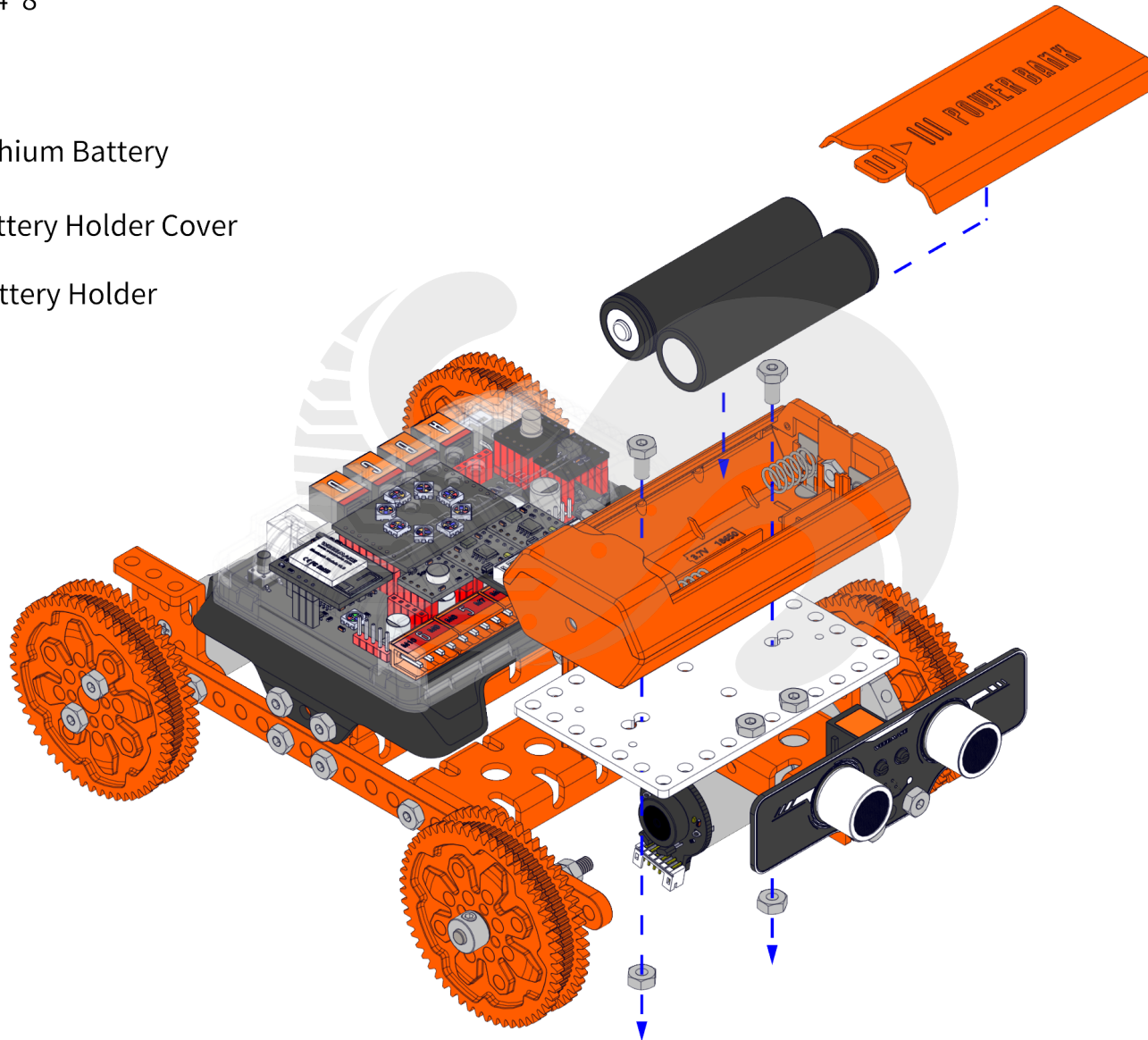
 2xScrew M4*8

 2xNut M4

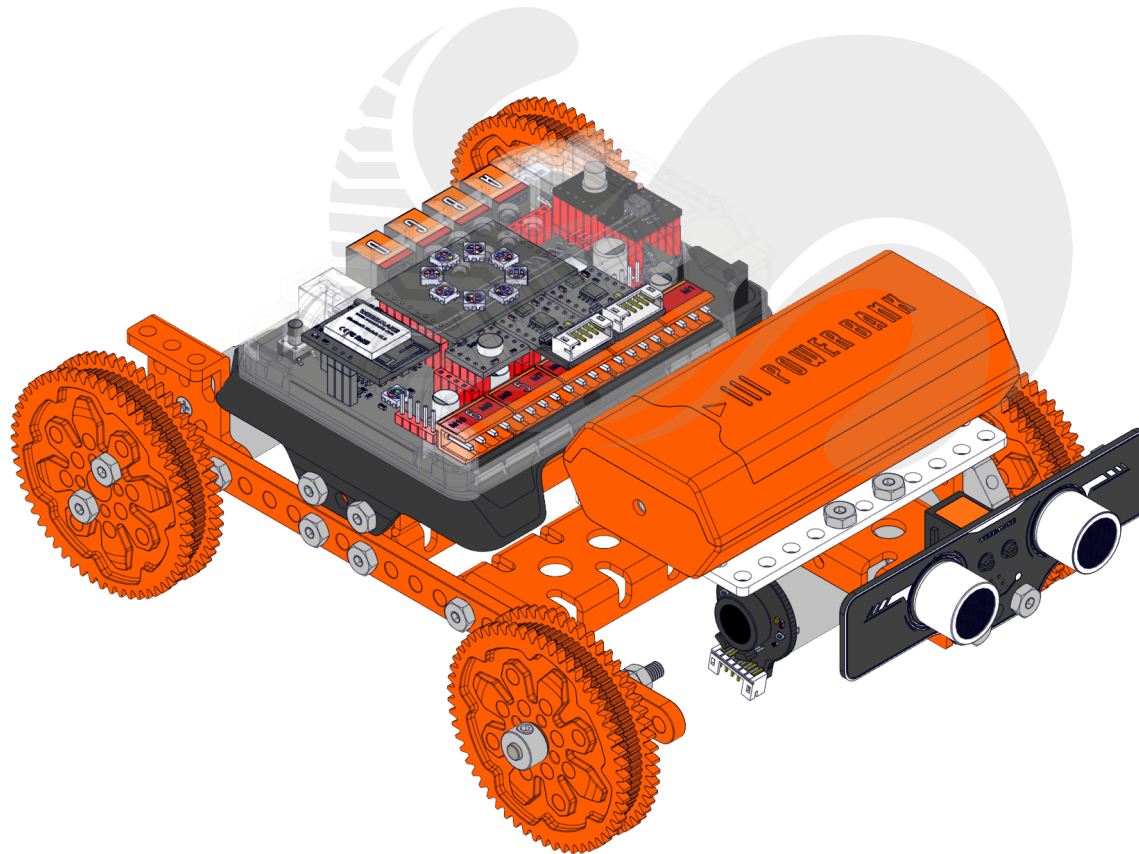
 2x18650 Lithium Battery

 1x18650 Battery Holder Cover

 1x18650 Battery Holder



12. Assemble the 18650 Lithium Battery Holder



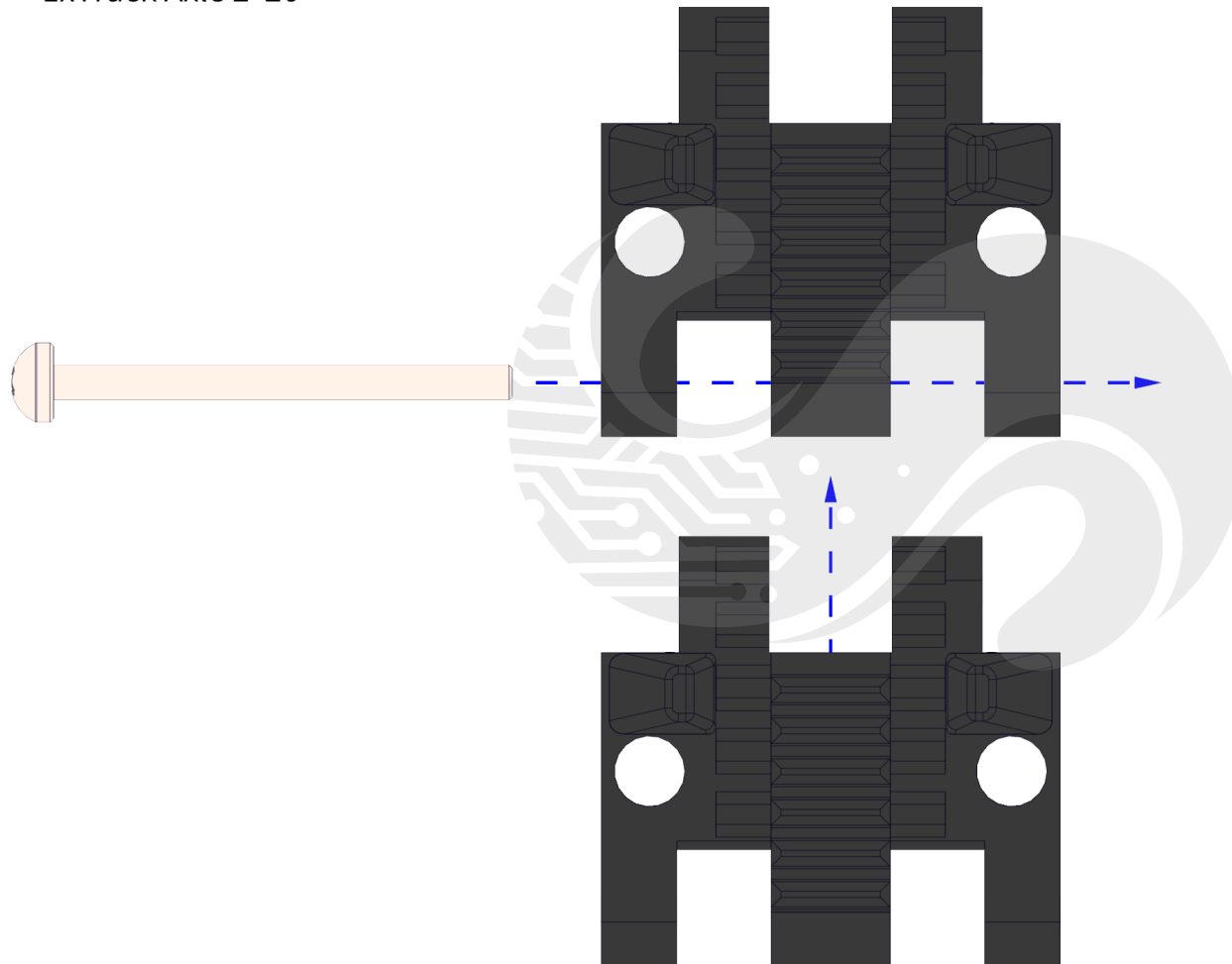
13. Assemble Caterpillar Track



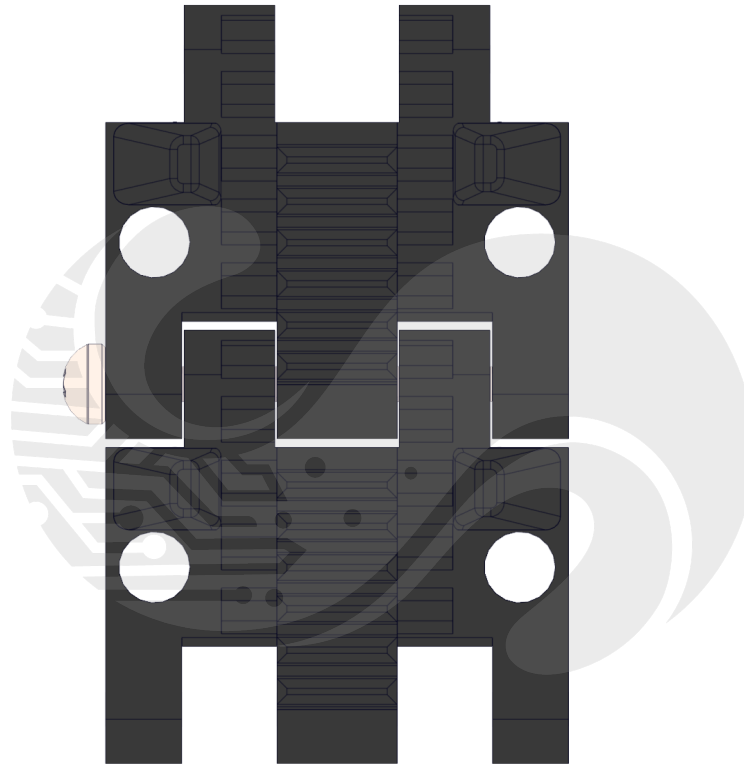
2xTrack



1xTrack Axle 2*26



13.Assemble Caterpillar Track



13. Assemble Caterpillar Track



26xTrack



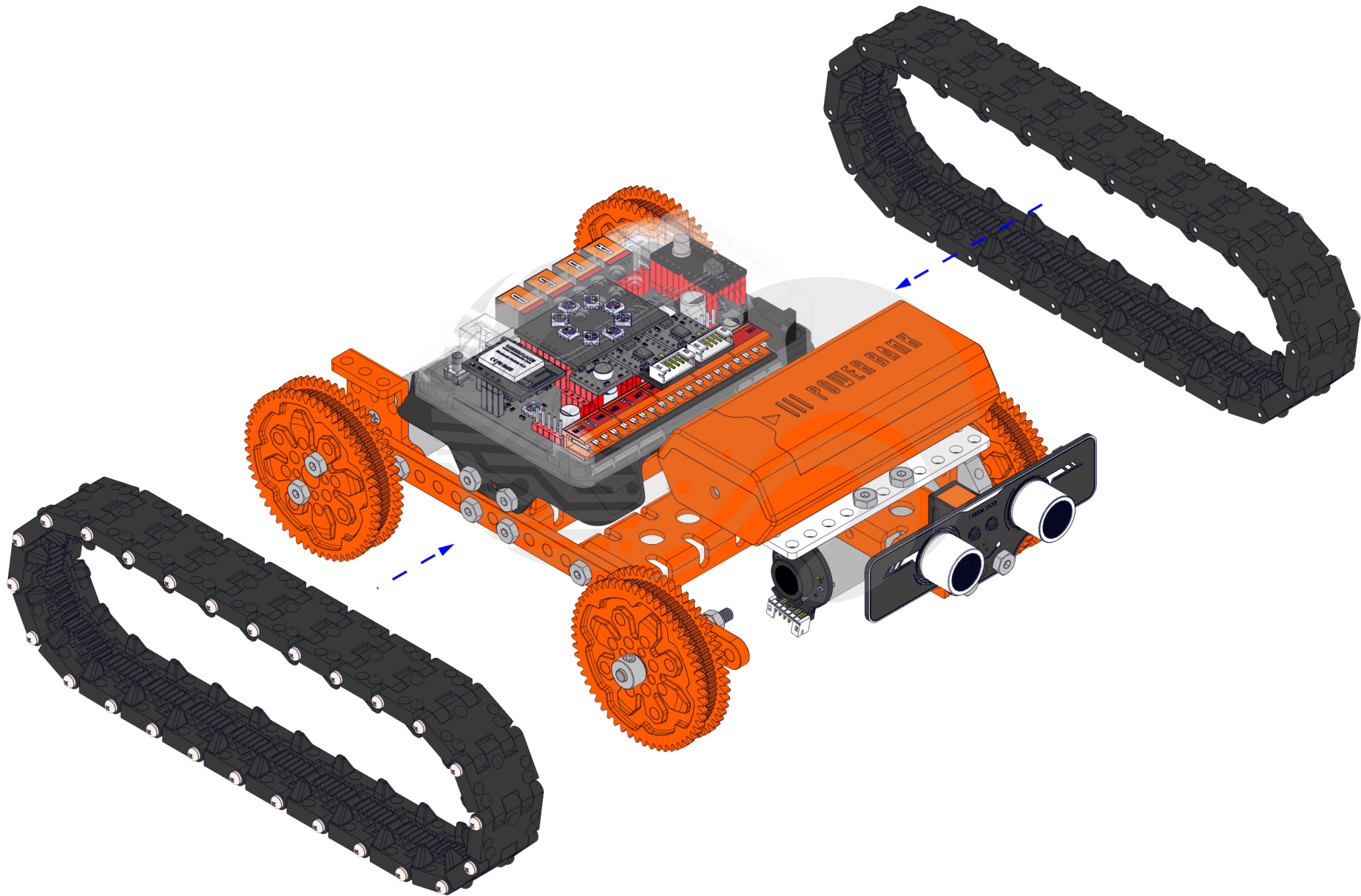
26xTrack Axle 2*26



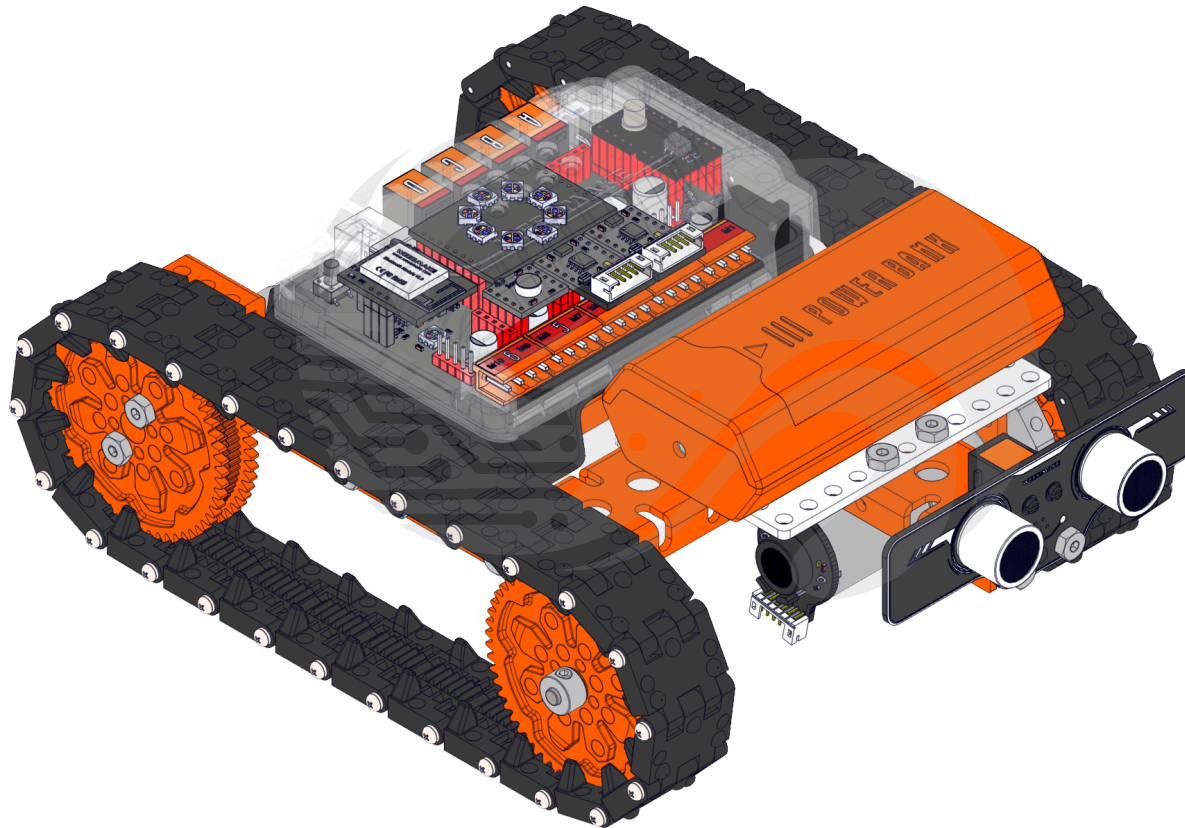
× 2

Tips: Assemble two caterpillar tracks as shown, each caterpillar track is consisted of 26 pieces of track.

13. Assemble Caterpillar Track

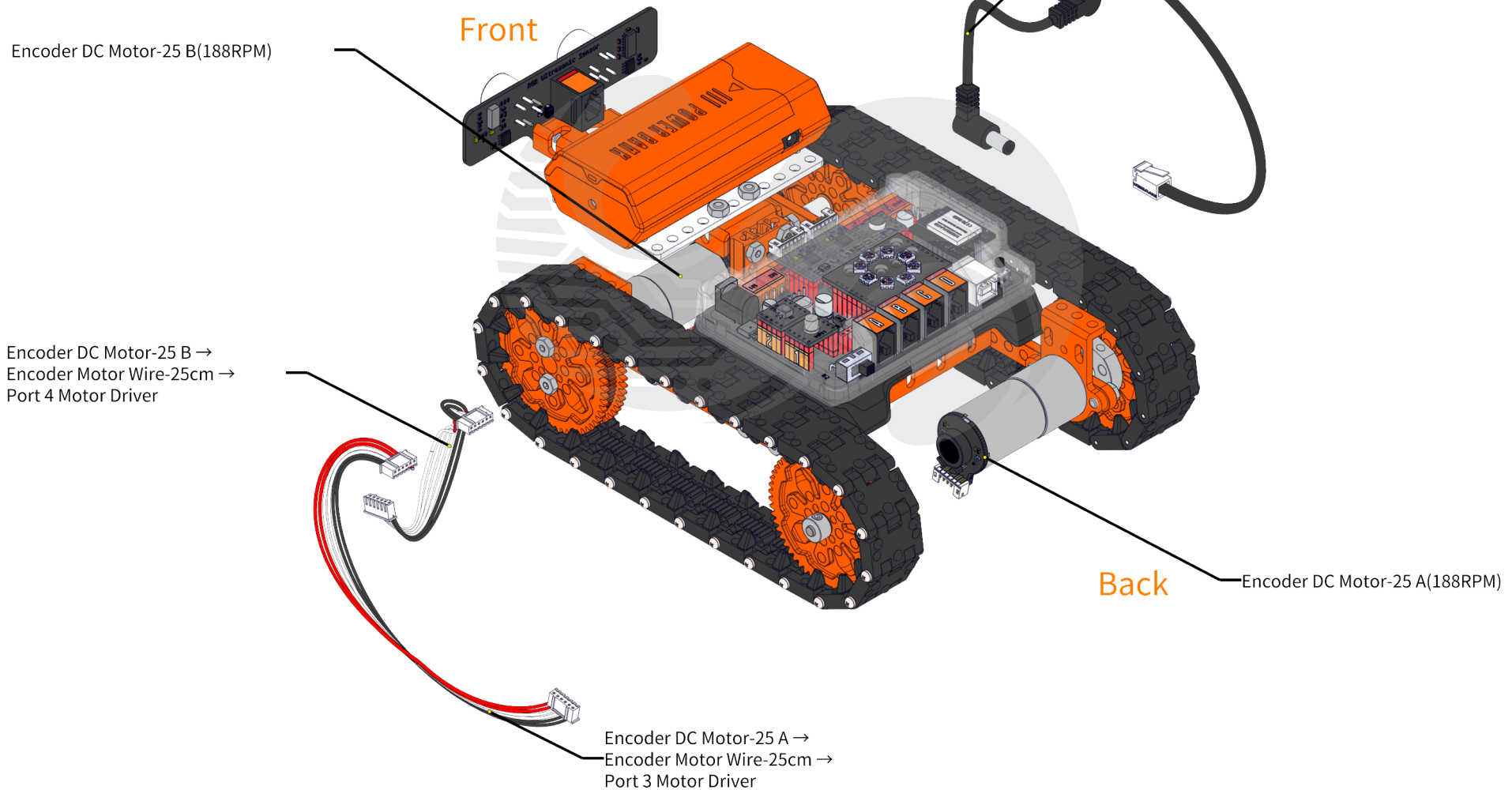


13. Assemble Caterpillar Track

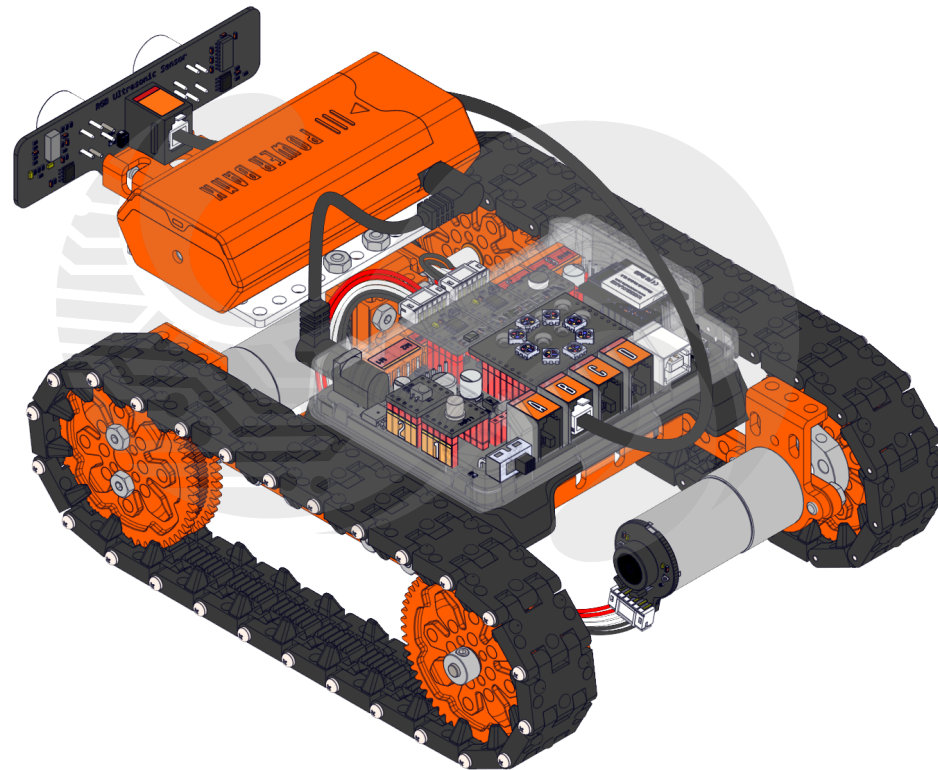


14.Wiring

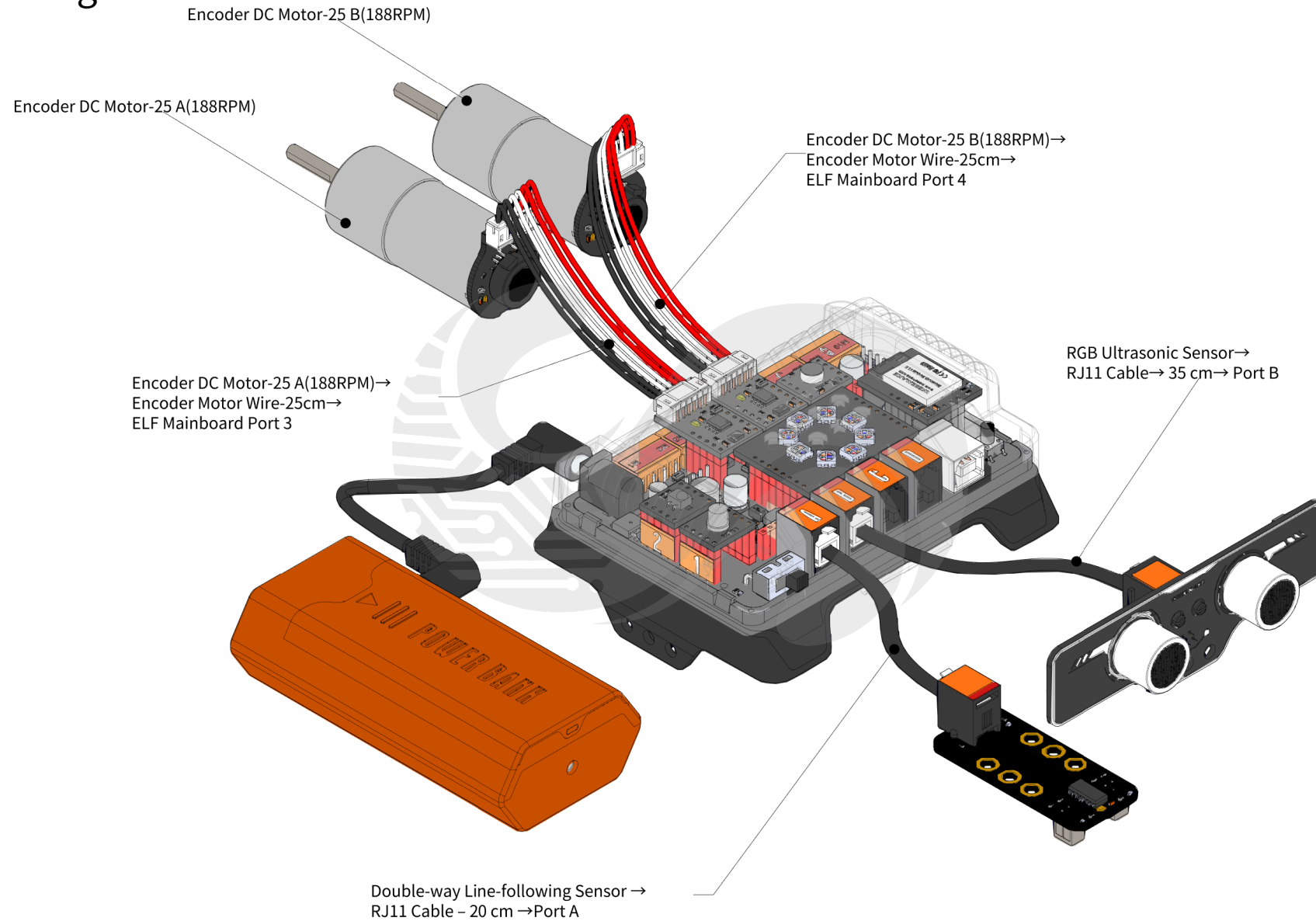
-  1x5.5-2.1 DC Power Cable-20cm
-  1x4P4C RJ11 Cable-35cm
-  2xEncoder Motor Wire-25cm



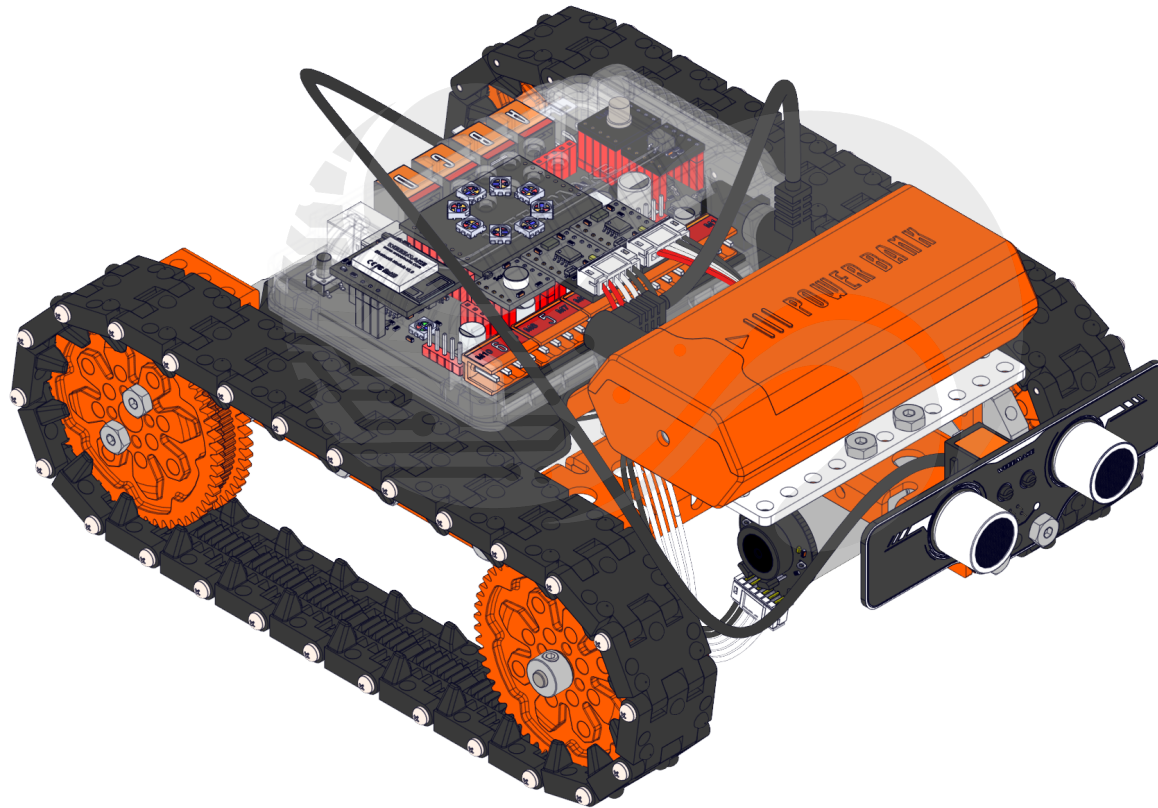
14.Wiring



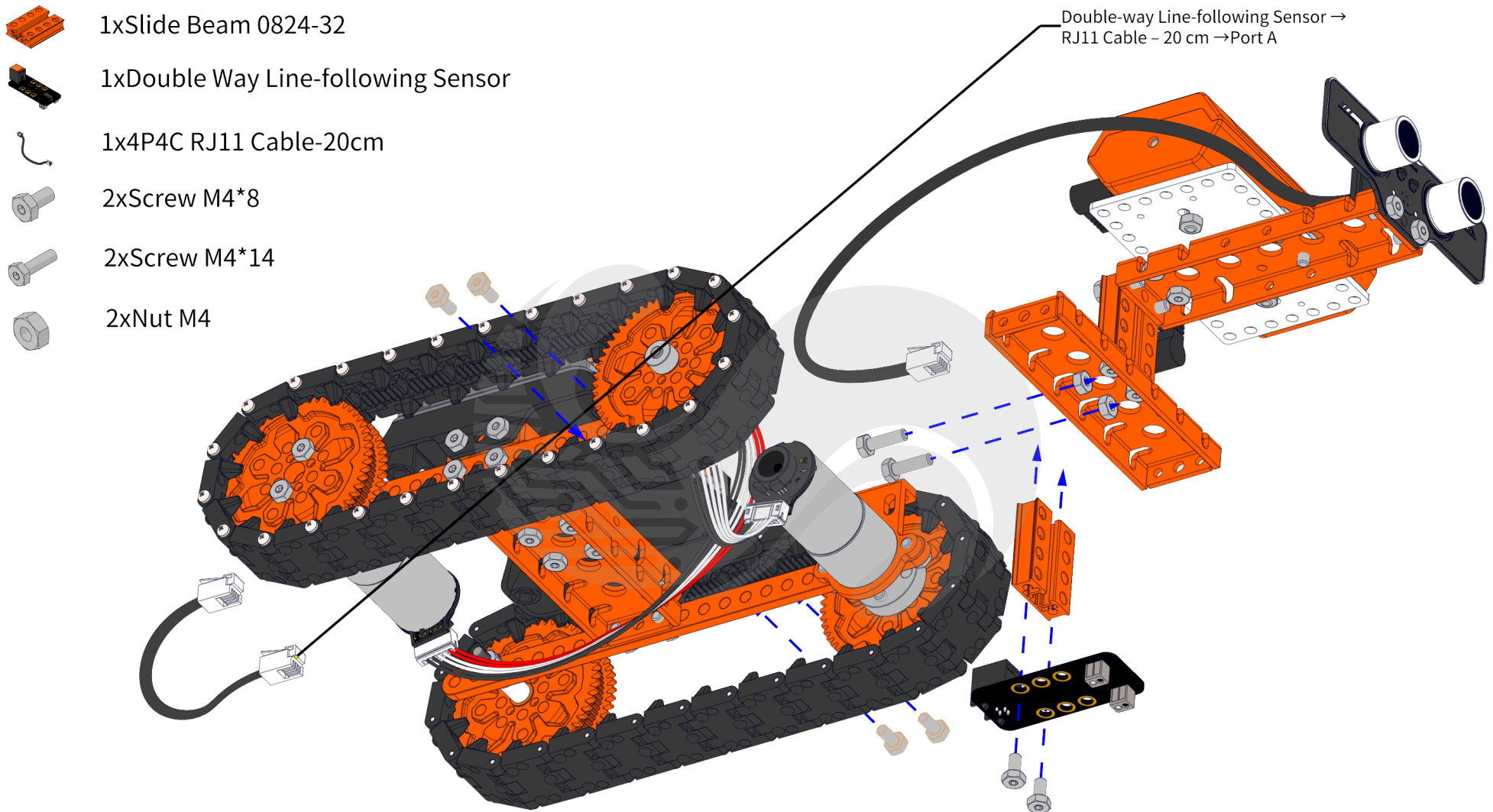
15.Wiring



16.Completion Diagram

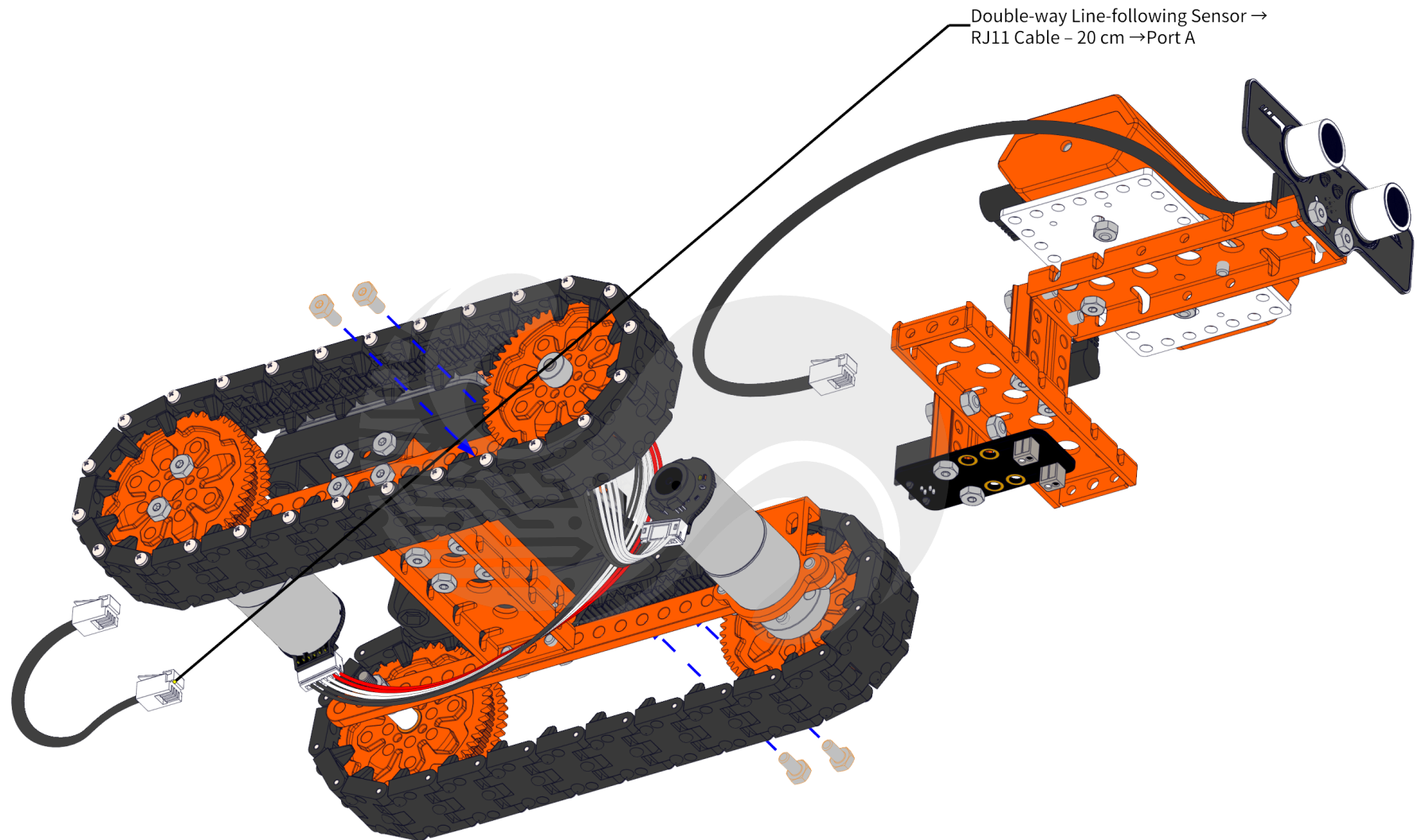


15. Suggestions for Line-following



Note: If the detection tank robot needs to implement the line-following function, please install it as shown below. The use of the line-following sensor will affect the off-road performance of the detection robot. Please decide whether to assemble the double-way line-following sensor according to the actual use scenario.

15. Suggestions for Line-following



Note: If the detection tank robot needs to implement the line-following function, please install it as shown below. The use of the line-following sensor will affect the off-road performance of the detection robot. Please decide whether to assemble the double-way line-following sensor according to the actual use scenario.

15. Suggestions for Line-following

