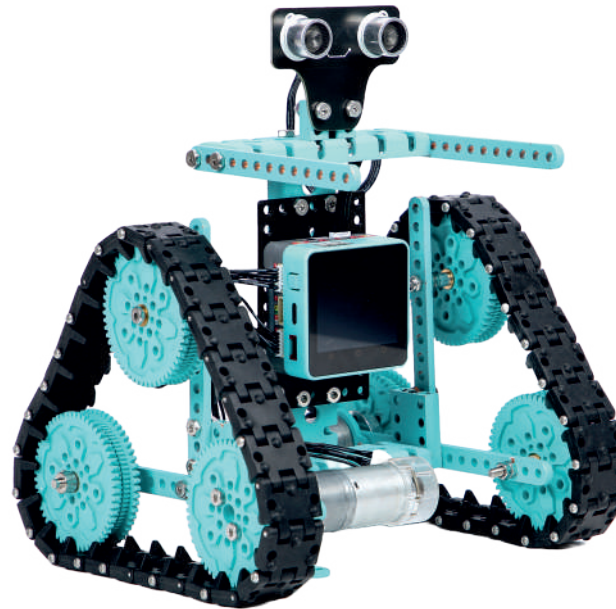
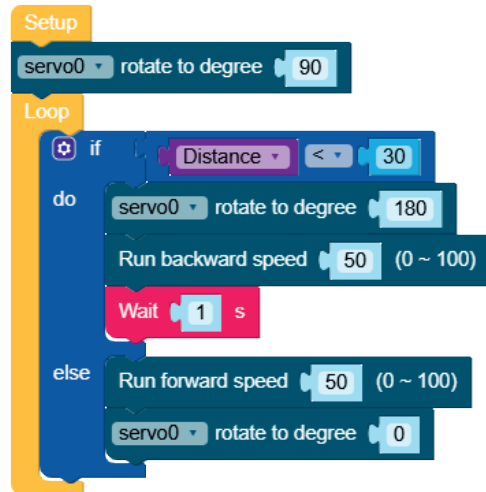


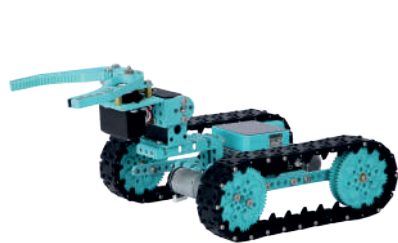


STEAM EDUCATION ROBOTIC KIT

STEAM
AGE 10⁺



WALL-E ROBOT



GRIPPER ROBOT



WALKING ROBOT



PENGUIN ROBOT



4 LEG ROBOT



3 WHEEL ROBOT

FEATURES INCLUDE



TOUCH
SCREEN



STACKABLE



Wi-Fi

6+ Playable

6 evolutionary fun forms



Compatible

iPhone, iPad, PC supported



Extendable

Multiple compatible mechanics,
electronics, and software platform



Programmable

Visual graphical programming
Arduino C and Python



Content

1.Introduction	01
A. Quick Guide	01
B. Parts List	02
C. Tools Guide	04
D. 1:1 Scale Part	05
E. Introduction To MC4.0	06
E. Introduction of Electronics	08
F. Safety Guide	10
2.Assembly Guide	11
A. Assembly Guide of Wall-E Robot	11
B. Assembly Guide of Detection Robot	25
C. Assembly Guide of Walking Robot	37
D. Assembly Guide of 3-Wheel Robot	49
E. Assembly Guide of 4-Leg Robot	65
F. Assembly Guide of Penguin Robot	87
FAQ	119

[Quick Guide]

Discover a new experience of hands-on learning with the MC4.0 STEAM Kit, a robotics solution that combines creativity, engineering, and coding in one engaging package. This kit offers six distinct robot builds, each spotlighting crucial principles of mechanical design, sensor usage, and programming. Designed to fuel curiosity and hands-on exploration, every project supports collaboration, critical thinking, and deeper engagement with essential STEAM concepts.



WALL-E ROBOT

A gear-driven design focused on stable motion, featuring easy-to-integrate sensors for foundational robotics skills.



WALKING ROBOT

A tracked model centered on targeted object detection, suitable for search-and-rescue or obstacle avoidance activities.



PENGUIN ROBOT

A penguin-inspired mechanism merging mechanical linkages with ultrasonic-based obstacle detection.



4 LEG ROBOT

A spider-like build highlighting multi-legged movement and ultrasonic obstacle avoidance.



3 WHEEL ROBOT

A swift, versatile rover equipped with line-following and ultrasonic sensors for dynamic movement challenges.



GRIPPER ROBOT

A sturdy tracked platform with a functional gripper, ideal for demonstrating pick-and-place tasks on various terrains.



[Parts List]

 1x Slide Beam 0824-16

 2x Slide Beam 0824-32

 2x Beam 1030-100-B

 2x Beam 1030-100

 2x Beam 1030-132

 2x Linkage 0208-24

 4x Beam 0410-106

 4x Beam 0410-130

 2x Beam 0410-154

 2x Beam 0410-186

 2x 25 Motor Bracket

 4x Driving Flange Hub 4mm

 12x 56T-Plastic Gear

 1x 8T-Plastic Gear (Flat Hole)

 2x Tyre 64*16

 1x Plastic Caster

 1x MC4.0 Controller

 1x 4-Encoder motor Driver

 1x MC4.0 Battery

 1x Acrylic Sheet

 1x RGB Ultrasonic Sensor

 1x 5-way Line-Following Sensor

 2x DC Encoder Motor

 4x Grove cables

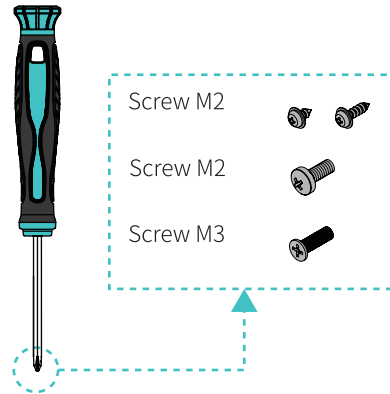
 2x Motor cable

 1x USB-C cable

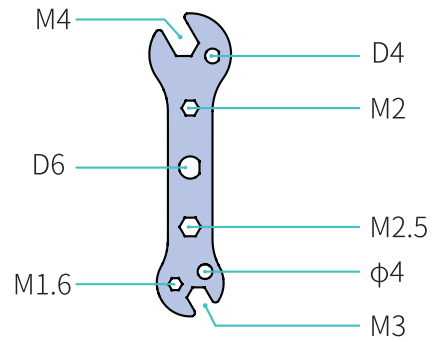
[Parts List]

 52x Track	 4x Screw M4*35	 1x M1.6 -M4 Multifunction Wrench
 52x Track Axle 2*26	 4x Headless Screw M4*5	 1x H2.5 Screw Driver
 2x Flat shaft 4-160	 1x Pan Head Screw M2*4	 1x 2mm Hex Key
 8x Copper Bearing 4x8x3.5	 4x Countersunk Screw M3*6	
 4x Aluminum Column 4*6*6	 2x Screw M4*8	
 16x Nylon Spacer 4*7*2	 12x Screw M4*10	
 8x Nylon Spacer 4*7*3	 8x Screw M4*14	
 4x Nylon Spacer 4*7*10	 10x Screw M4*20	
 22x Screw Nut M4	 2x Screws 3x40 mm	
 10x Nylon Locknut M4	 2x Screws 3x35 mm	

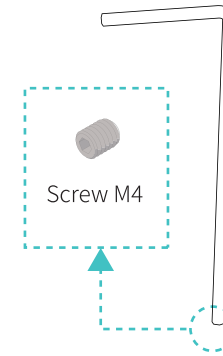
[Tools Guide]



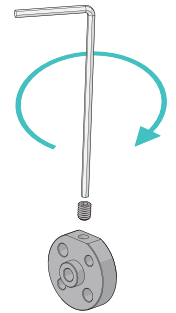
PH1 Screw Driver



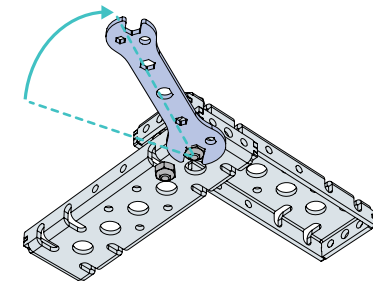
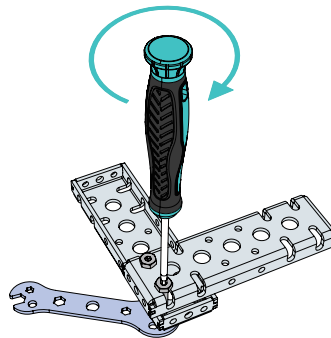
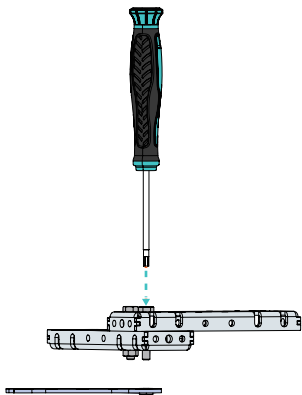
M1.6-M4 Multifunction Wrench



2mm Hex Key



How to use 2mm Hex Key



How to use screwdriver and M1.6-M4 Multifunction Wrench

[1:1 Scale Part]

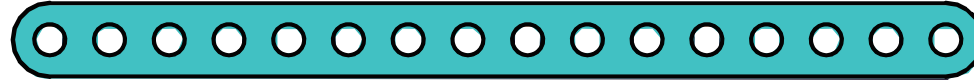
Beam 0410-186 (23 hole)



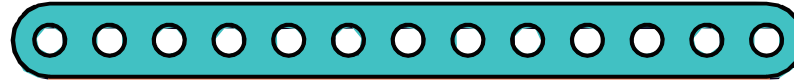
Beam 0410-154 (19 hole)



Beam 0410-130 (16 hole)



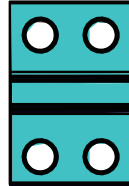
Beam 0410-106 (13 hole)



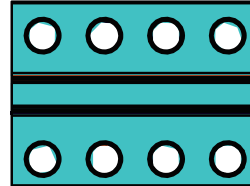
Flat shaft 4-160



Slide Beam 0824-16



Slide Beam 0824-32



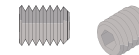
Countersunk
Screw M3*6



Screw M4*14



Headless Screw M4*5



Nylon Spacer 4*7*2



Screw M4*8



Screw M4*20



Pan Head Screw M2*4



Nylon Spacer 4*7*3



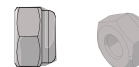
Screw M4*10



Screw M4*35



Nylon Locknut M4



Nylon Spacer 4*7*10



Screw Nut M4



Aluminum Column 4*6*6



[Introduction of MC4.0]

MC 4.0 is not just an upgrade; it's a revolution in educational technology. This Next-Gen controller redefines what's possible in the classroom, offering features that no other device can match. With its groundbreaking drag-and-drop touchscreen interface, learning transition from block-based programming to Python and C++ to ROS and MATLAB, and integration with AI, IoT, and robotics, MC 4.0 is a leap ahead of its time.



What's Included?

3-AXIS SENSOR

Detect motion and orientation in three dimensions

MICROPHONE & SPEAKER

Detect motion and orientation in three dimensions

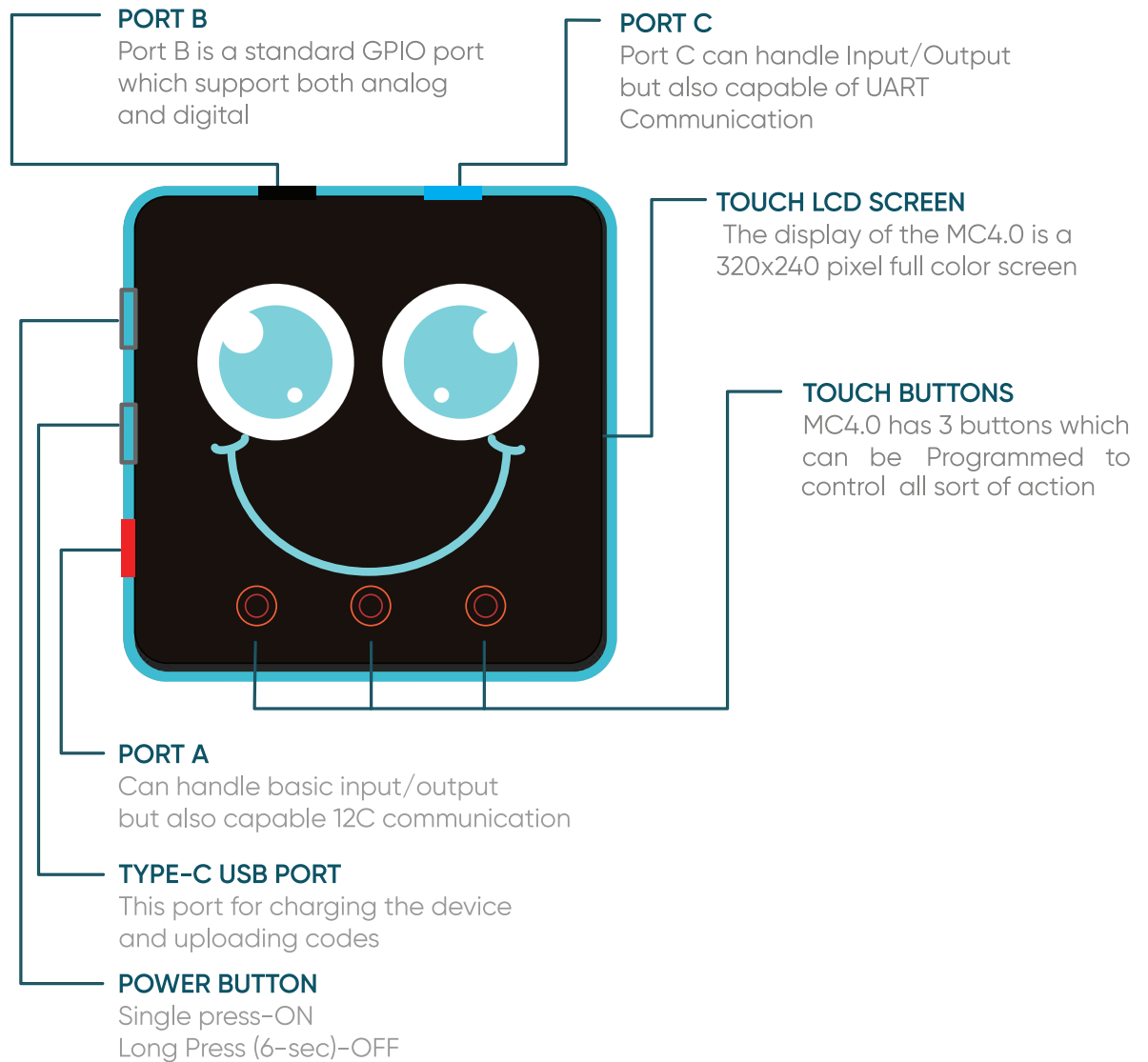
Output clear sound for audio alerts and content

VIBRATION MOTOR

Detect motion and orientation in three dimensions

REAL TIME CLOCK

Maintain accurate time and date for scheduling tasks



[Introduction of MC4.0]

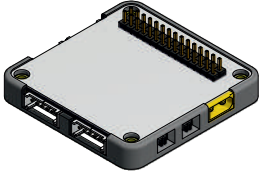
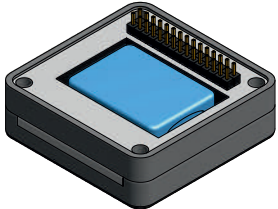
The MC4.0 is an advanced microcontroller designed for easy integration into robotics and IoT applications. Equipped with built-in Wi-Fi and Bluetooth, it offers robust wireless connectivity for data exchange and remote control. Onboard features include an IMU (Inertial Measurement Unit) for motion tracking, a sound sensor and speaker for audio interaction, and a Real-Time Clock (RTC) for time-based functions. To facilitate easy and organized expansion, the MC4.0 provides three distinct ports: Port 1 (red) dedicated to the I2C protocol, Port B (black) functioning as a GPIO interface, and Port C (blue) for UART communication. Through these ports, users can connect and manage a range of sensors, actuators, and peripheral modules, making the MC4.0 a powerful and flexible option for educational and professional projects alike.

Port Name	Port Color	Support Module
Port A	RED	RGB Ultrasonic Sensor ; Line-folowing Sensor ; Servo motors
Port B	Black	RGB Ultrasonic Sensor ; Line-folowing Sensor (Recommended) ; Servo motors
Port C	Blue	RGB Ultrasonic Sensor (Recommended) ; Line-folowing Sensor ; Servo motors
Motor Port	White	DC Motor; Encoder Motor; Stepper Motor
Wireless Communication Port	inbuilt	Bluetooth Module; 2.4G Wireless Module; WiFi Module

[Introduction of Electronics]

Picture	Description	Features	Specification	Function
	Line-following Sensor is consist of two set of IR emitting LED and sensitive phototransistor. When the phototransistor detects the reflected infrared light from the IR emitting LED, it will output a digital signal, which changes from HIGH to LOW. Users can tell the different reflecting surface by this value.	Able to read value of one set IR emitting LED and sensitive phototransistor, high precision; High field adaptability and code-ability; Comes with two LED signal light to show feedback; Comes with MCU, smart identify;	Operating Voltage: 5V DC Detection Range: 1~2cm Communication: 1-wire Peak Wavelength of Reflective Wave: 940nm Dimensions: 55 x 24 x 18.5 mm	Speed detection, black and white detection, line finder.
	RGB Ultrasonic Sensor is new ultrasonic distance detection module. Comes with independent RGB LED, you can change brightness and color. The RGB Ultrasonic Sensor uses split high-precision aluminum shell probe, calculate and amplify signal through onboard MCU, to output more stable and higher precision signal.	Distance detecting resolution is 1cm; Come with RGB LED, support 256 steps of brightness for red, green & blue and 16,777,216 color combinations; RJ11 Port, easy to wire; Comes with MCU, built-in algorithm, intelligent identifying	Operating Voltage: 5V DC Detection Range: 4-500cm Resolution: 1cm Ultrasonic Frequency: 42kHz Probe Angle: 60°±15° Communication: 1-wire Dimensions: 100 x 32 x 30 mm	Distance measurement; induction test

[Introduction of Electronics]

Picture	Description	Features	Specification	Function
	An interface that connects MC4.0 to four encoder DC motors, streamlining multi-motor robotics with precise feedback and simpler wiring.	Supports four encoder DC motors Built for stable current delivery and accurate motor controlReduces wiring complexity for multi-motor setupsSpecification	Dimensions: 54 × 54 mm Encoder Feedback: Real-time speed and position Compatible with MC4.0 controller ports	Translates MC4.0 commands into synchronized motion, allowing for advanced navigation, trajectory planning, and repeatable movements in robotics projects.
	A compact power solution designed for MC4.0, featuring a 7.4V lithium battery and an integrated voice recognition module for hands-free control and interactive projects.	Securely powers MC4.0 with a reliable 7.4V lithium batteryOnboard voice recognition for spoken commands Compact form factor for mobility and easy mountingSpecification	Dimensions: 54 × 54 mm Battery Voltage: 7.4V (lithium) Integrated Voice Recognition Module	Provides stable power and voice-enabled interaction, enabling users to run portable, speech-responsive robotics or IoT applications.

[Safety Guide]

MC4.0 STEAM Education Robot Kit is powered by a pair of 3.7V 18650 lithium batteries.

• Battery information:

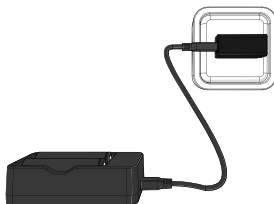
1. Do not crush, or throw batteries.
2. Do not use batteries near to a heat source.
3. Always insert the batteries correctly with regard to polarity (-/+); do not short circuit lithium battery.
4. Always keep batteries dry.
5. Do not puncture battery with sharp object.
6. Use only the correct type and size of battery indicated.;
7. Place the battery in a cool, dry spot if not required.
8. Remove and safely dispose of exhausted batteries immediately.
9. If robot sit idle, remove battery out of battery holder when
10. Replace all batteries in battery-operated products at the same time with the batteries of the same type and manufacture.

• Low battery notification/ Batteriestandsmeldung:

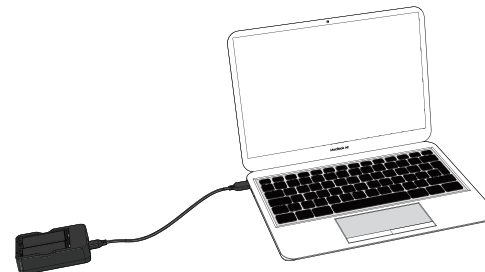
Your robot would run slowly, or restart frequently on low battery status. Please turn off power in this situation, and then charge your battery in time with:

Bei mangelnder Ladung bewegt sich der Roboter langsamer oder startet häufiger neu. In diesem Fall das Gerät ausschalten und den Akku möglichst bald aufladen mit:

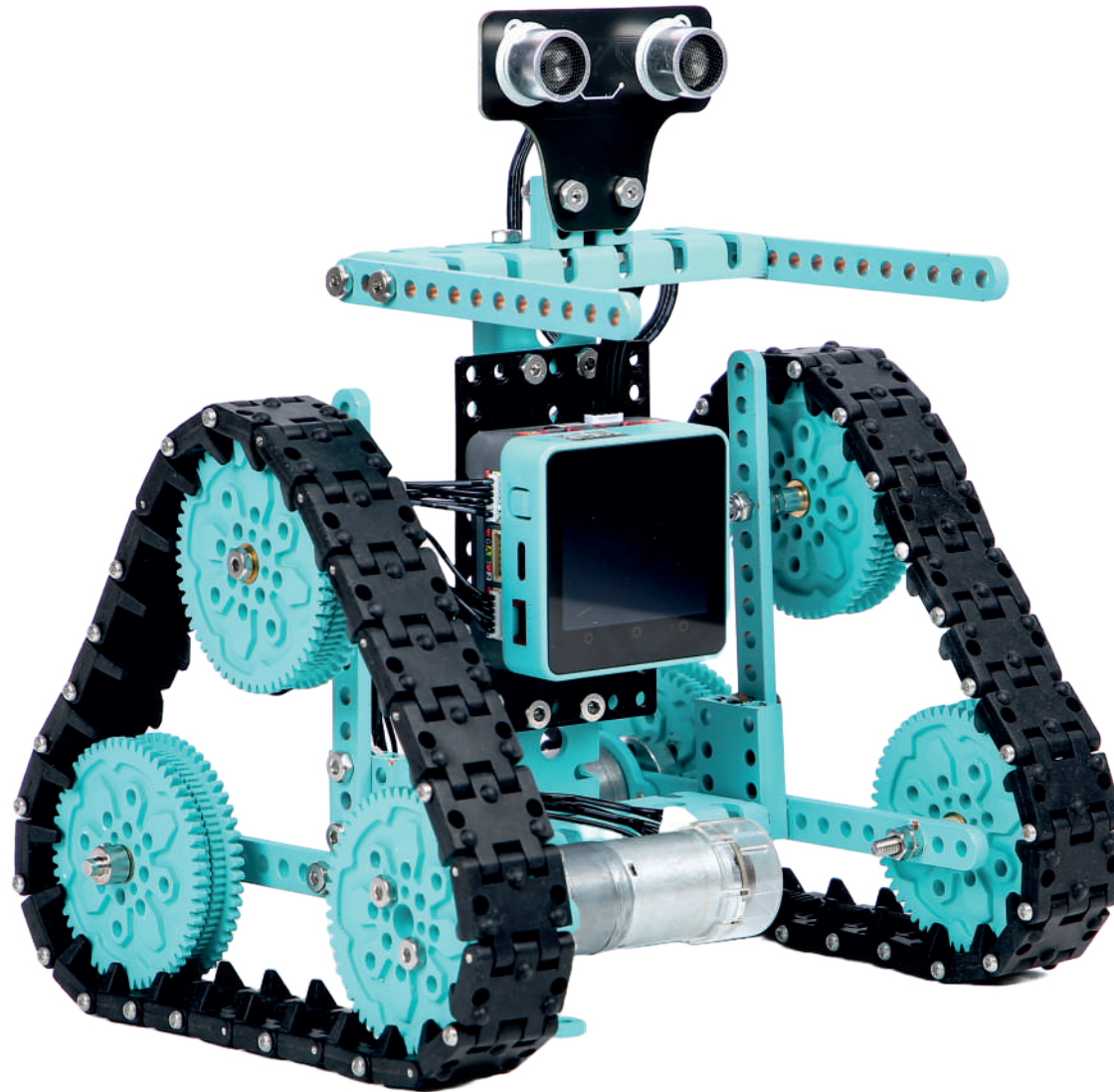
1. 5V 1A USB power adapter/ 1. 5 V 1 A USB-Netzteil.



2. Computer USB port/ USB-Computeranschluss.



[Wall-E Robot]



[Assembly Guide of Wall-E Robot]

01 Assemble Beam 1030-100



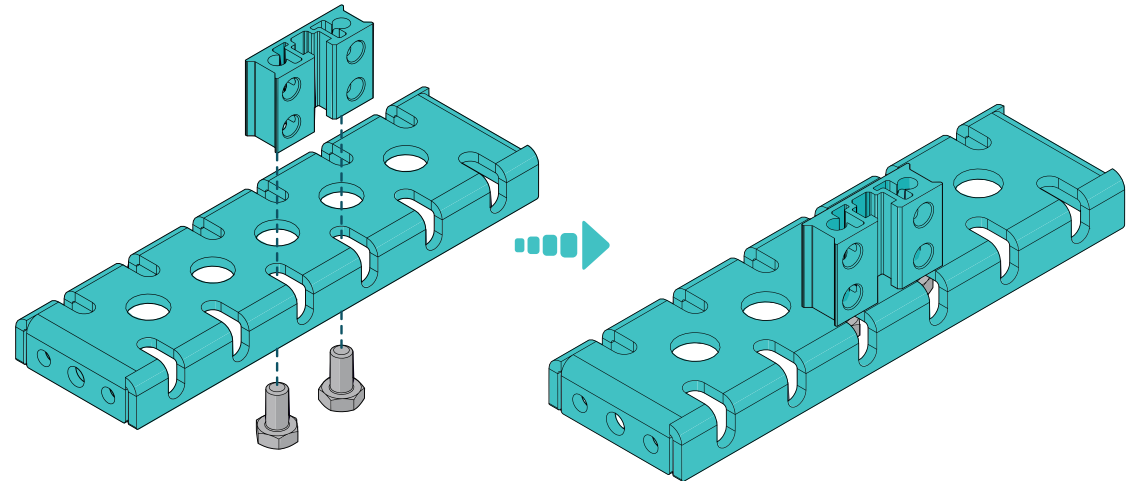
2x Screw M4*8



1x Slide Beam 0824-16



1x Beam 1030-100



02 Assemble Beam 1030-132



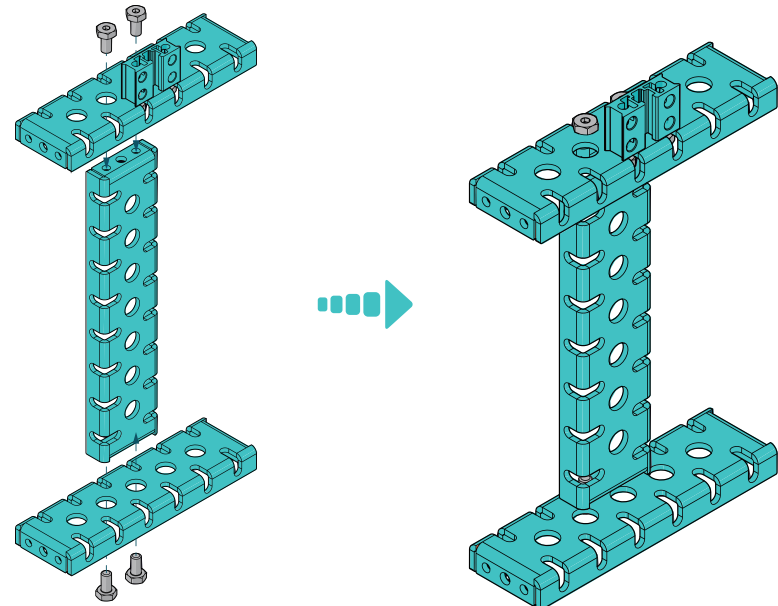
4x Screw M4*8



1x Beam 1030-100



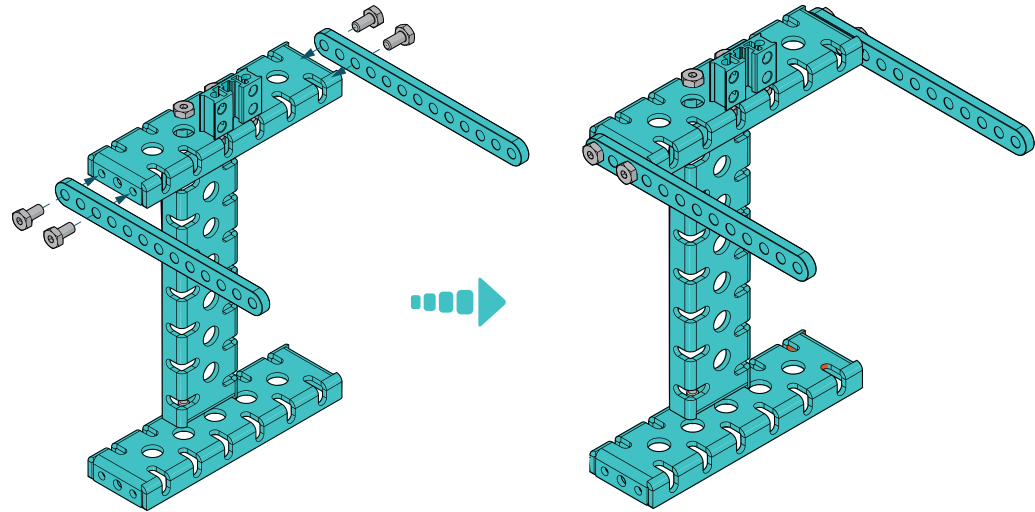
1x Beam 1030-132



[Assembly Guide of Wall-E Robot]

03 Assemble Beam 0410-106

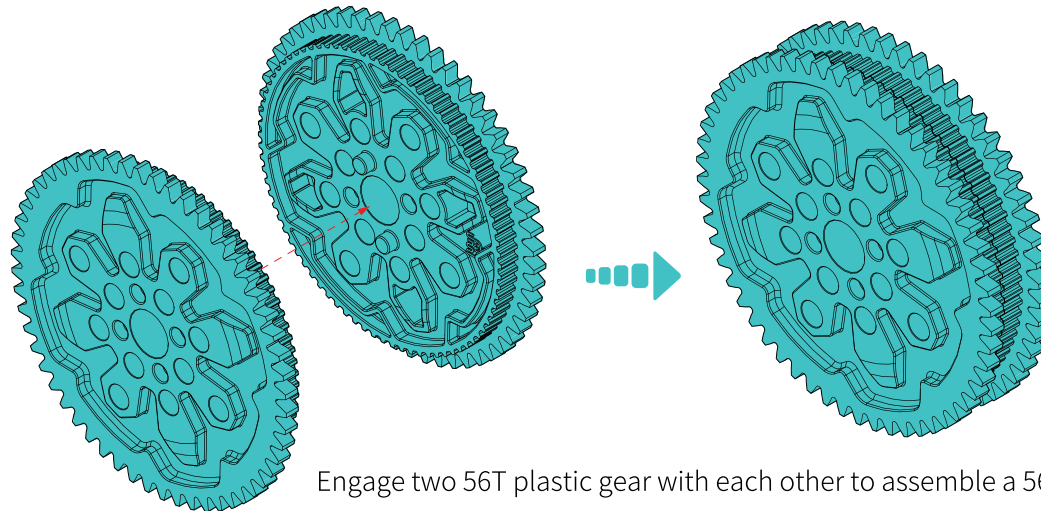
- 4x Screw M4*8
- 2x Beam 0410-106



04 Assemble 56T Plastic Gear

- 2x 56T-Plastic Gear

Repeat six times, assemble six 56T wheel hubs.

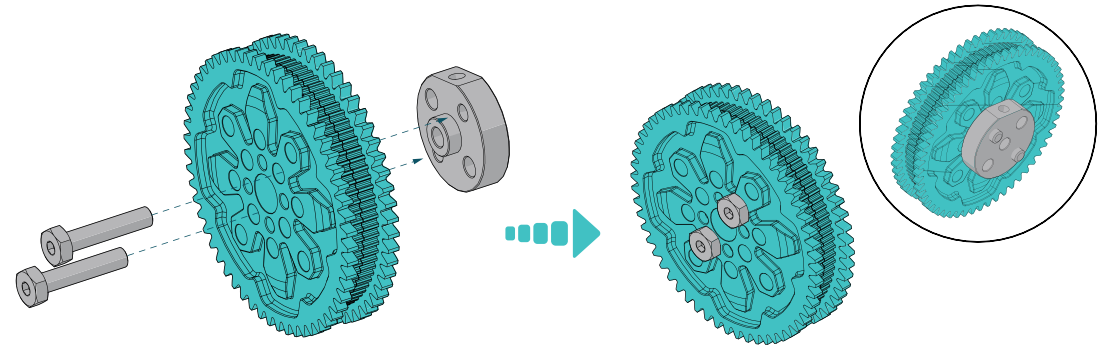


Engage two 56T plastic gear with each other to assemble a 56T wheel hub.

[Assembly Guide of Wall-E Robot]

05 Assembly Active Wheel

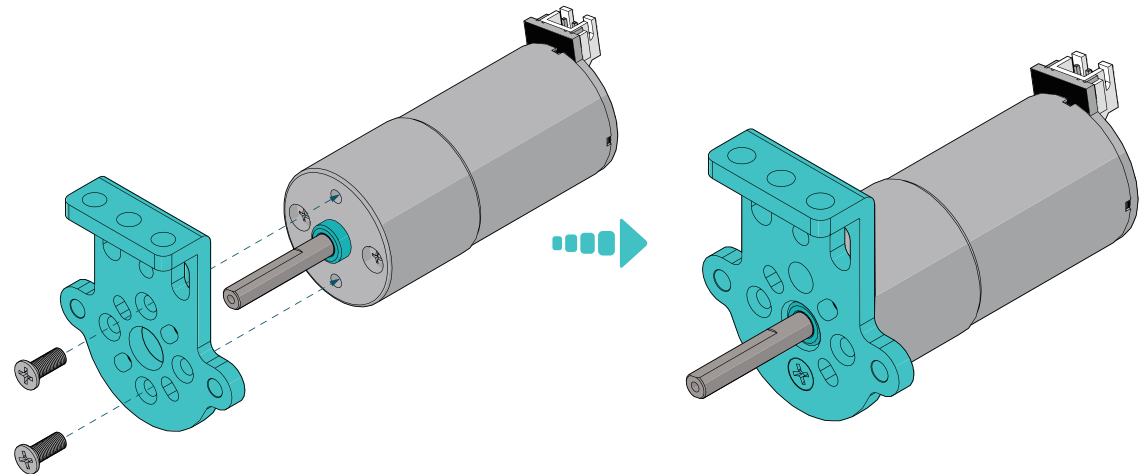
-  2x Screw M4*20
-  1x Driving Flange Hub 4mm
-  1x 56T-Plastic Gear Assembly



Repeat two times, assemble two active wheels.

06 Assemble the DC Motor

-  2x Countersunk Screw M3x6
-  1x 25 Motor Bracket
-  1x DC Motor-25 (188RPM)

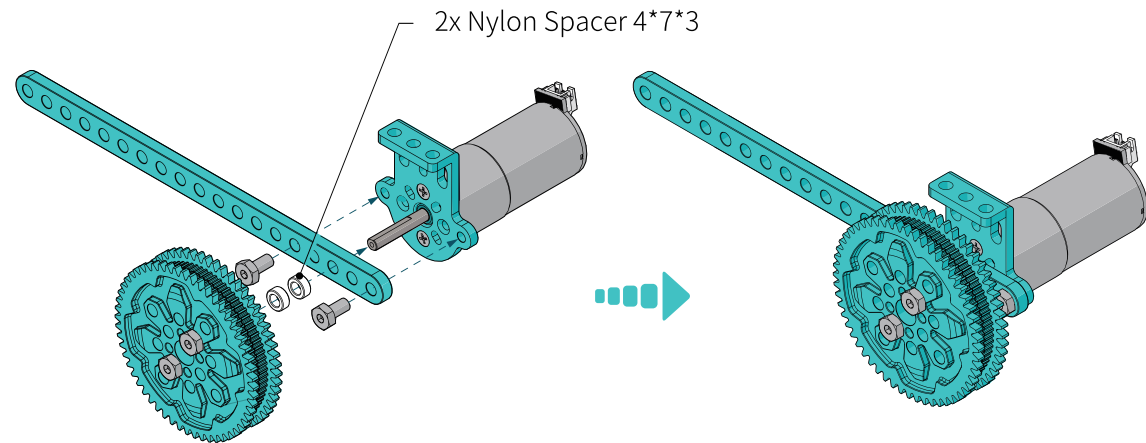


Pay attention to the direction of motor bracket and motor wire port.

[Assembly Guide of Wall-E Robot]

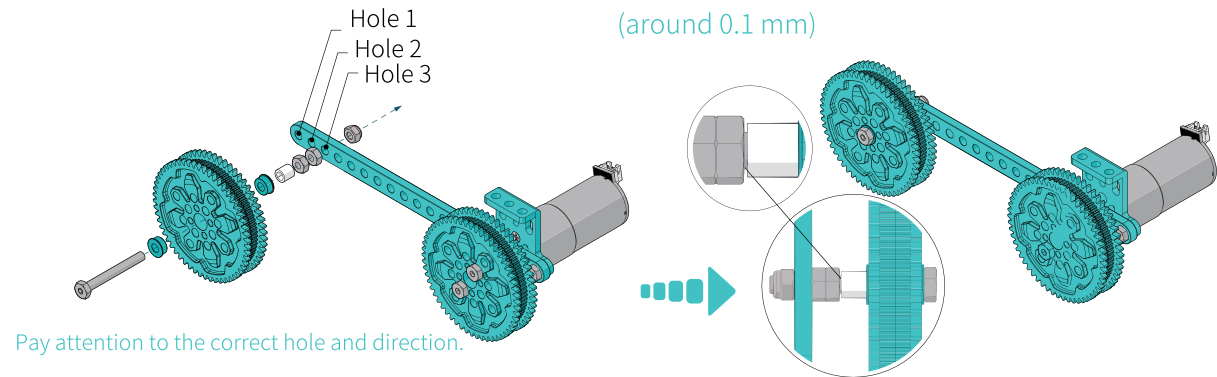
07 Assemble Motor and Active Wheel

- 1x Beam 0410-154
- 1x Driven Wheel
- 2x Screw M4*8
- 2x Nylon Spacer 4*7*3



08 Assemble Driven Wheel

- 1x 56T-Plastic Gear Assembly
- 1x Screw M4*35
- 1x Nylon Locknut M4
- 2x Screw Nut M4
- 1x Aluminum Column 4*6*6
- 2x Copper Bearing 4x8x3.5



Tips:
1. Tighten two nut M4 to form a locking structure.
2. Maintain a small gap (around 0.1 mm) between the aluminum column and nut M4. Make sure that the 56T plastic gear can rotate but nothing get loose.

[Assembly Guide of Wall-E Robot]

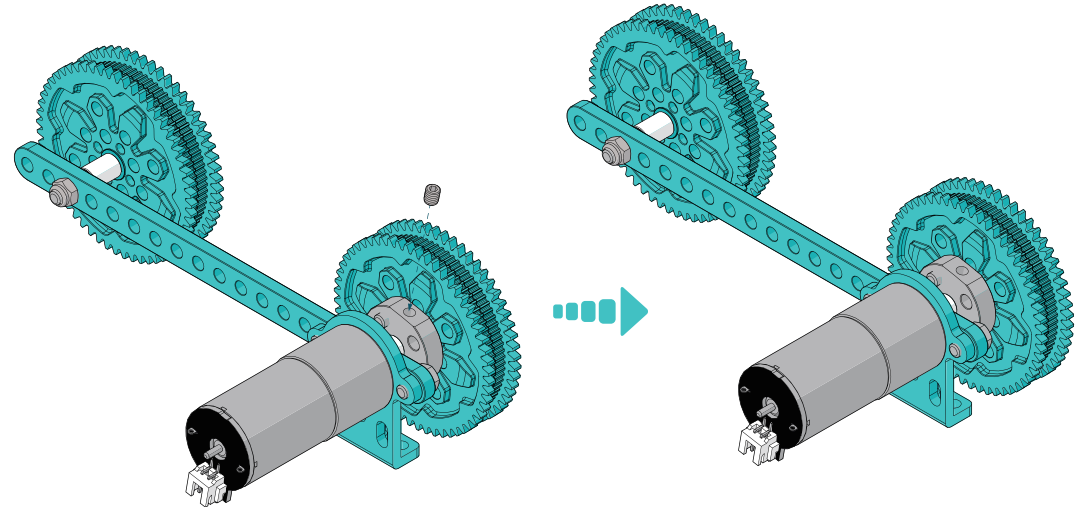
09 Fix the Active Wheel



1x Headless Screw M4*5

Please repeat step 05-09, and assemble the two structures as shown.

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



10 Assemble the Upper Active Wheel



1x 56T-Plastic Gear Assembly



1x Screw M4*35



1x Nylon Locknut M4



2x Screw Nut M4



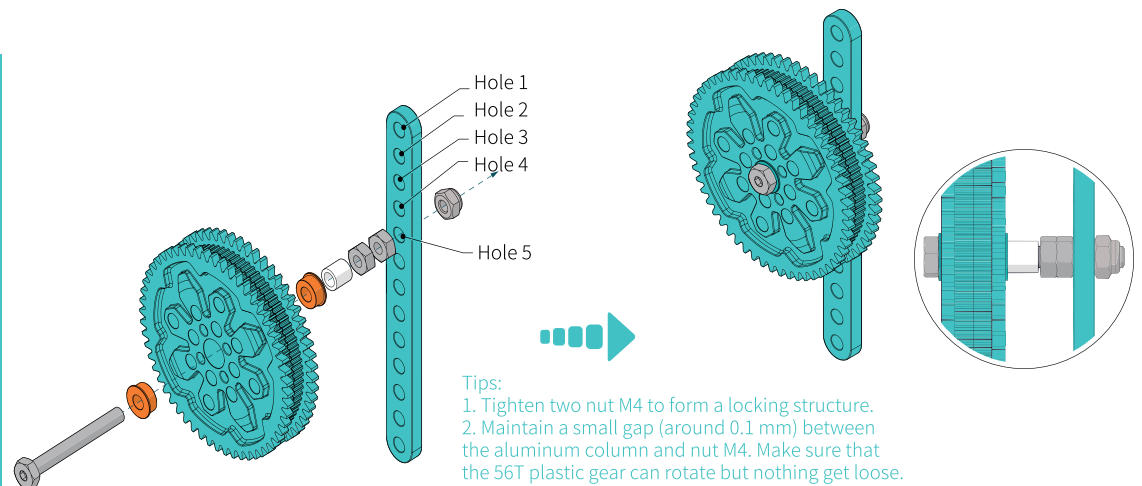
1x Aluminum Column 4*6*6



2x Copper Bearing 4x8x3.5



1x Beam 0410-106



Tips:
1. Tighten two nut M4 to form a locking structure.
2. Maintain a small gap (around 0.1 mm) between the aluminum column and nut M4. Make sure that the 56T plastic gear can rotate but nothing get loose.

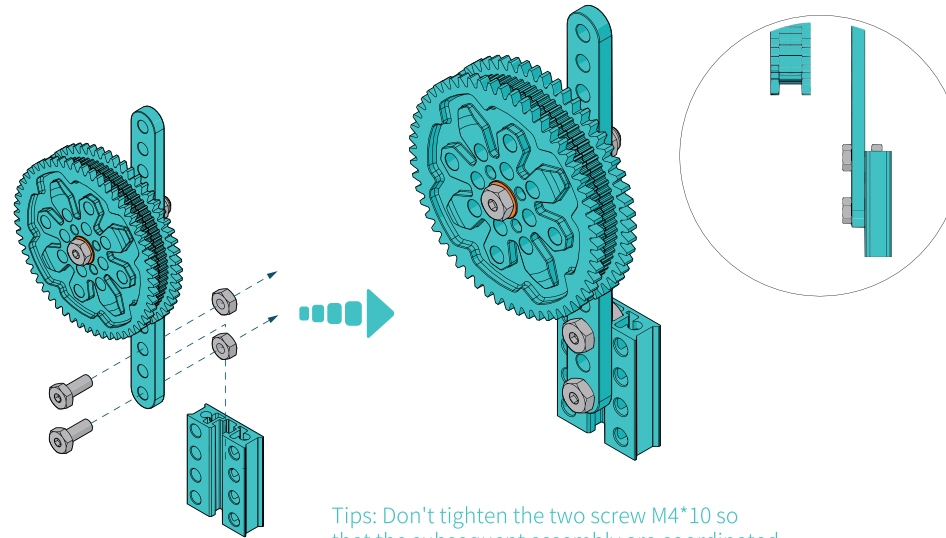
[Assembly Guide of Wall-E Robot]

11 Assemble Beam 0824-32

- 2x Screw M4*10
- 2x Screw Nut M4
- 2x Slide Beam 0824-32

Repeat two times, assemble two active wheels.

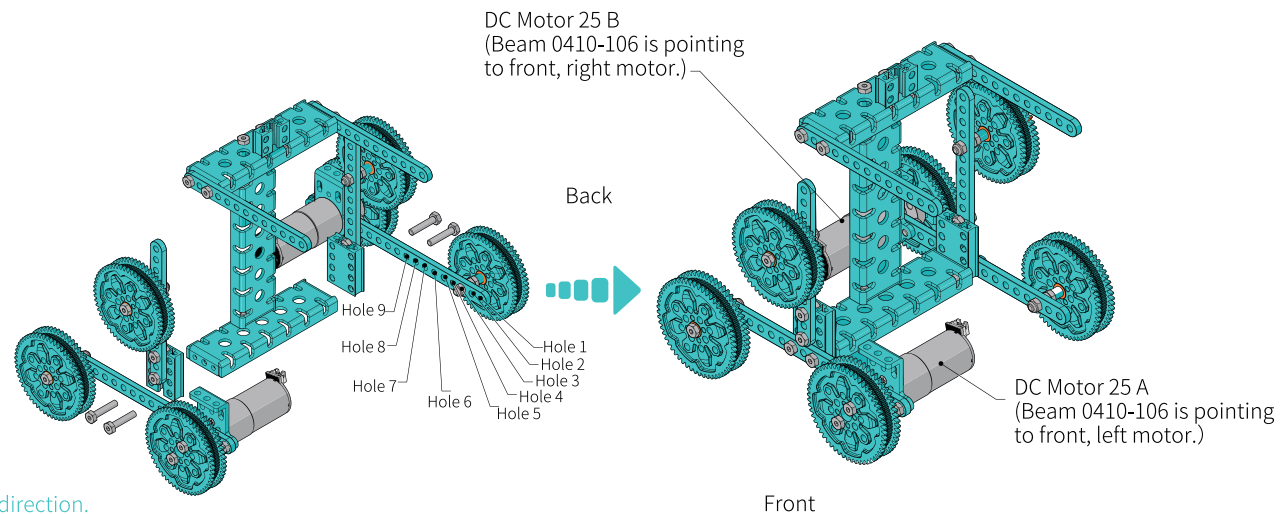
Tips: Put the two nut M4 in slot of beam, don't tighten screws so that the subsequent assembly are coordinated.



Tips: Don't tighten the two screw M4*10 so that the subsequent assembly are coordinated.

12 Assemble the Base Structure

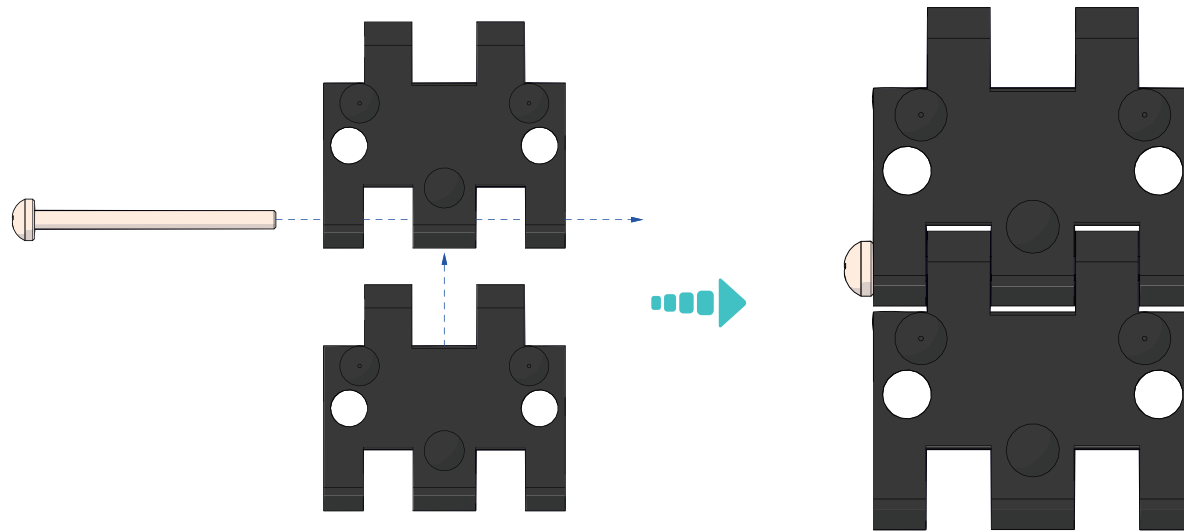
- 4x Screw M4*20
- 2x Upper Driven Wheel Assembly
- 2x Motor Wheel Assembly



Tips:
1. Pay attention to the correct hole and direction.
2. Adjust the gap, parallelism and verticality during installation, and then tighten the eight screws.

[Assembly Guide of Wall-E Robot]

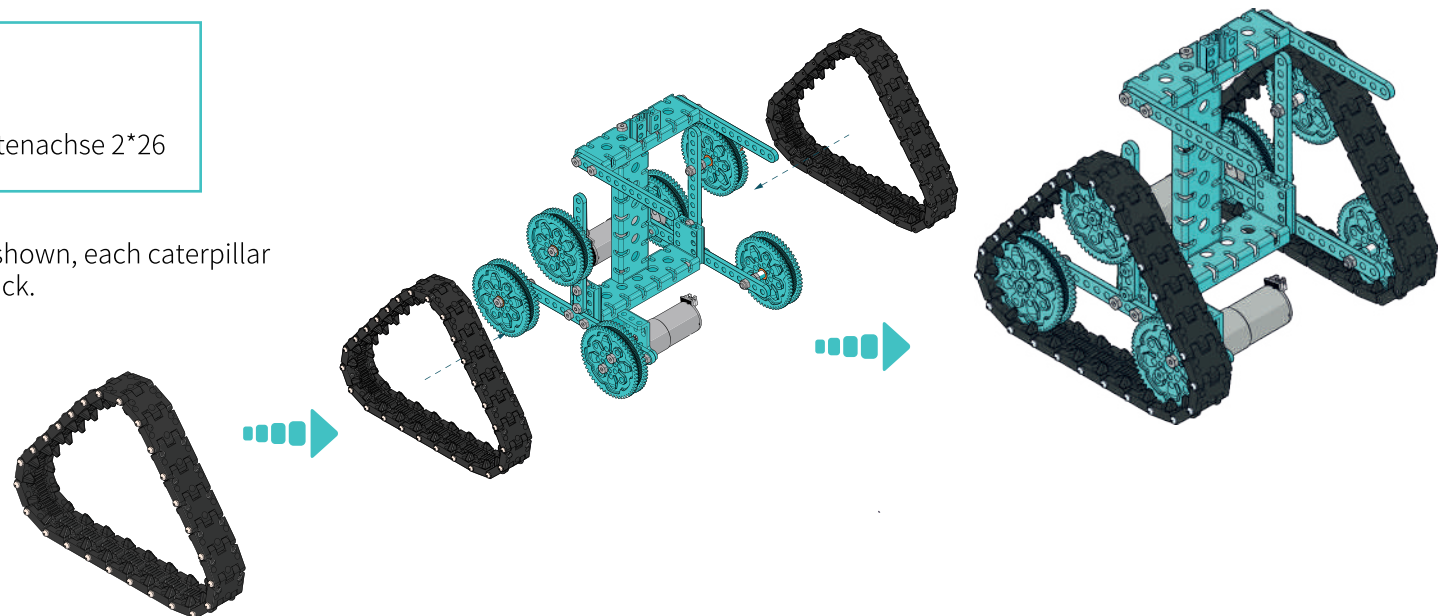
13 Assemble Caterpillar Track



13 Assemble Caterpillar Track



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



[Assembly Guide of Wall-E Robot]

14 Assemble the RGB Ultrasonic Sensor



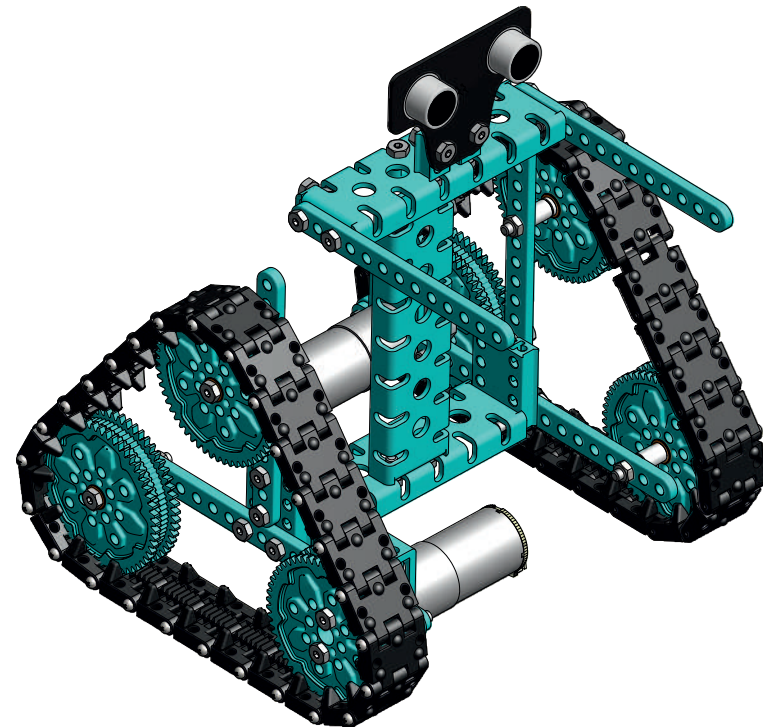
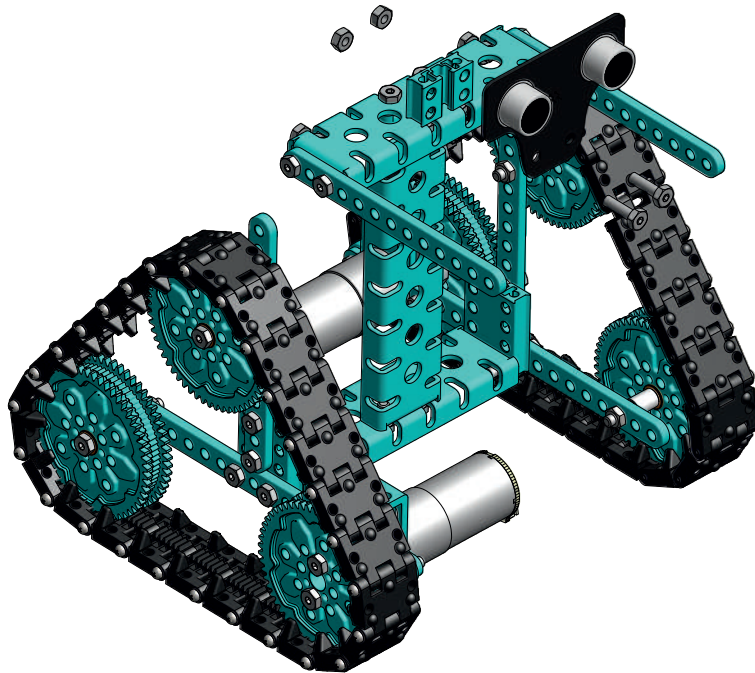
2x Screw M4*8



2x Screw Nut M4



1x RGB Ultrasonic Sensor



[Assembly Guide of Wall-E Robot]

15 Assemble the MC4.0



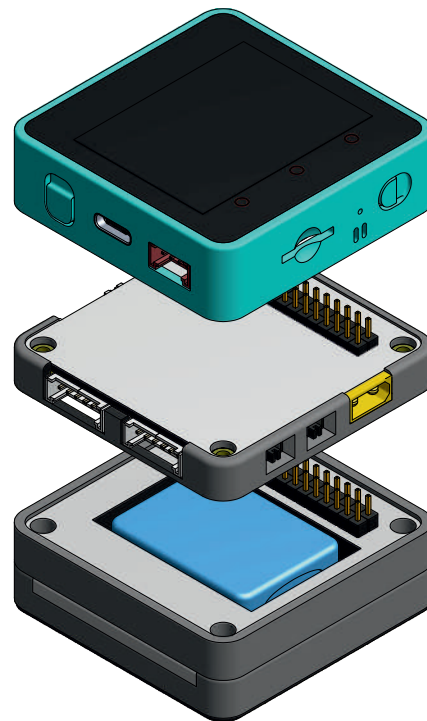
1x MC4.0 Controller



1x 4-Encoder motor Driver

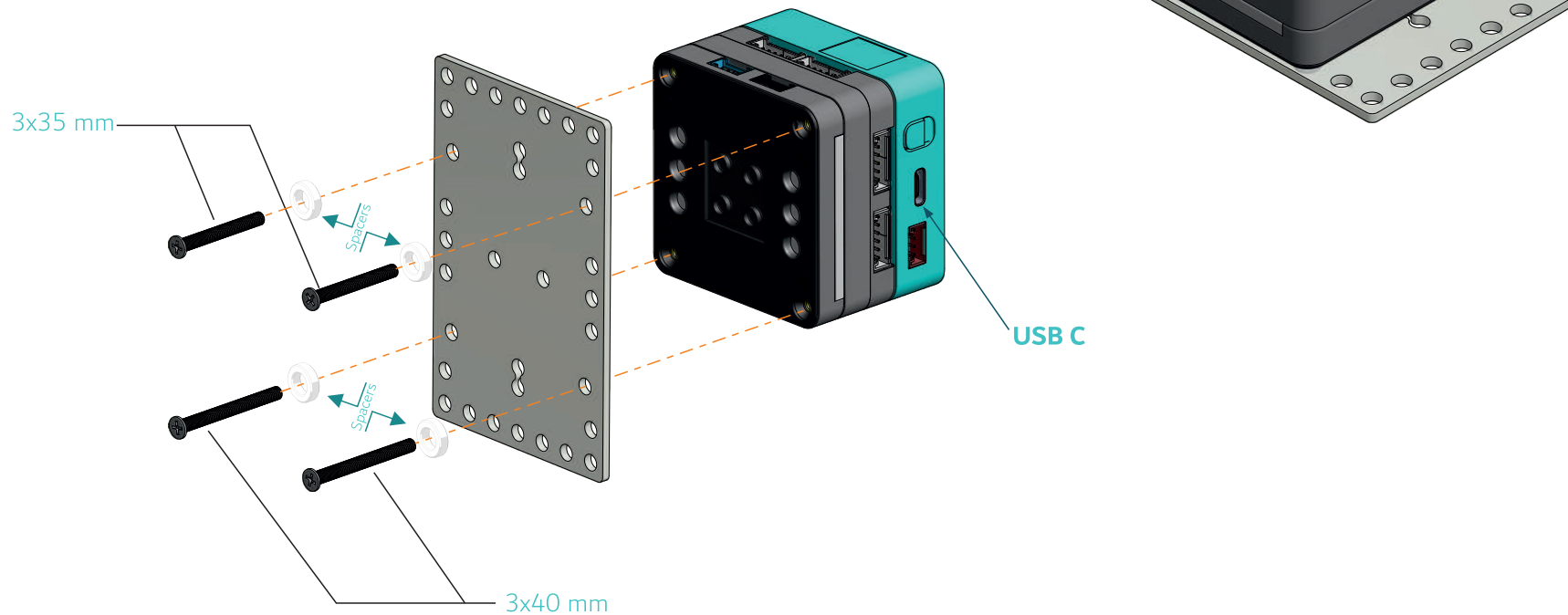


1x MC4.0 Battery



[Assembly Guide of Wall-E Robot]

16 Assemble Base structure



[Assembly Guide of Wall-E Robot]

17 Place control unit to the Wall-E



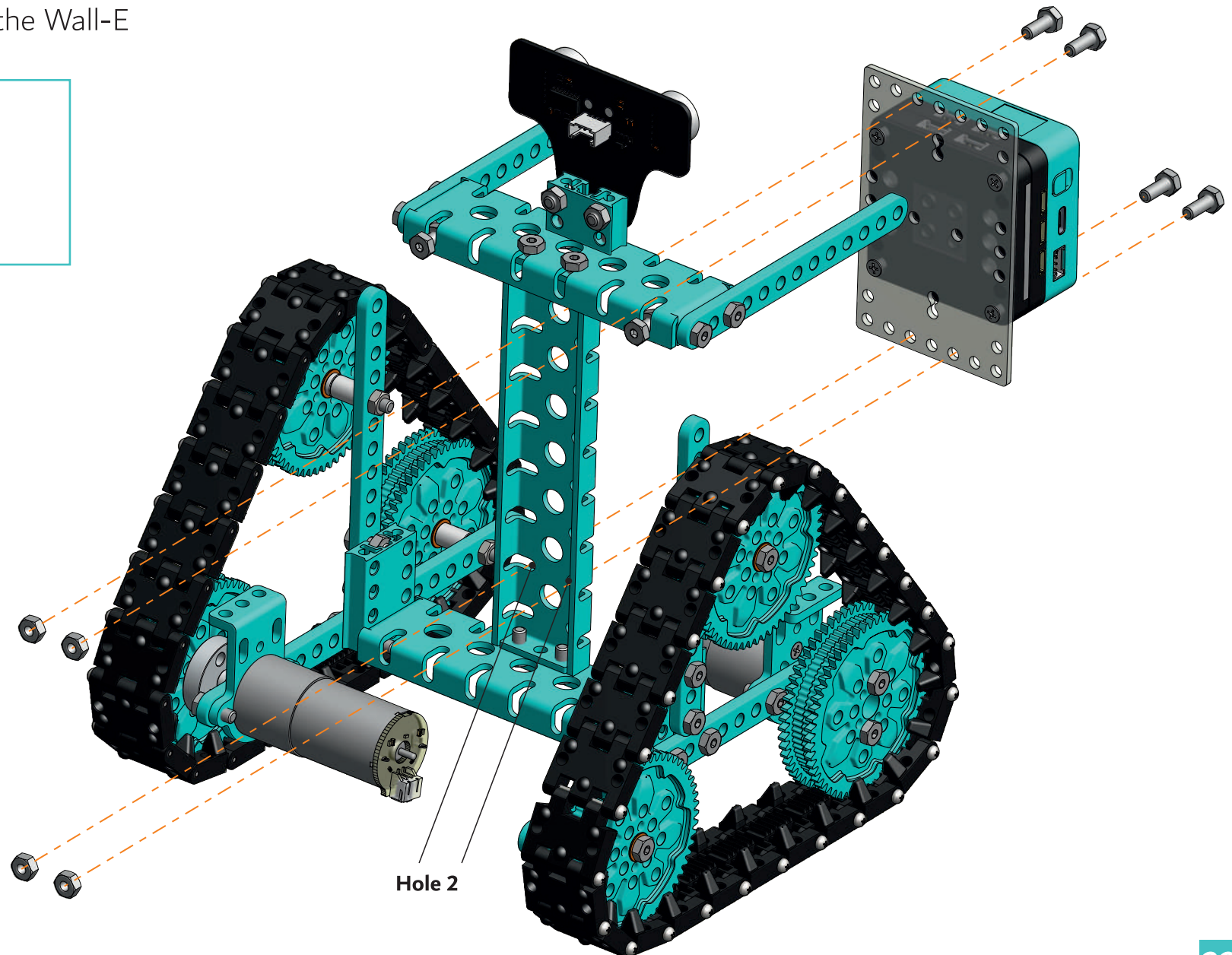
1x MC4.0 Controller



4x Screw M4*8



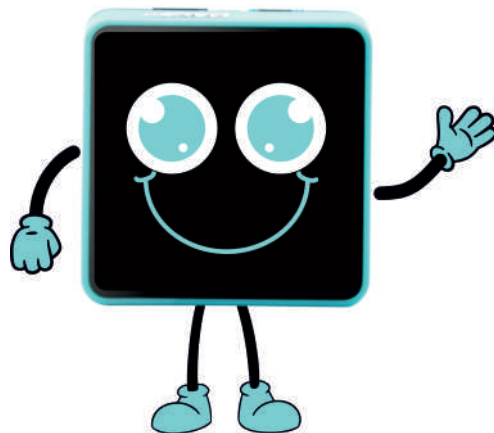
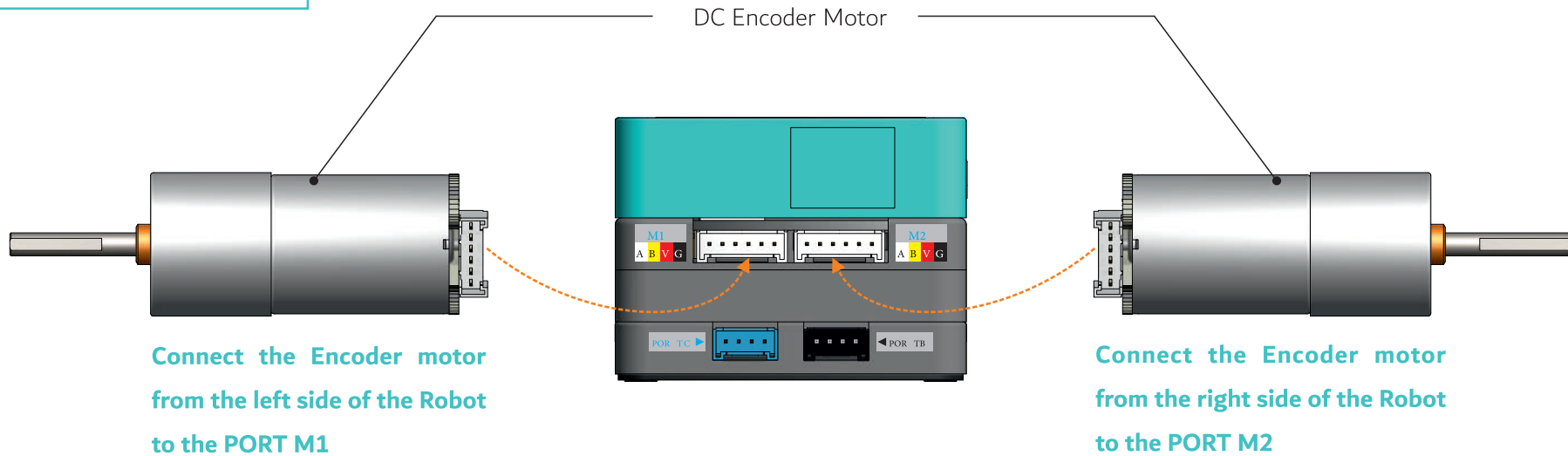
4x Screw Nut M4



[Assembly Guide of Wall-E Robot]

17 Wiring Motors

2x Motor Cable



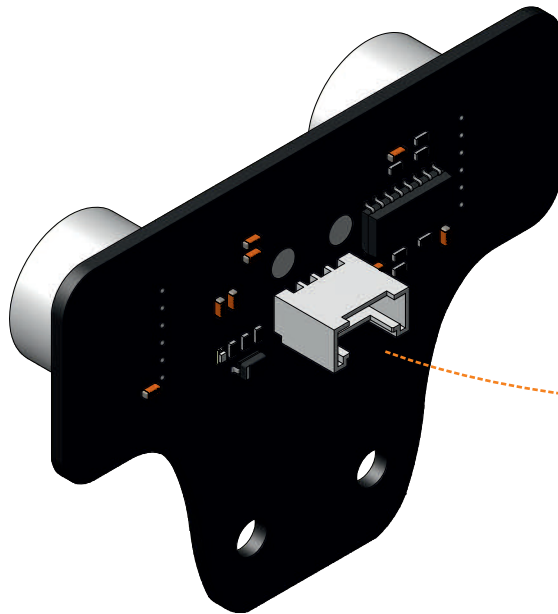
Great engineers check their connections twice! Are you one of them?

”

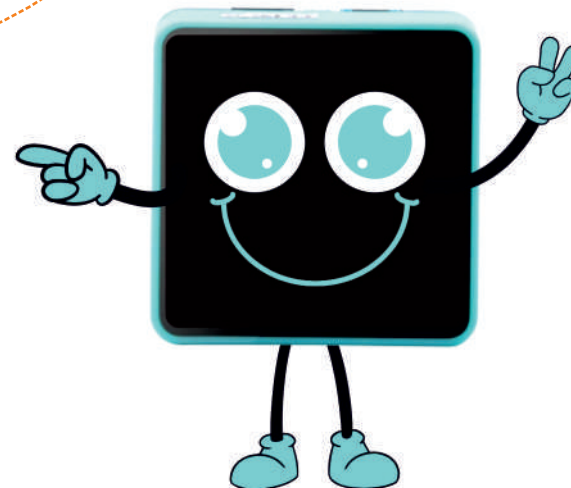
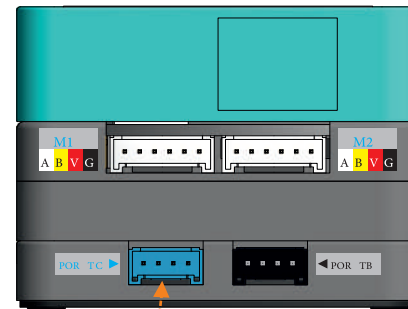
[Assembly Guide of Wall-E Robot]

18 Place control unit to the Wiring Sensors

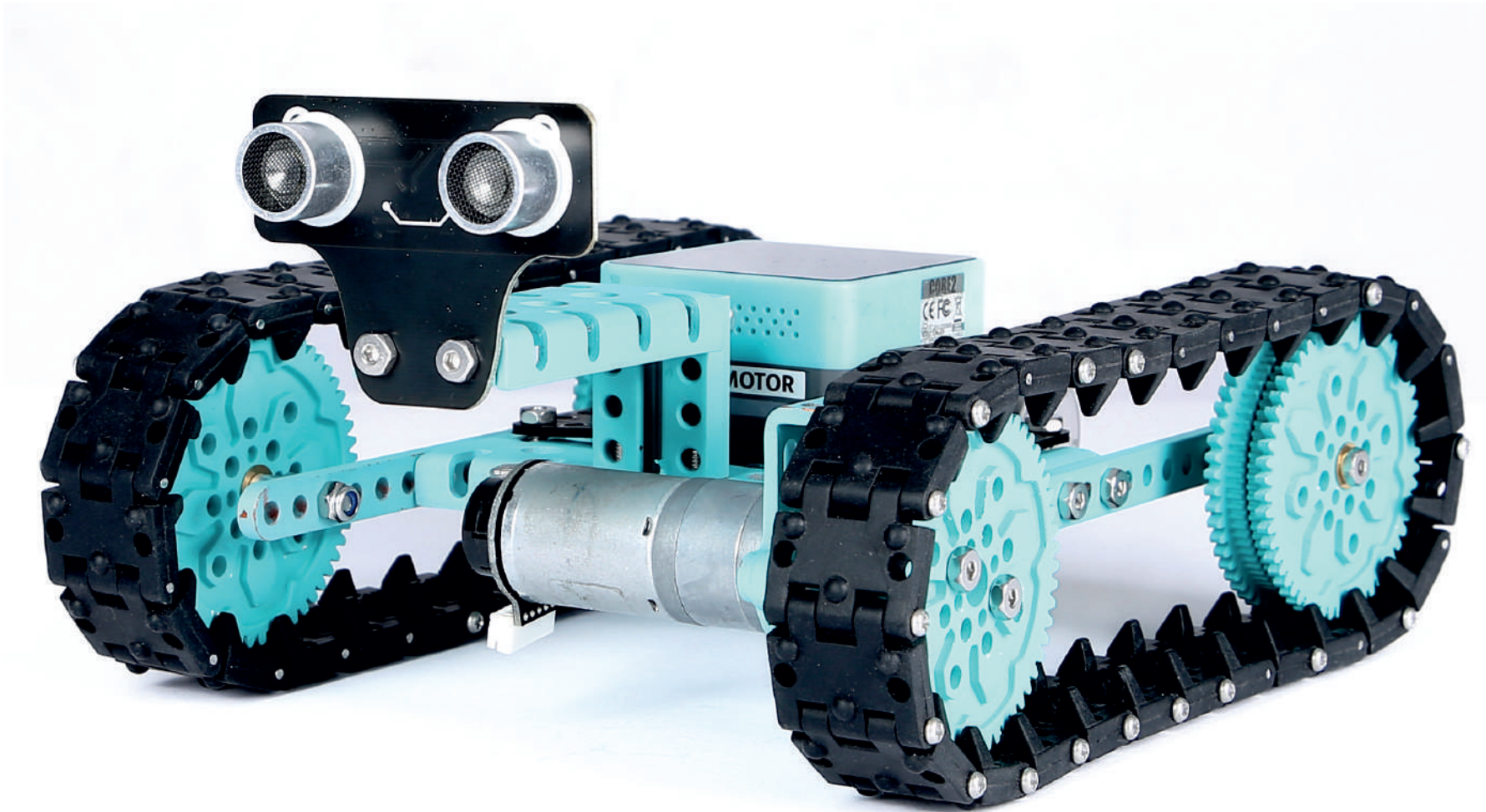
1x Grove Cable



Connect the Ultrasonic sensor
to the PORTC

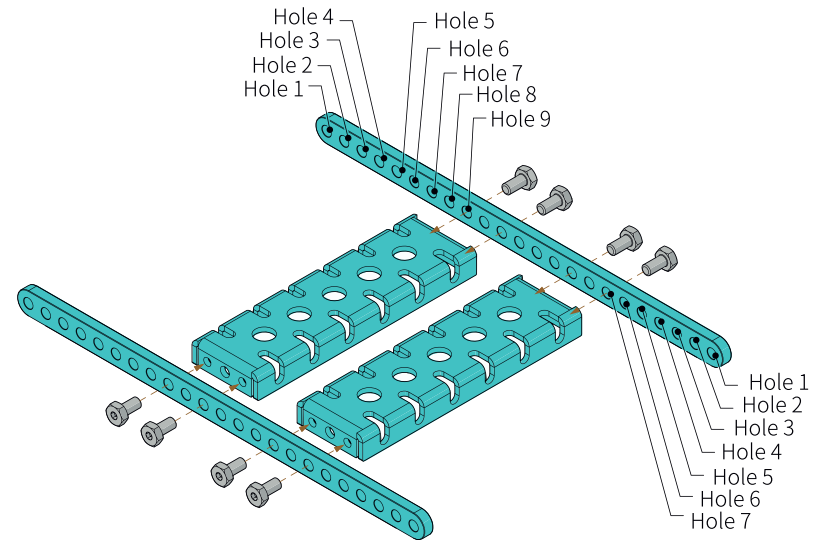


[Detection Robot]

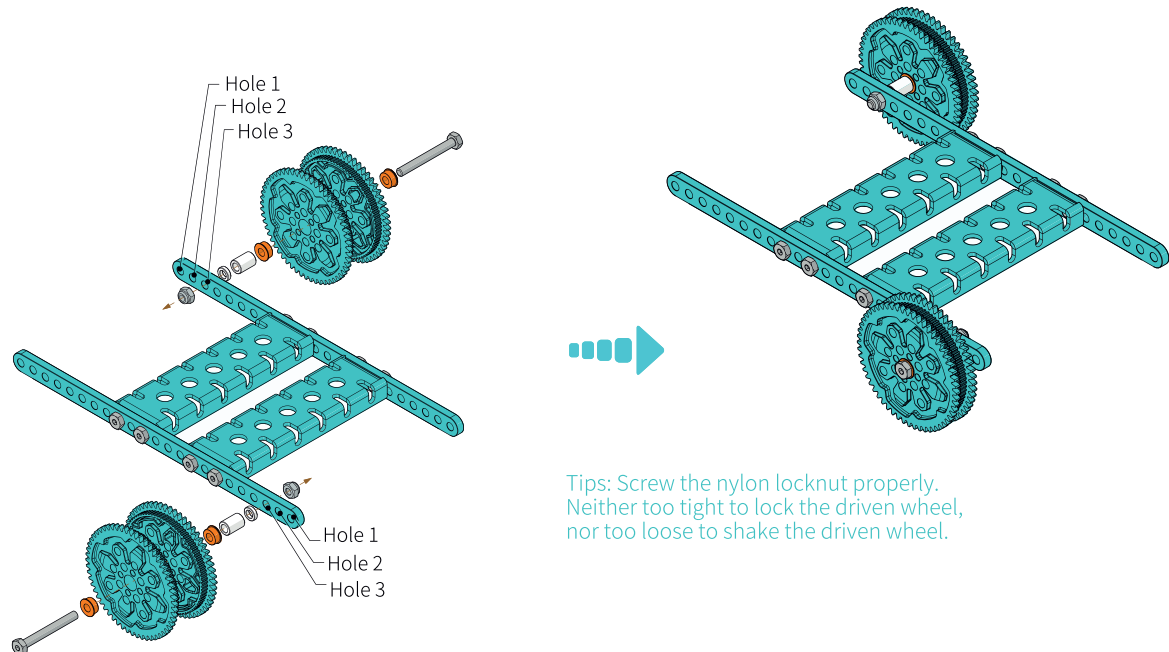


[Assembly Guide of Detection Robot]

01 Assemble the Base Structure



02 Assemble the Driven Wheel



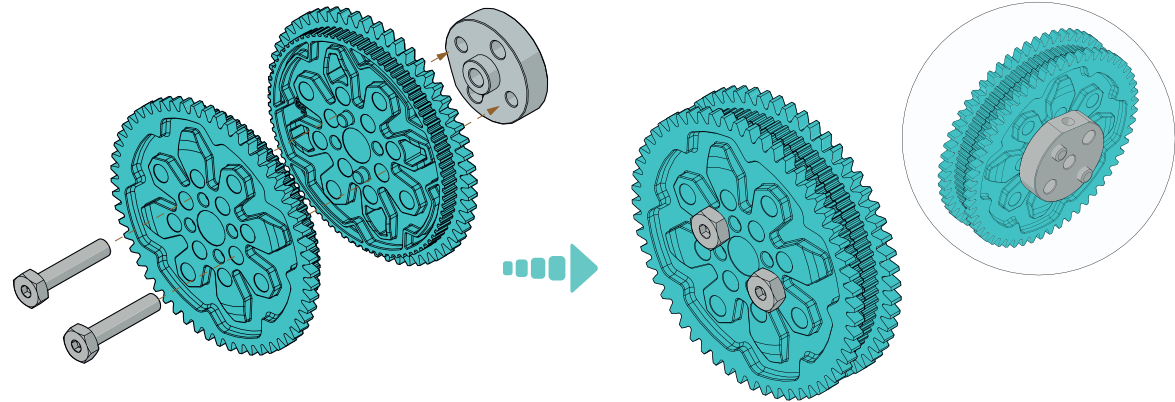
Tips: Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel.

[Assembly Guide of Detection Robot]

03 Assemble Active Wheel

-  2x Screw M4*20
-  1x Driving Flange Hub 4mm
-  2x 56T-Plastic Gear

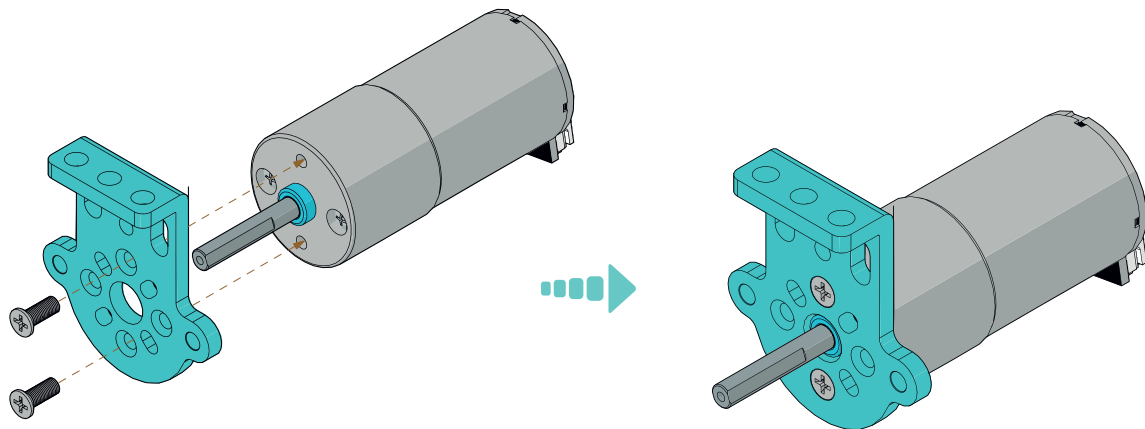
Repeat two times, assemble two active wheels.



04 Assemble DC Motor

-  2x Countersunk Screw M3*6
-  1x 25 Motor Bracket
-  1x DC Motor-25 (188RPM)

Repeat two times, assemble two DC motors.



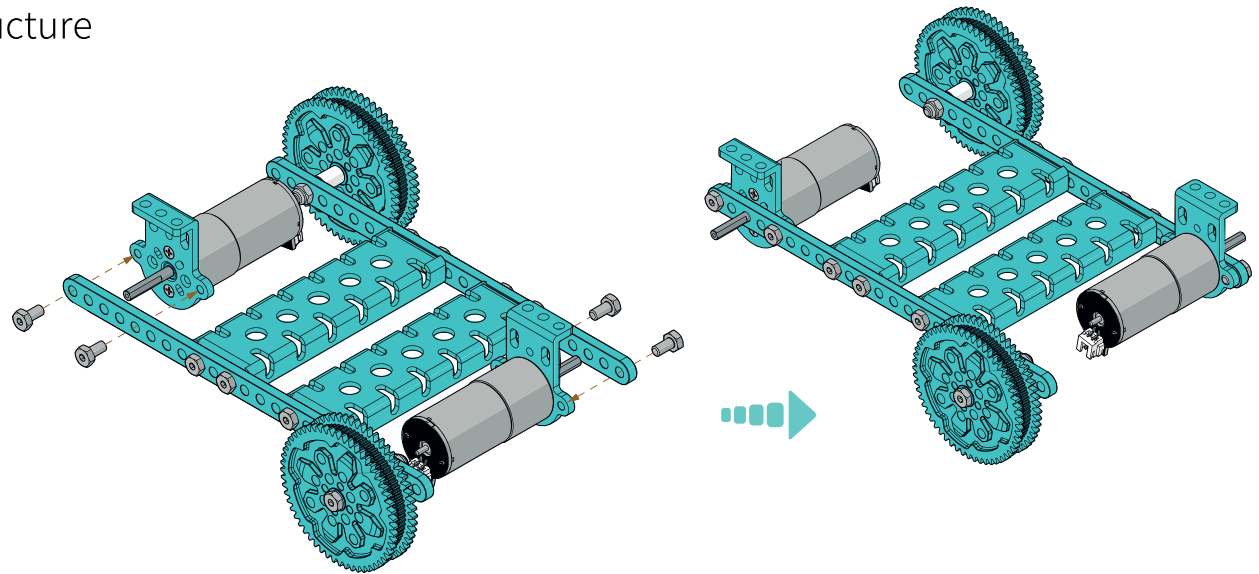
[Assembly Guide of Detection Robot]

05 Assemble Motor to Base Structure



4x Screw M4*8

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



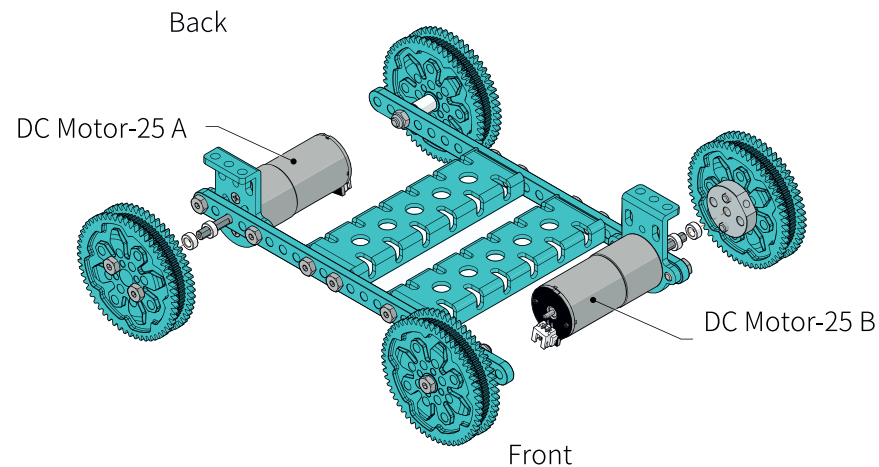
06 Assemble Active Wheel to Motor Shaft



4x Nylon Spacer 4*7*3



2x Active Wheel



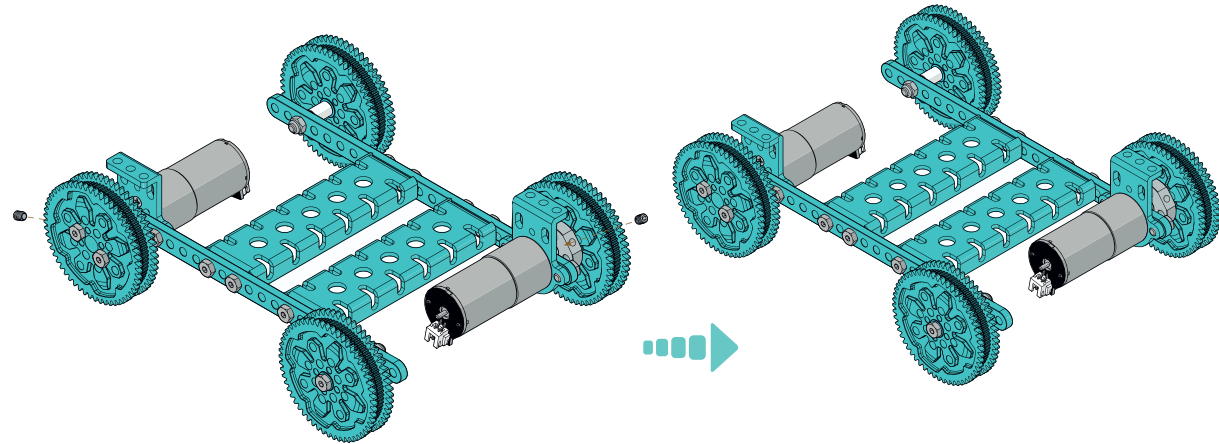
[Assembly Guide of Detection Robot]

06 Assemble Active Wheel to Motor Shaft



2x Headless Screw M4*5

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



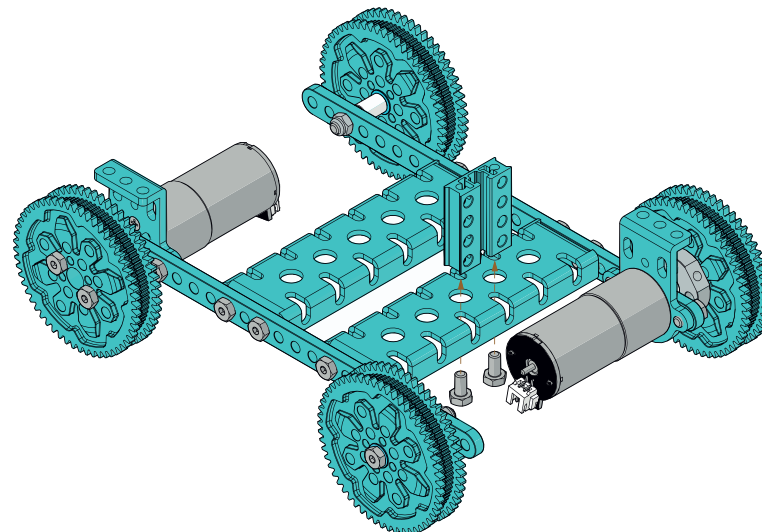
07 Assemble Slide Beam 0824-32



2x Screw M4*8



1x Slide Beam 0824-32



[Assembly Guide of Detection Robot]

08 Assemble the RGB Ultrasonic Sensor



2x Screw M4*8



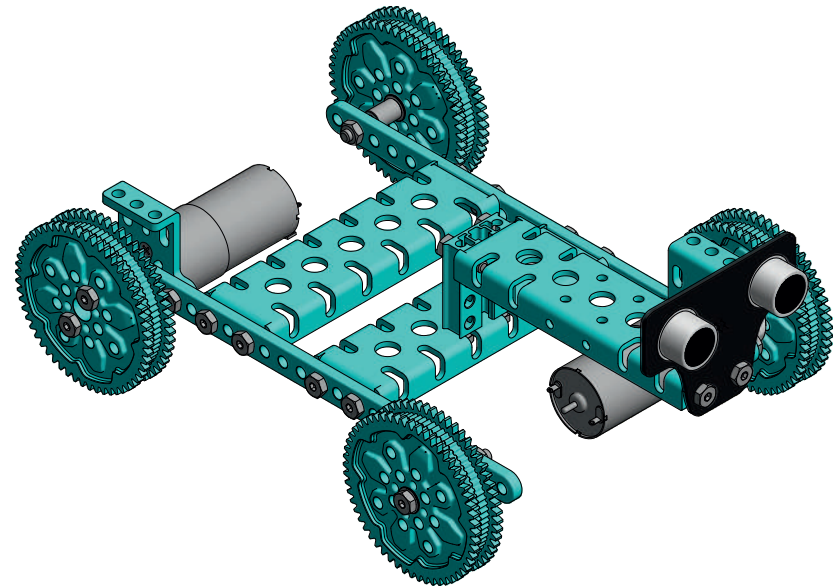
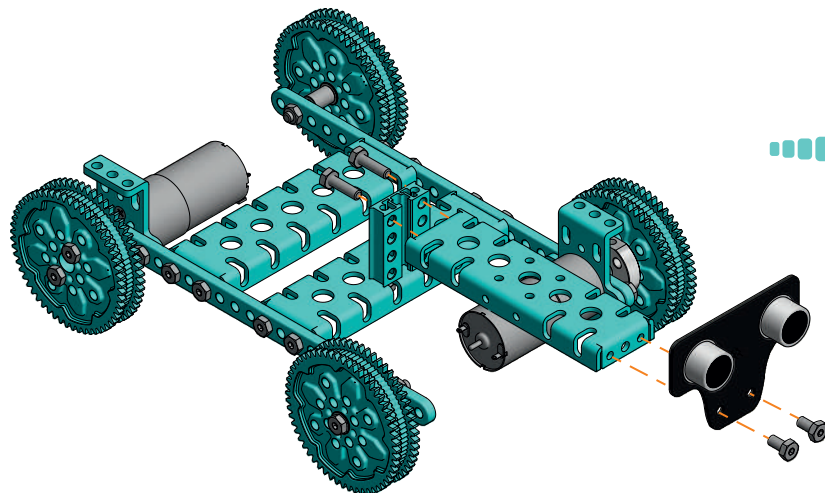
2x Screw M4*14



1x Beam 1030-100-B

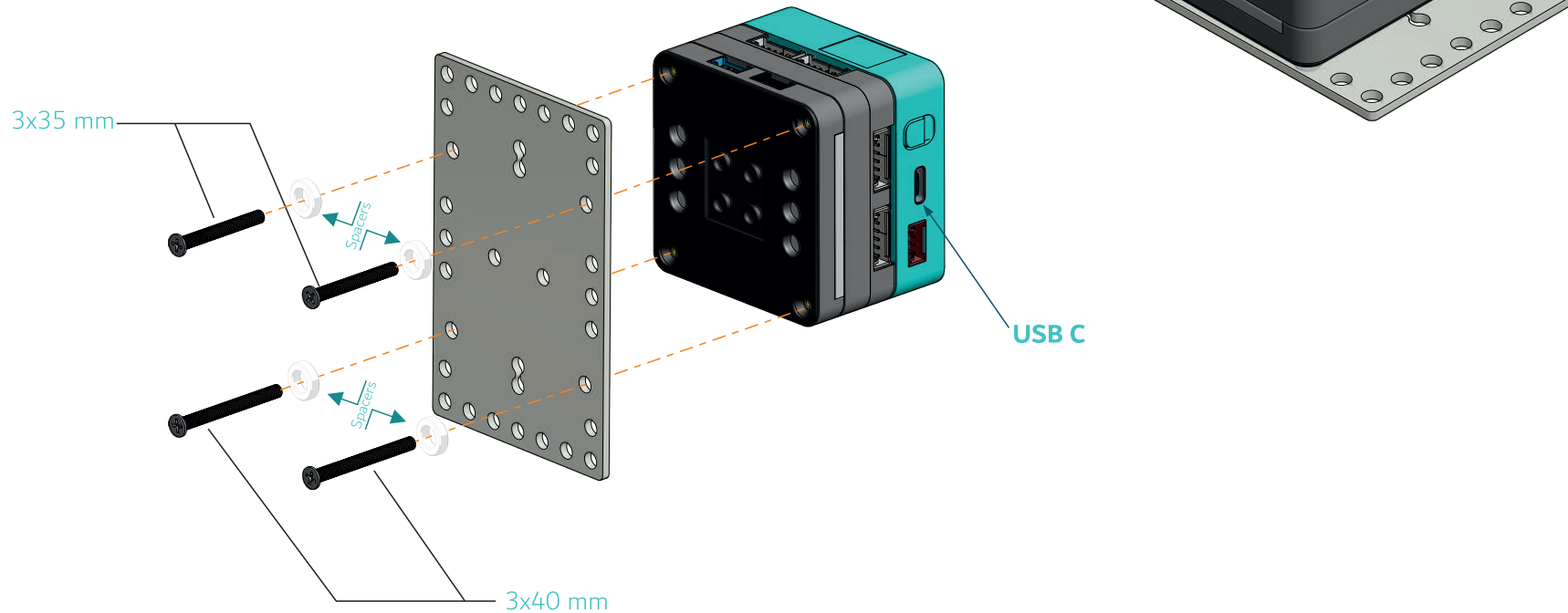


1x RGB Ultrasonic Sensor



[Assembly Guide of Detection Robot]

09 Assemble Base structure



[Assembly Guide of Detection Robot]

10 Place control unit to the Robot



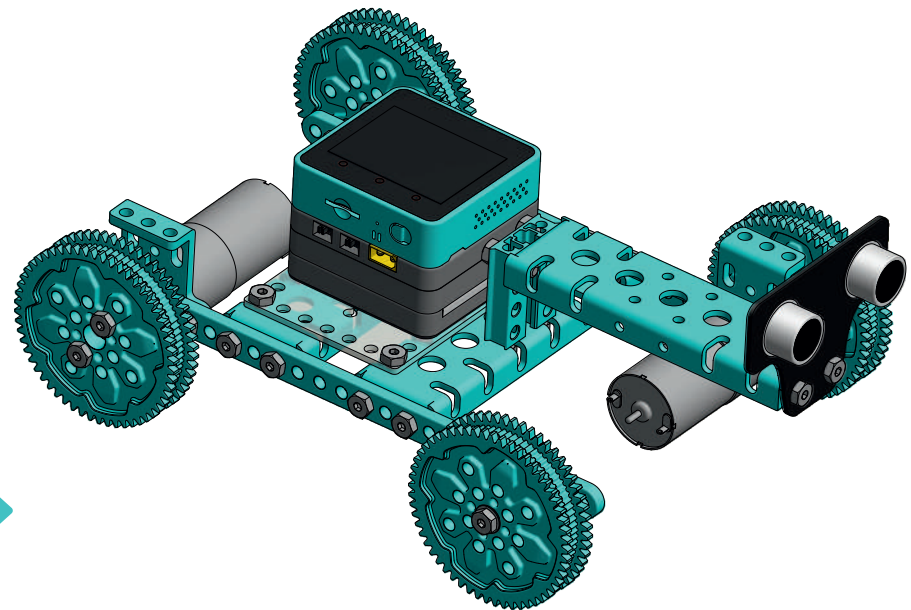
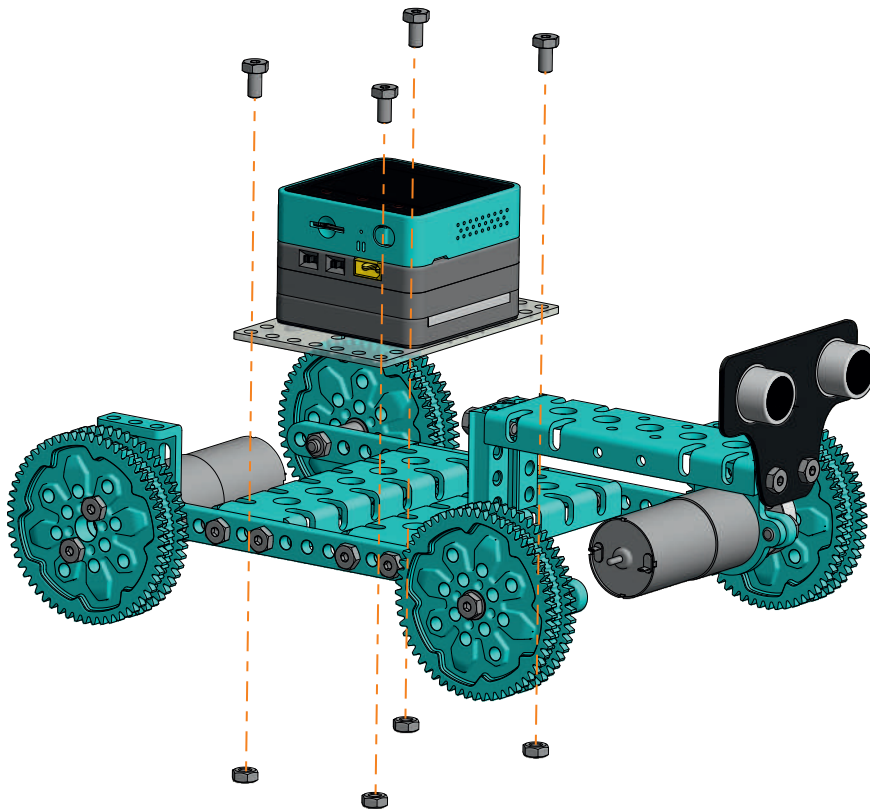
1x MC4.0 Controller



4x Screw M4*8



4x Screw Nut M4



[Assembly Guide of Detection Robot]

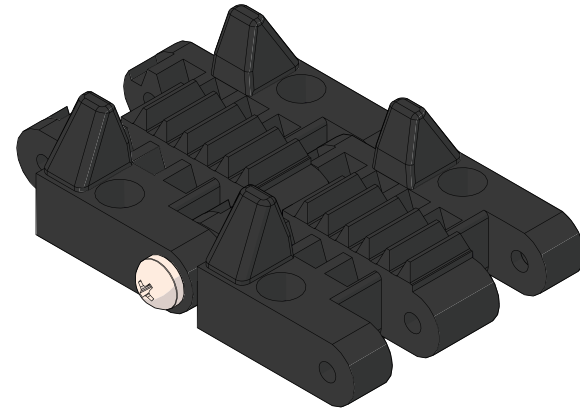
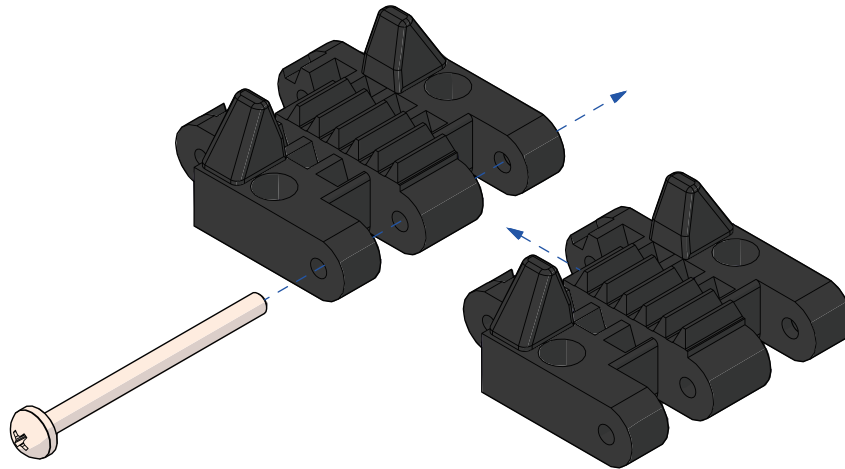
11 Assemble Caterpillar Track



2x Track



1x Track Axle 2*26



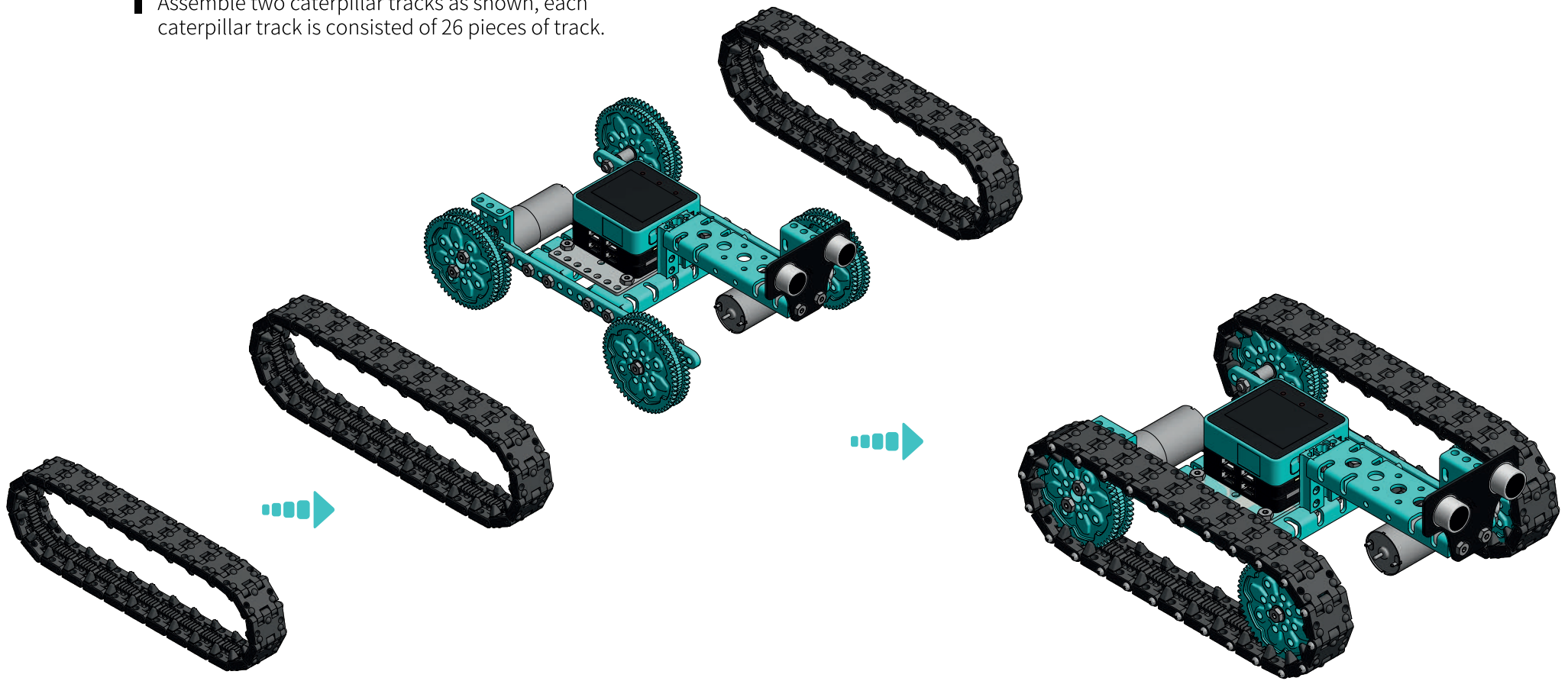
[Assembly Guide of Detection Robot]

12 Assemble Track to the Robot



2x Track

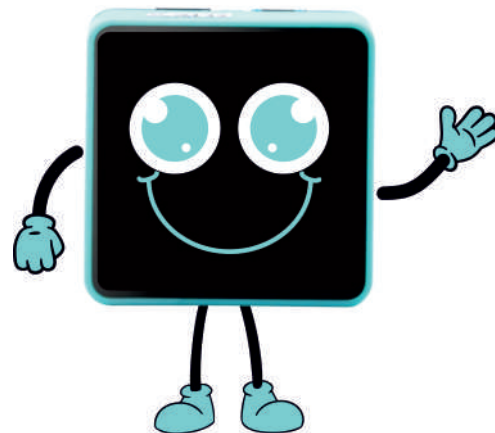
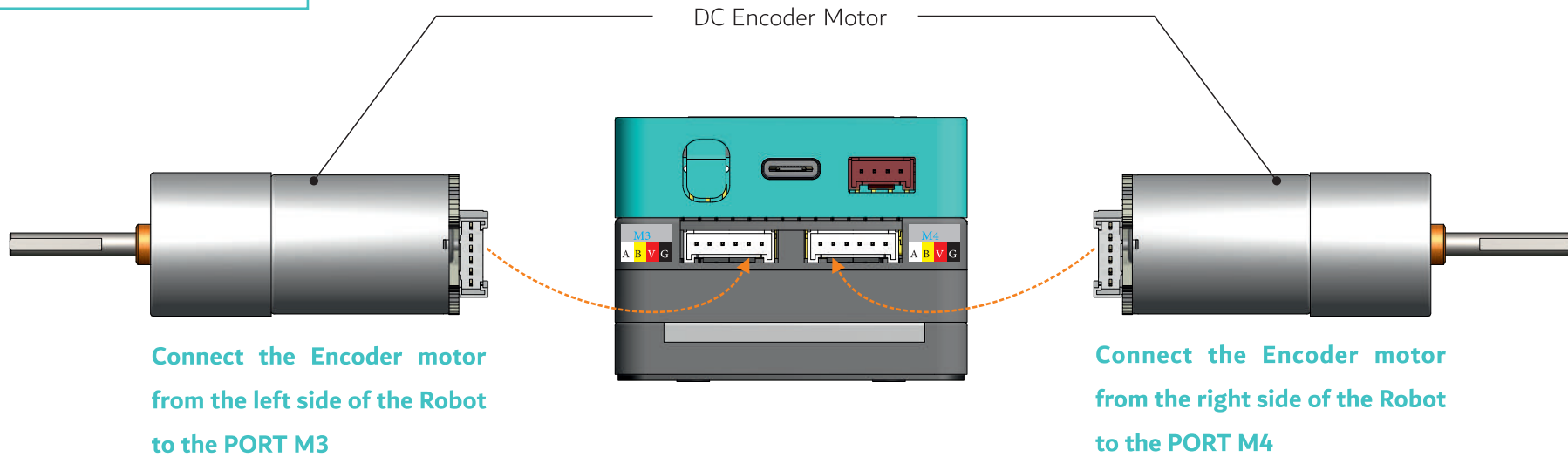
Assemble two caterpillar tracks as shown, each caterpillar track is consisted of 26 pieces of track.



[Assembly Guide of Detection Robot]

13 Wiring Motors

2x Motor Cable



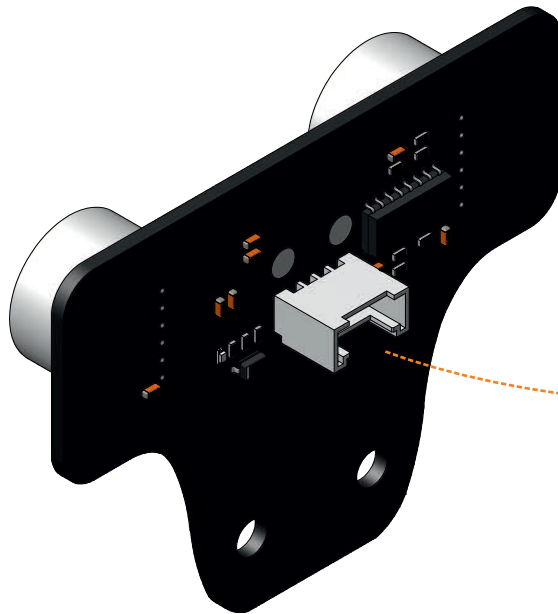
Great engineers check their connections twice! Are you one of them?

”

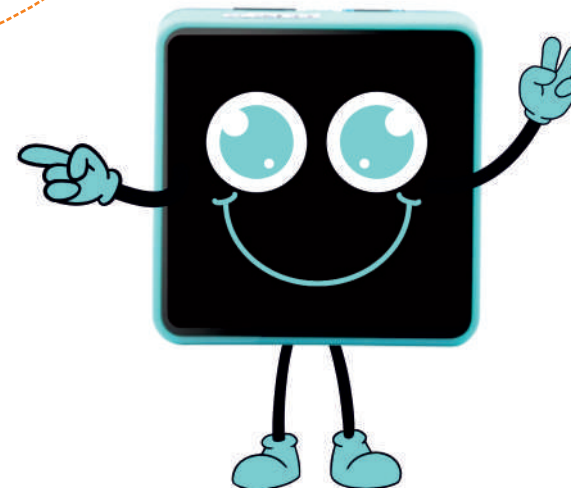
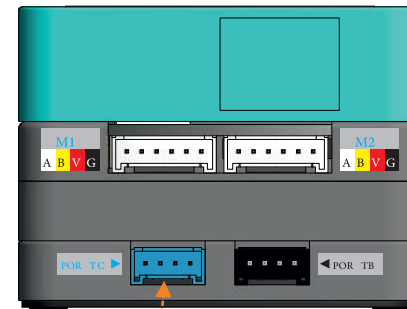
[Assembly Guide of Detection Robot]

14 Place control unit to the Wiring Sensors

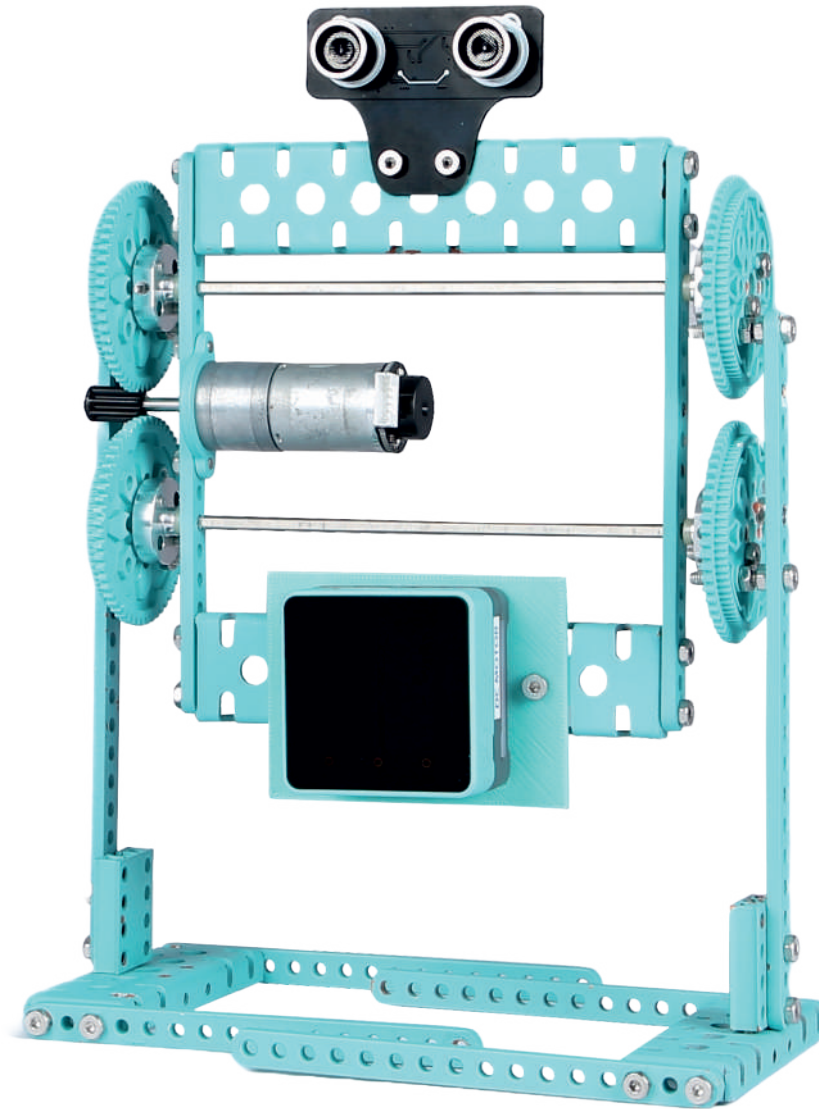
1x Grove Cable



Connect the Ultrasonic sensor
to the PORTC

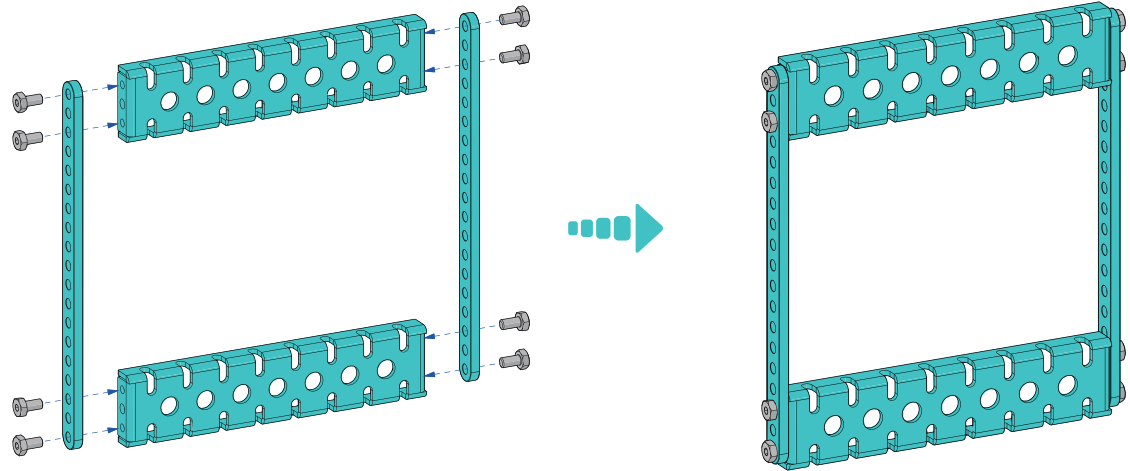
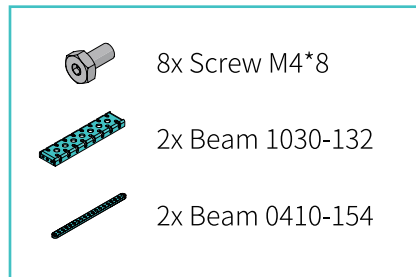


[Walking Robot]

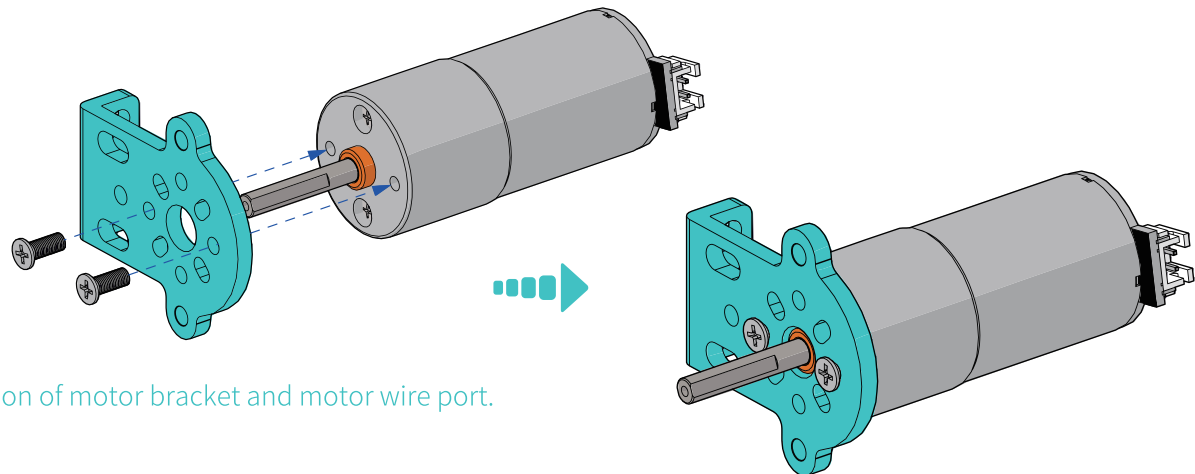
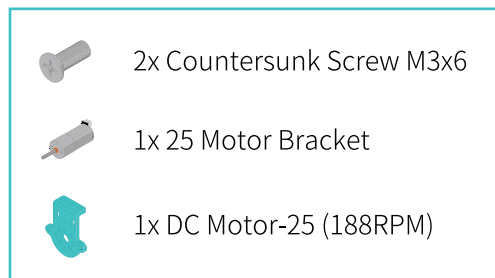


[Assembly Guide of Walking Robot]

01 Assemble the Body Frame



02 Assemble the DC Motor



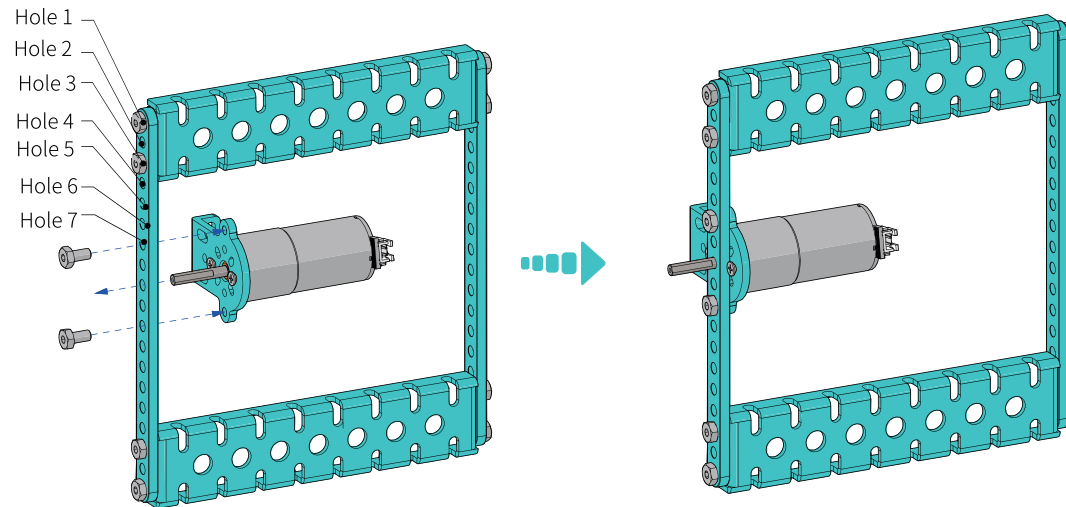
Pay attention to the direction of motor bracket and motor wire port.

[Assembly Guide of Walking Robot]

03 Assemble the DC Motor



2x Screw M4*8

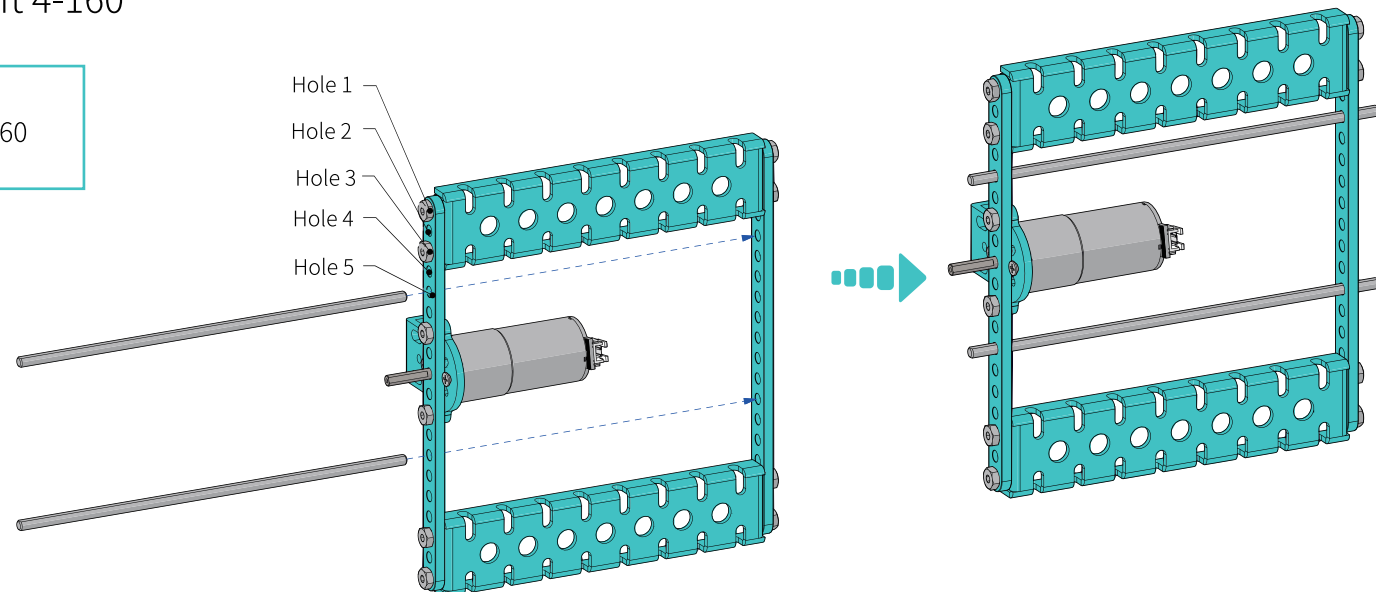


Pay attention to the direction of motor bracket and motor wire port.

04 Assemble the Flat Shaft 4-160



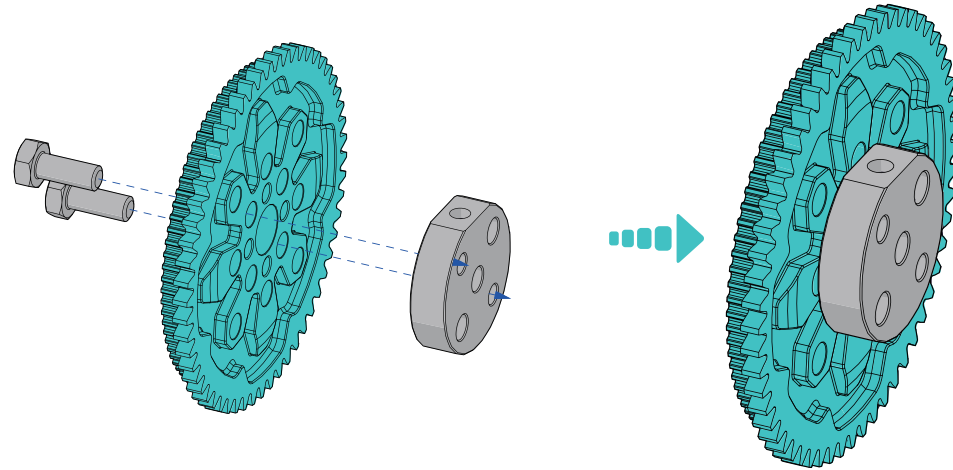
Assemble the Flat Shaft 4-160



[Assembly Guide of Walking Robot]

05 Assemble the 56T Plastic Gear

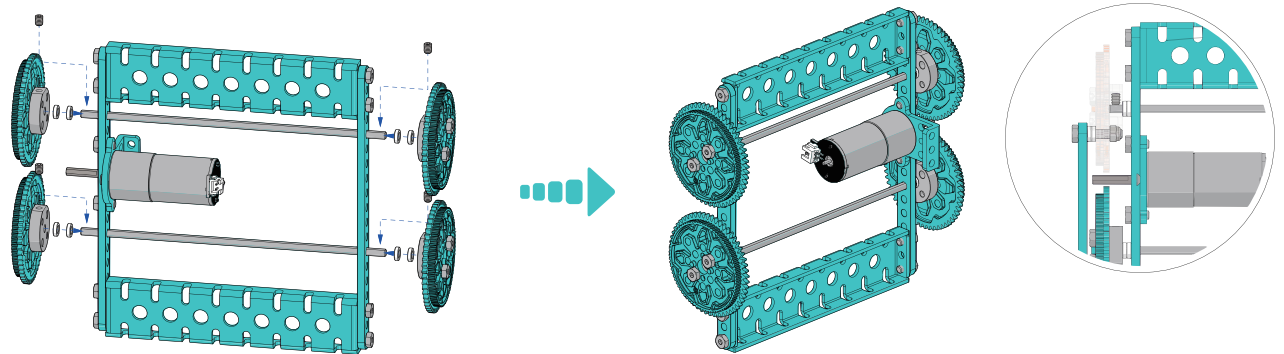
- 2x Screw M4*10
- 1x Driving Flange Hub 4mm
- 1x 56T-Plastic Gear



Repeat four times, assemble four gears.

06 Install the 56T Plastic Gear to Body Frame

- 4x Headless Screw M4*5
- 8x Nylon Spacer 4*7*2

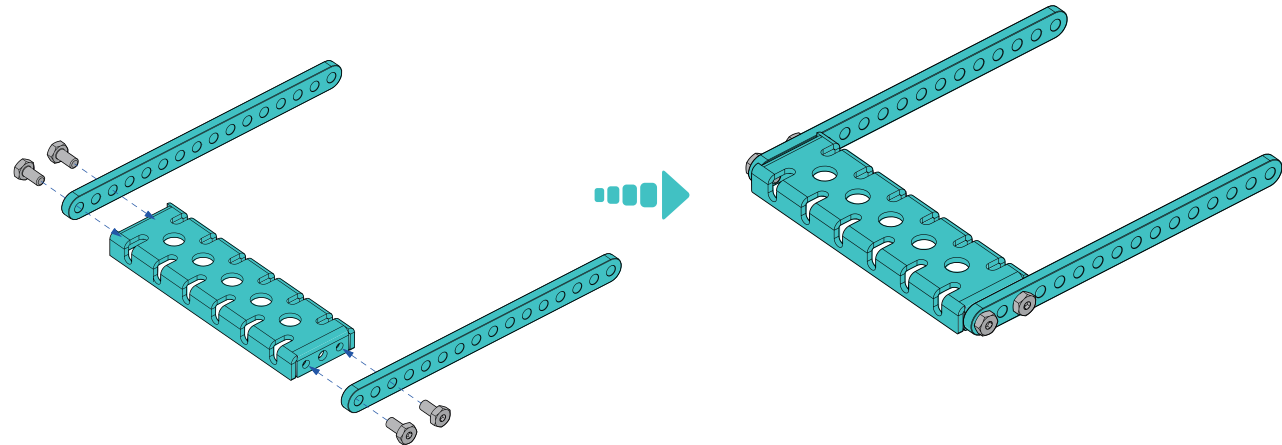


Tips: Pay attention to the parallelism of 56T plastic gear.
Screw the headless screw M4*5 to the flat surface of flat shaft 4-160.

[Assembly Guide of Walking Robot]

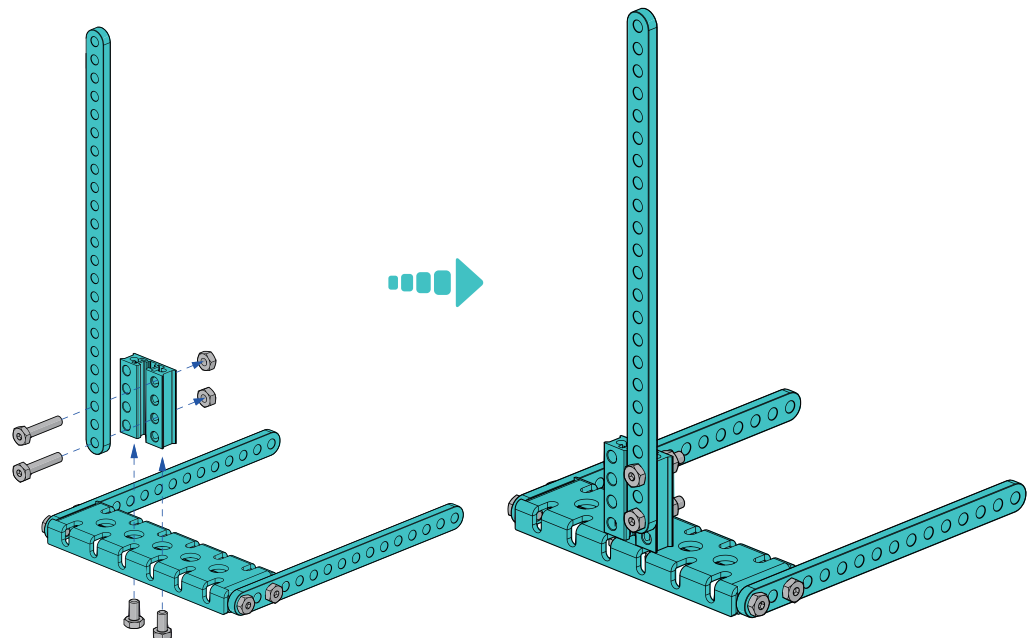
07 Assemble Two Legs

- 4x Screw M4*8
- 2x Beam 0410-130
- 1x Beam 1030-100



07 Assemble Two Legs

- 2x Screw M4*8
- 2x Screw M4*20
- 2x Screw Nut M4
- 1x Slide Beam 0824-32
- 1x Beam 0410-186



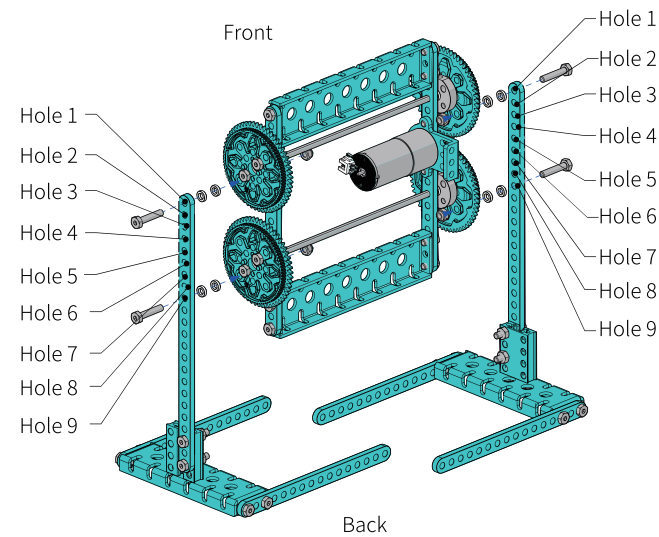
Repeat twice

[Assembly Guide of Walking Robot]

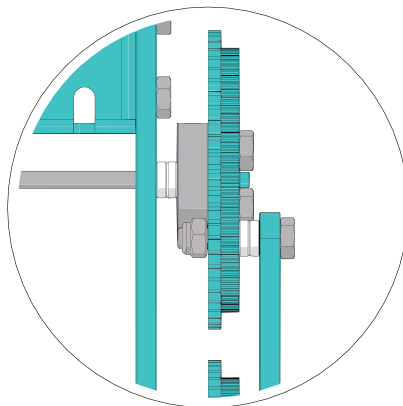
07 Assemble Two Legs

-  4x Screw M4*20
-  4x Nylon Locknut M4
-  8x Nylon Spacer 4*7*2

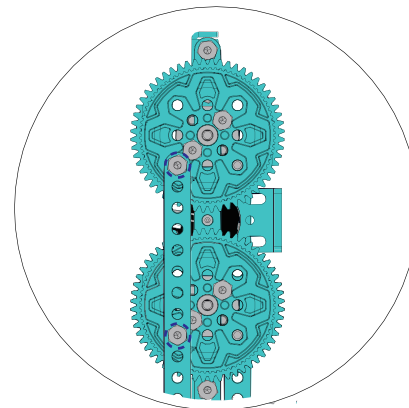
Tips:
1. Please install the screws as shown in the figure.
2. To ensure the robot walking properly, please install the two legs in correct direction as shown.



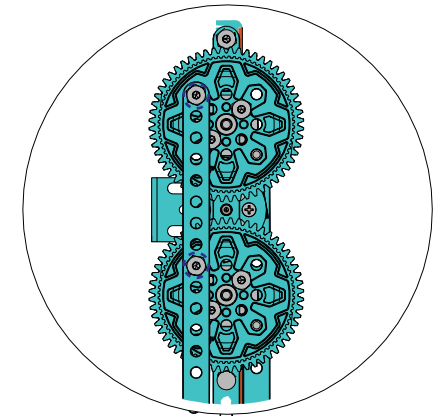
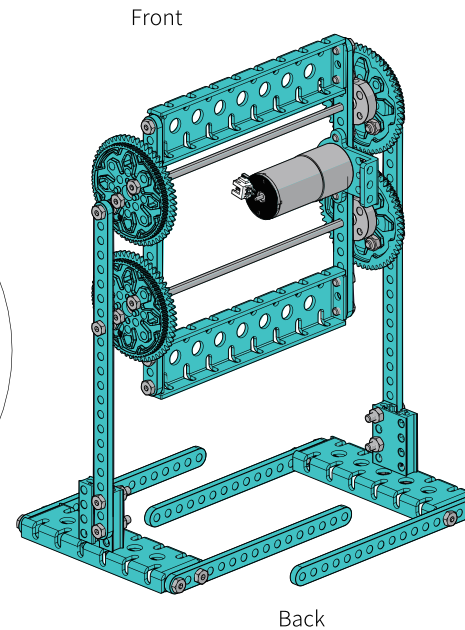
Tips: The left view of assembly is as show in below figure, please pay attention to the correct screw hole marked in blue.



Tips: Those four active joints need to keep certain space.
Standard: The four nylon locknuts are basically attached to the 56T plastic gear, and the four screw M4*20 are free to rotate.



Tips: Please install the screws as shown in the figure.



[Assembly Guide of Walking Robot]

09 Assemble The RGB Ultrasonic Sensor



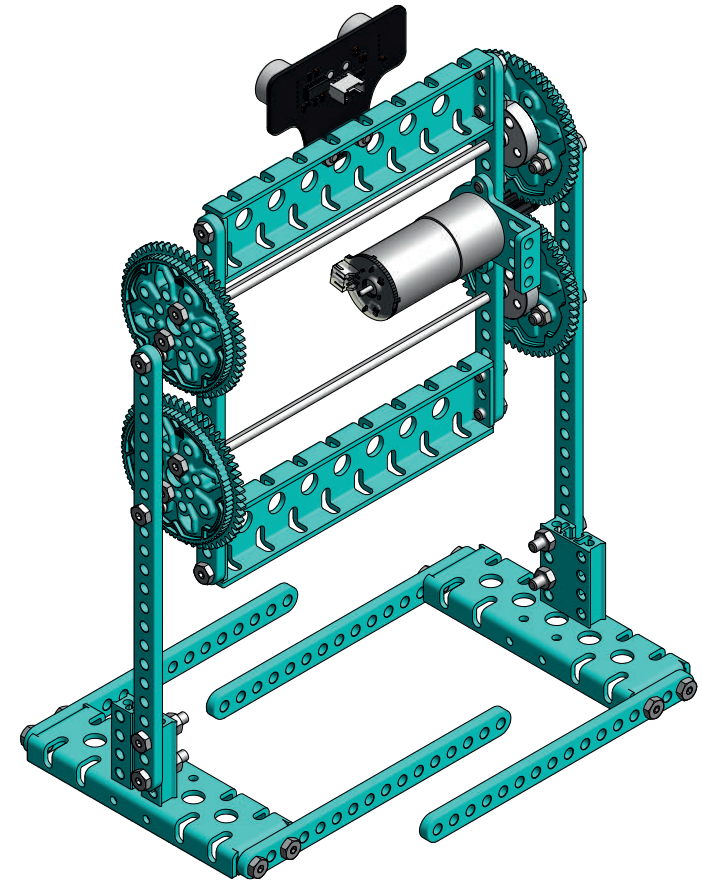
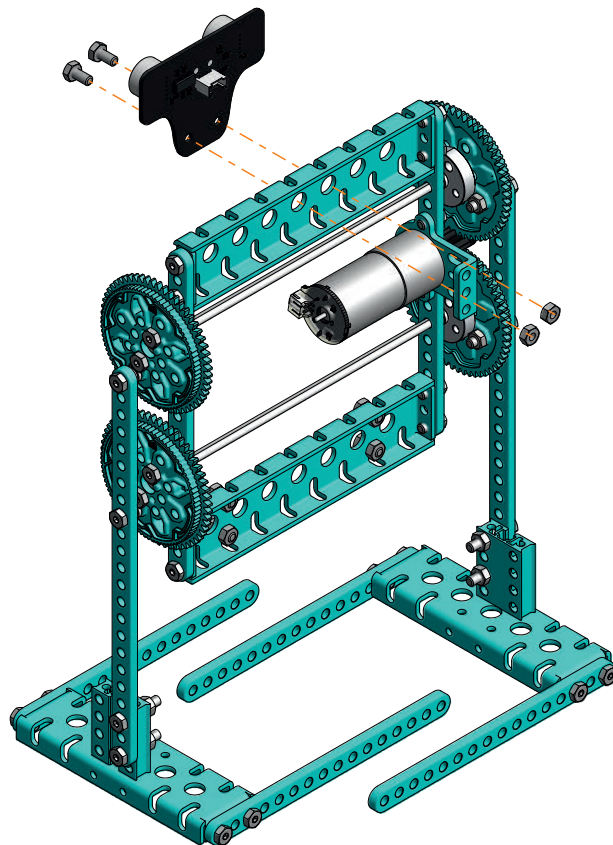
2x Screw M4*8



2x Screw Nut M4



1x RGB Ultrasonic Sensor



[Assembly Guide of Walking Robot]

10 Assemble the MC4.0



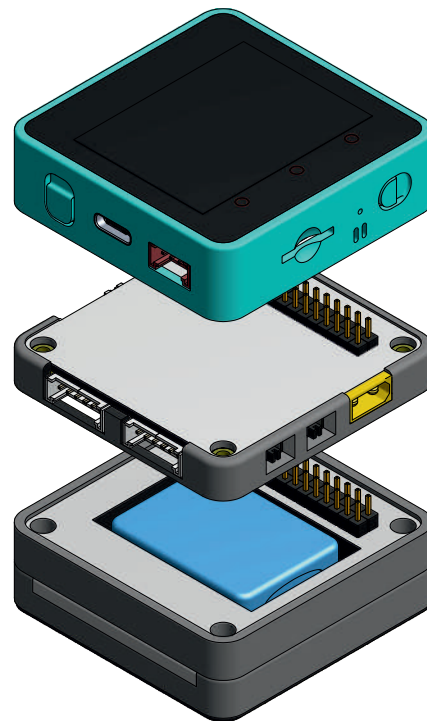
1x MC4.0 Controller



1x 4-Encoder motor Driver

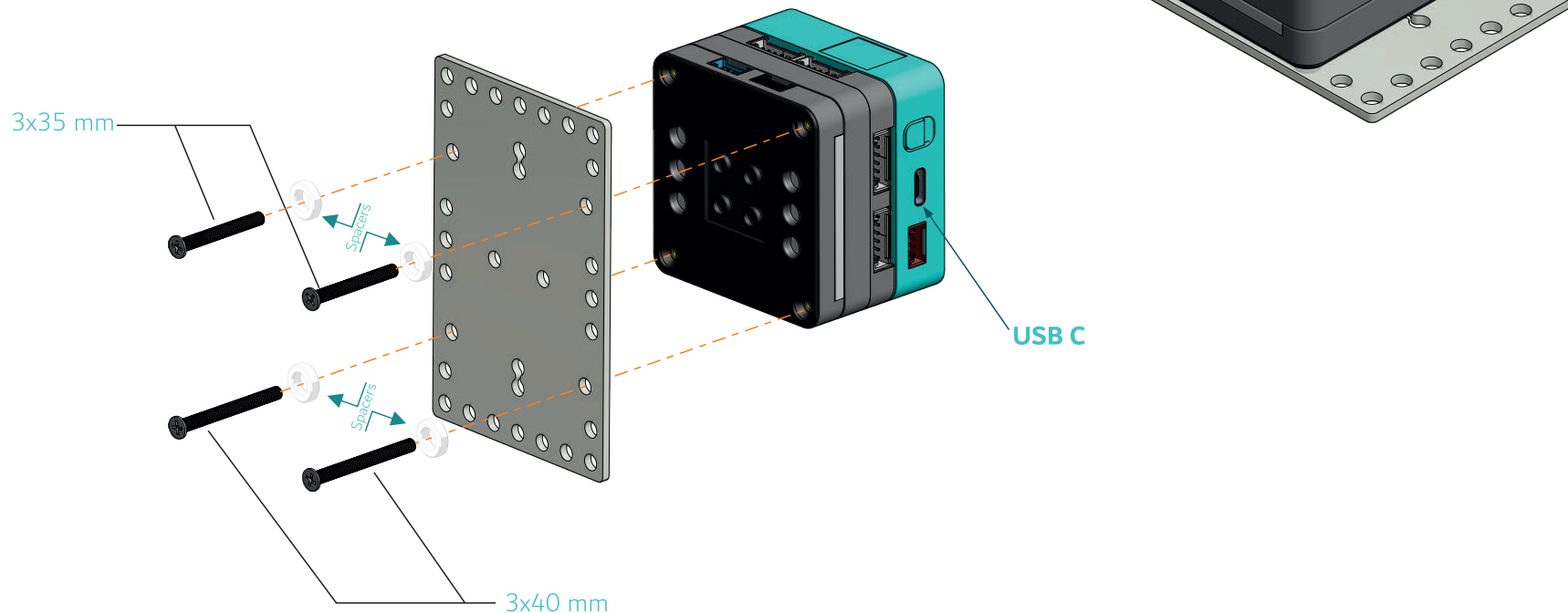


1x MC4.0 Battery



[Assembly Guide of Walking Robot]

11 Assemble Base structure



[Assembly Guide of Walking Robot]

12 Place control unit to the Walking Robot



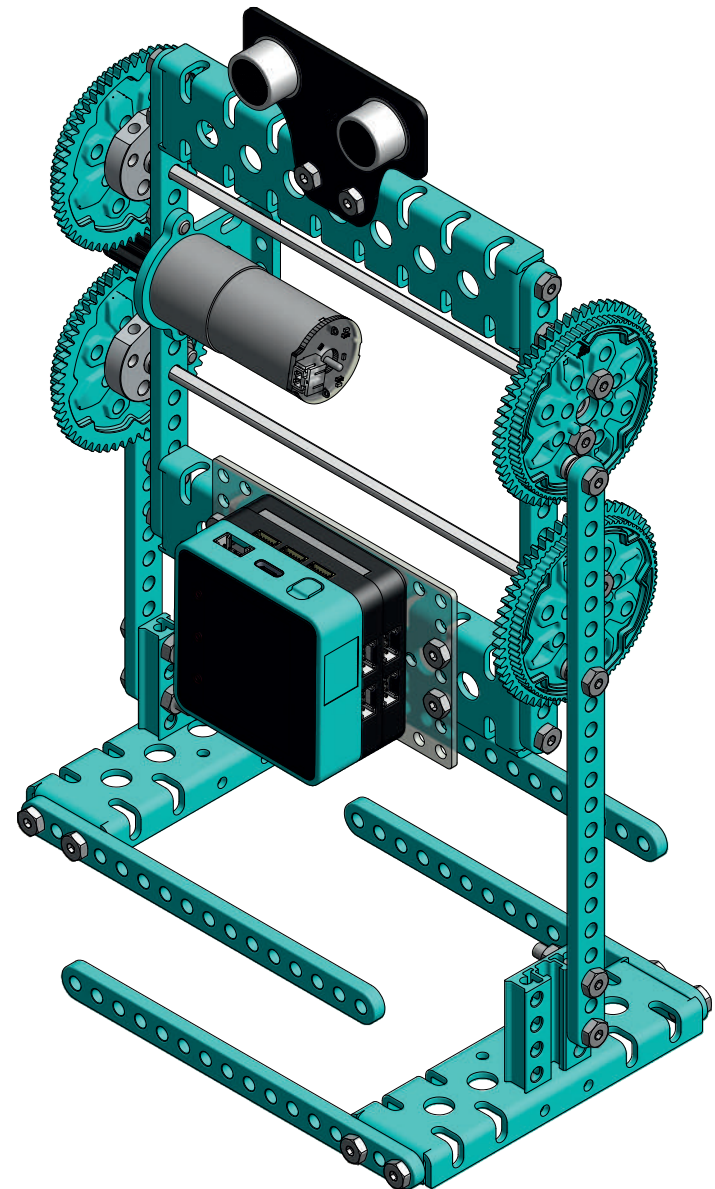
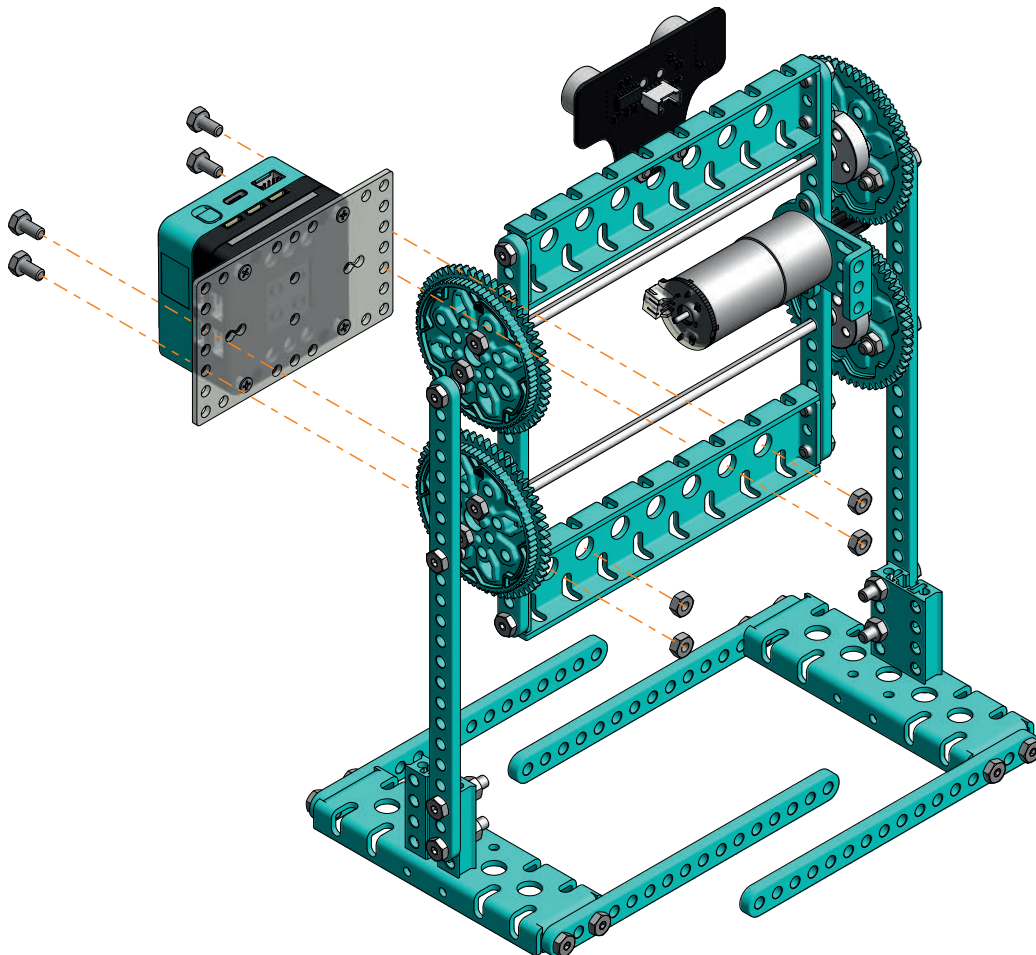
1x MC4.0 Controller



4x Screw M4*8



4x Screw Nut M4

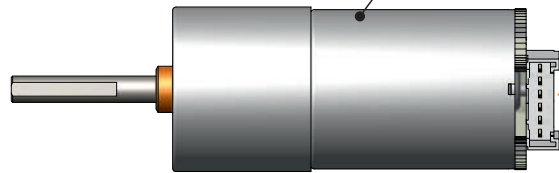


[Assembly Guide of Walking Robot]

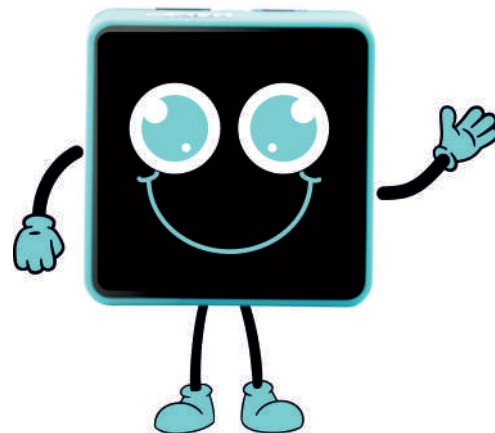
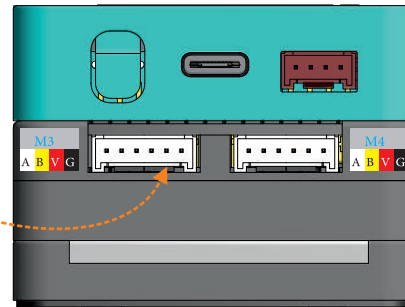
13 Wiring Motors

1x Motor Cable

DC Encoder Motor



Connect the Encoder motor
to the PORT M3



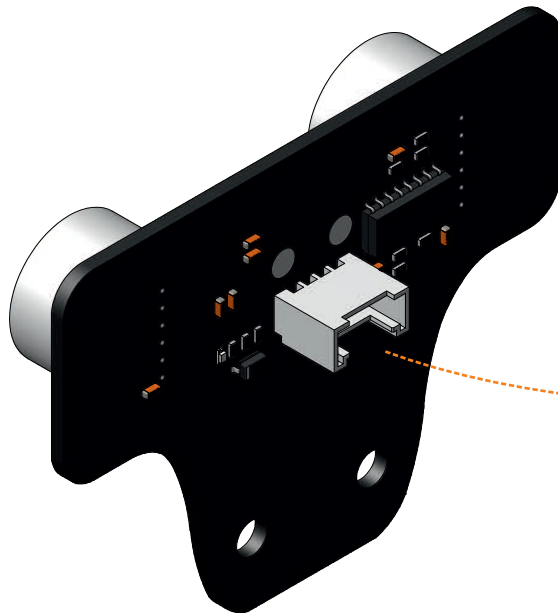
Great engineers check their
connections twice! Are you
one of them?

”

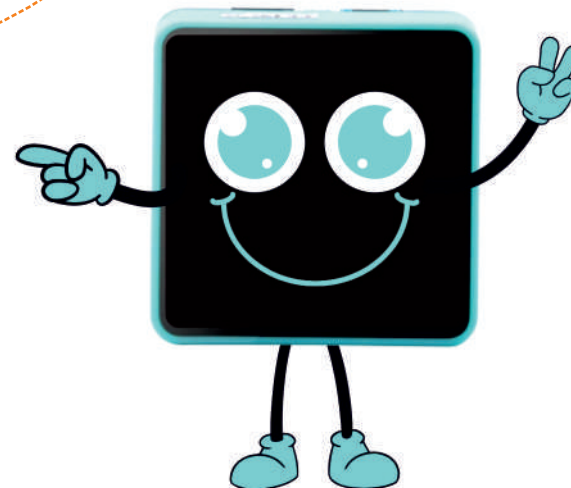
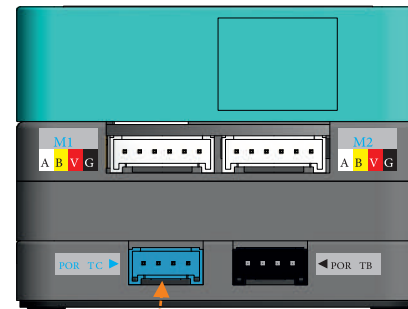
[Assembly Guide of Walking Robot]

14 Place control unit to the Wiring Sensors

1x Grove Cable



Connect the Ultrasonic sensor
to the PORTC



[3-Wheel Robot]



[Assembly Guide of 3-Wheel Robot]

01 Assemble Encoder DC motor



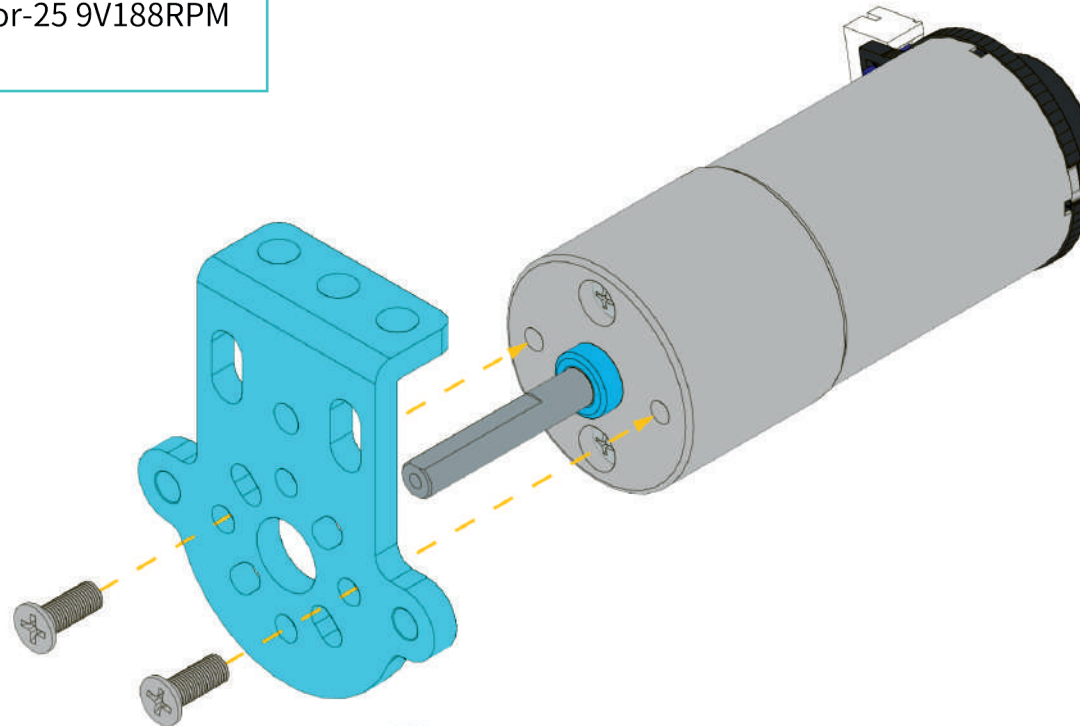
2xCountersunk Head Screw M3*6



1x25 Motor Bracket



1xEncoder DC Motor-25 9V188RPM



Tips:

Please pay attention to the hole position and direction.

[Assembly Guide of 3-Wheel Robot]

02 Assemble Wheels



2x56T-Plastic Gear



1xTyre 64*16



Engage two 56T plastic gear with each other to assemble a 56T wheel hub and then load the tyre.

[Assembly Guide of 3-Wheel Robot]

02 Assemble Wheels



× 2

[Assembly Guide of 3-Wheel Robot]

03 Assemble Flange Hub



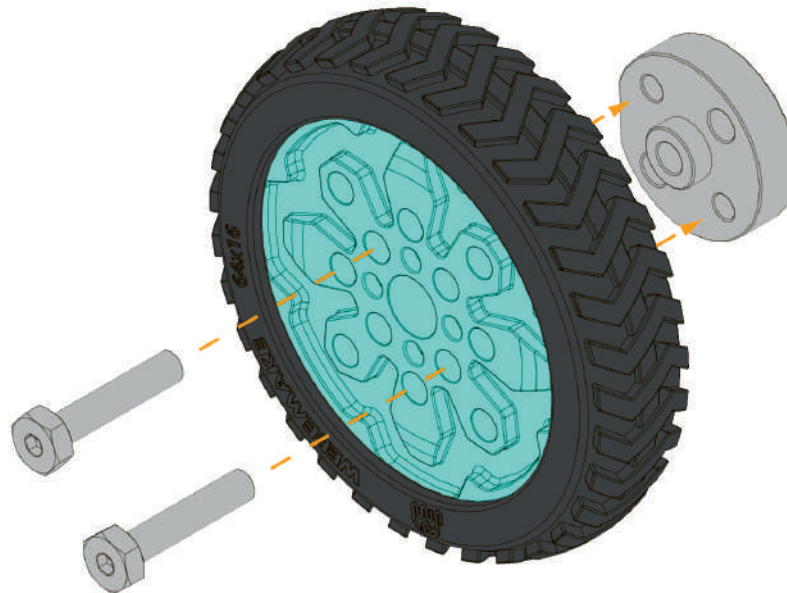
2xScrew M4*20



1xDriving Flange Hub 4mm



1xWheel assembly



[Assembly Guide of 3-Wheel Robot]

03 Assemble Flange Hub



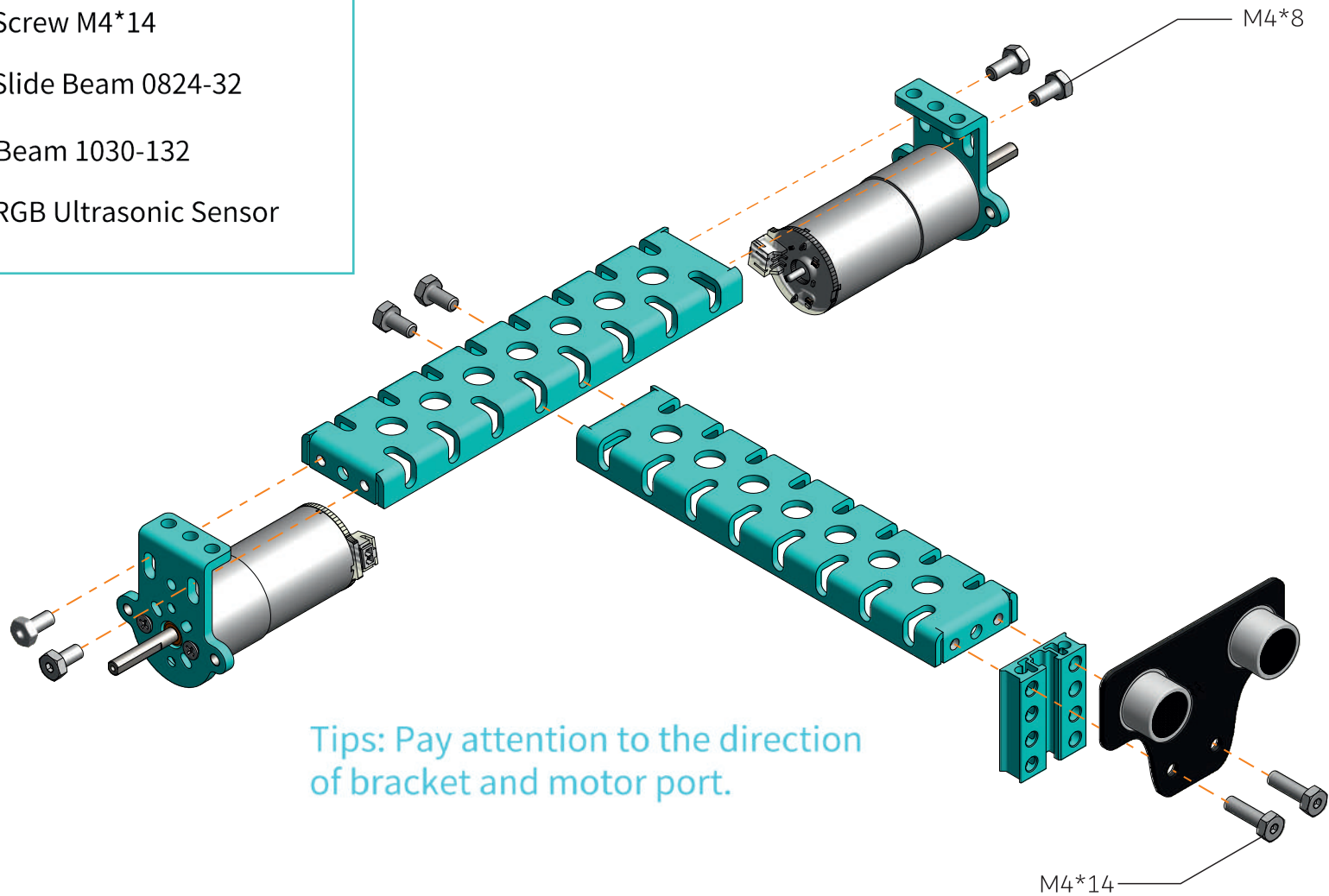
Reference view

×2

[Assembly Guide of 3-Wheel Robot]

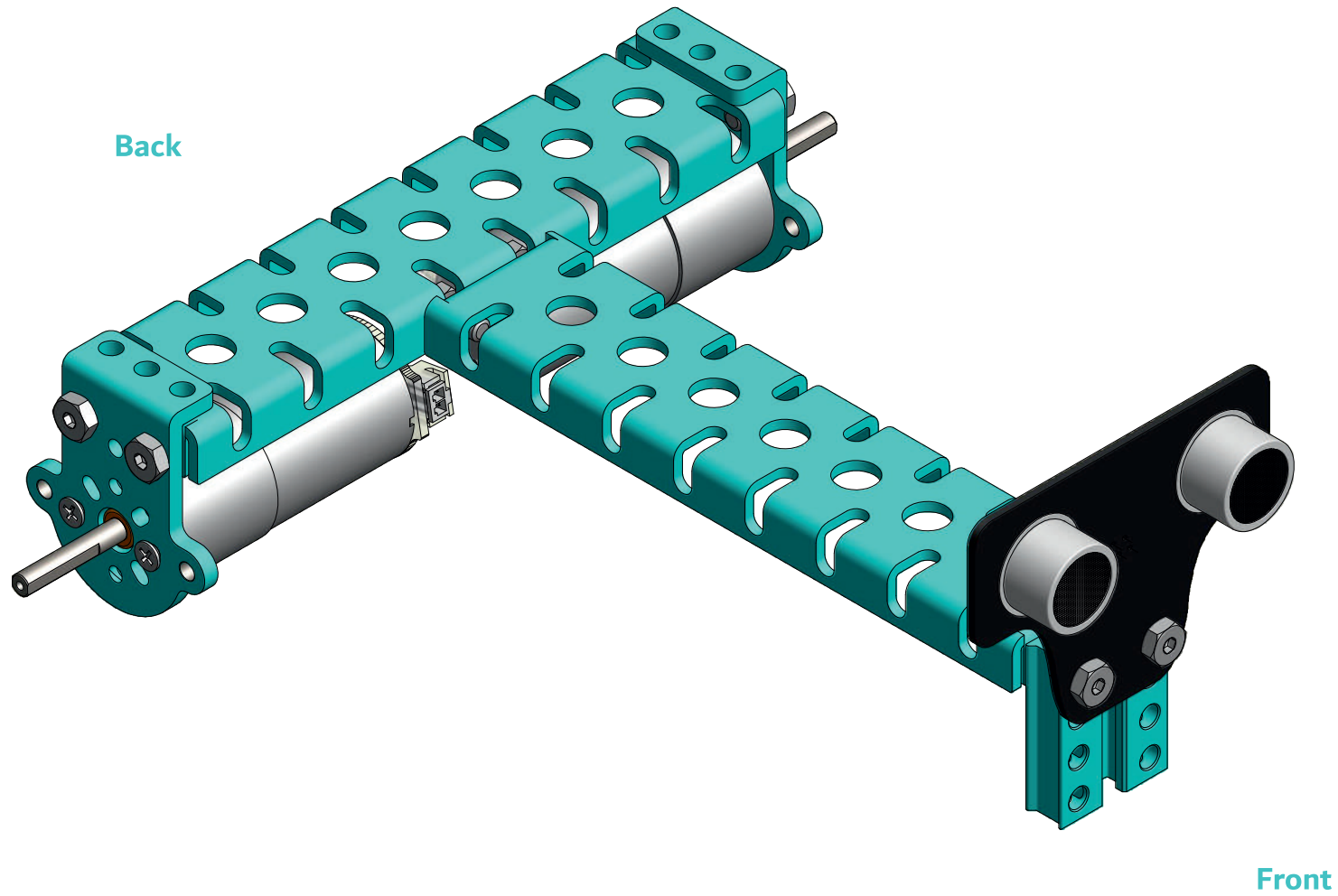
04 Assemble Base structure

- 6xScrew M4*8
- 2xScrew M4*14
- 1xSlide Beam 0824-32
- 2xBeam 1030-132
- 1xRGB Ultrasonic Sensor



[Assembly Guide of 3-Wheel Robot]

04 Assemble Base structure

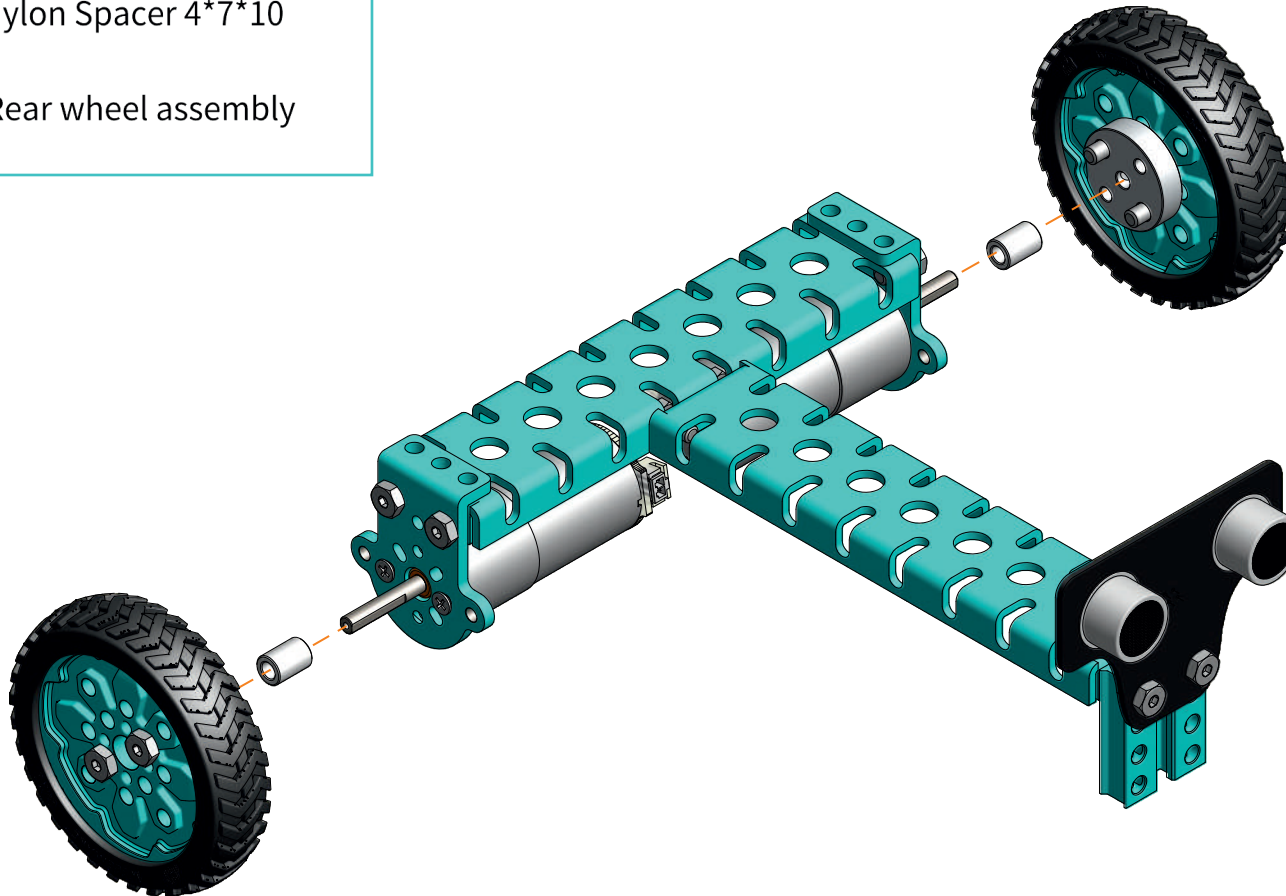


[Assembly Guide of 3-Wheel Robot]

04 Assemble Wheels

 2xNylon Spacer 4*7*10

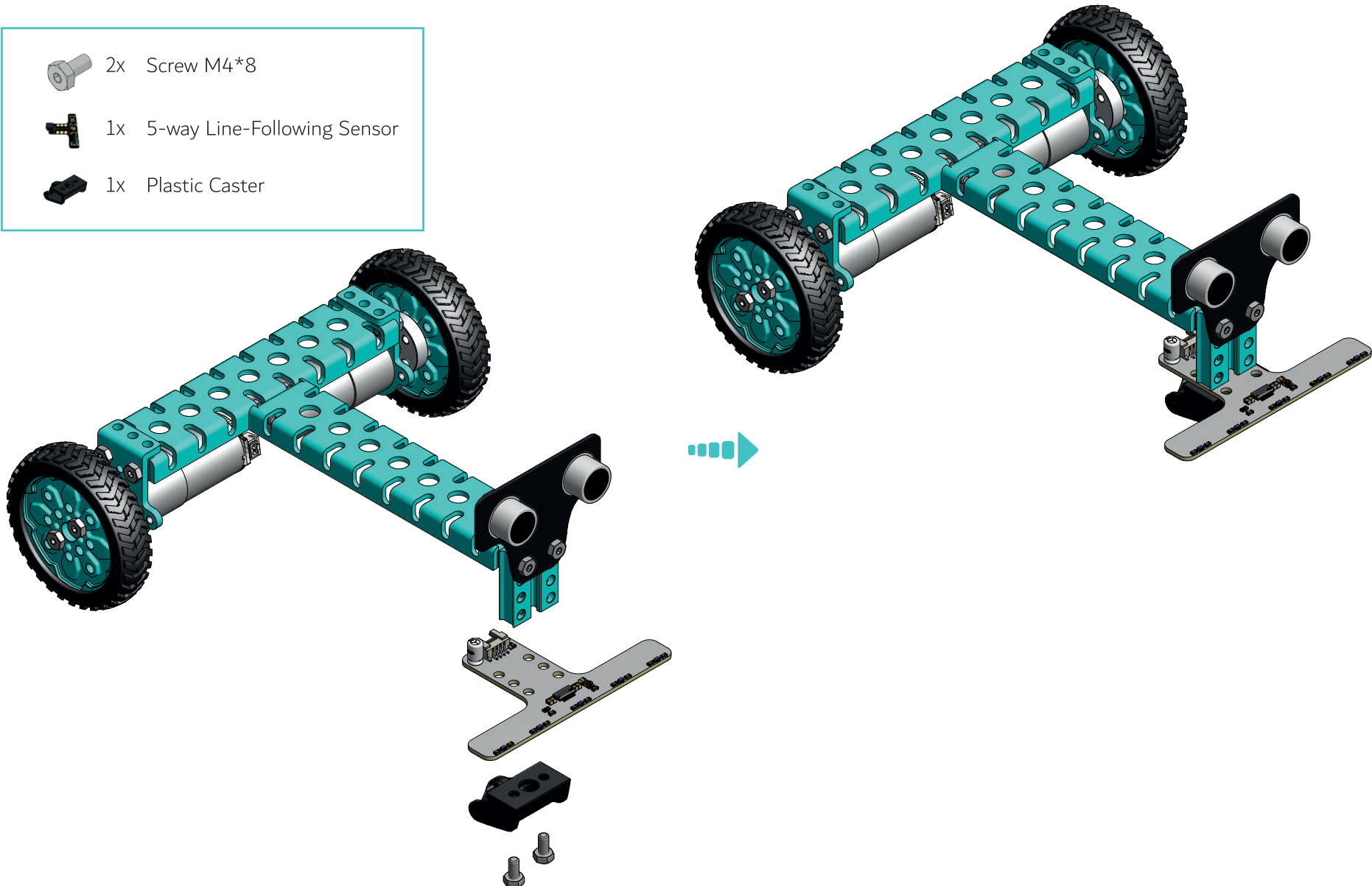
 2xRear wheel assembly



[Assembly Guide of 3-Wheel Robot]

06 Assemble Line-Following Sensor

- 2x Screw M4*8
- 1x 5-way Line-Following Sensor
- 1x Plastic Caster

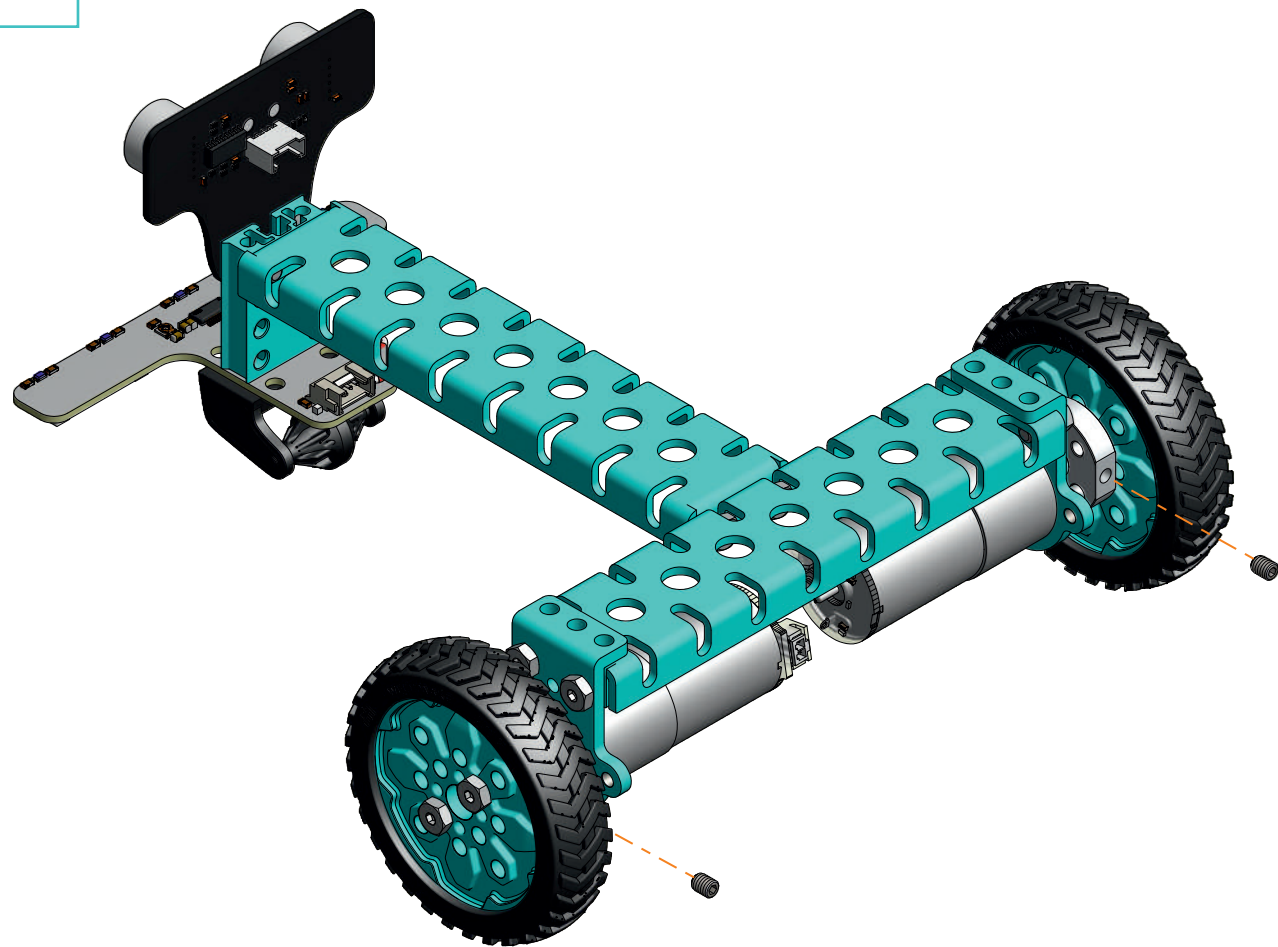


[Assembly Guide of 3-Wheel Robot]

07 Assemble Wheels



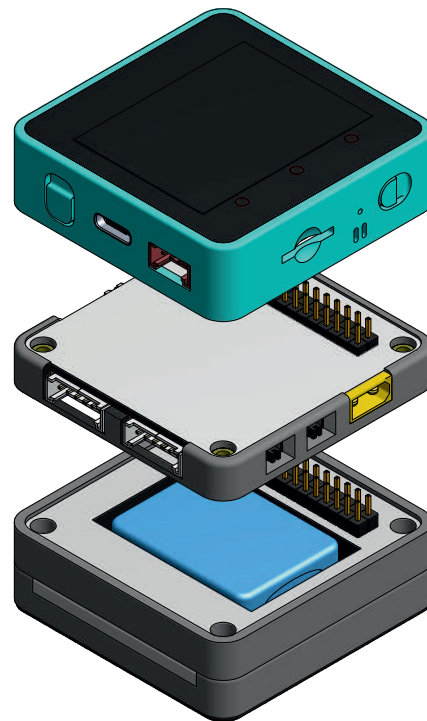
2x Headless Screw M4*5



[Assembly Guide of 3-Wheel Robot]

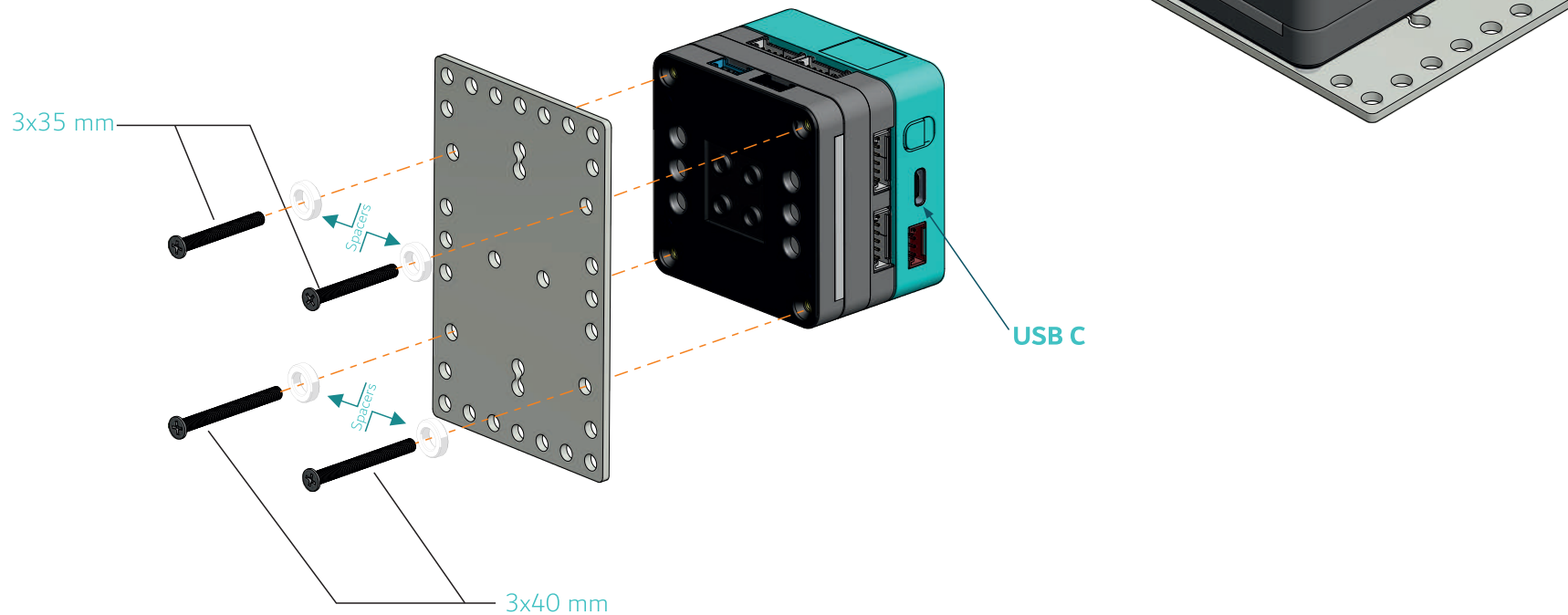
08 Assemble the MC4.0

-  1x MC4.0 Controller
-  1x 4-Encoder motor Driver
-  1x MC4.0 Battery



[Assembly Guide of 3-Wheel Robot]

09 Assemble Base structure



[Assembly Guide of 3-Wheel Robot]

10 Place control unit to the Wall-E



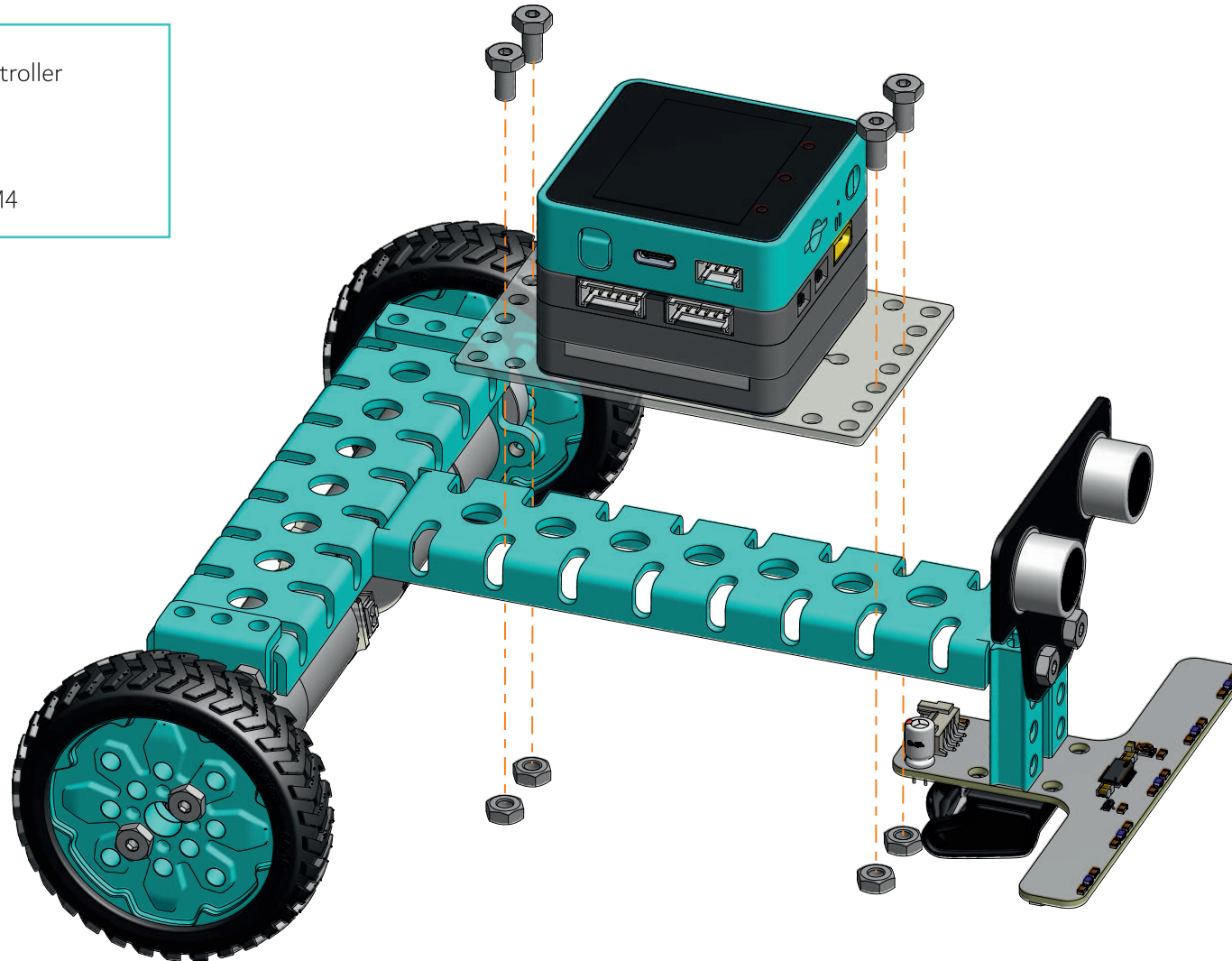
1x MC4.0 Controller



4x Screw M4*8



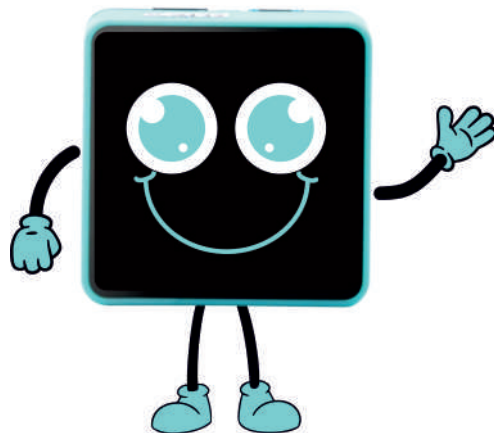
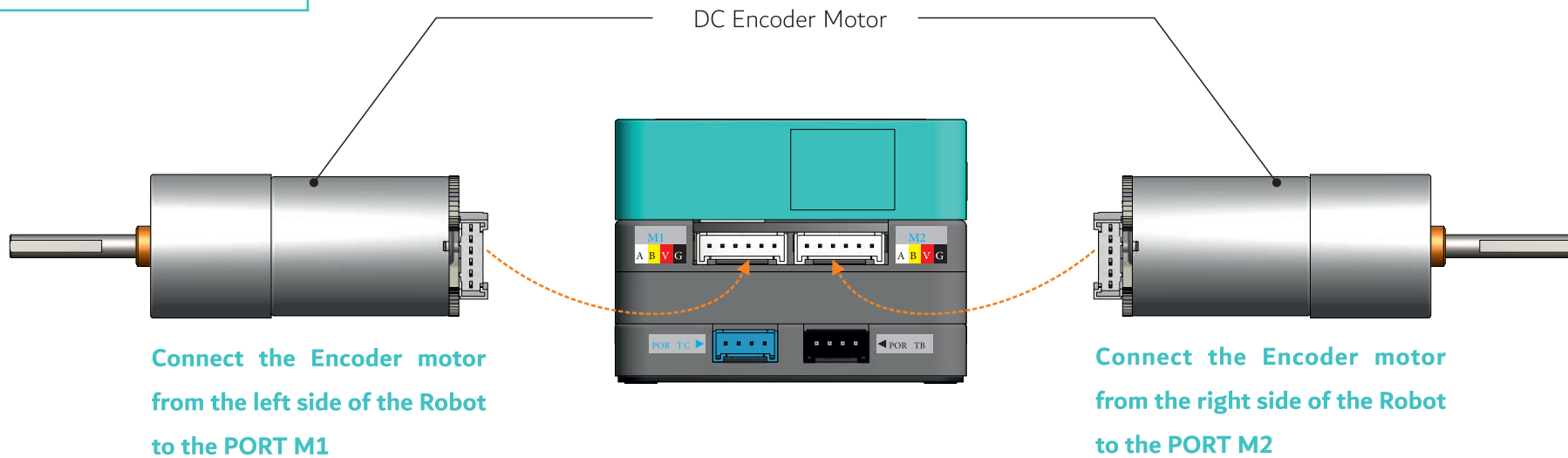
4x Screw Nut M4



[Assembly Guide of 3-Wheel Robot]

11 Wiring Motors

2x Motor Cable



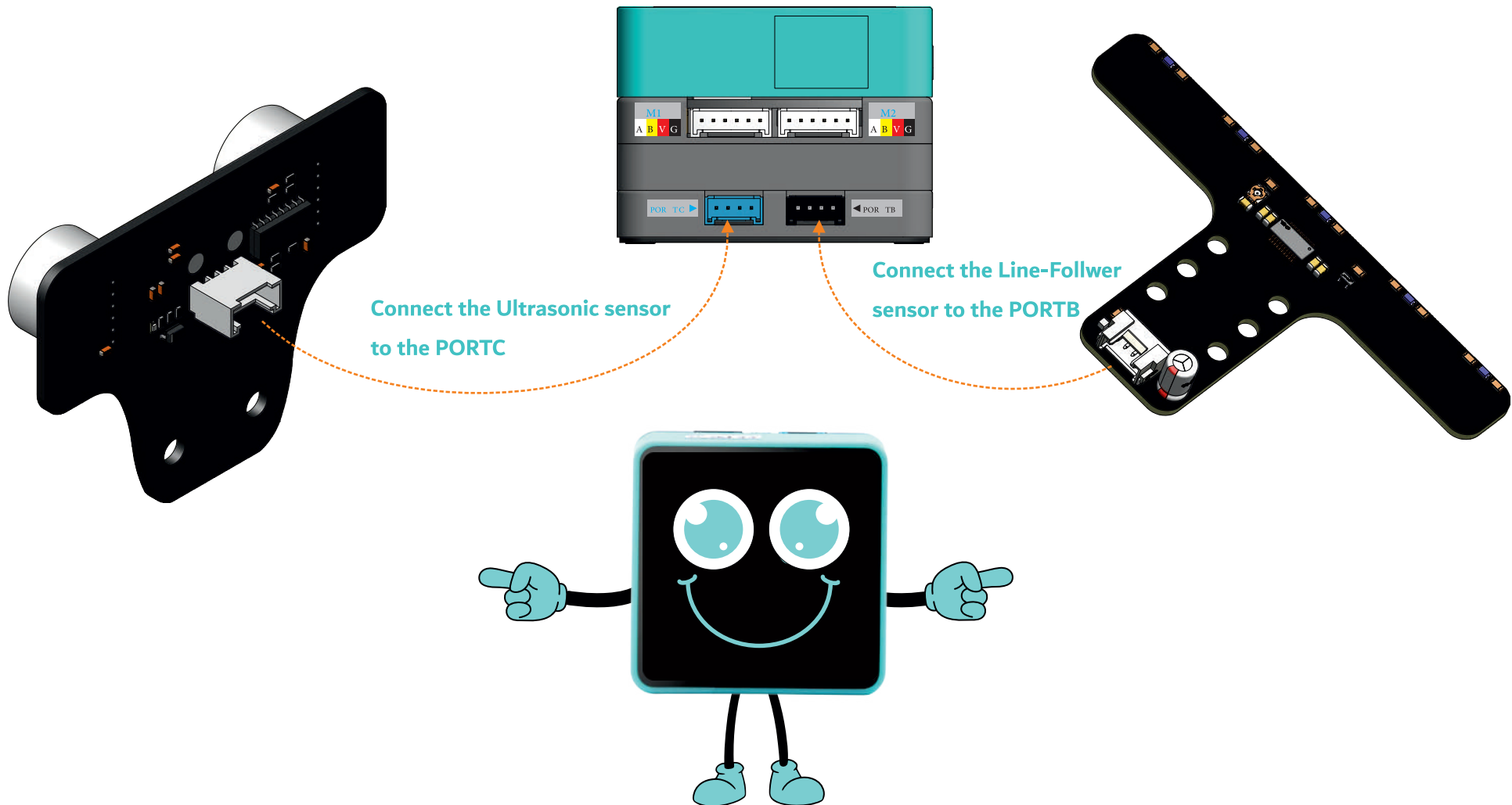
Great engineers check their connections twice! Are you one of them?

”

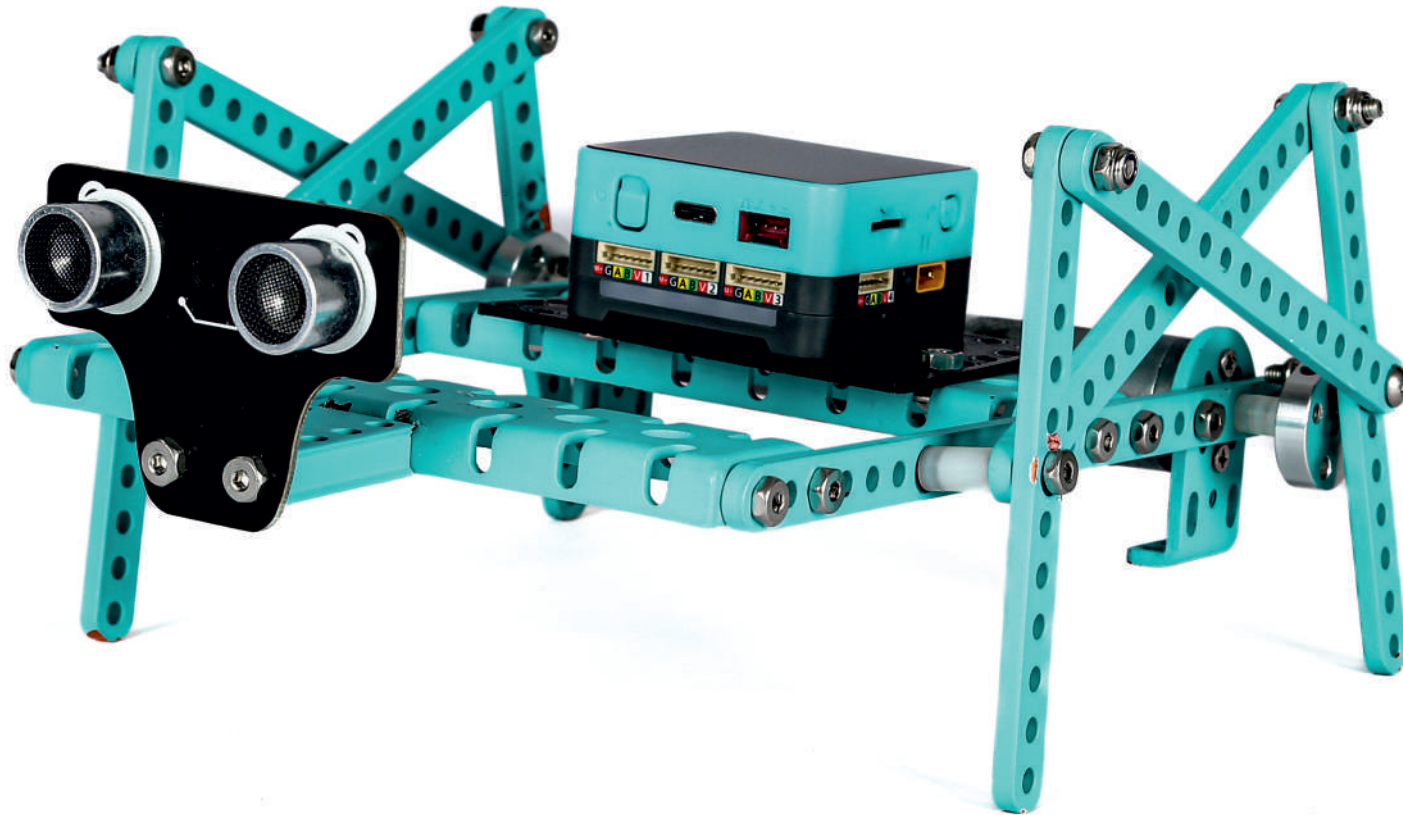
[Assembly Guide of 3-Wheel Robot]

12 Place control unit to the Wiring Sensors

2x Grove Cable



[4 Leg Robot]



[Assembly Guide of 4 Leg Robot]

01 Assemble Encoder DC motor



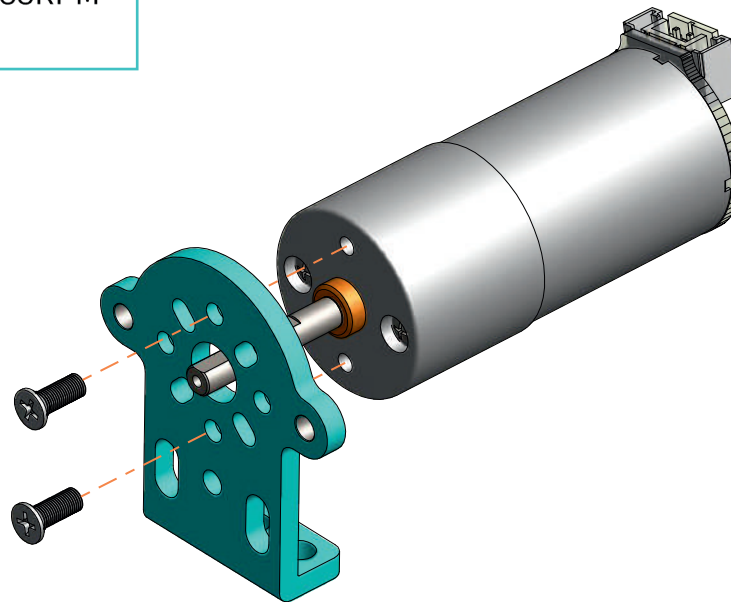
2xCountersunk Head Screw M3*6



1x25 Motor Bracket



1xEncoder DC Motor-25 9V188RPM

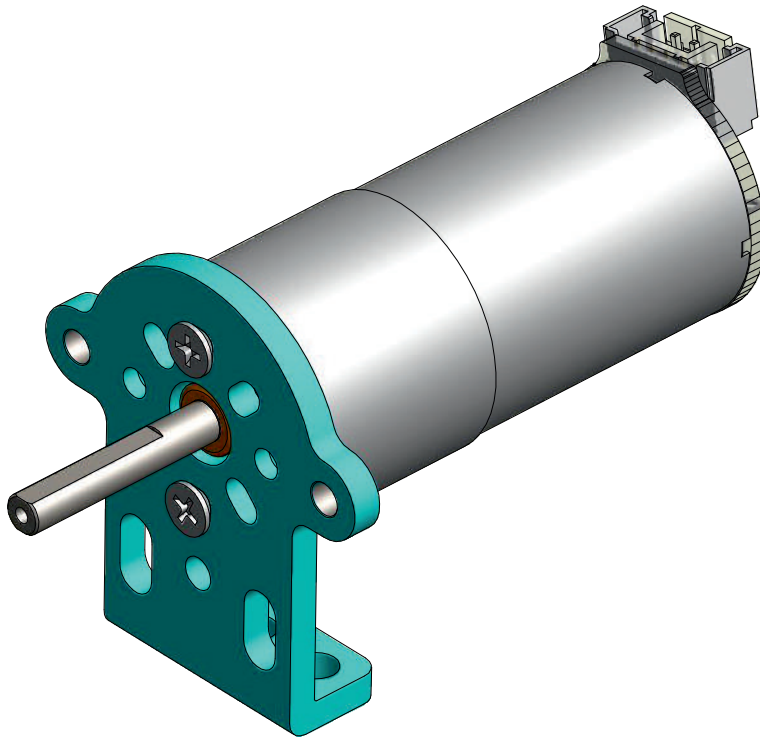


Tips:

Please pay attention to the hole position and direction

Assembly Guide of 4 Leg Robot]

01 Assemble Encoder DC motor



X2

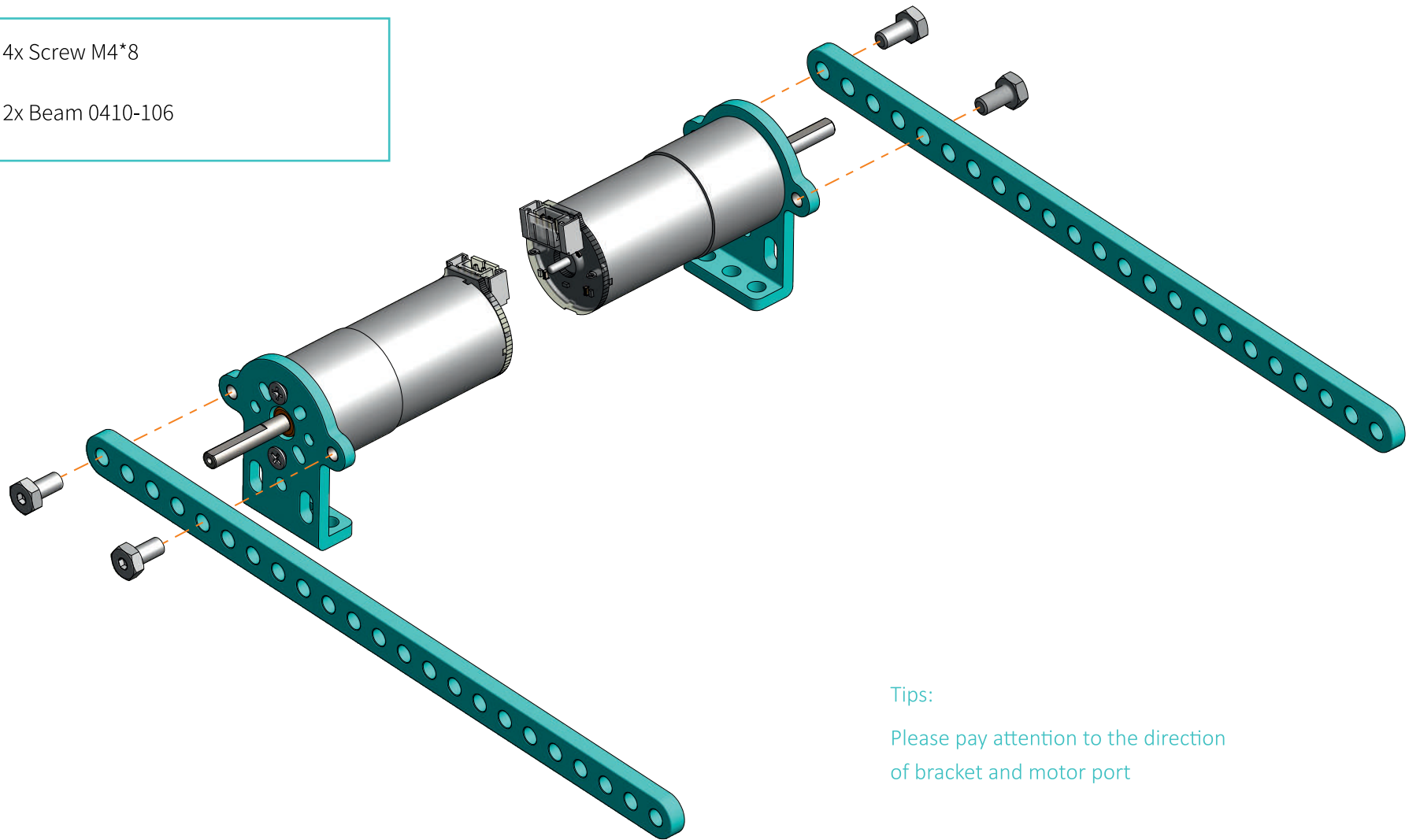
02 Fix Motors



4x Screw M4*8



2x Beam 0410-106

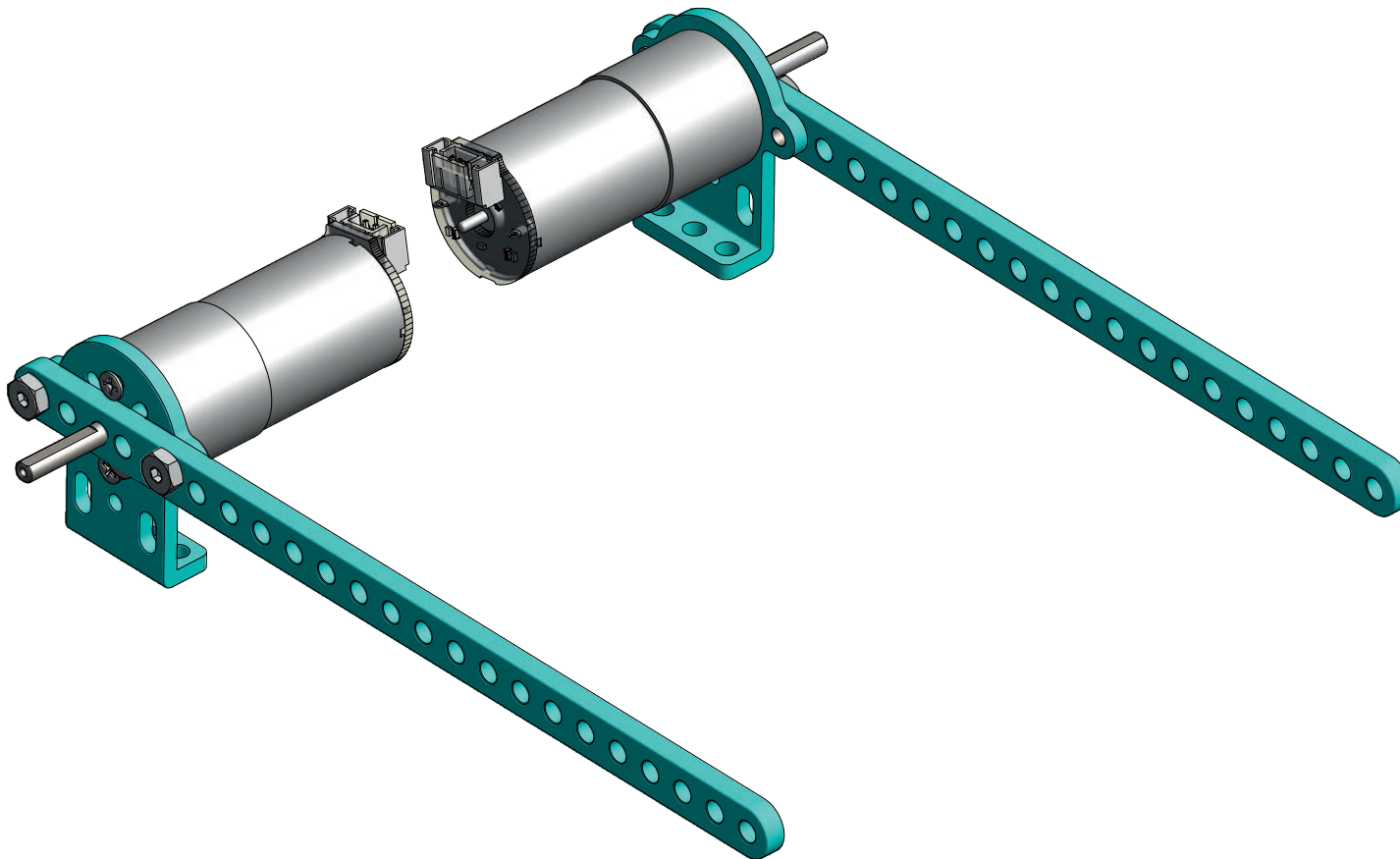


Tips:

Please pay attention to the direction
of bracket and motor port

Assembly Guide of 4 Leg Robot]

02 Fix Motors



03 Assemble Base Structure



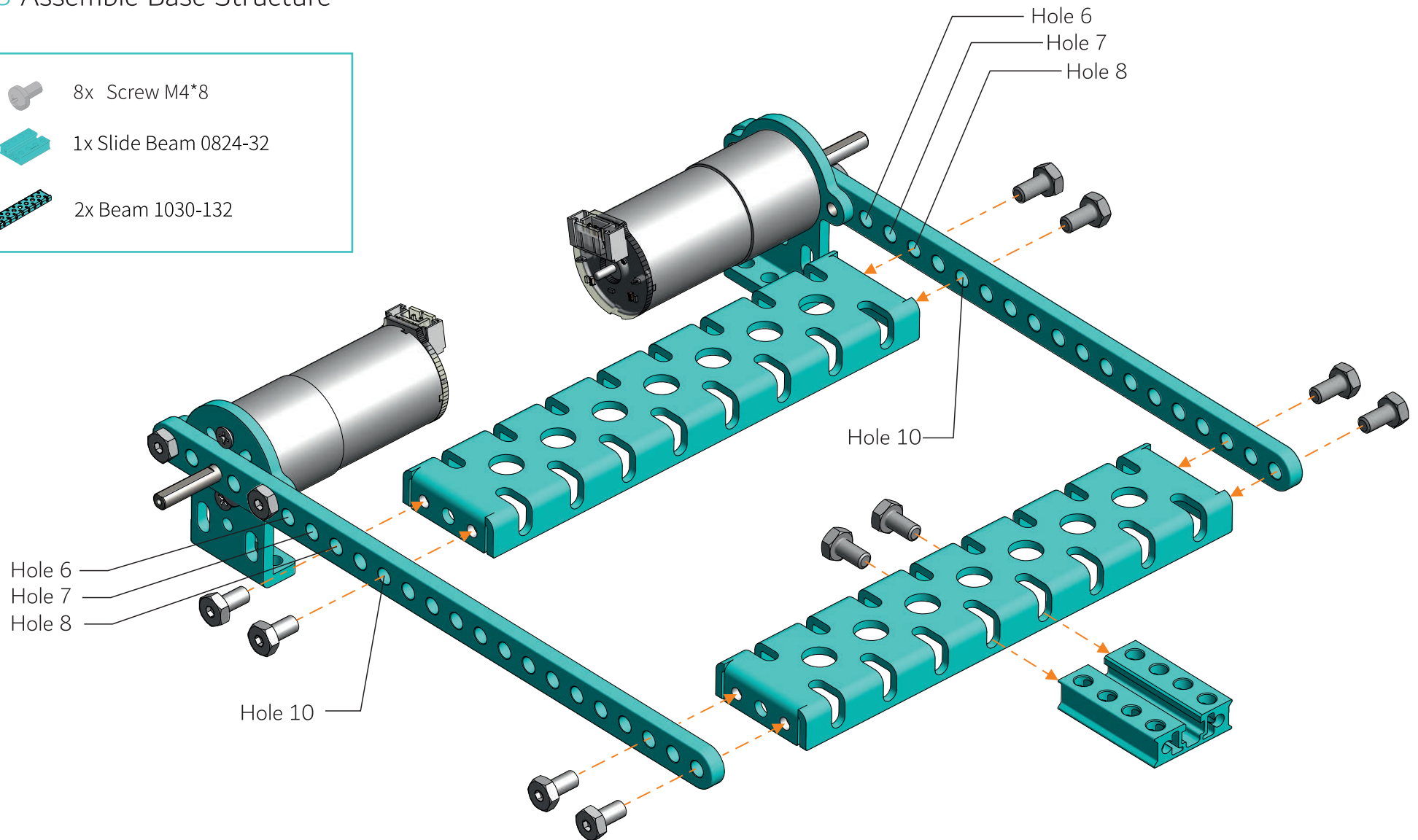
8x Screw M4*8



1x Slide Beam 0824-32

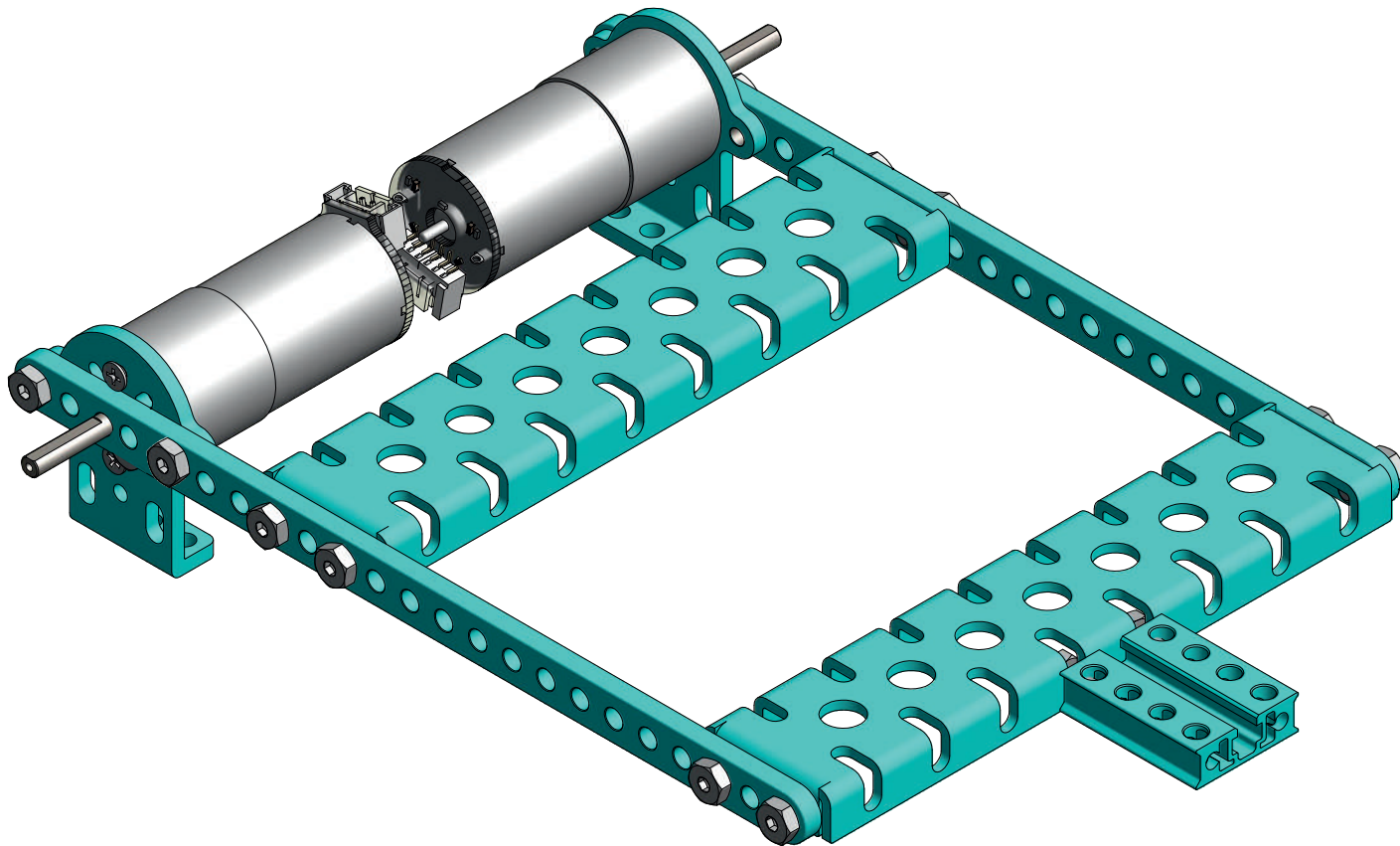


2x Beam 1030-132



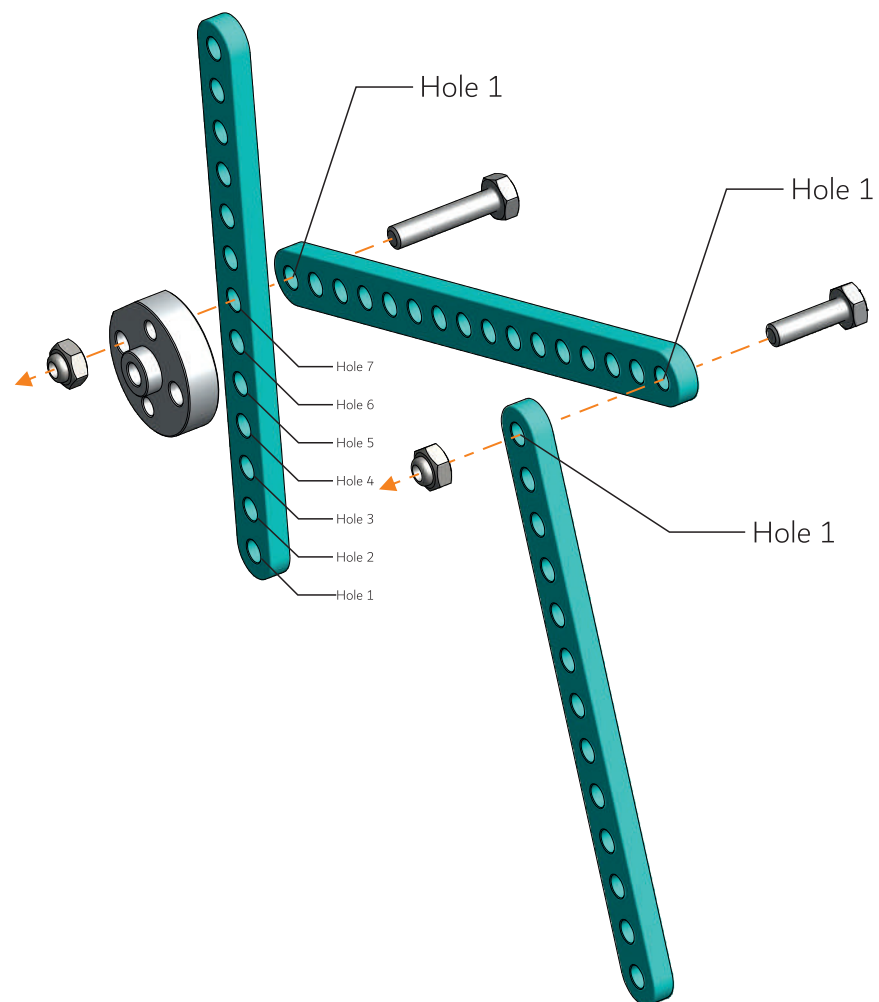
Assembly Guide of 4 Leg Robot]

03 Assemble Base Structure



04 Assemble Two Legs

- 1x Screw M4x20
- 1x Screw M4x14
- 2x Nylon Locknut M4
- 1x Driving Flange Hub 4mm
- 4x Beam 0410-106
- 1x Beam 0410-130



Assembly Guide of 4 Leg Robot]

04 Assemble Two Legs

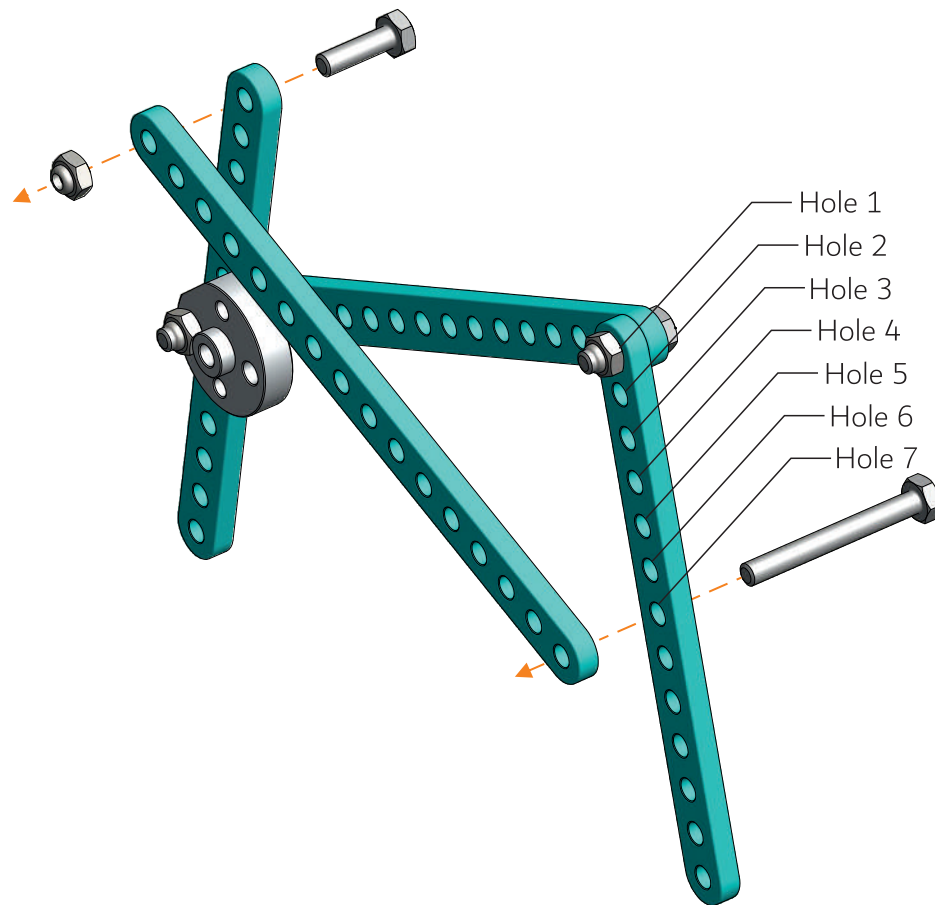


Tips:

Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel.

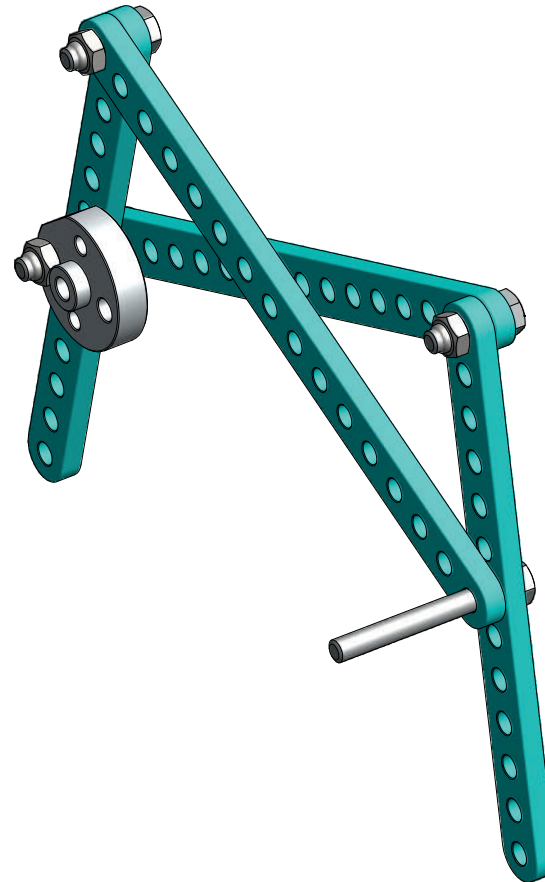
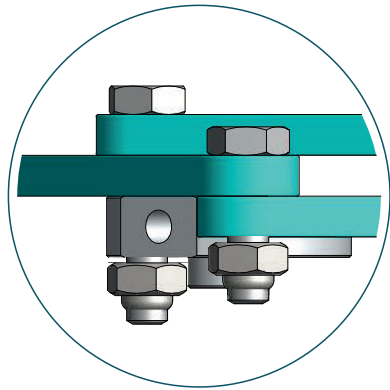
04 Assemble Two Legs

-  1x Screw M4x35
-  1x Screw M4x14
-  2x Nylon Locknut M4
-  1x Beam 0410-130



[Assembly Guide of 4 Leg Robot]

04 Assemble Two Legs

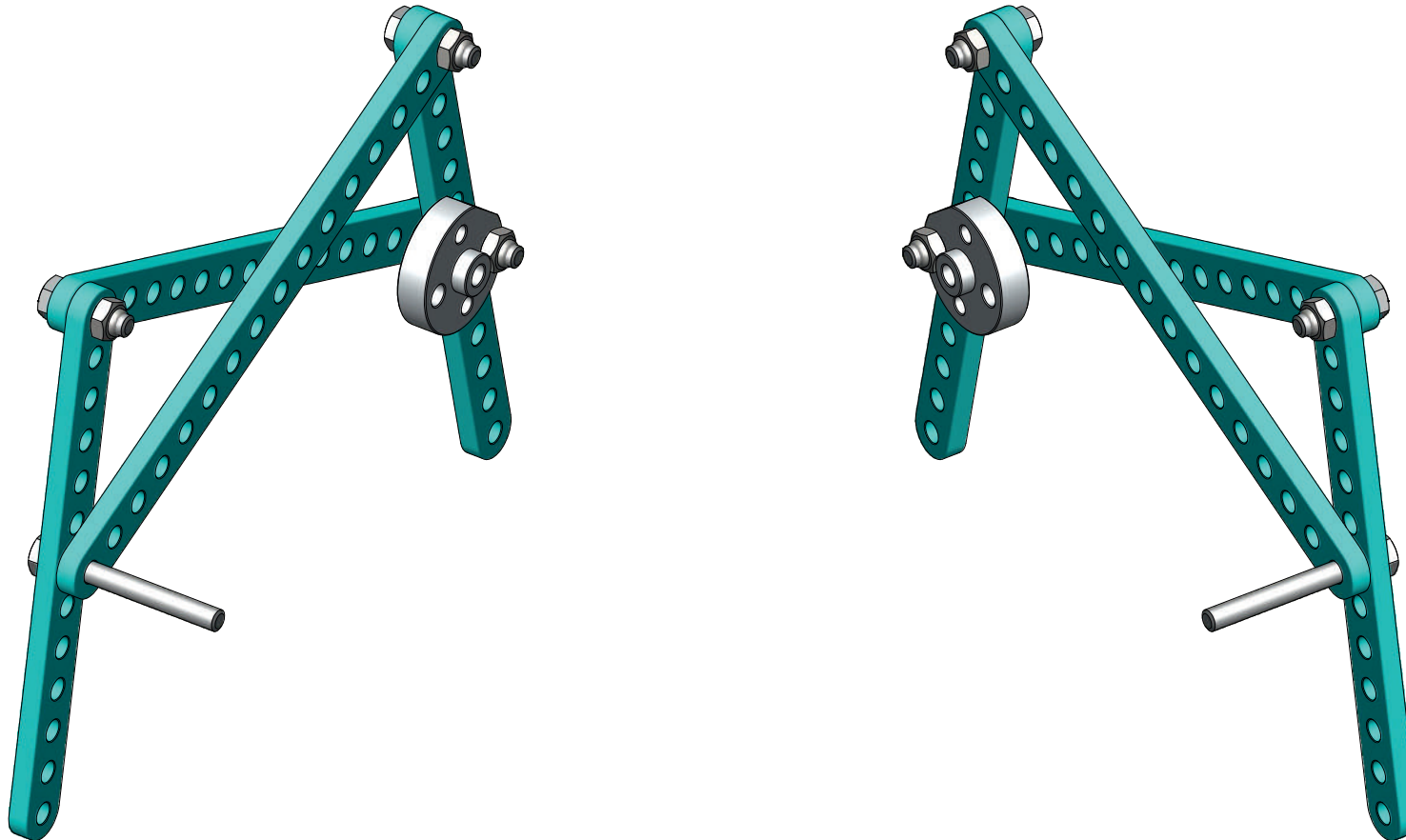


Tips:

Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel.

[Assembly Guide of 4 Leg Robot]

04 Assemble Two Legs



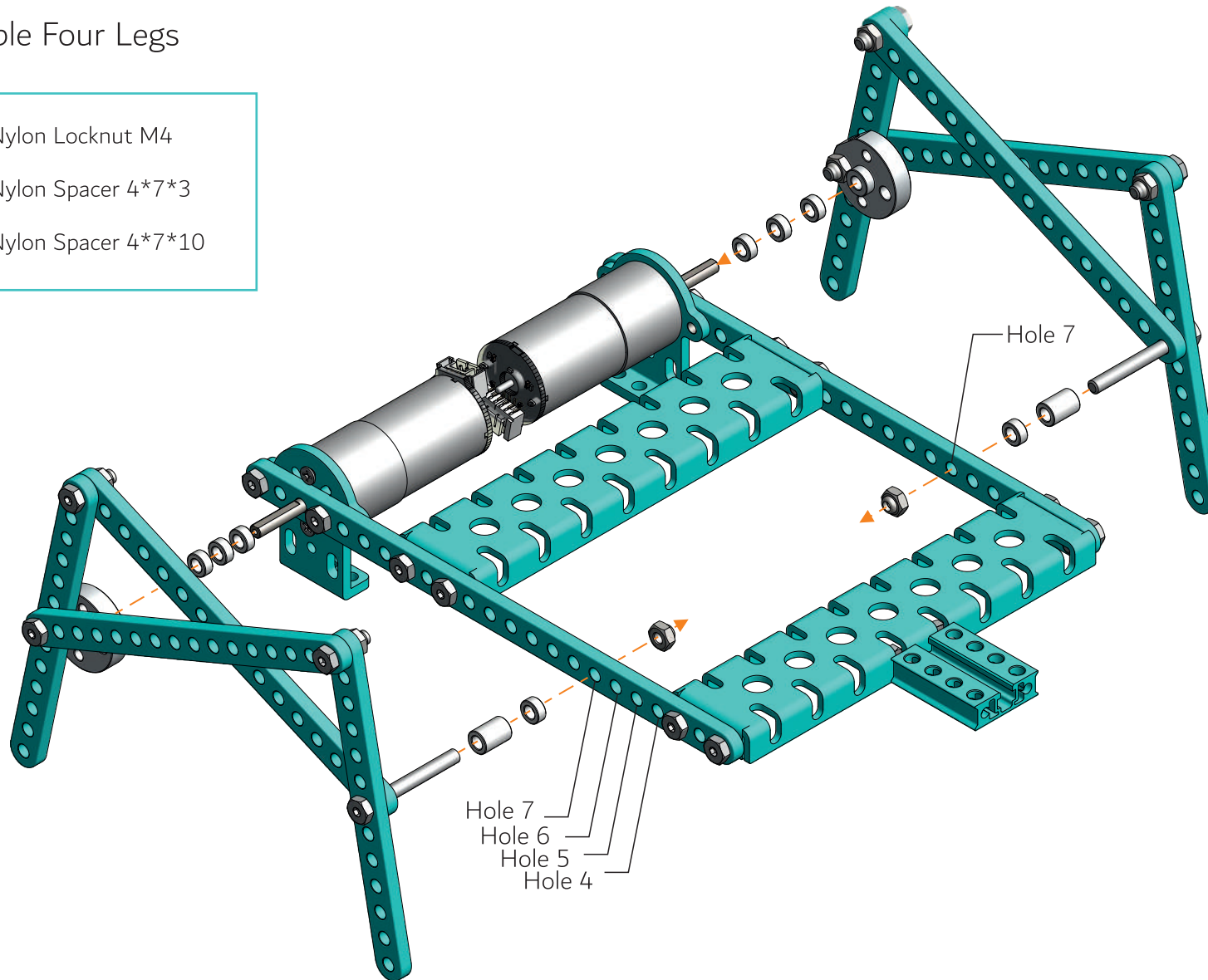
Tips:

Assemble the other leg as shown "Mirrored Leg"

[Assembly Guide of 4 Leg Robot]

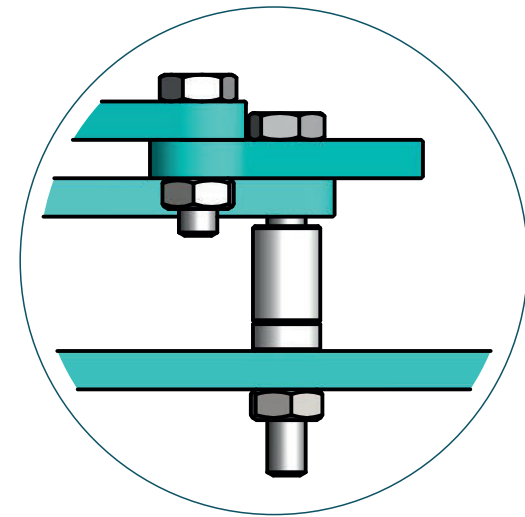
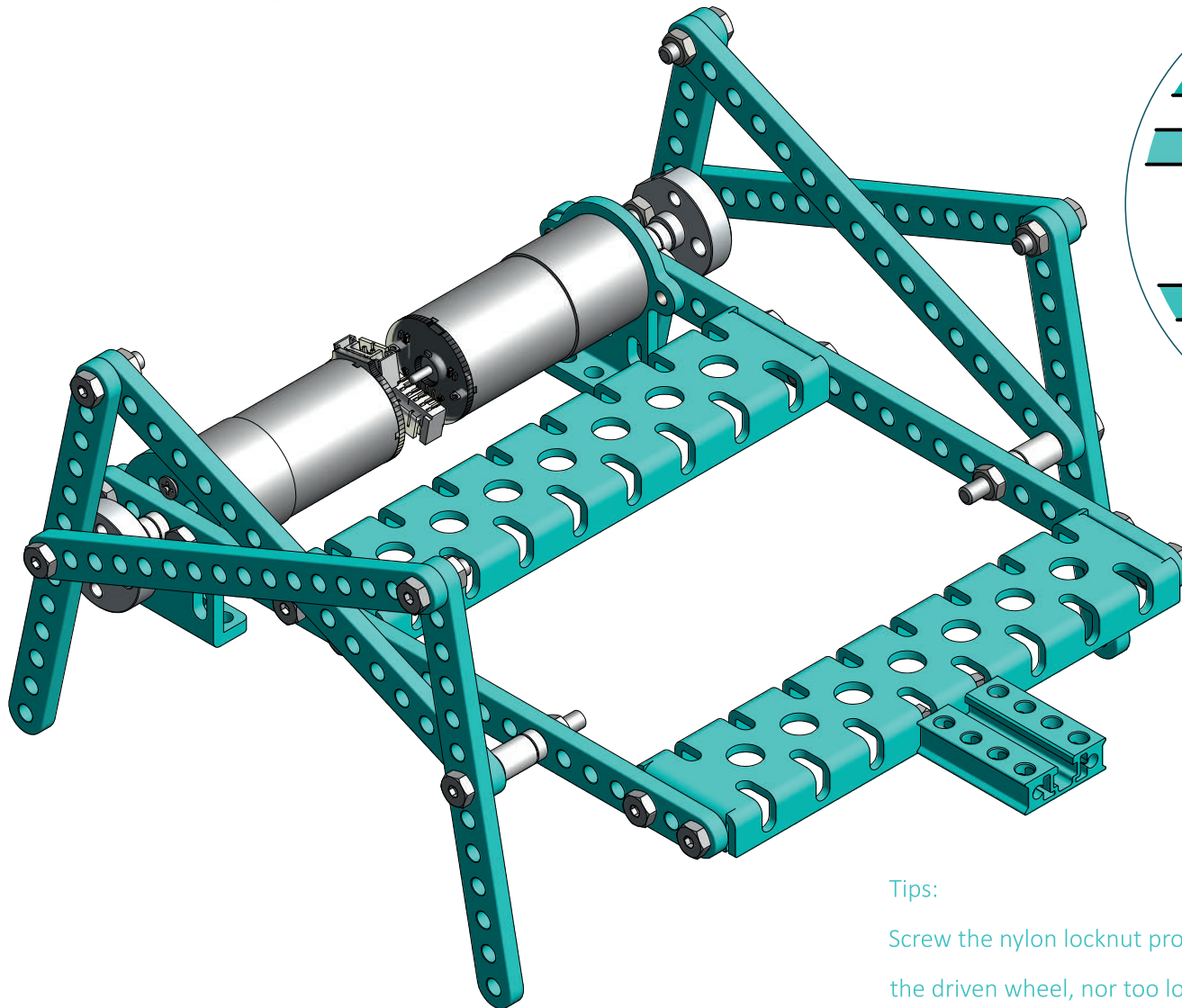
05 Assemble Four Legs

- 2x Nylon Locknut M4
- 2x Nylon Spacer 4*7*3
- 2x Nylon Spacer 4*7*10



[Assembly Guide of 4 Leg Robot]

05 Assemble Four Legs



Tips:

Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel.

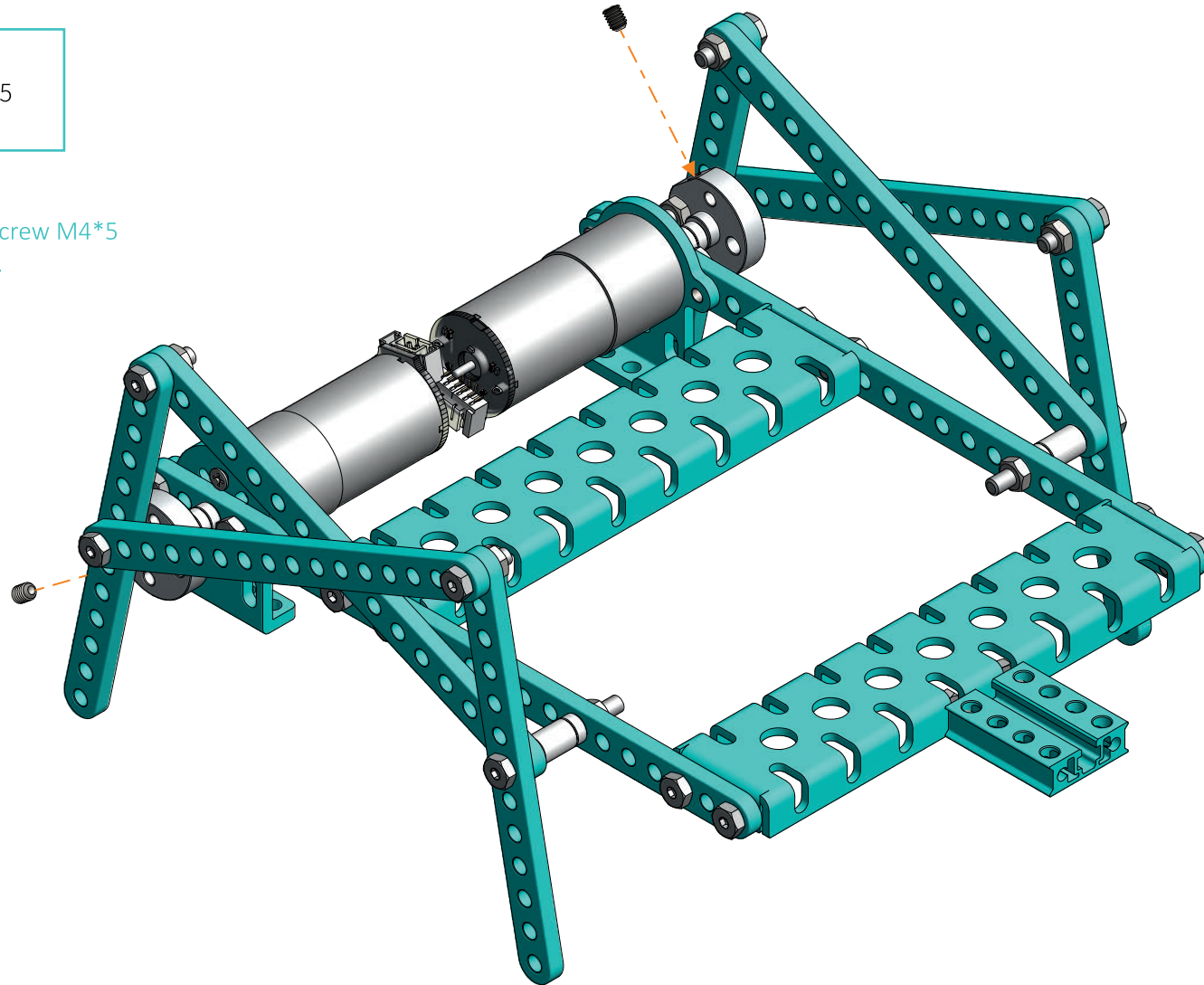
[Assembly Guide of 4 Leg Robot]

06 Assemble Headless Screw



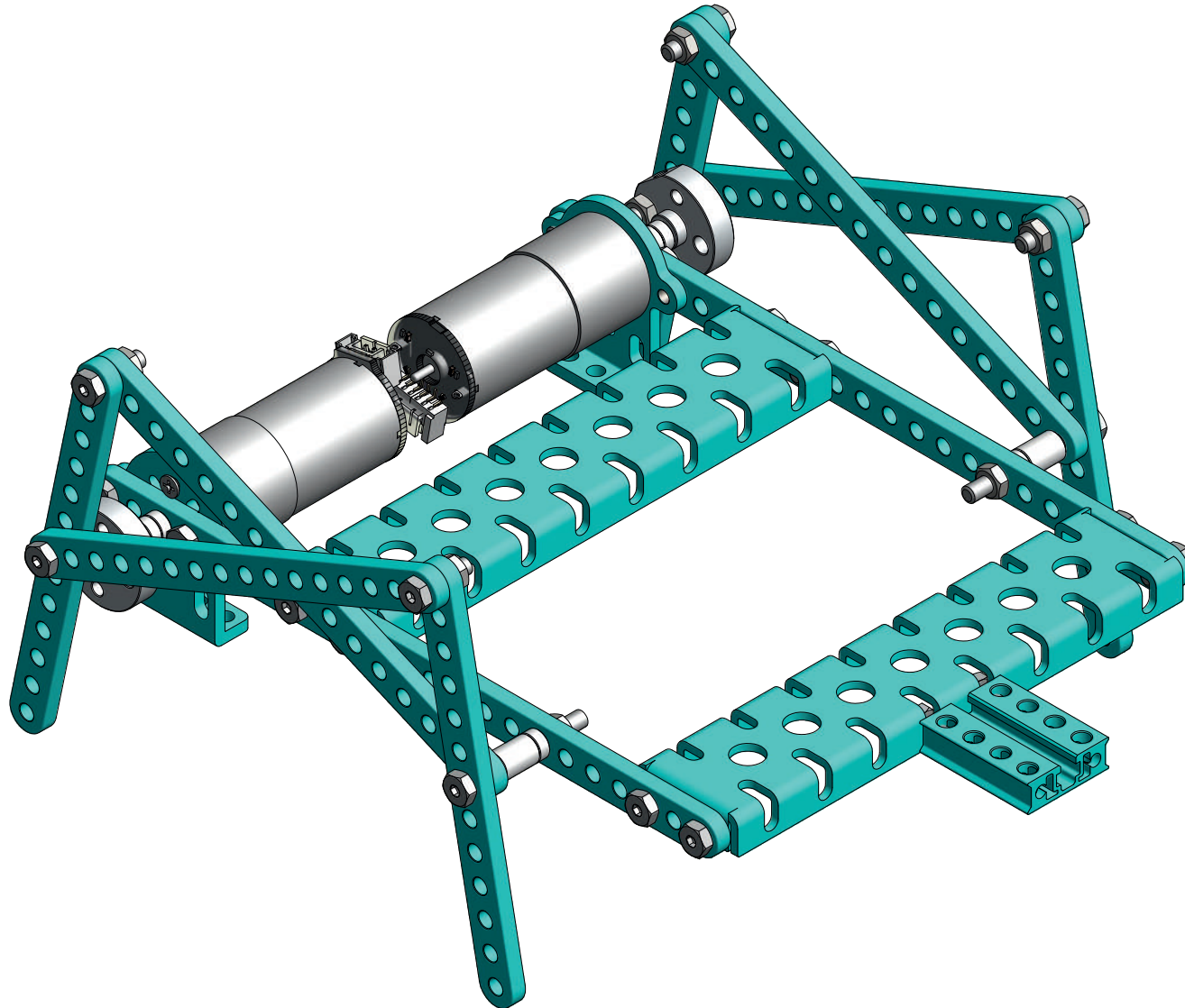
2x Headless Screw M4*5

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



[Assembly Guide of 4 Leg Robot]

06 Assemble Headless Screw



[Assembly Guide of 4 Leg Robot]

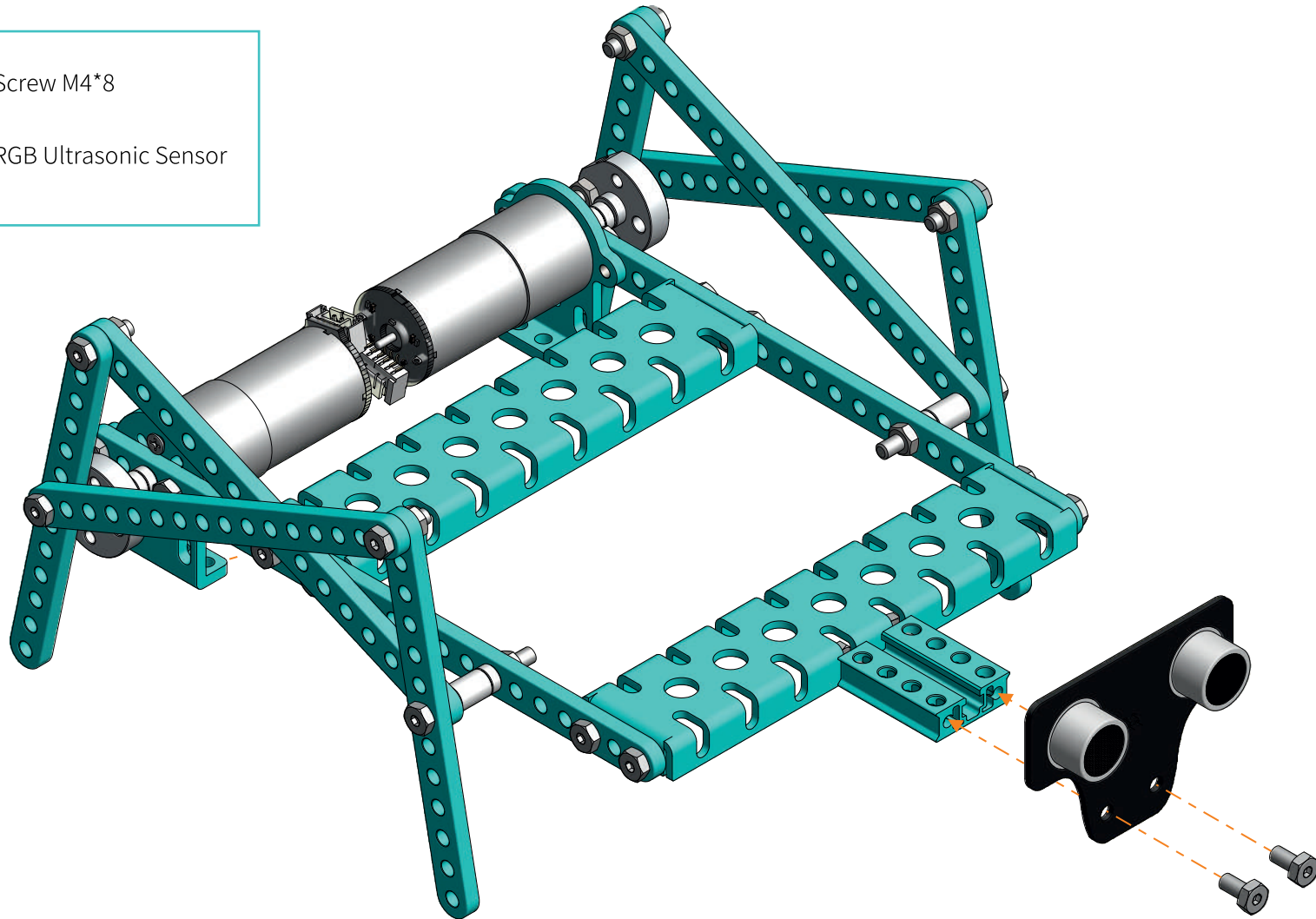
07 Assemble RGB Ultrasonic Sensor



2x Screw M4*8

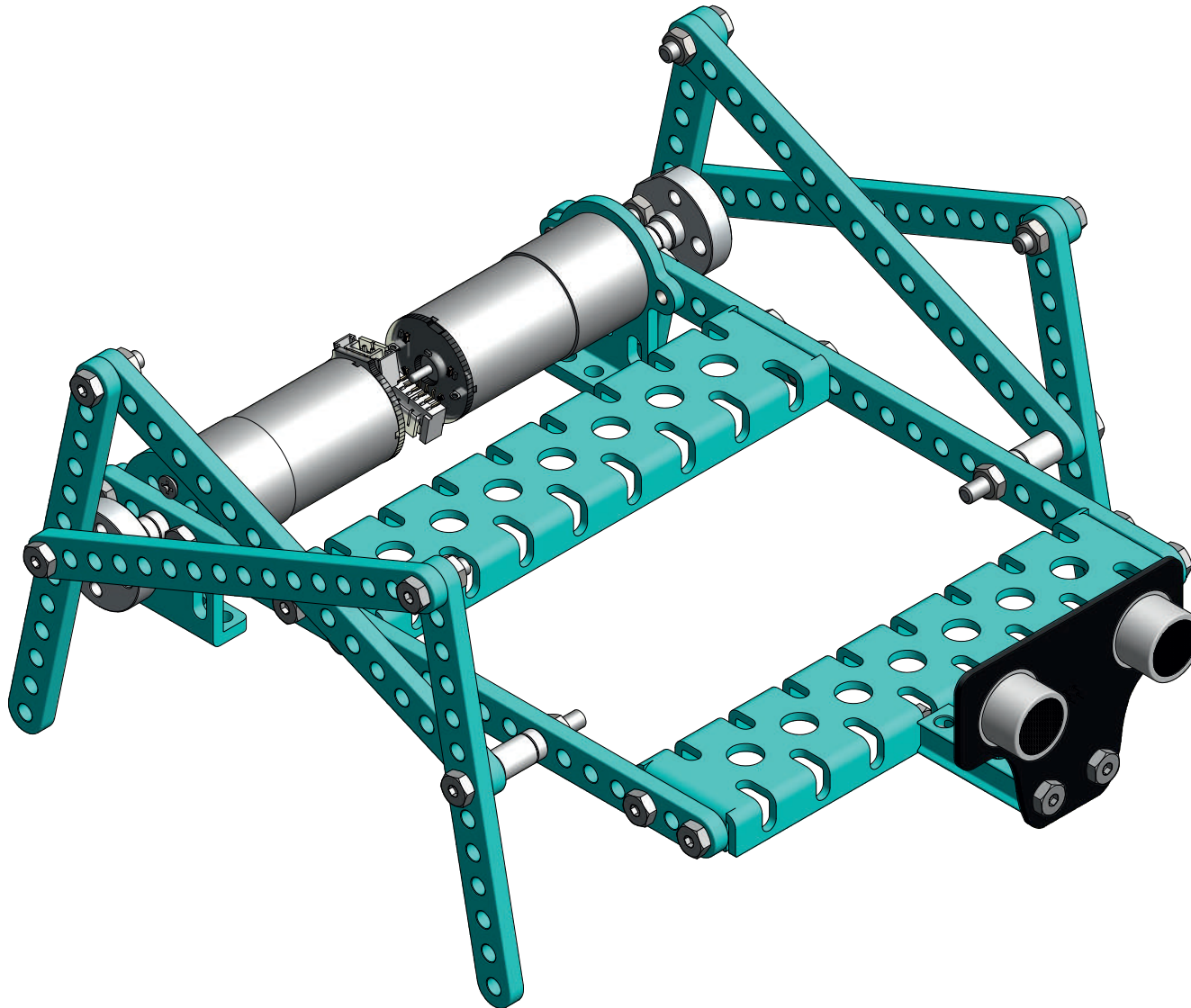


1x RGB Ultrasonic Sensor



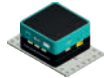
[Assembly Guide of 4 Leg Robot]

07 Assemble RGB Ultrasonic Sensor



[Assembly Guide of 4 Leg Robot]

08 Place control unit to the 4 Leg Robot



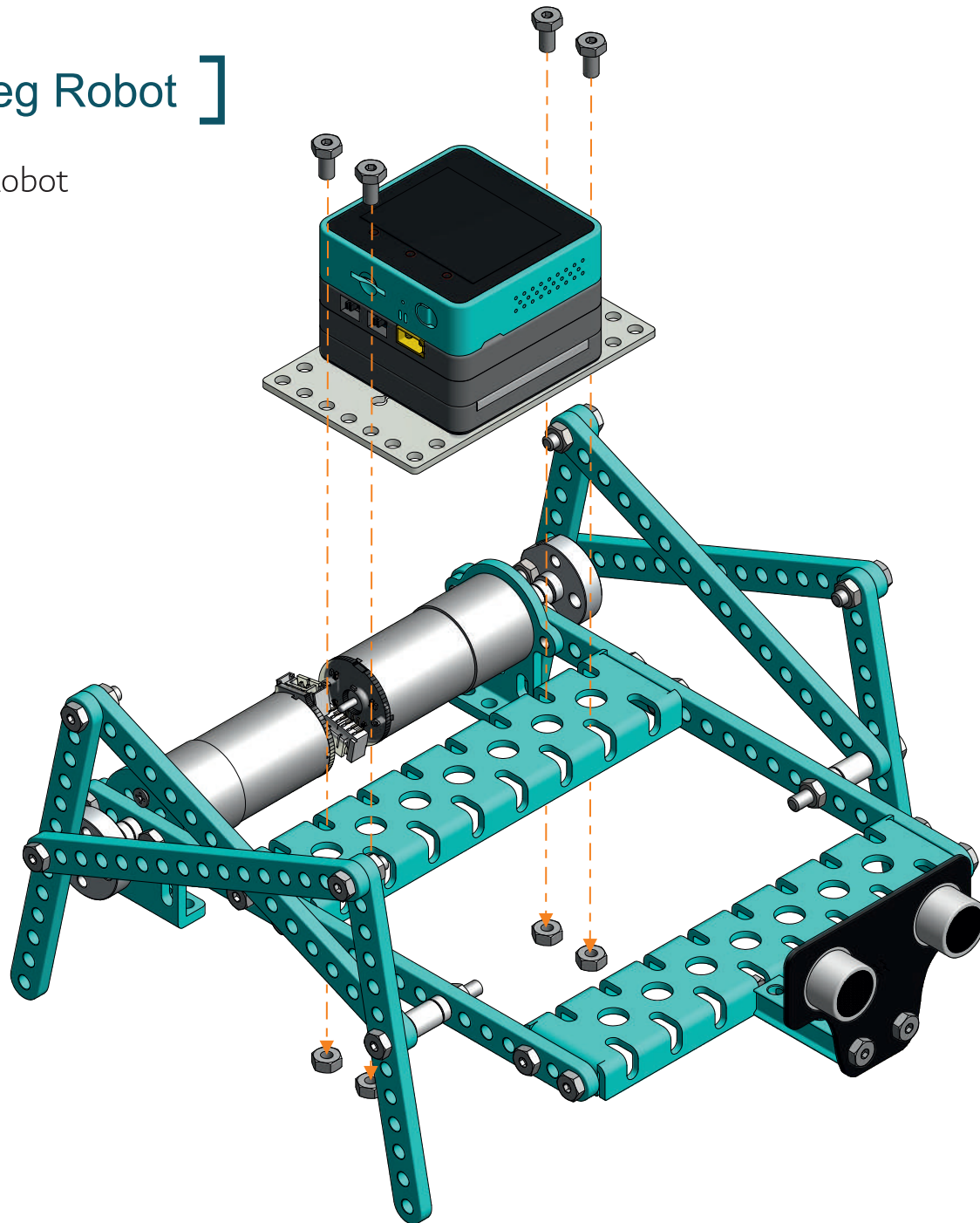
1x MC4.0 Controller



2x Screw M4*8

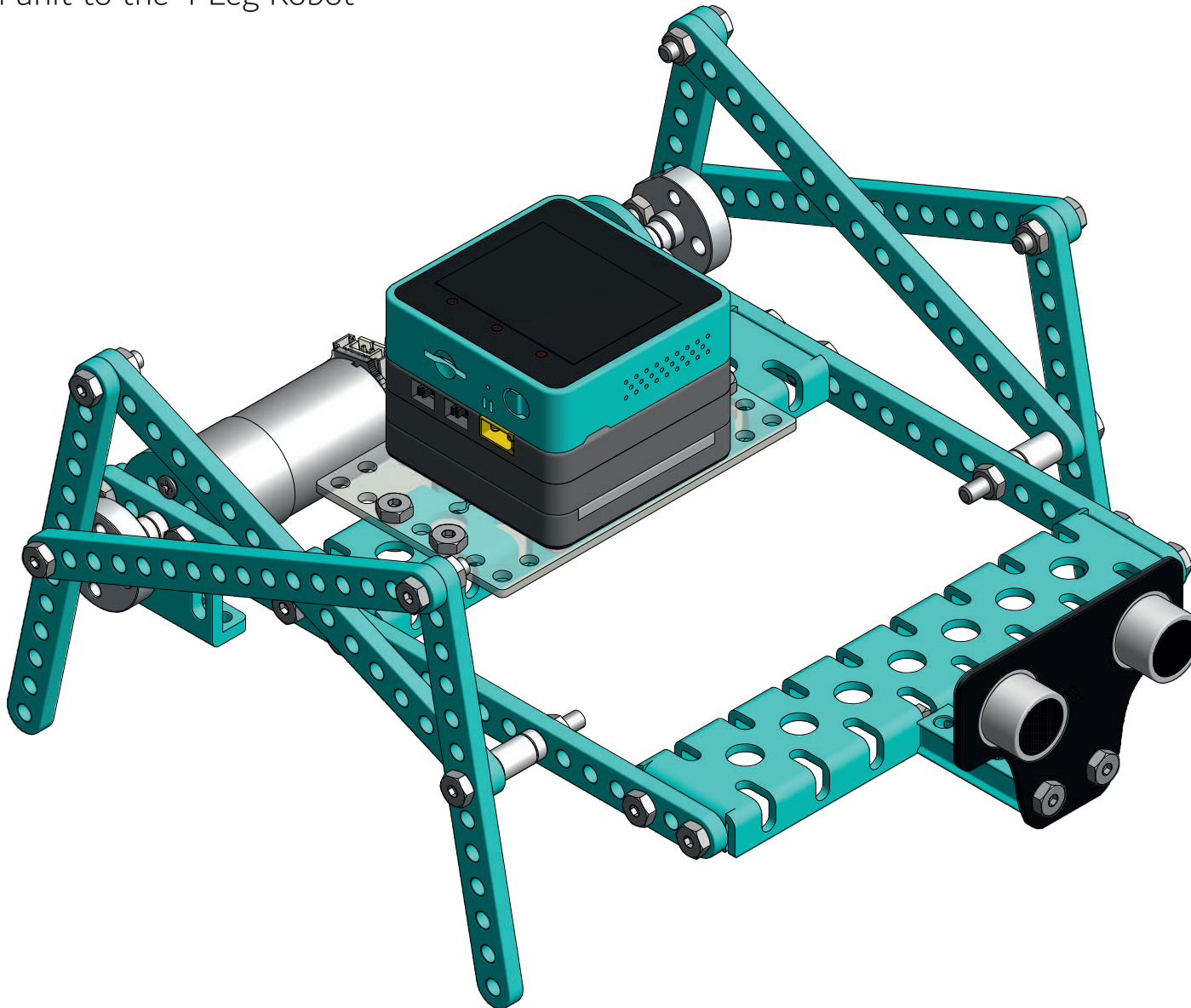


2x Screw Nut M4



[Assembly Guide of 4 Leg Robot]

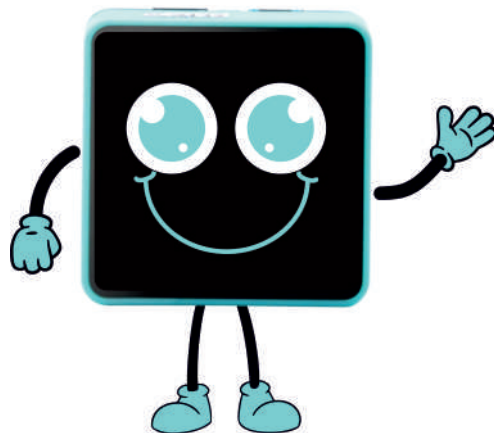
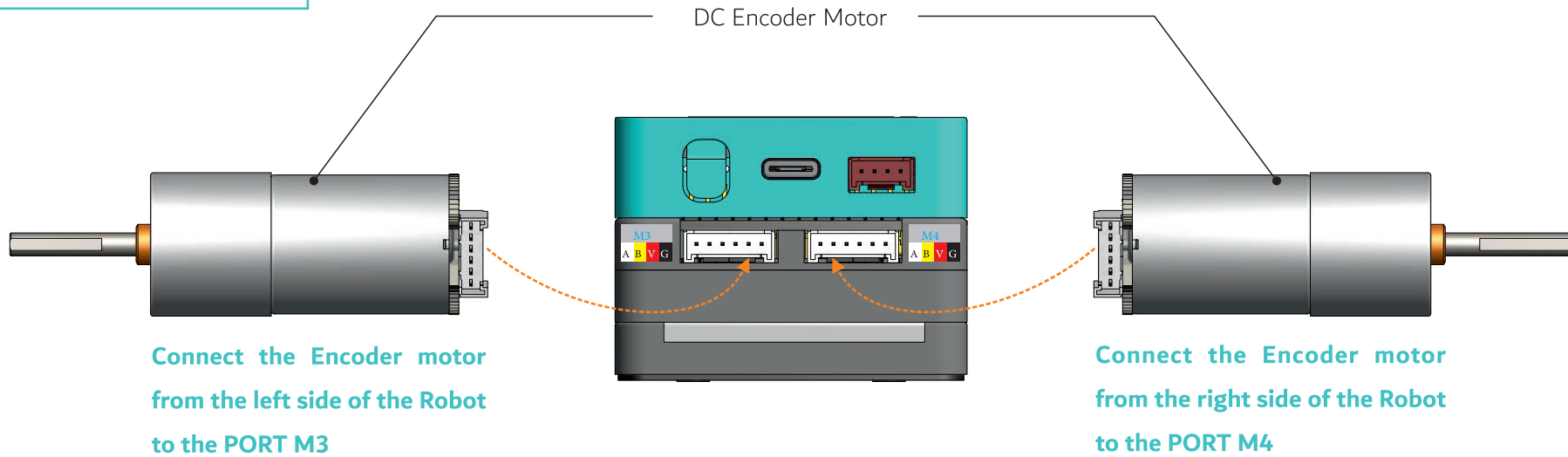
08 Place control unit to the 4 Leg Robot



Assembly Guide of 4 Leg Robot]

09 Wiring Motors

2x Motor Cable

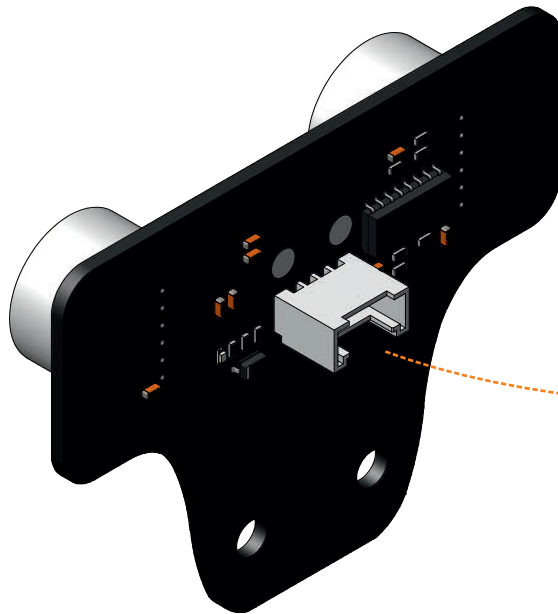


Great engineers check their connections twice! Are you one of them?

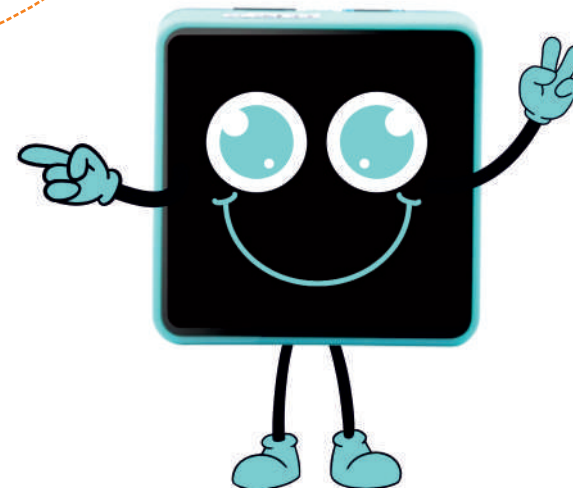
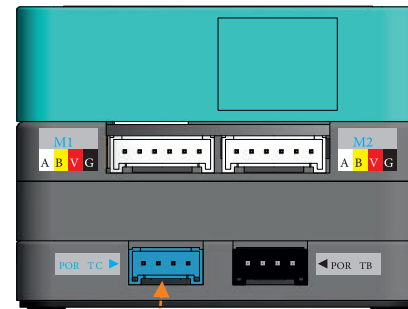
”

10 Place control unit to the Wiring Sensors

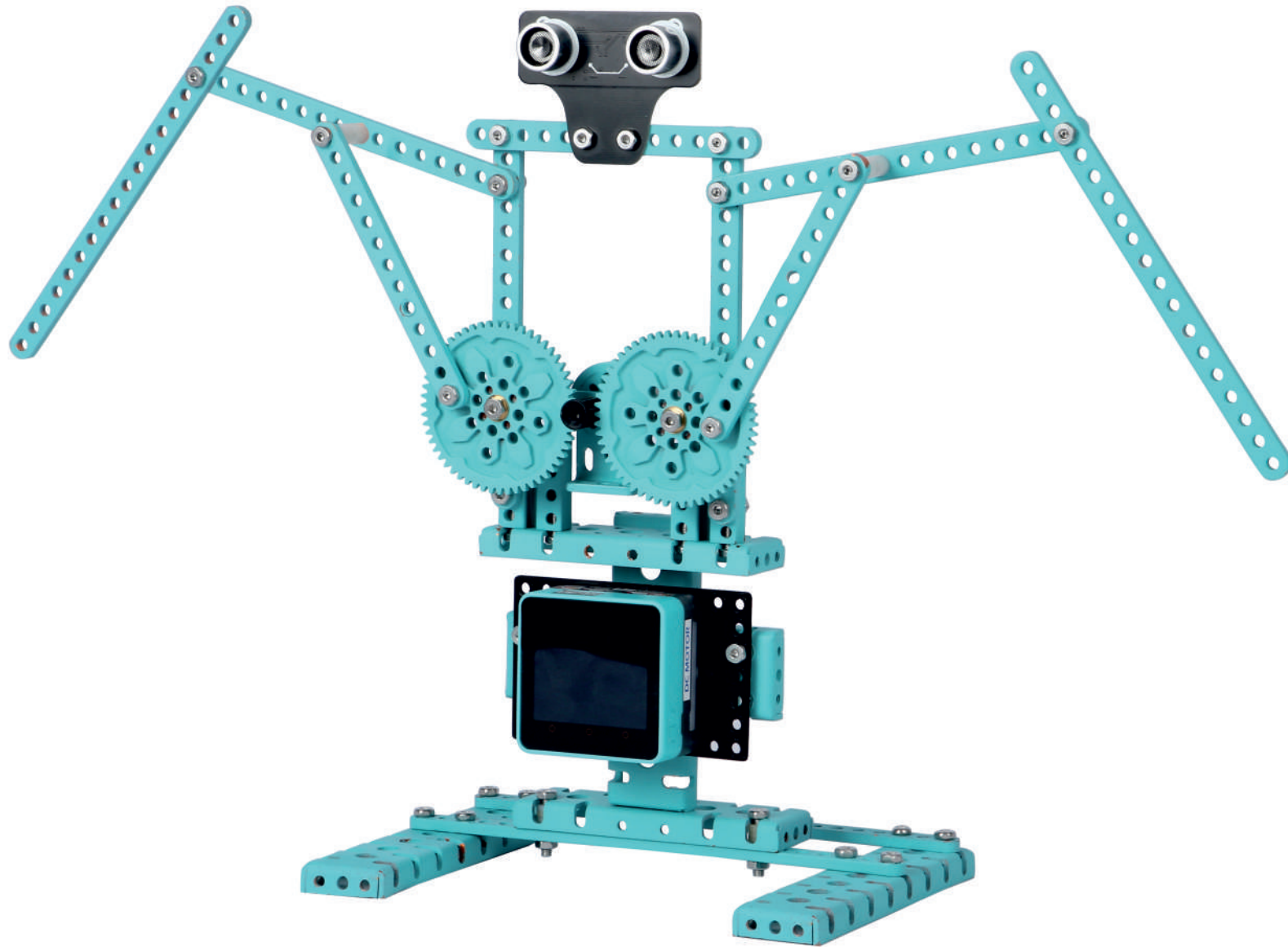
1x Grove Cable



Connect the Ultrasonic sensor
to the PORTC



[penguin Robot]



[Assembly Guide of penguin Robot]

01 Assemble the Base Structure



8x Screw M4*10



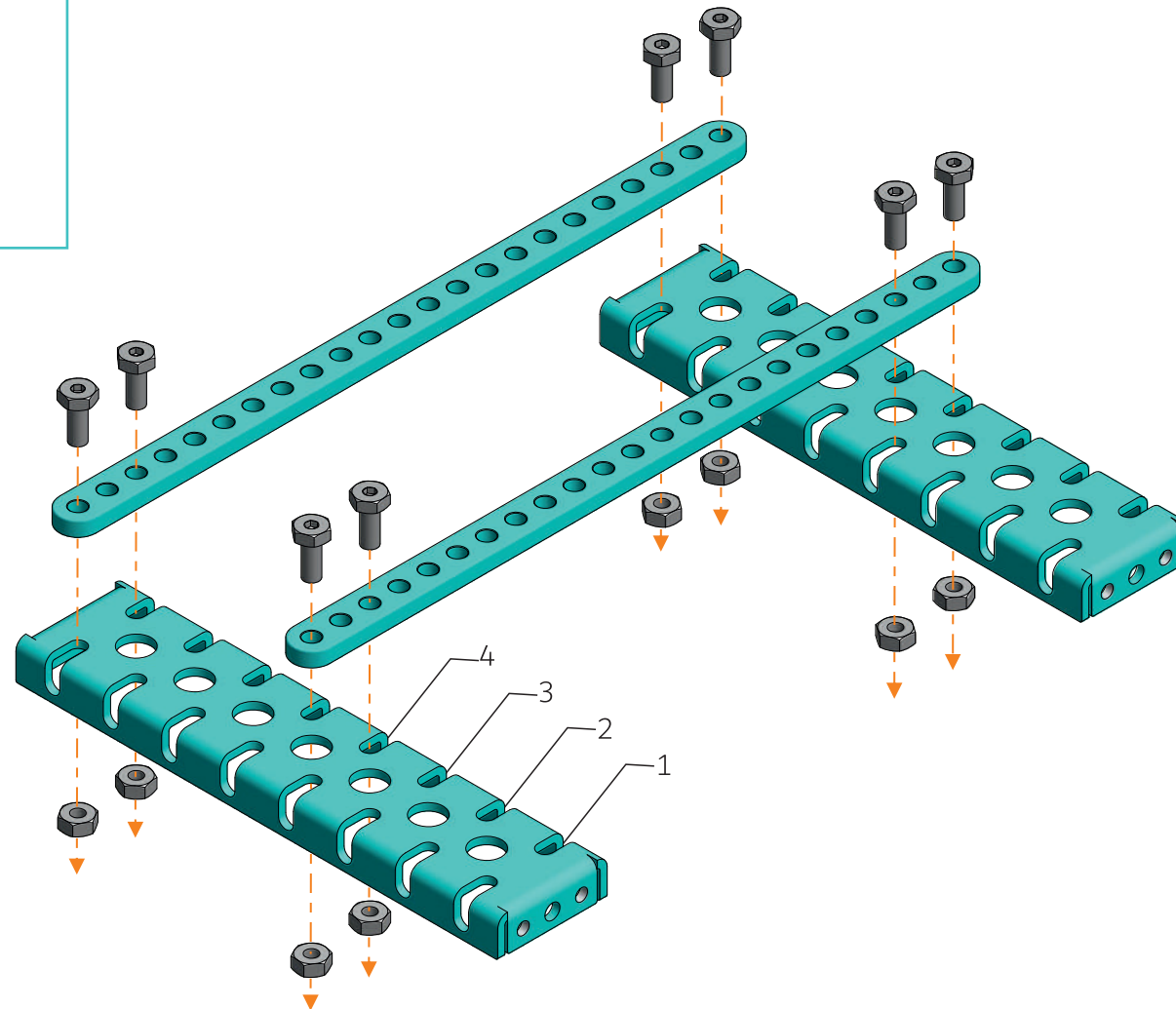
8x Screw Nut M4



2x Beam 1030-132

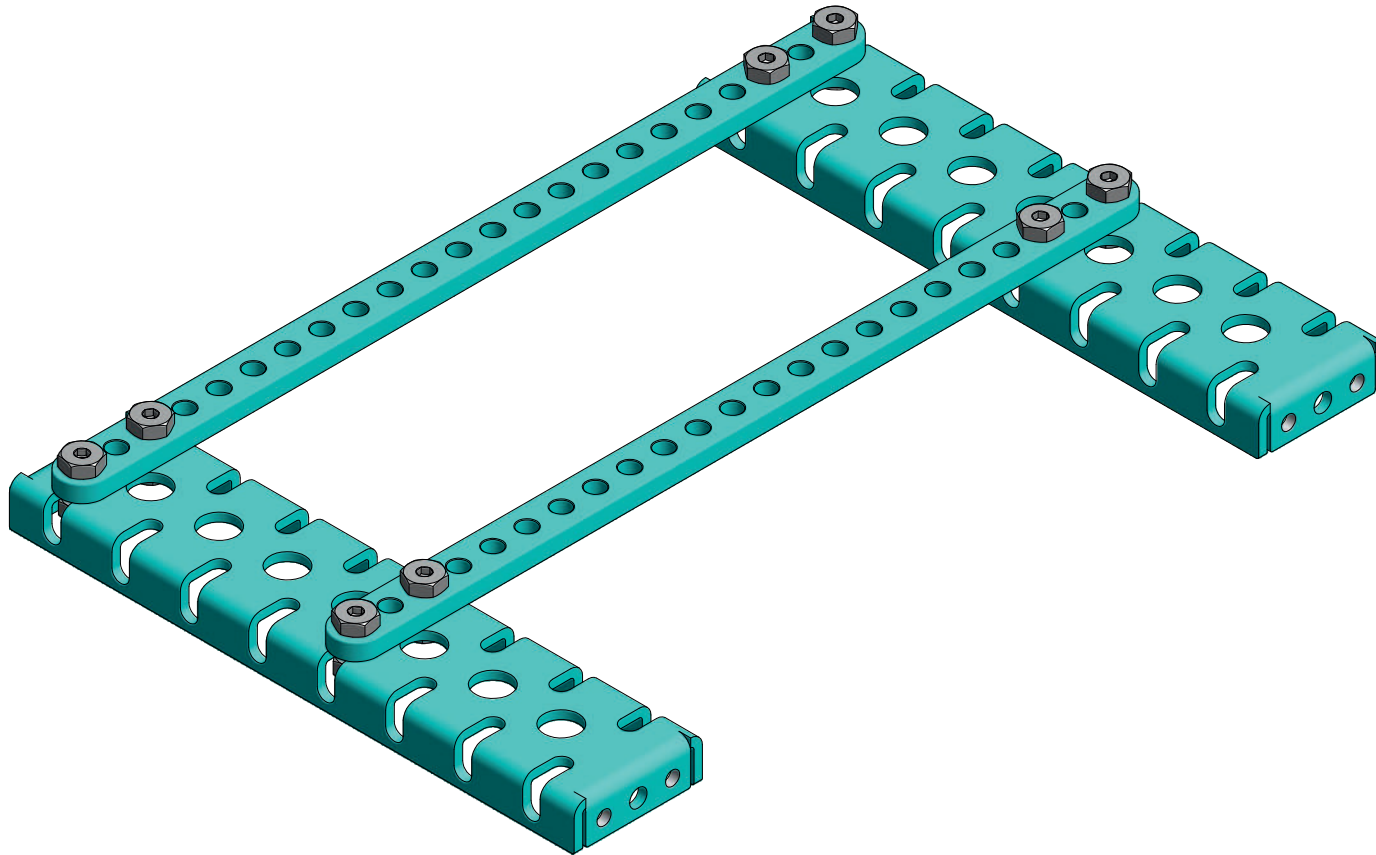


2x Beam 0410-186



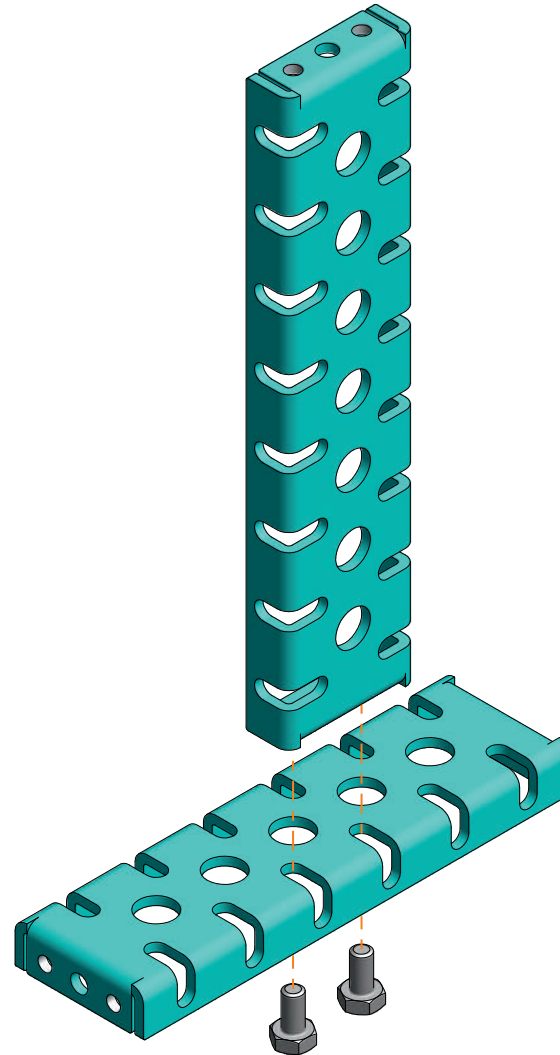
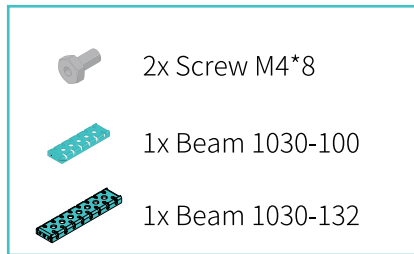
[Assembly Guide of penguin Robot]

01 Assemble the Base Structure



[Assembly Guide of penguin Robot]

02 Assemble Beam 1030-100



[Assembly Guide of penguin Robot]

03 Fix Beam 1030-100 to the Base Structure

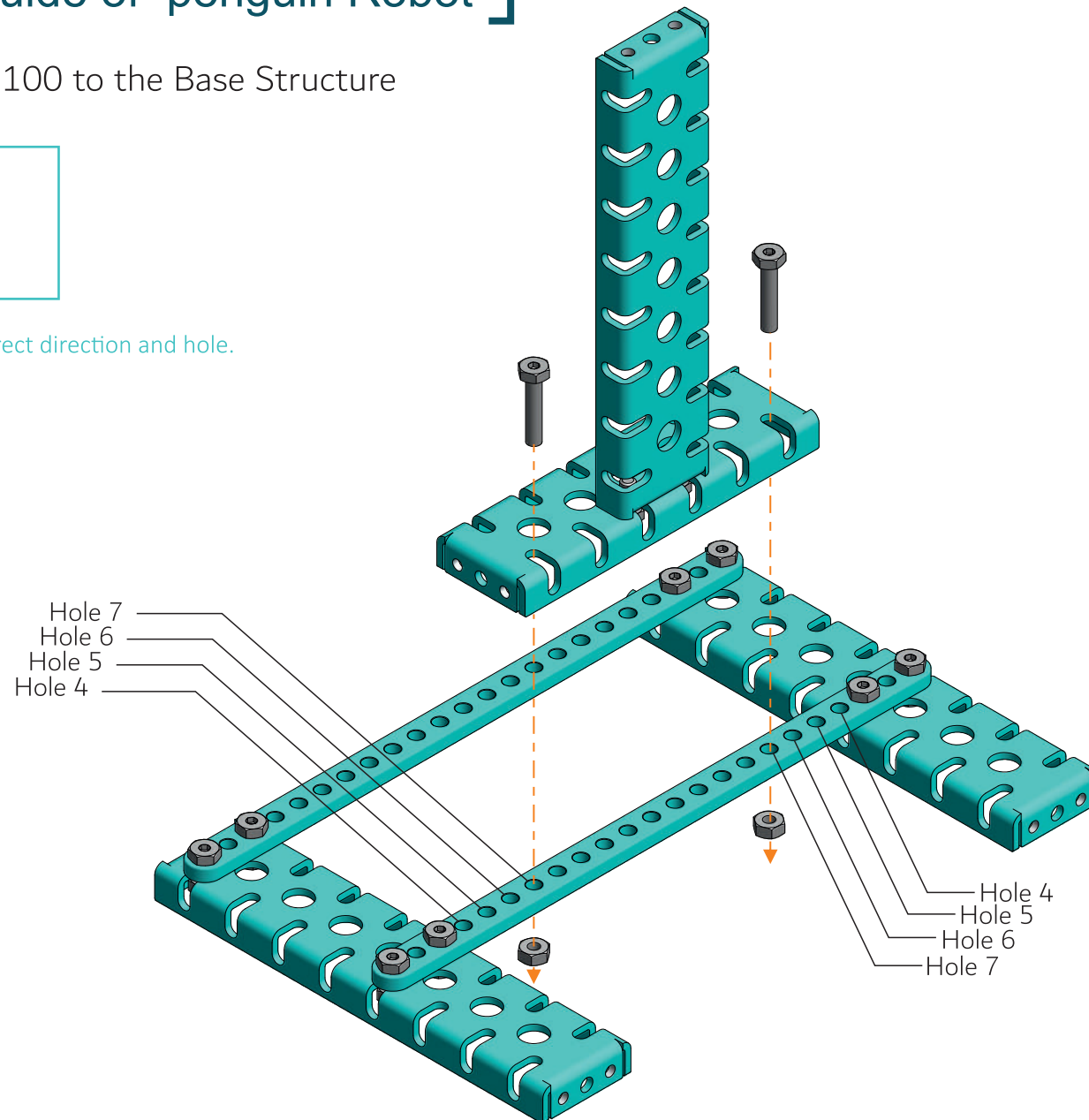


4x Screw M4*20



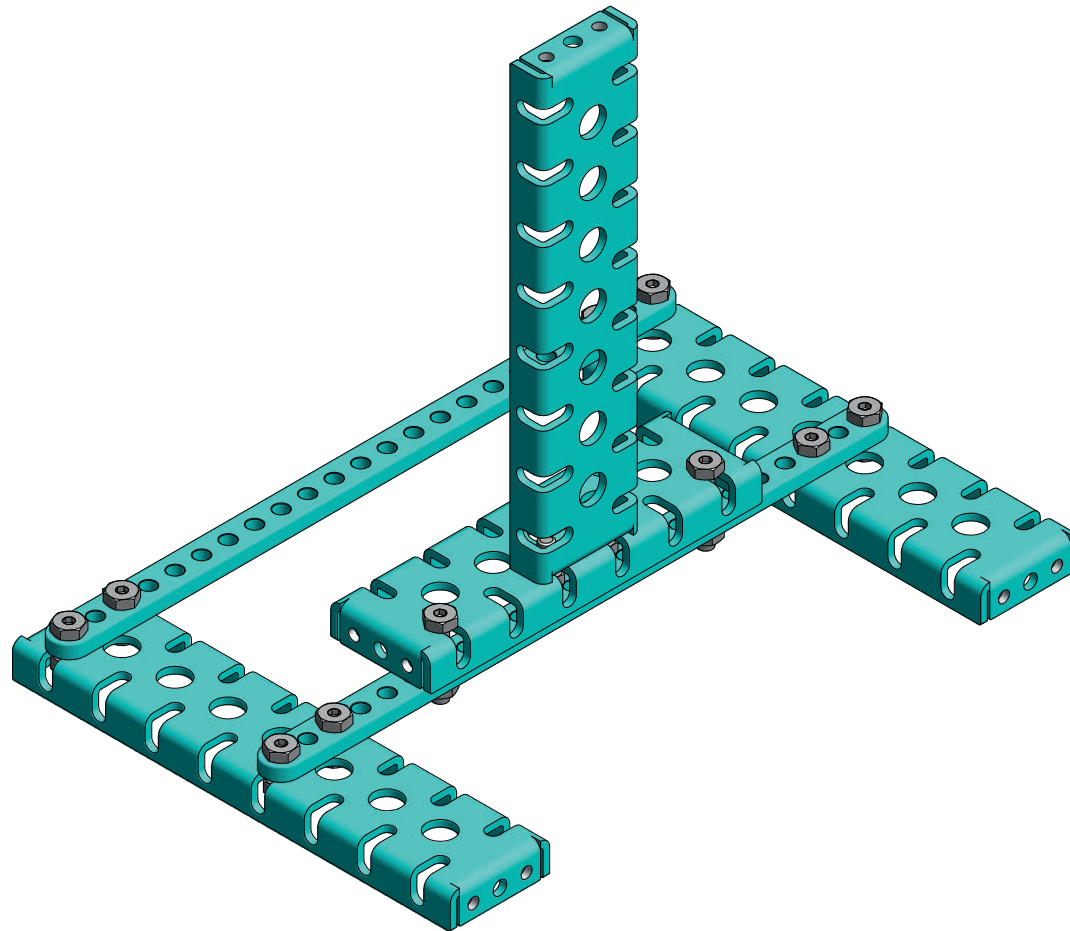
2x Screw Nut M4

Tips: Pay attention to the correct direction and hole.



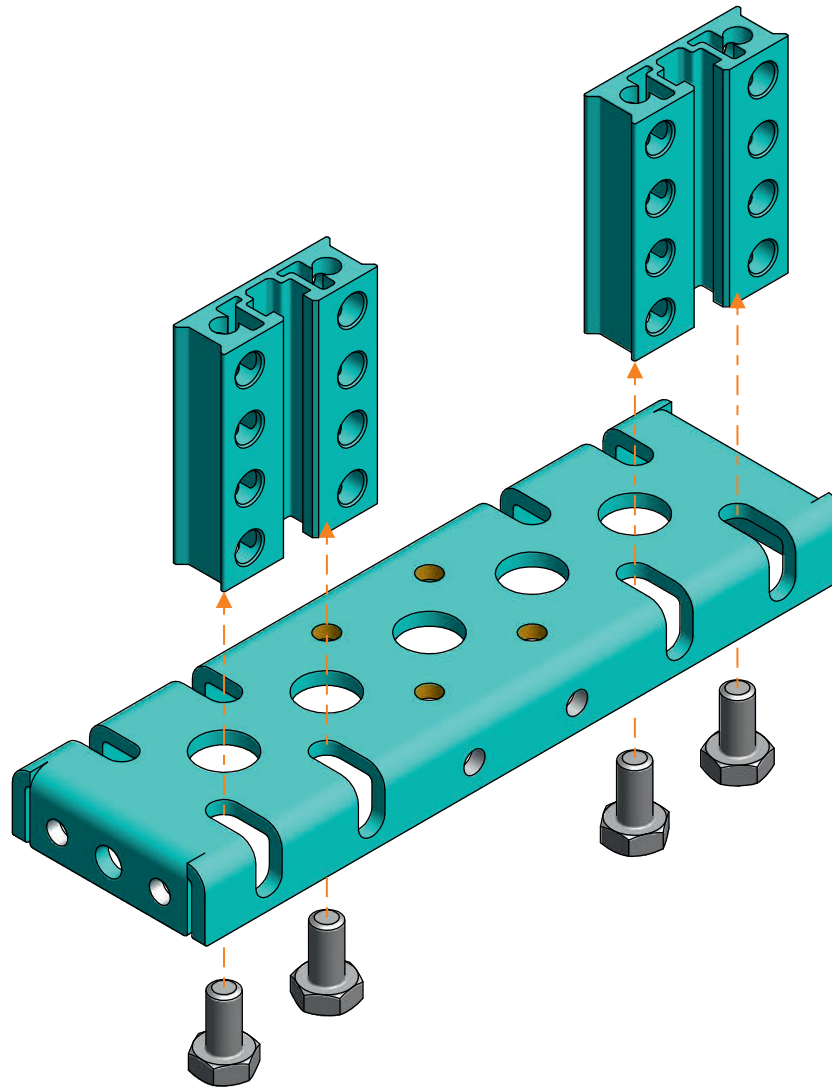
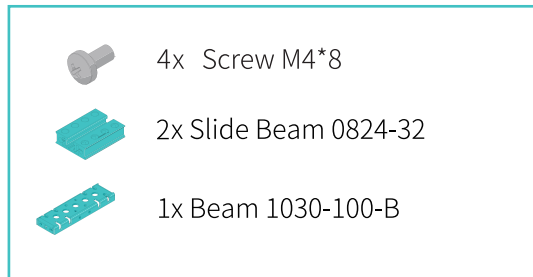
[Assembly Guide of penguin Robot]

03 Fix Beam 1030-100 to the Base Structure



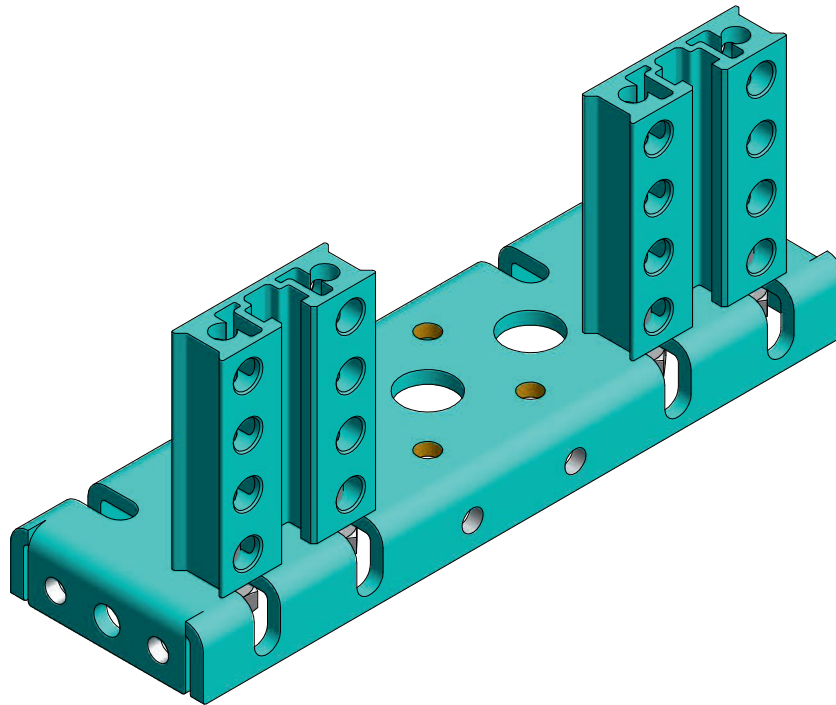
[Assembly Guide of penguin Robot]

04 Assemble Slide Beam 0824-32



[Assembly Guide of penguin Robot]

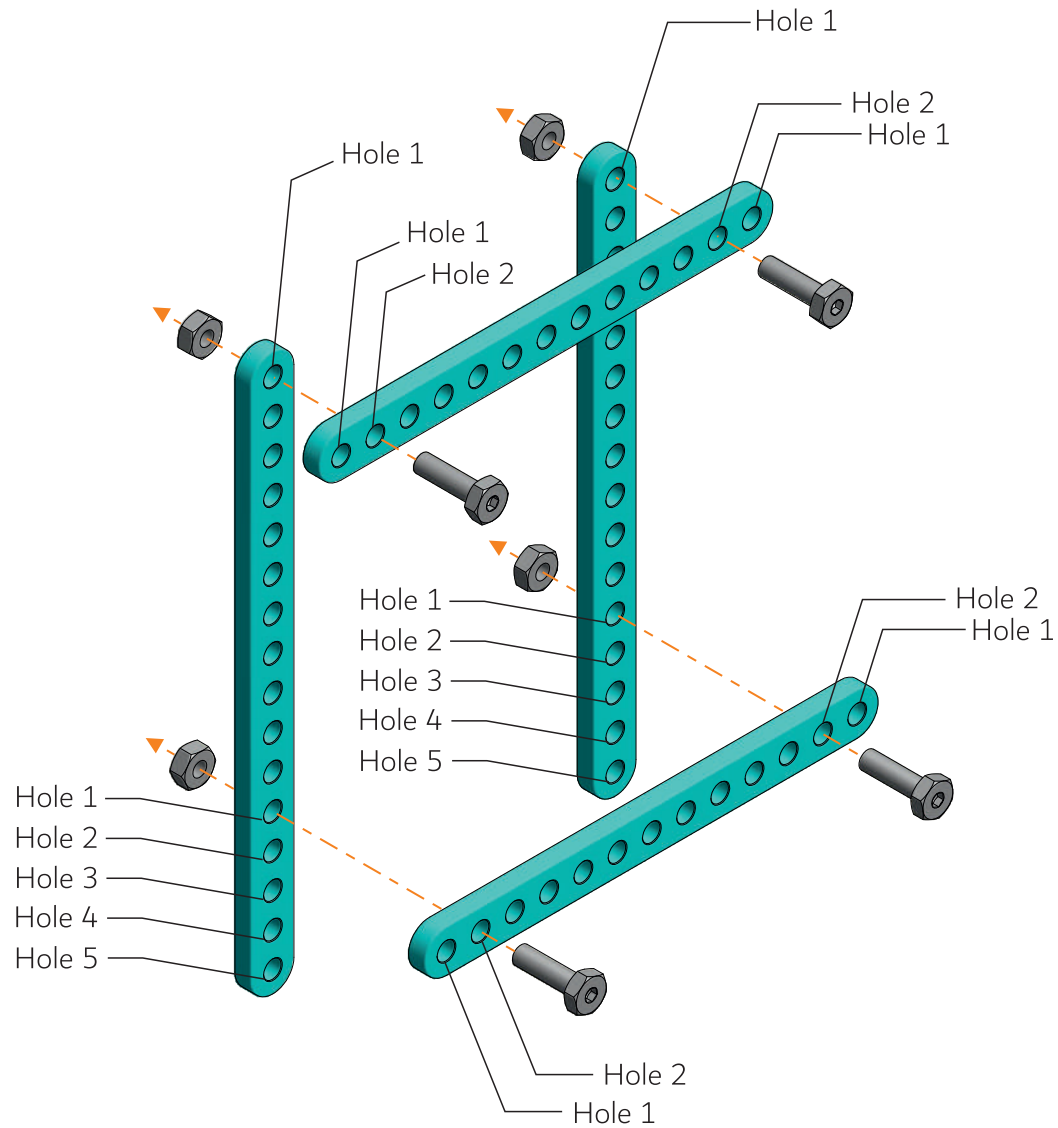
04 Assemble Slide Beam 0824-32



[Assembly Guide of penguin Robot]

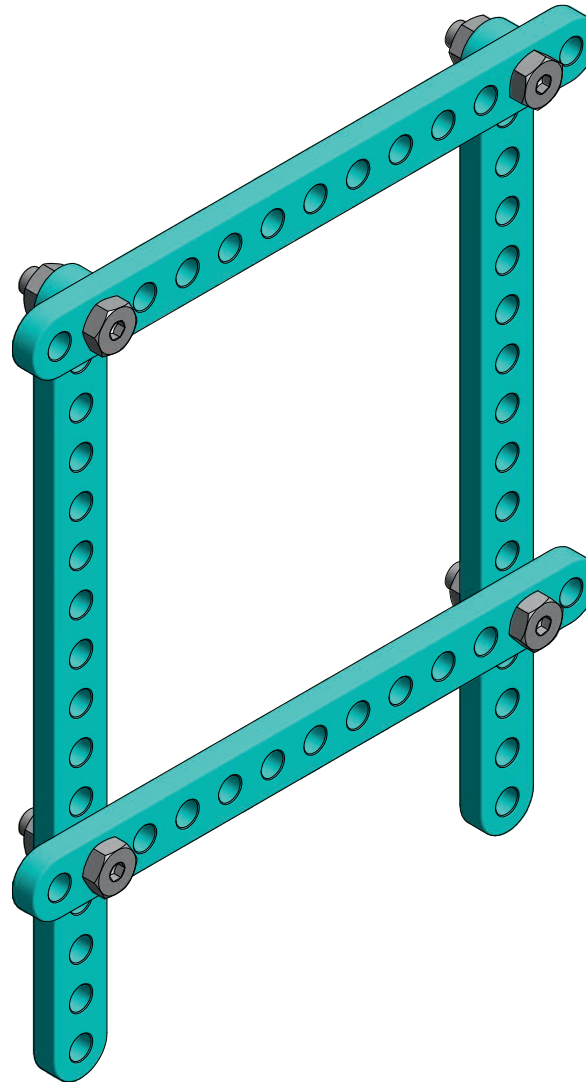
05 Assemble Beam 0410

- 4x Screw M4x14
- 4x Screw Nut M4
- 2x Beam 0410-130
- 2x Beam 0410-106



[Assembly Guide of penguin Robot]

05 Assemble Beam 0410

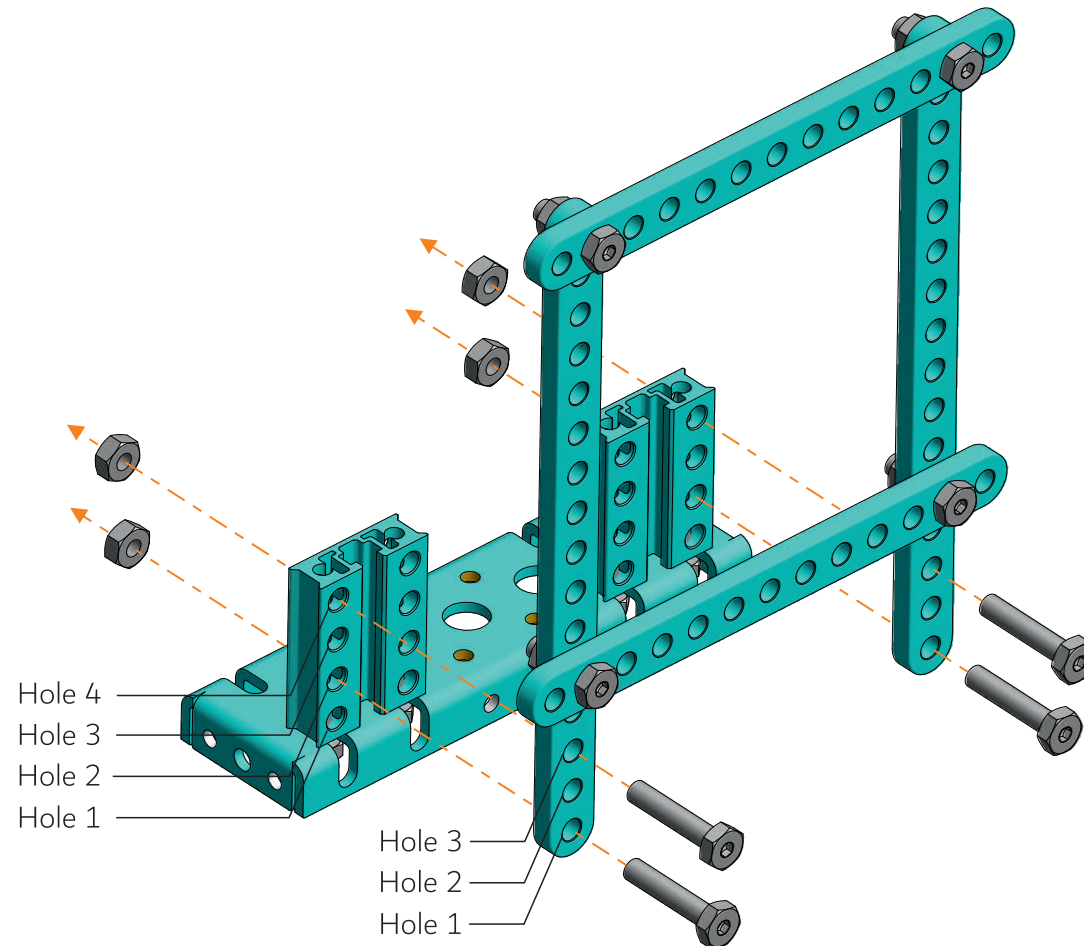


[Assembly Guide of penguin Robot]

06 Fix Beam 0410 Frame to the Slide Beam 0824-32

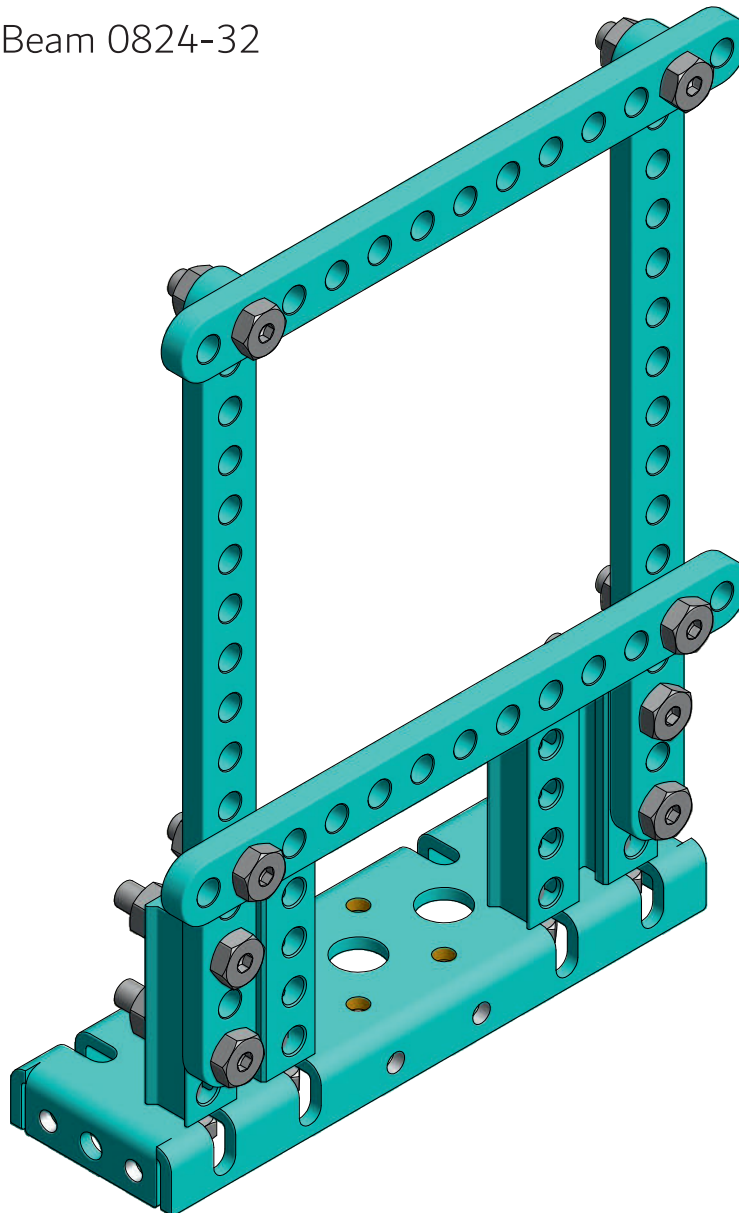
4x Screw M4x20

4x Screw Nut M4



[Assembly Guide of penguin Robot]

06 Fix Beam 0410 Frame to the Slide Beam 0824-32



[Assembly Guide of penguin Robot]

07 Assemble DC motor



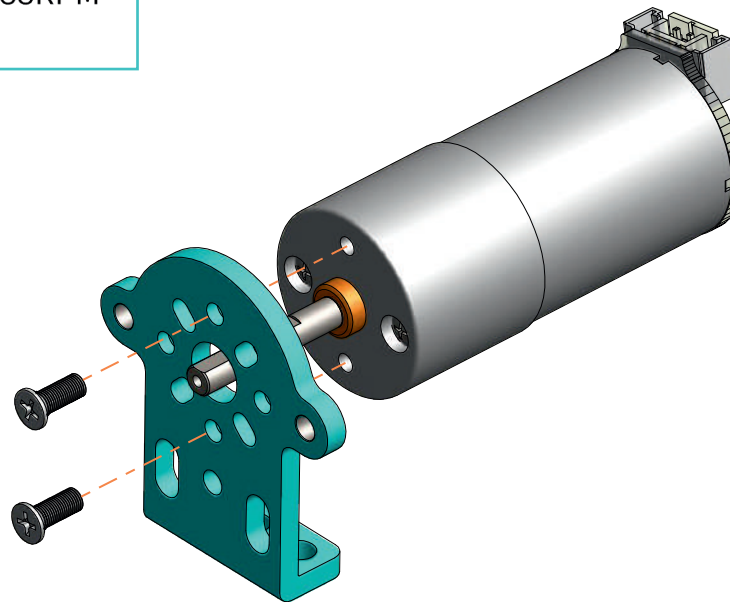
2xCountersunk Head Screw M3*6



1x25 Motor Bracket



1xEncoder DC Motor-25 9V188RPM

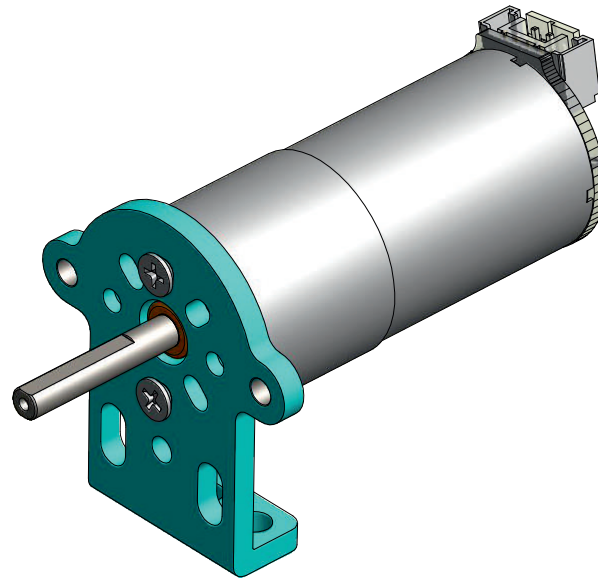


Tips:

Please pay attention to the hole position and direction

[Assembly Guide of penguin Robot]

07 Assemble DC motor

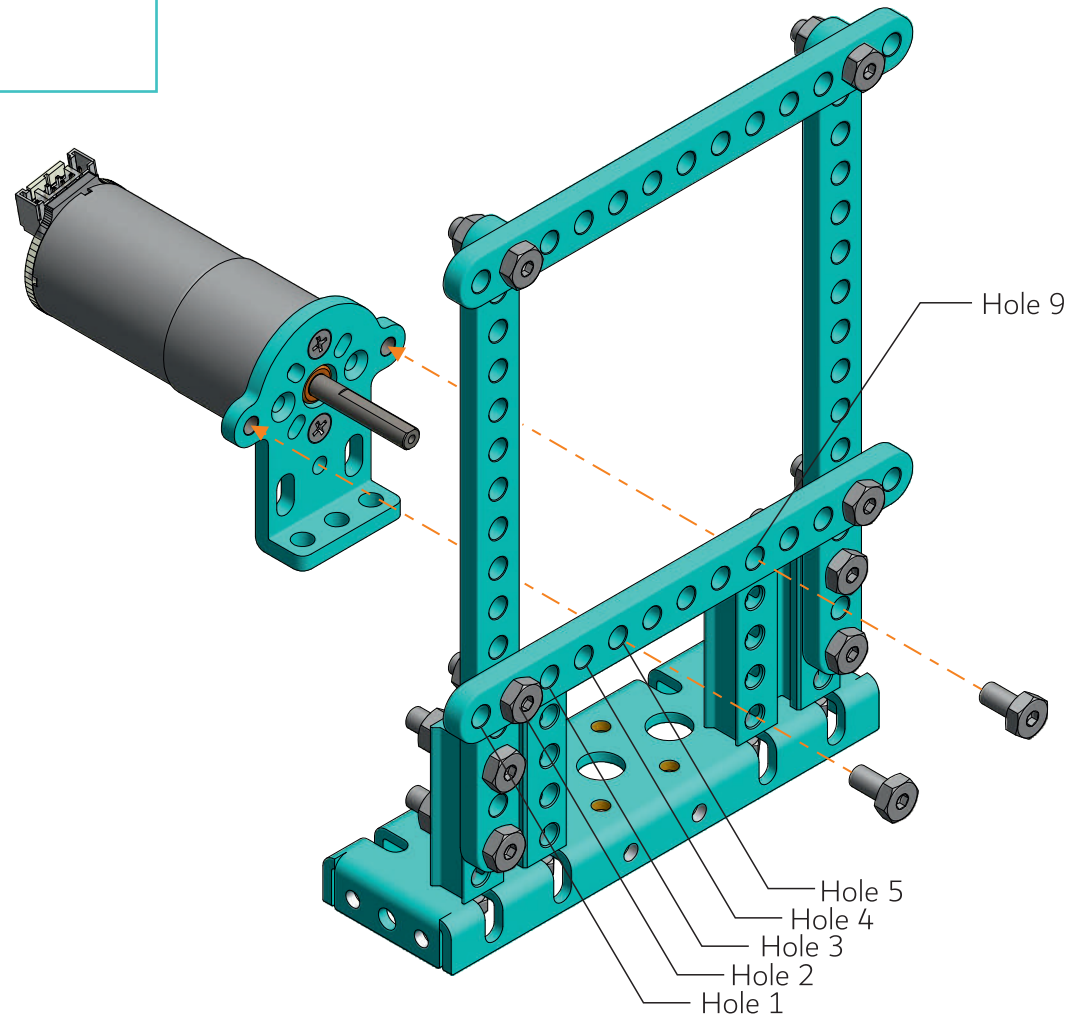


[Assembly Guide of penguin Robot]

08 Assemble DC motor to Frame

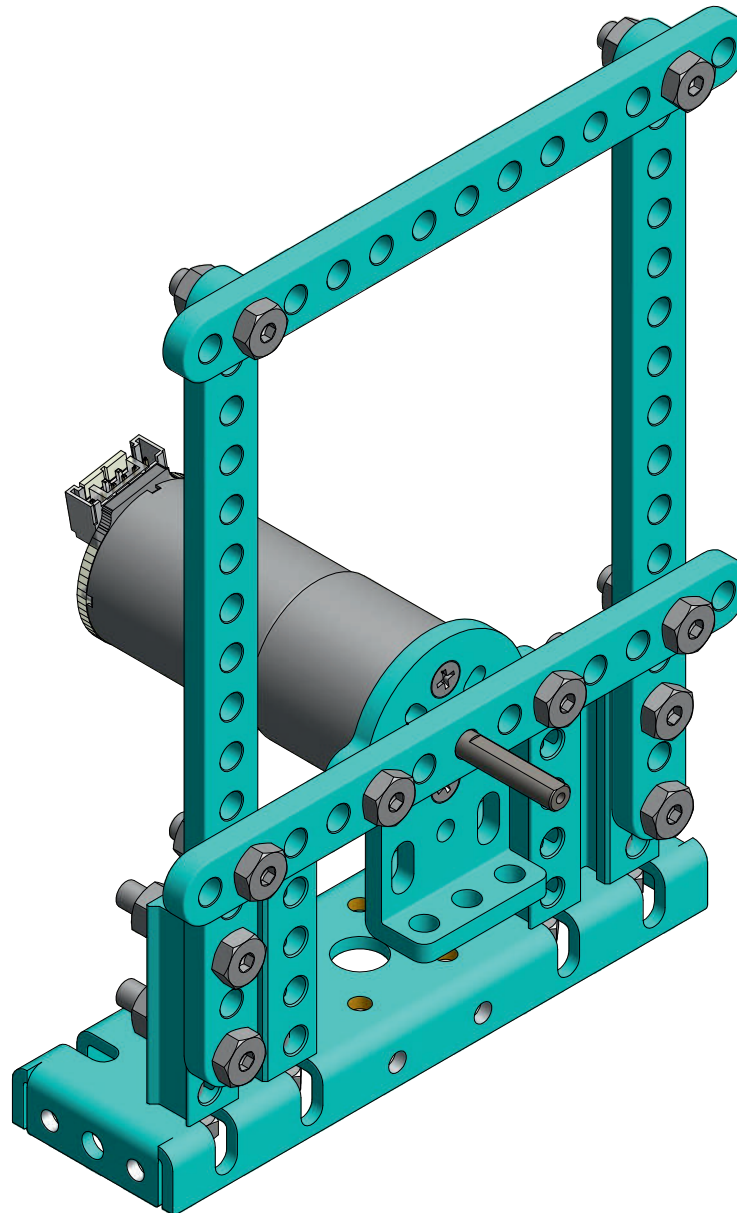


2x Screw M4*8



[Assembly Guide of penguin Robot]

08 Assemble DC motor to Frame

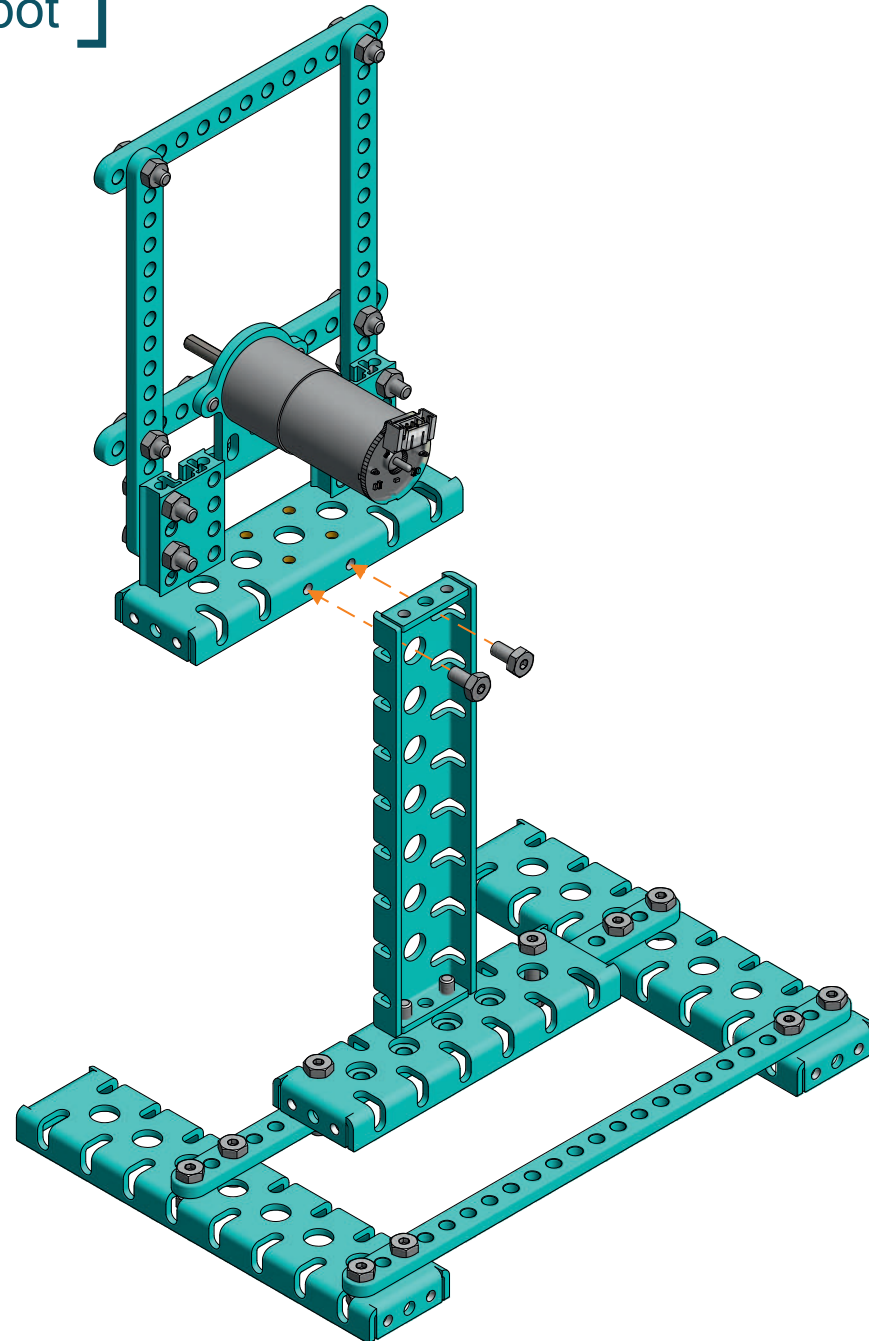


[Assembly Guide of penguin Robot]

09 Assemble Body Structure to Base Structure

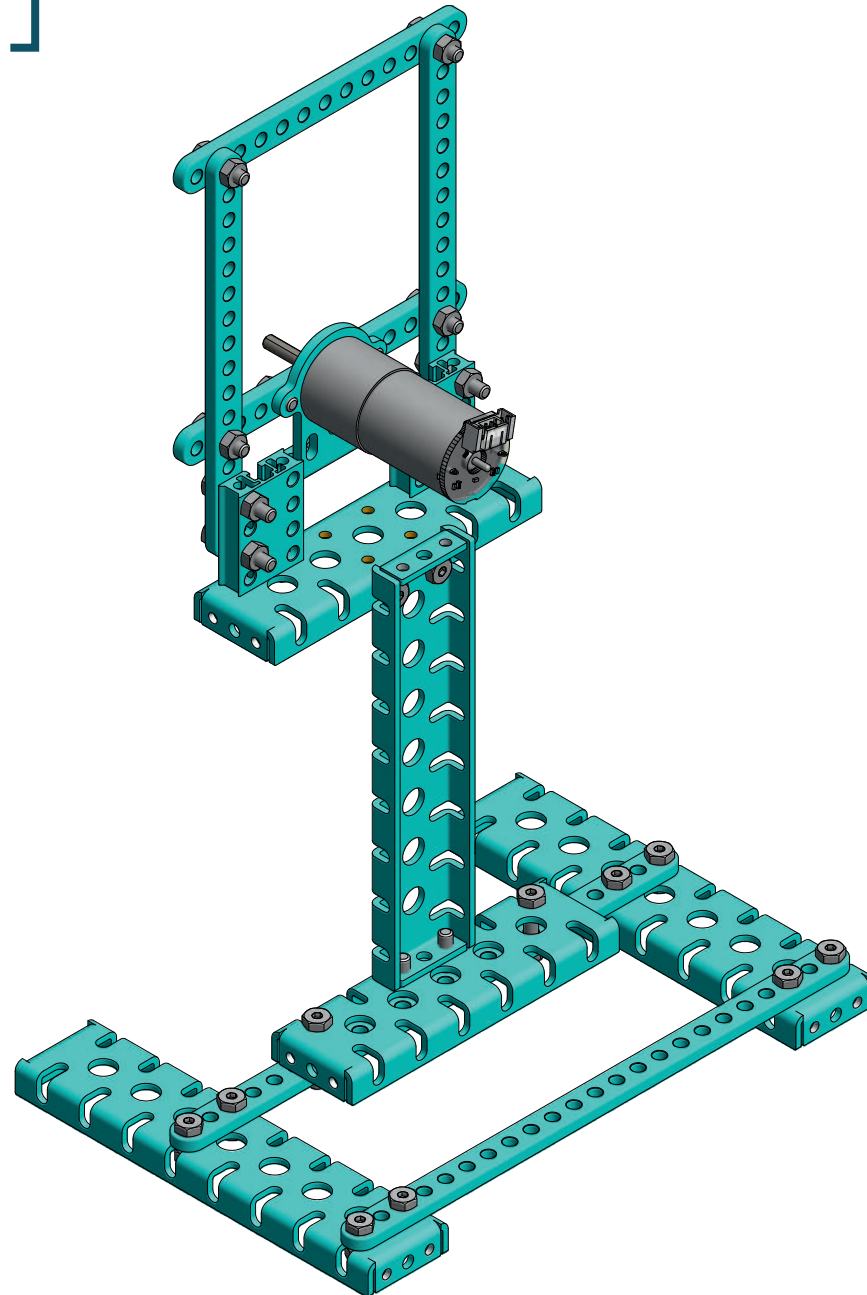


2x Screw M4*8



[Assembly Guide of penguin Robot]

09 Assemble Body Structure to Base Structure



[Assembly Guide of penguin Robot]

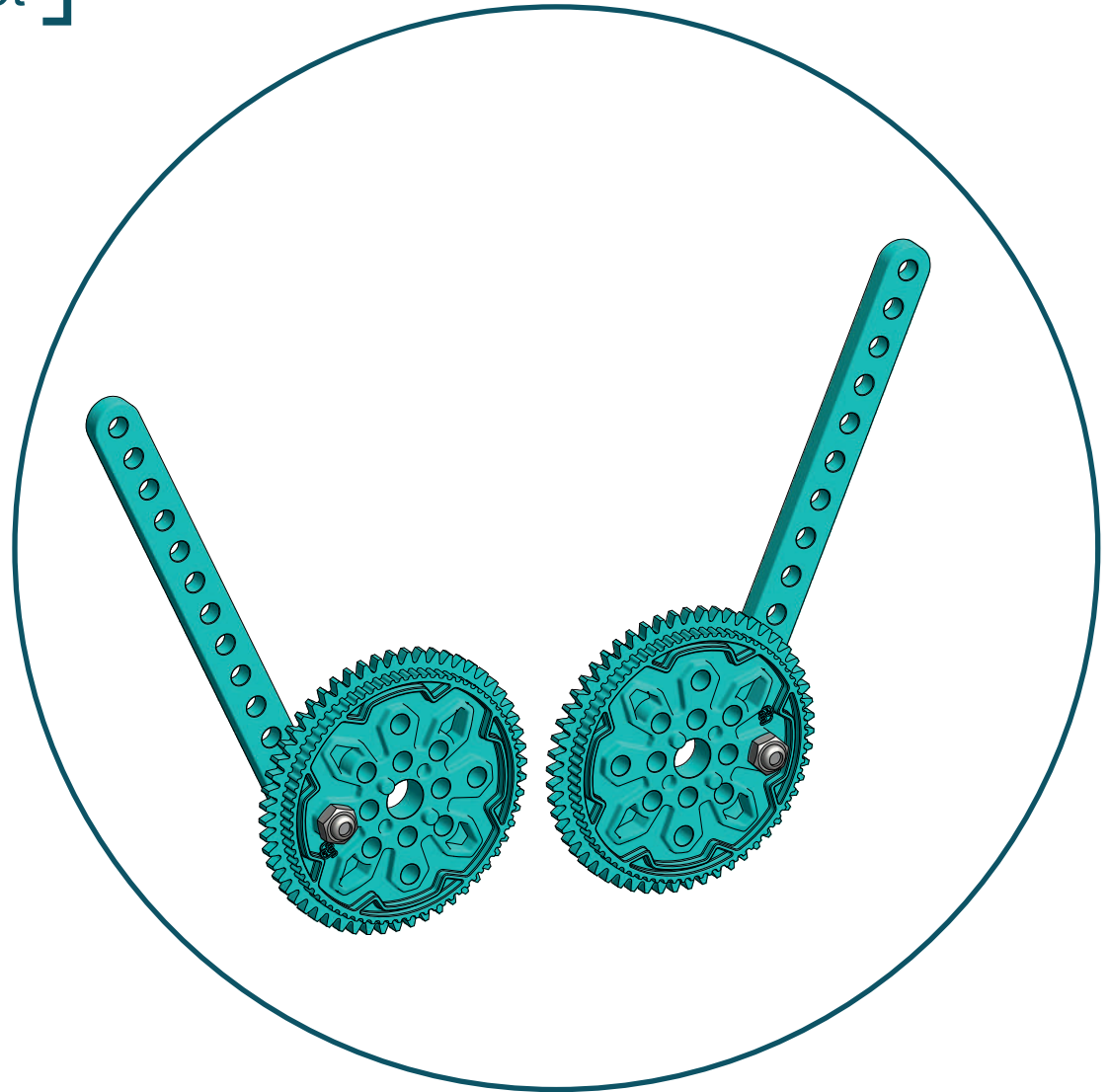
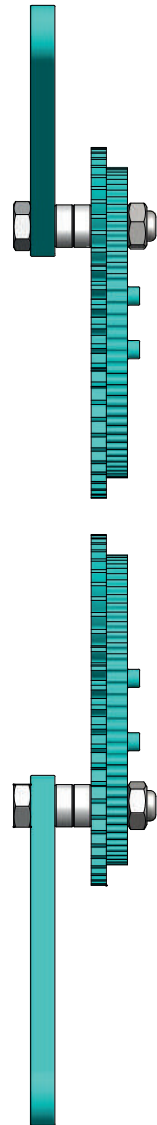
10 Assemble Wings

-  2x Screw M4x20
-  2x Nylon Locknut M4
-  4x Nylon Spacer 4*7*3
-  2x Beam 0410-106
-  2x 56T-Plastic Gear



[Assembly Guide of penguin Robot]

10 Assemble Wings

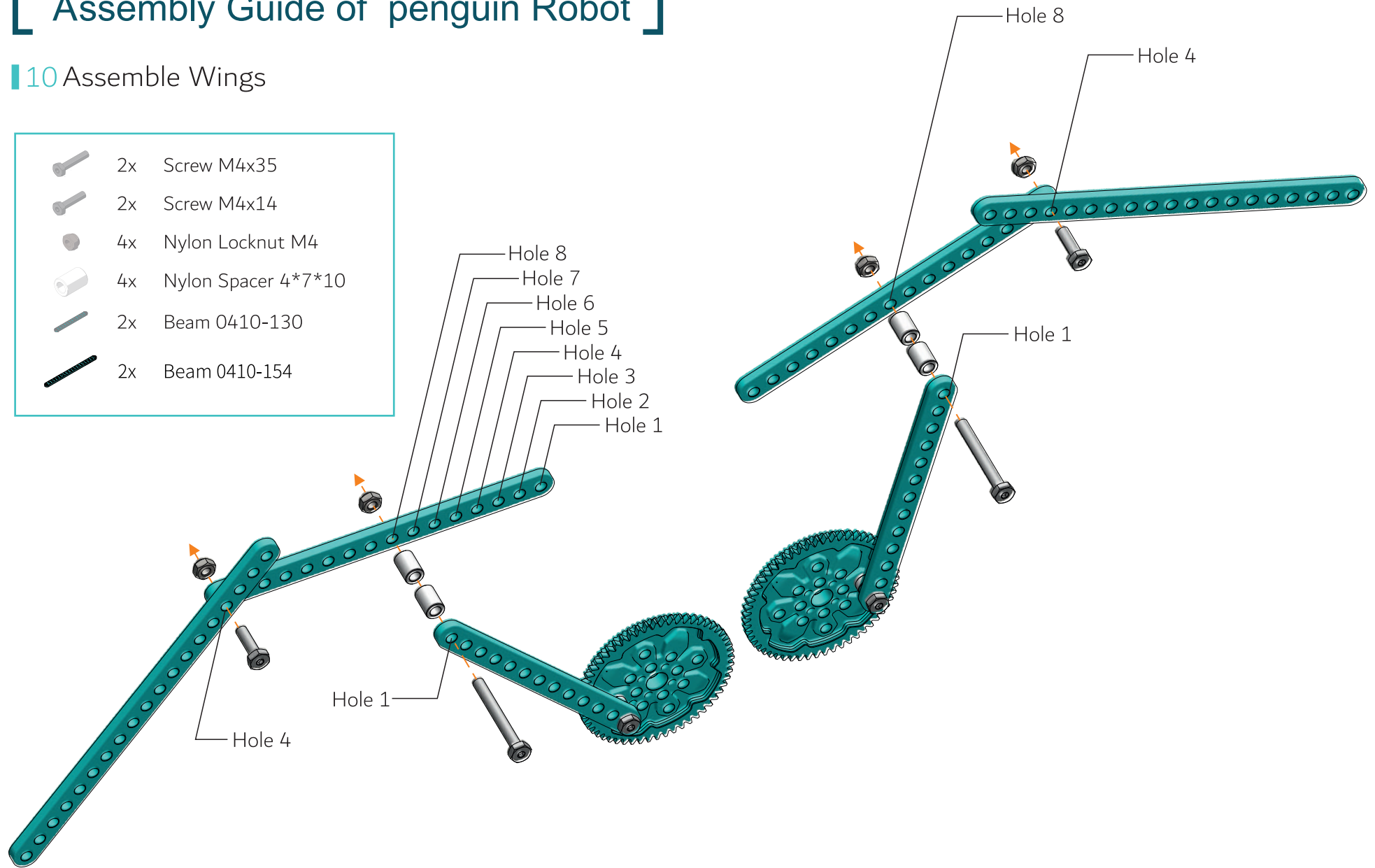


Tips: Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel

[Assembly Guide of penguin Robot]

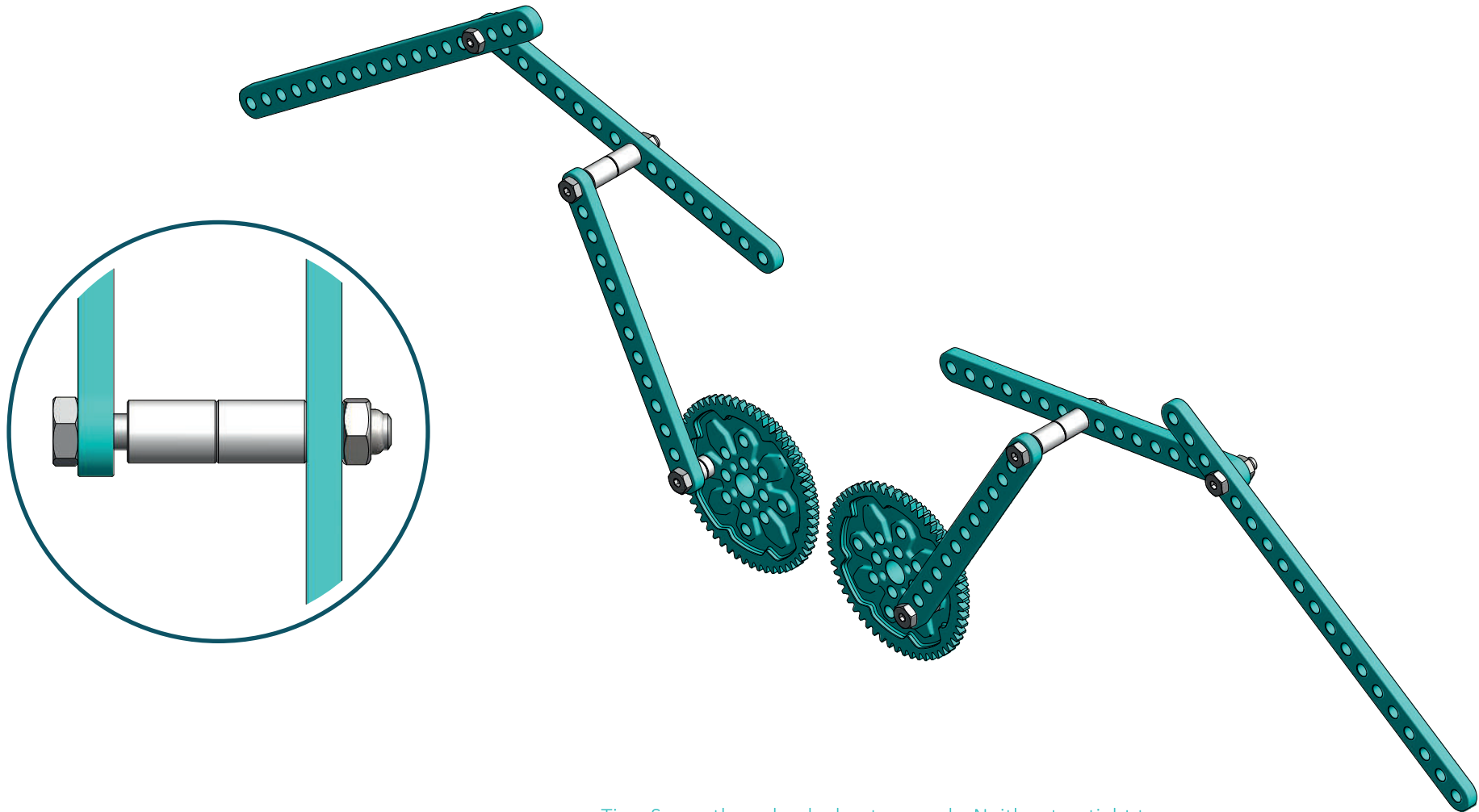
10 Assemble Wings

- 2x Screw M4x35
- 2x Screw M4x14
- 4x Nylon Locknut M4
- 4x Nylon Spacer 4*7*10
- 2x Beam 0410-130
- 2x Beam 0410-154



[Assembly Guide of penguin Robot]

10 Assemble Wings

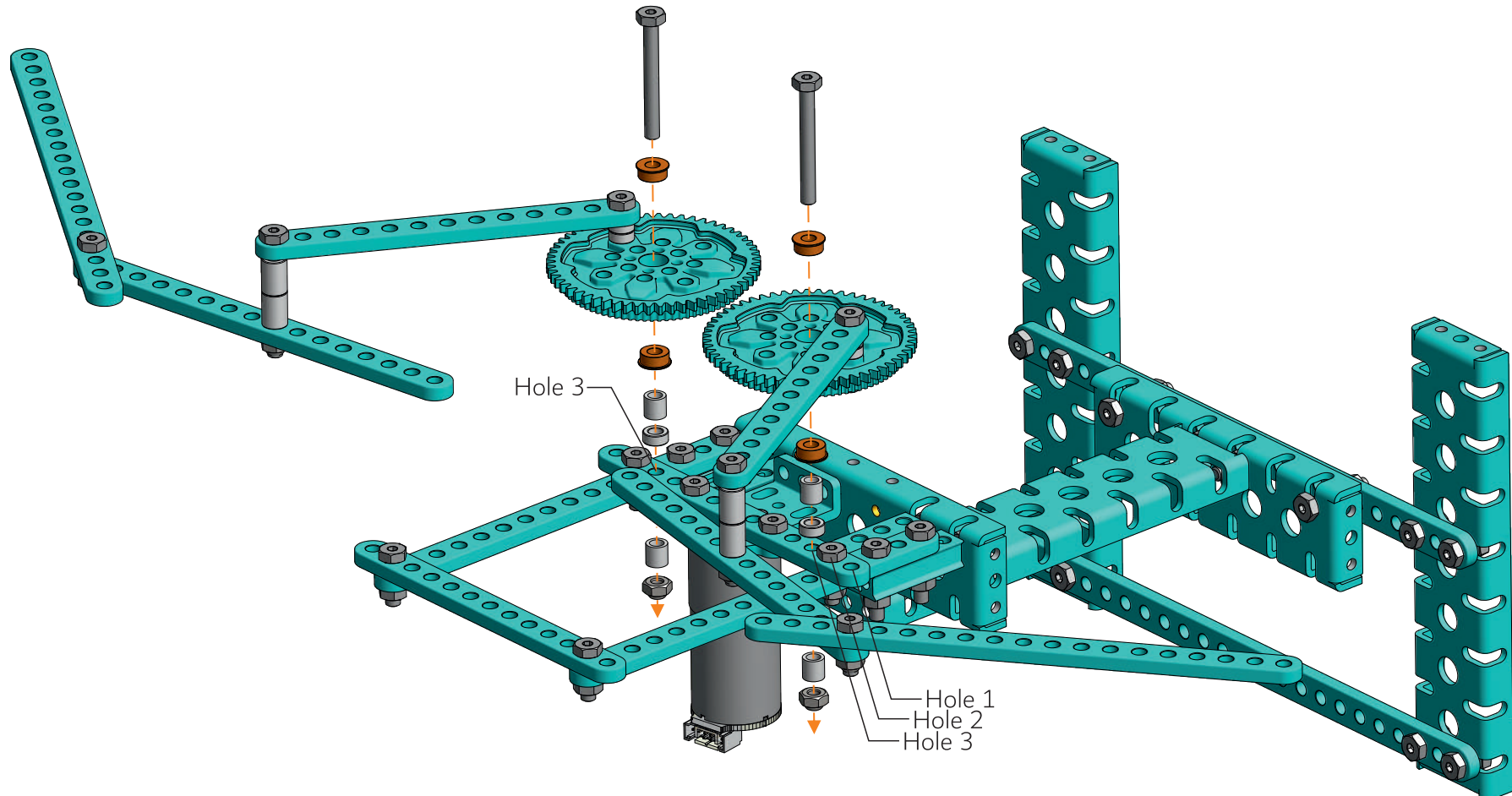


Tips: Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel

[Assembly Guide of penguin Robot]

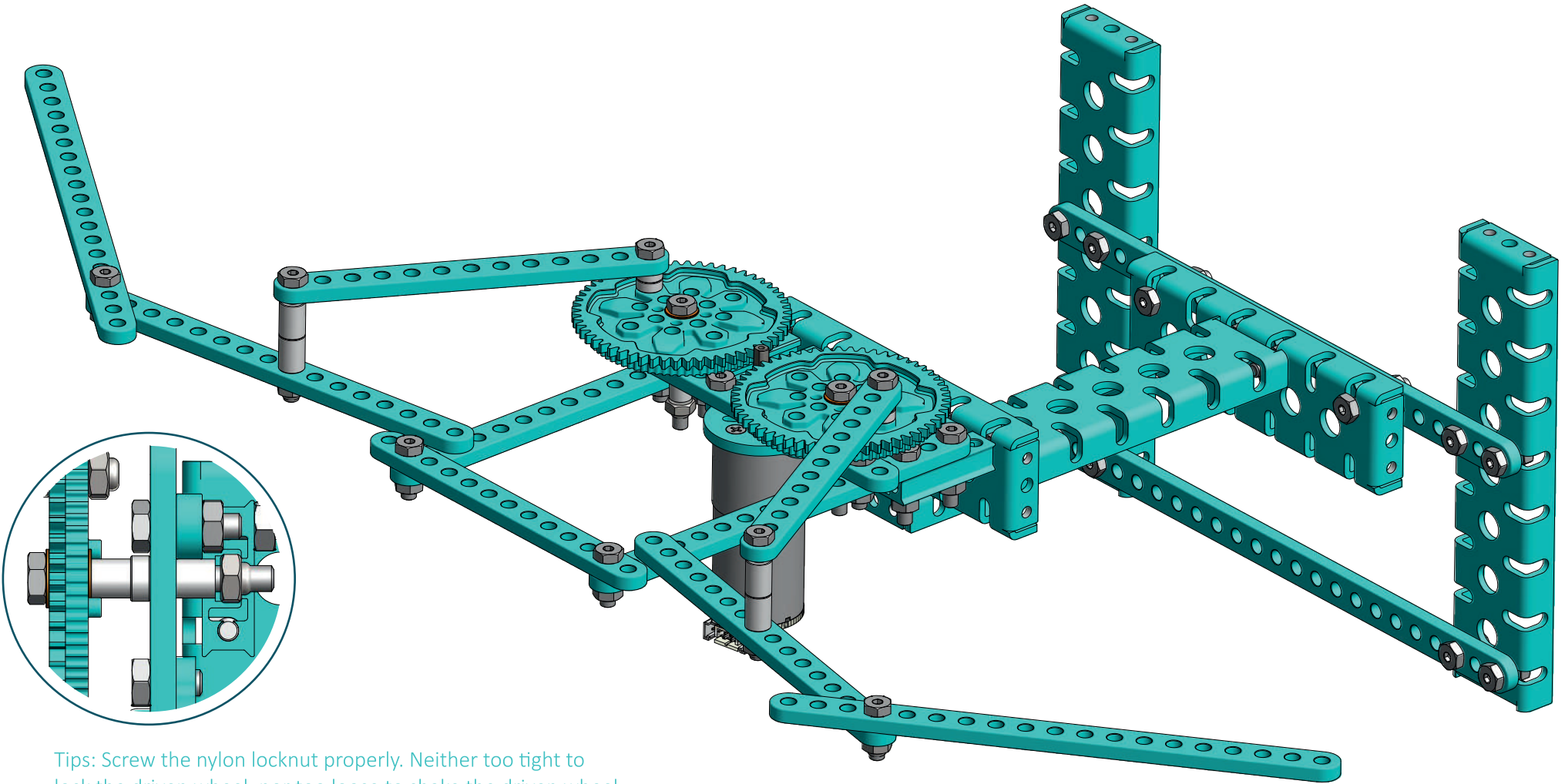
11 Fix Wings to Body Structure

	2x	Screw M4x35		2x	Nylon Spacer 4*7*10
	2x	Nylon Locknut M4		4x	Aluminum Column 4*6*6
	4x	Copper Bearing 4*8*3.5			



[Assembly Guide of penguin Robot]

11 Fix Wings to Body Structure

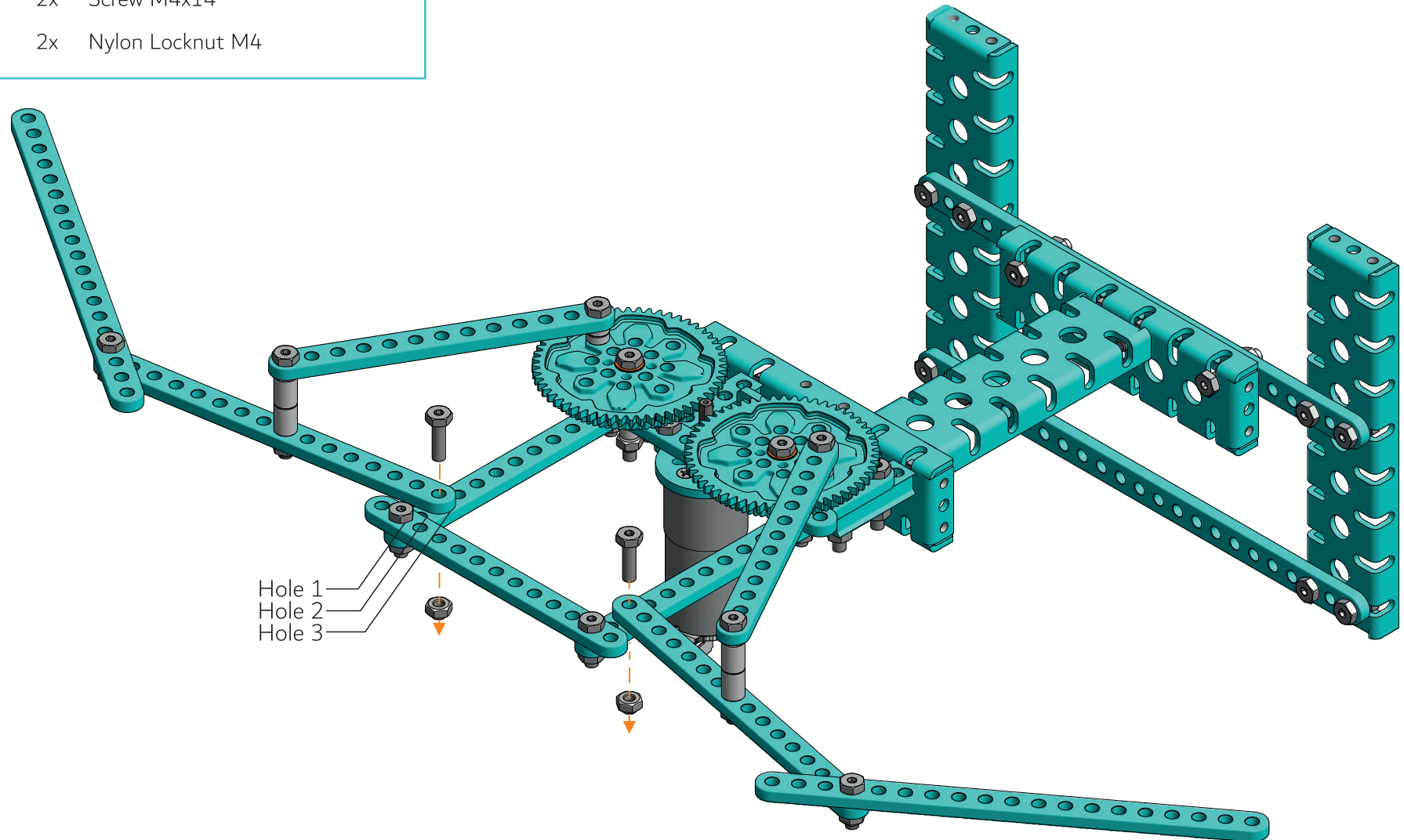


Tips: Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel

[Assembly Guide of penguin Robot]

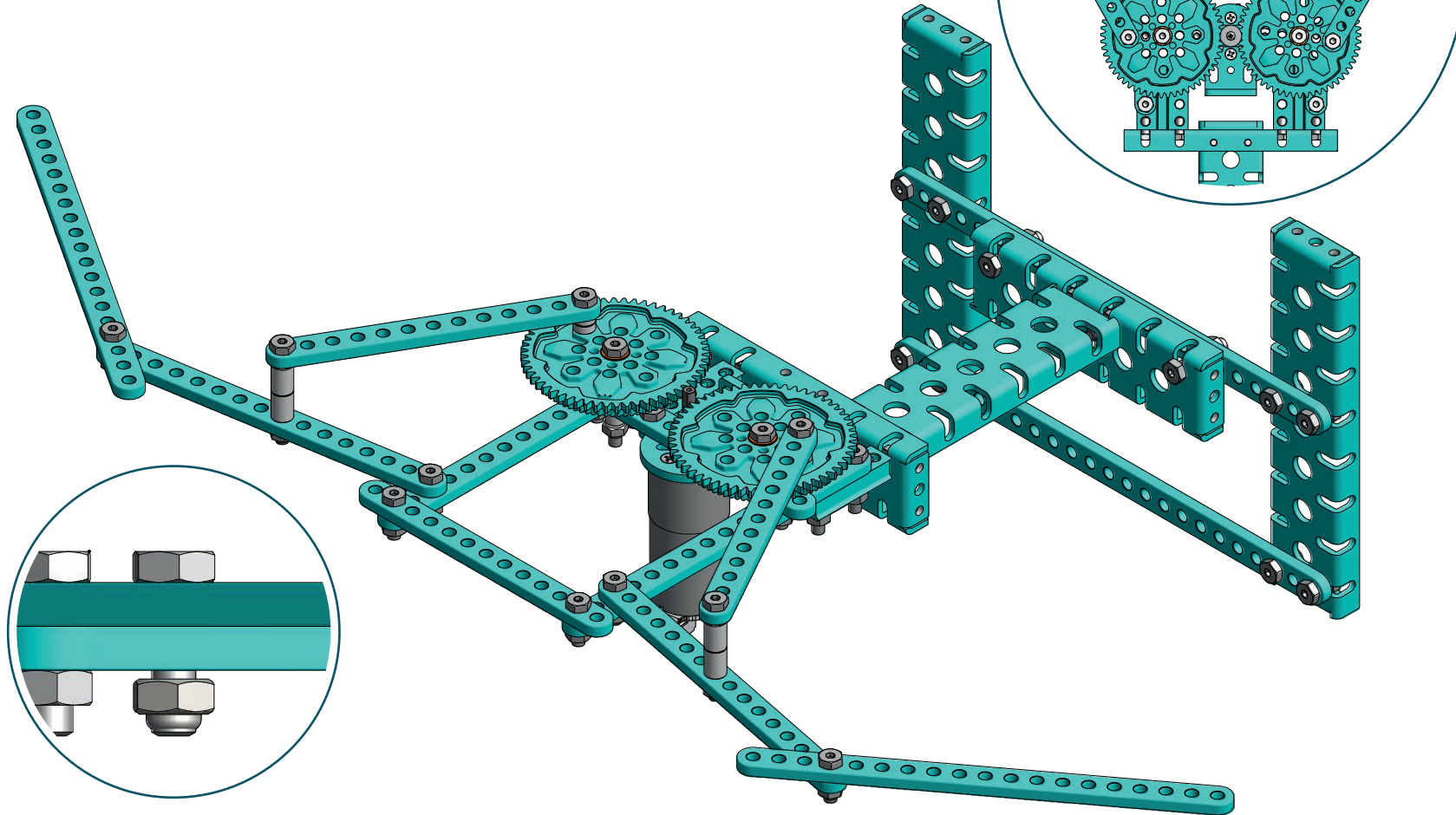
111 Fix Wings to Body Structure

- 2x Screw M4x14
- 2x Nylon Locknut M4



[Assembly Guide of penguin Robot]

11 Fix Wings to Body Structure

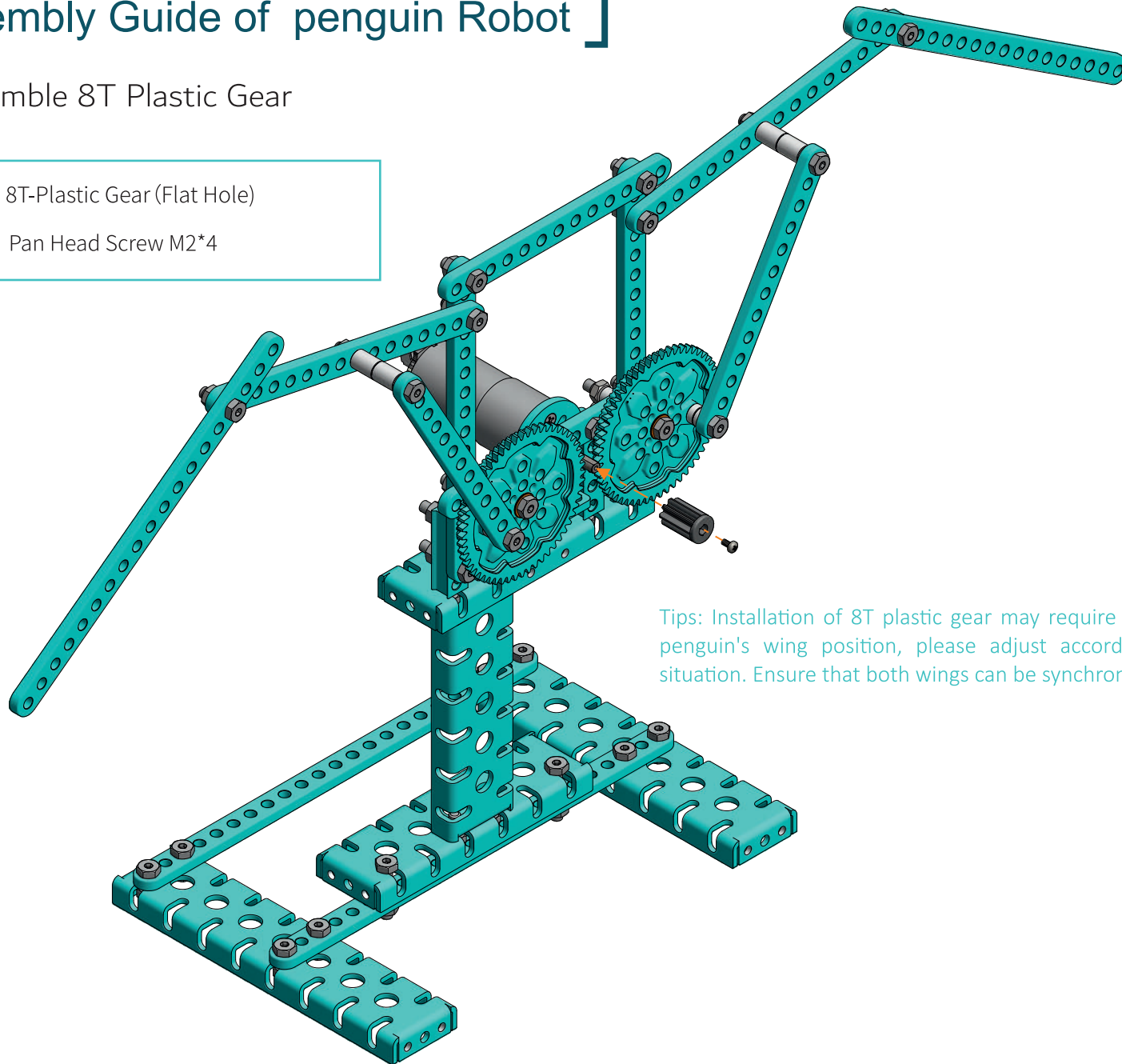


Tips: Screw the nylon locknut properly. Neither too tight to lock the driven wheel, nor too loose to shake the driven wheel

[Assembly Guide of penguin Robot]

12 Assemble 8T Plastic Gear

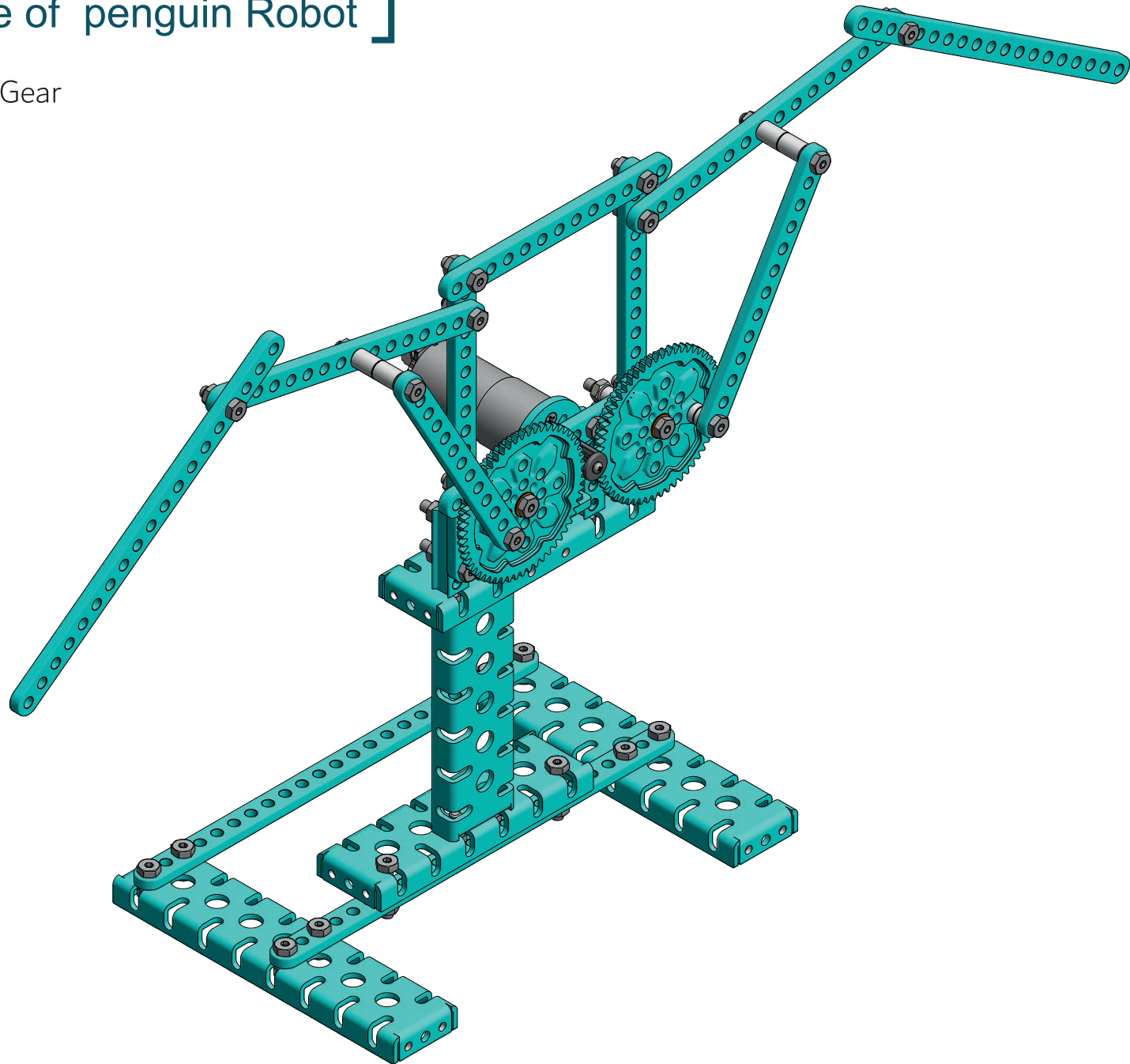
- 1x 8T-Plastic Gear (Flat Hole)
- 1x Pan Head Screw M2*4



Tips: Installation of 8T plastic gear may require adjustment of the penguin's wing position, please adjust according to the actual situation. Ensure that both wings can be synchronized up and down.

[Assembly Guide of penguin Robot]

12 Assemble 8T Plastic Gear



[Assembly Guide of penguin Robot]

13 Assemble Ultrasonic Sensor



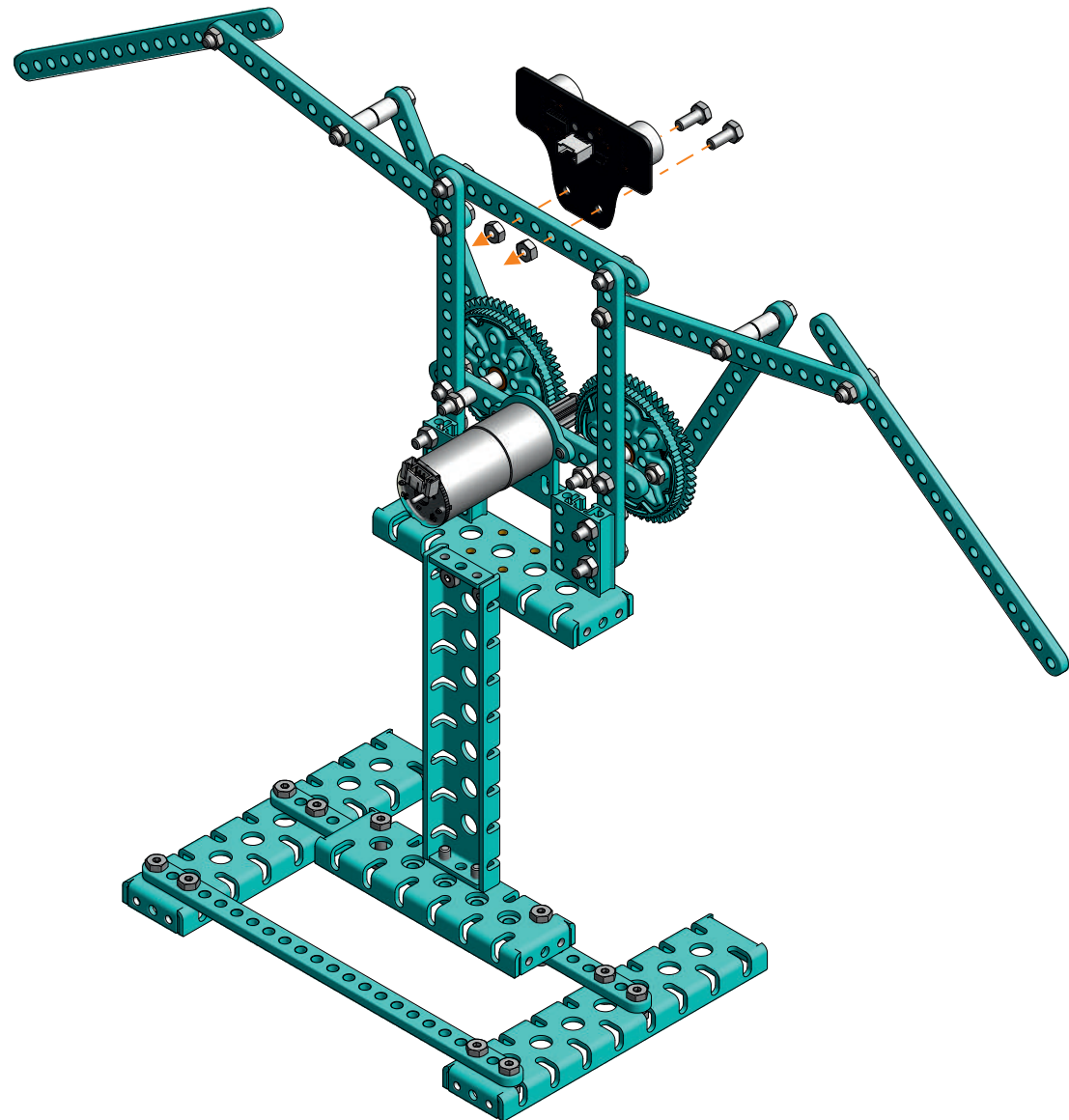
2x Screw M4*8



1x RGB Ultrasonic Sensor

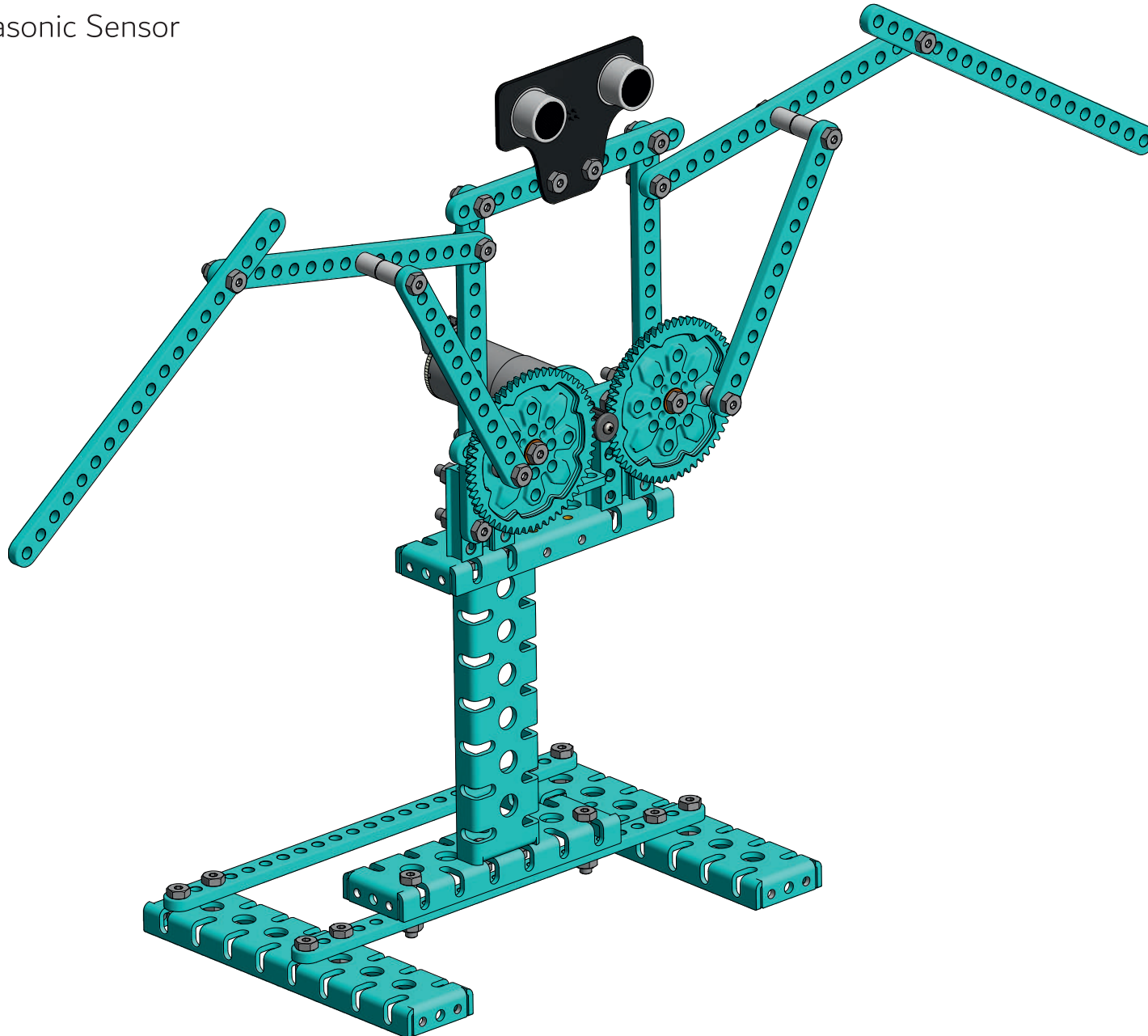


2x Screw Nut M4



[Assembly Guide of penguin Robot]

13 Assemble Ultrasonic Sensor



[Assembly Guide of penguin Robot]

14 Place control unit to the Penguin Robot



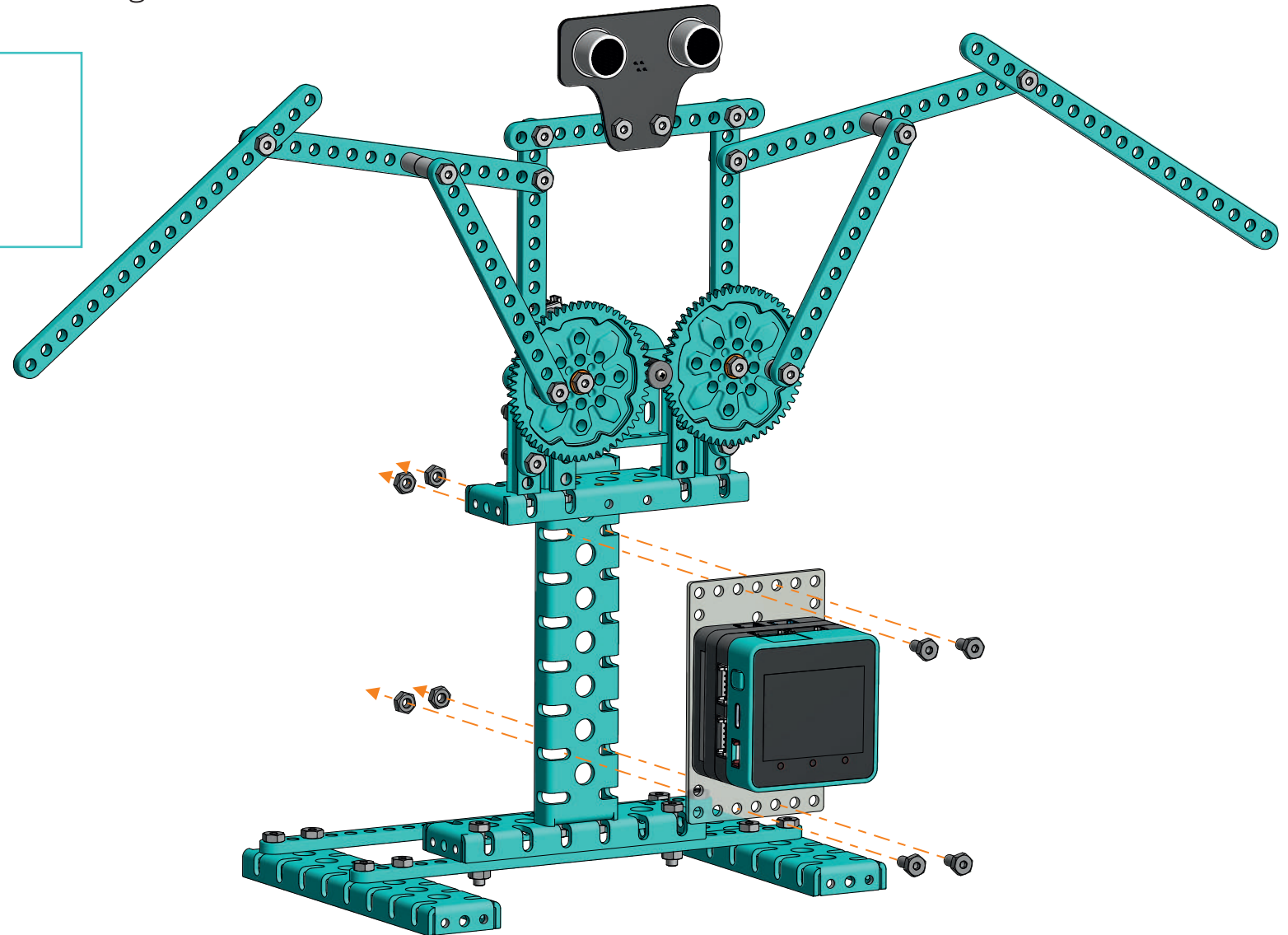
1x MC4.0 Controller



2x Screw M4*8

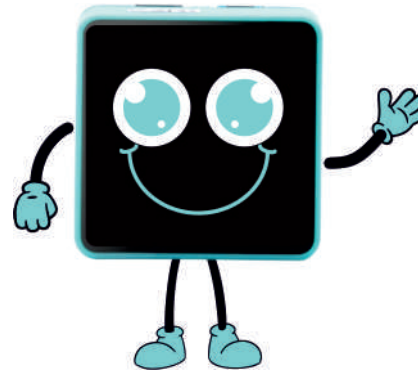
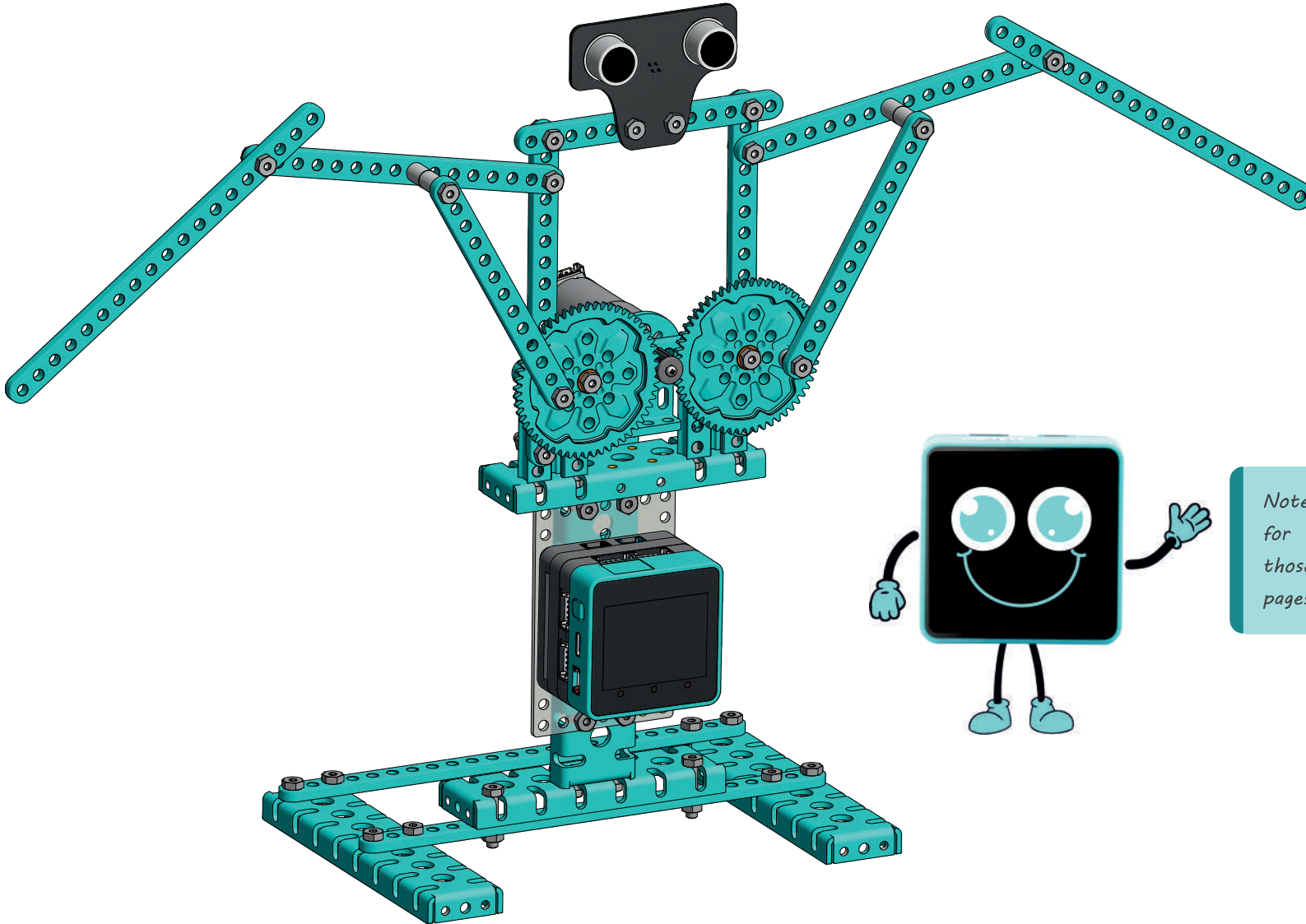


2x Screw Nut M4



[Assembly Guide of penguin Robot]

14 Place control unit to the Penguin Robot



Note that the wiring instructions for this robot are the same as those for the Walking Robot on pages 47 and 48.

[FAQ]

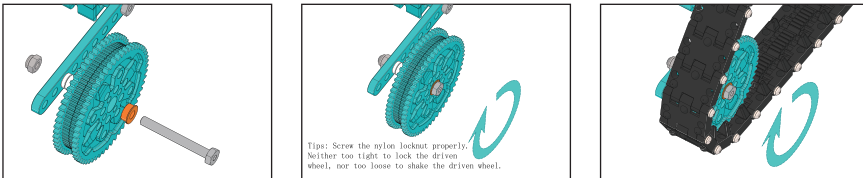
Q1: When I turn on the Bot, my robot has no response, why?

A: It is possibly caused by:

1. Low voltage, please recharge your lithium battery
2. Incorrect wiring on battery holder or motor.

Q2: When I assemble the robot, some parts are stuck, or the track is crooked, why?

A: Please pay attention to all tips in assembly guide, lock nylon locknut properly.



Q3: I cannot connect my robot to computer via USB cable nor connect robot via Bluetooth, how can I fix it?

A: Your computer hasn't installed the driver of the main board. Please install driver, restart the robot, and connect to computer again. For more information please visit www.makerandcoder.com

Q4: Why motors in robot cannot run with USB power supply?

A: USB power supply can only support chip and sensors in mainboard. To drive motors, please connect the battery and switch on the power button.

Q5: Why screws on the robots will be loose after being used for a period?

A: the robots use standard stainless-steel screws to fix all parts. The vibration generated during the operation of robot may cause the screw to loosen. Please tighten them with a screwdriver in time.

Q6: Why the line-following sensor doesn't work?

A: Please:

1. Make sure the distance between Line-following sensor and line-following map is between 1-2cm, this is the best working range.
2. Do not use Line-following mode under strong light like sunlight. Strong light will interfere the function of Line-following Sensor.
3. Make sure to use unreflecting material to make your own line-following map.

Q7: When do you need to recharge batteries?

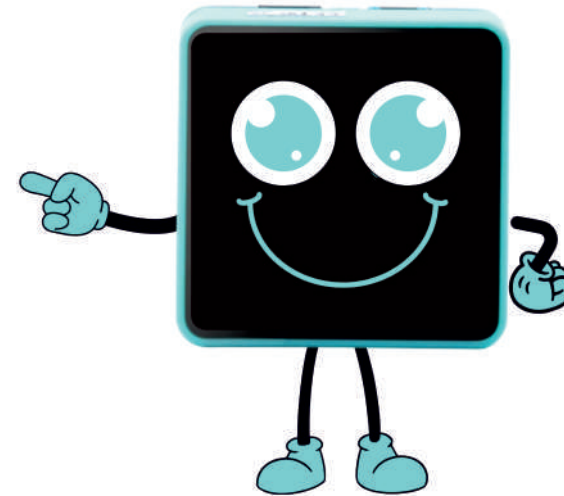
A: When the speed is set to maximum value, and your robot still run slowly, or keep restarting.

Q8: Why is the robot running with noise?

- A: 1. Please check the gap of assembled structures, make sure everything is correct.
2. To reduce noise, a small amount of lubricant can be added to the bearing.

Q10: When I controlled the robots to move forward, it moved backwards. How can I fix this?

A: The wiring of the motor is connected reversed. Please reconnect.





MC 4.0

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