How to make a Makeblock Small Tank with Ultrasonic Sensor

by **Makerworks** on October 26, 2013

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Intro: How to make a Makeblock Small Tank with Ultrasonic Sensor

Makeblock Small Tank with Ultrasonic Sensor is a simple Makeblock robot. It is easy to build and control.

For more information, please visit Makeblock website here .

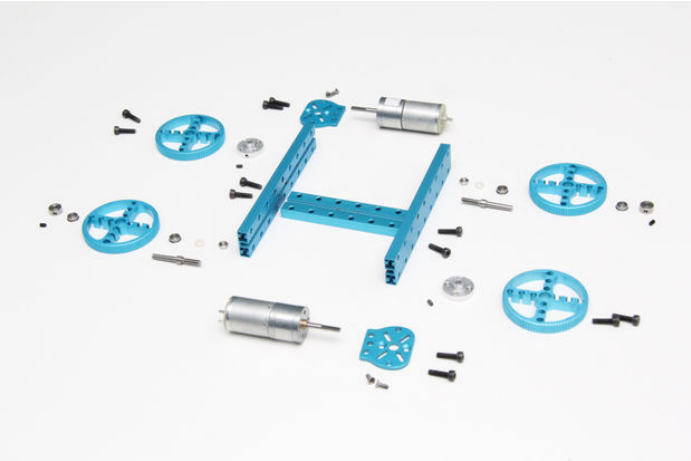
Getting Started
This instructable, How to make a Makeblock Remote Control 2WD Robot, will show you the step-by-step instructions on how to build a Small Tank with Ultrasonic Sensor by Makeblock.
Now let's have some fun!

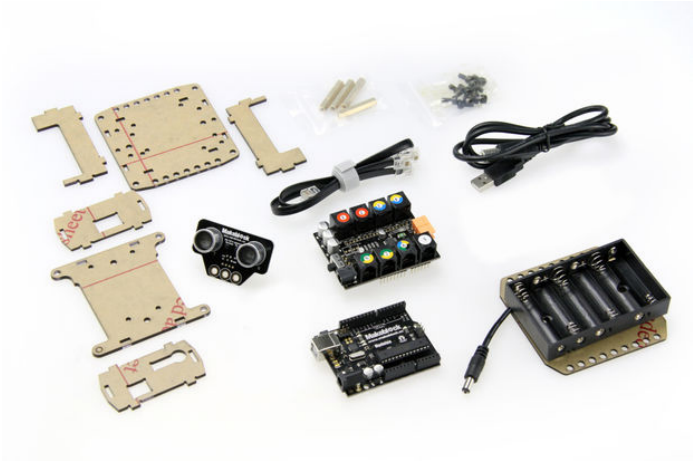
Step 1: Materials list

Materials List:

Mechanical Part List:
2 × Beam 0824-144
1 × Beam 0824-128
1 × Beam 0824-96
4 × Timing Pulley 90T
2 × DC Motor-25 Bracket
2 × Shaft Connector-4
2 × Threaded Shaft 4×31mm
4 × Flange Bearing 4×8×3mm
2 × Shaft Collar 4mm
2 × Plastic Ring 4×7×2
14 × Screw M4×14
2× Screw M4×8
4 × Countersunk Screw M3×8
4 × Headless Screw M3×5
2 × Nut M4
38 × Track
38 × Track Axle

Electronic Modules List:
1 × Arduino
1 × Acrylic Box
1 × Me-BaseShield
1 × Battery Holder
1 × Acrylic Battery Bracket
2 × DC Motor-25
1 × Me Ultrasonic Sensor V2.0
1 × RJ11 Cable

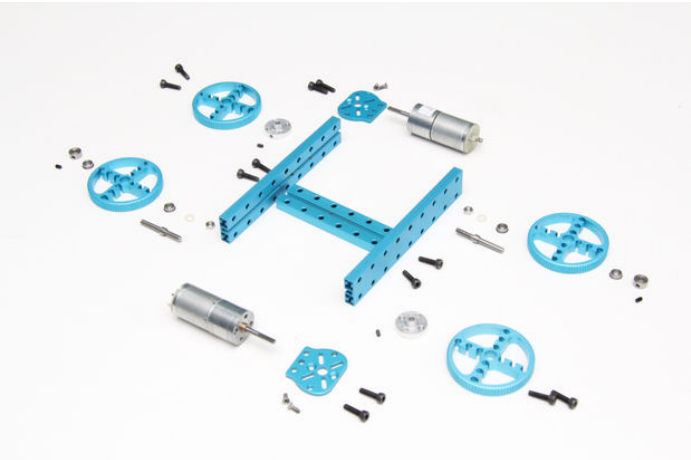


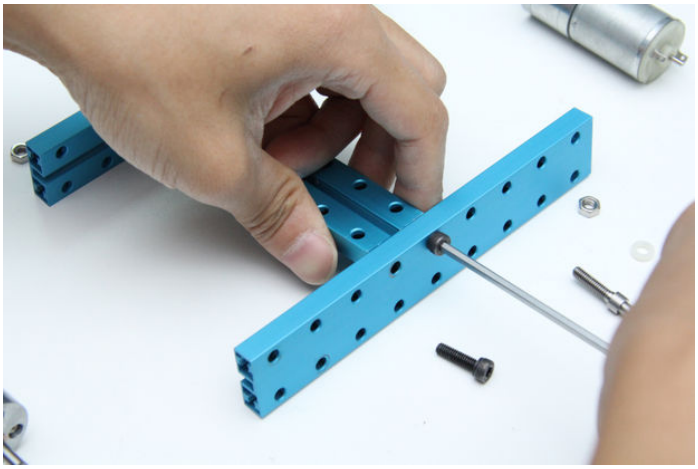


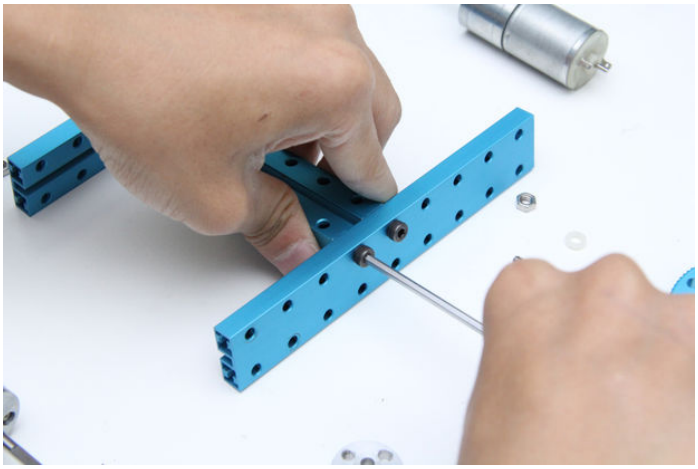
Step 2: Build the chassis of the robot

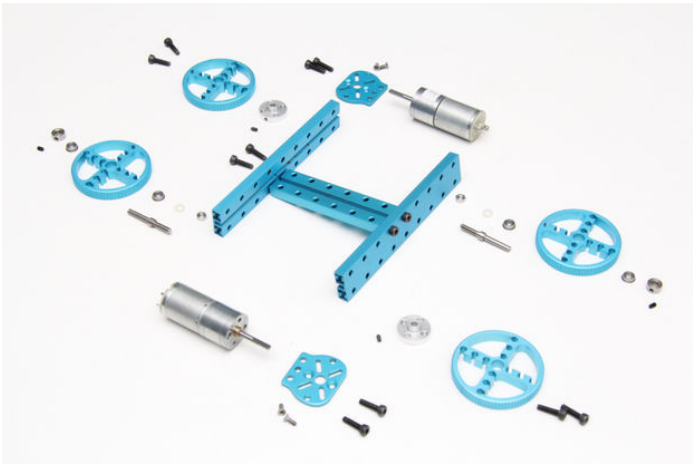
Procedure:

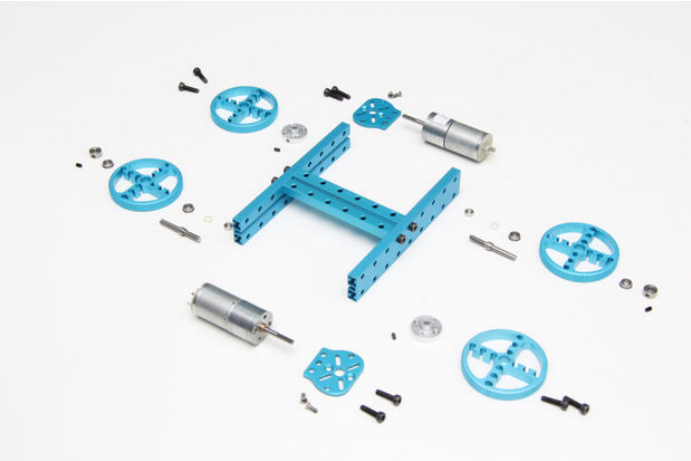
Follow the pictured steps to build the chassis of the robot.







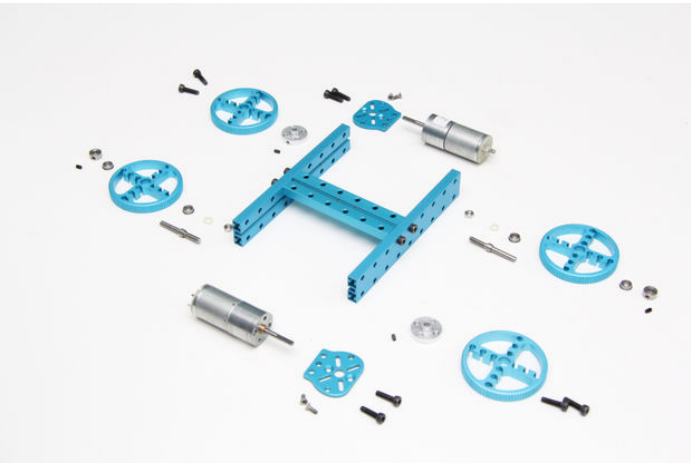


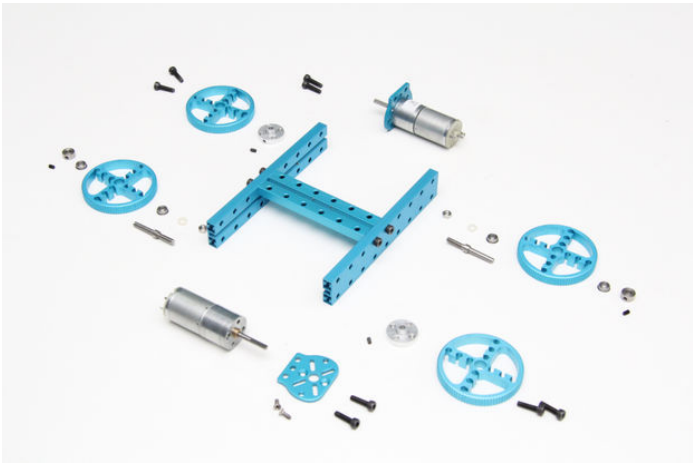


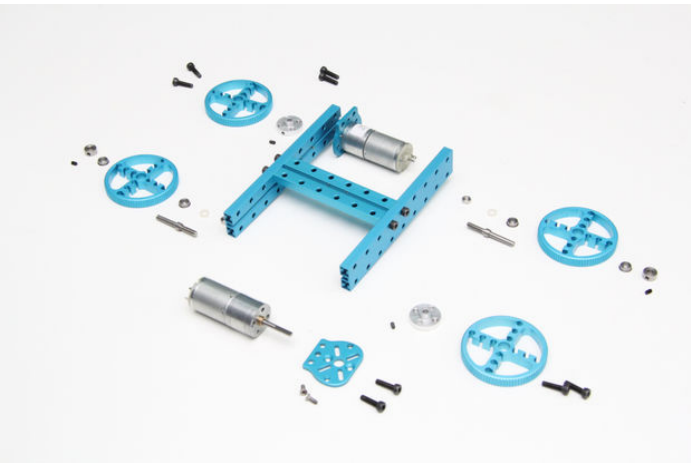
Step 3: Add Motors

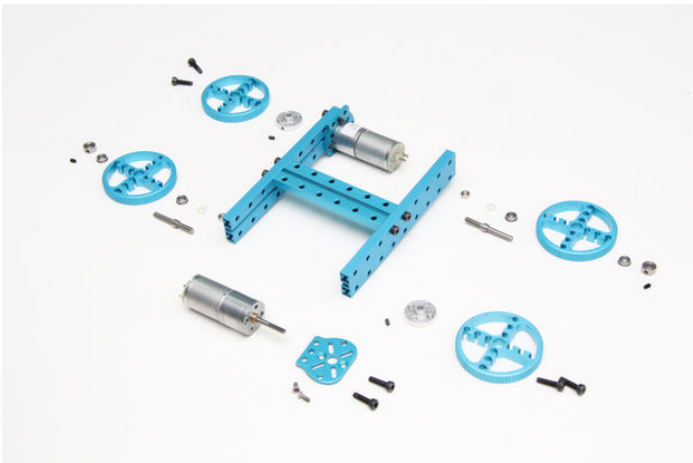
Procedure:

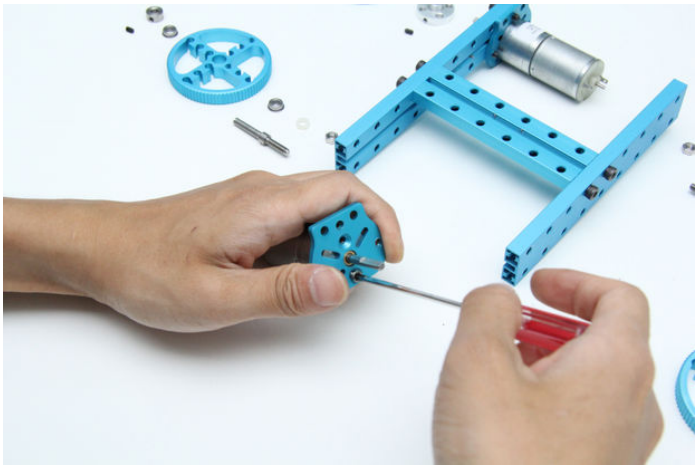
Before add the motors on the chassis, you need build the two motors with motor brackets.
Then add the motors on the chassis with 4 Screw M4×14.

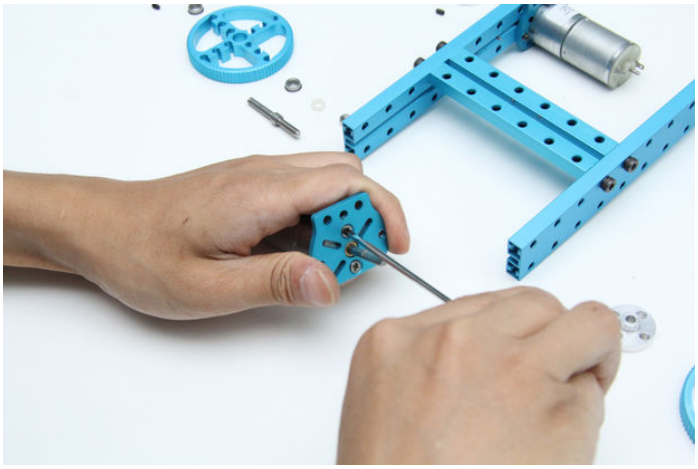


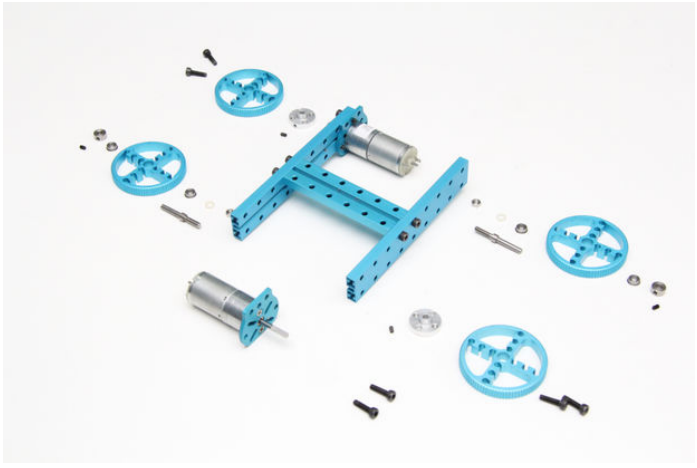


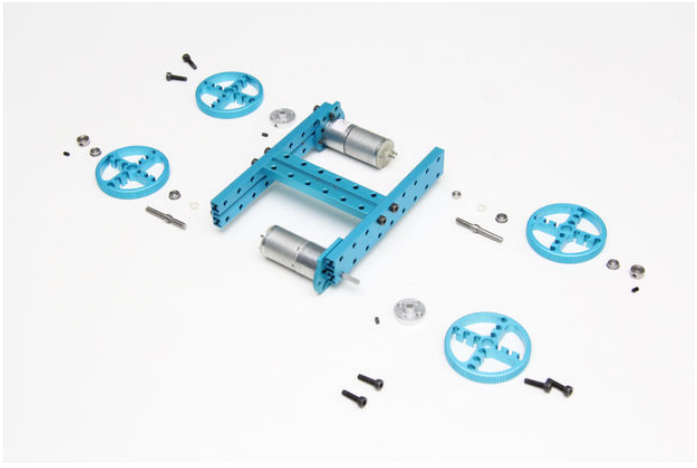


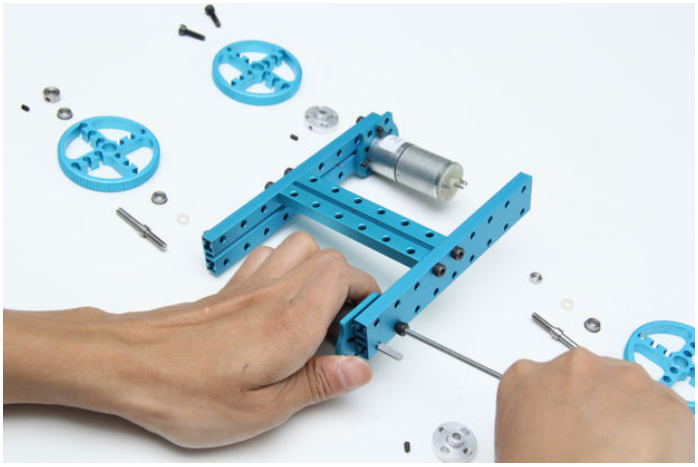


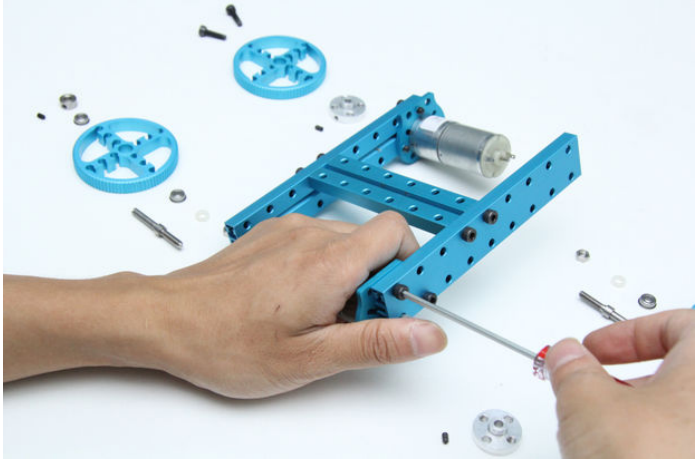


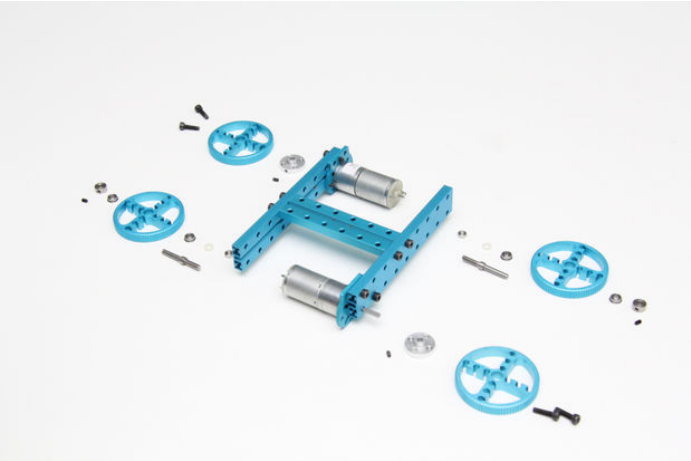








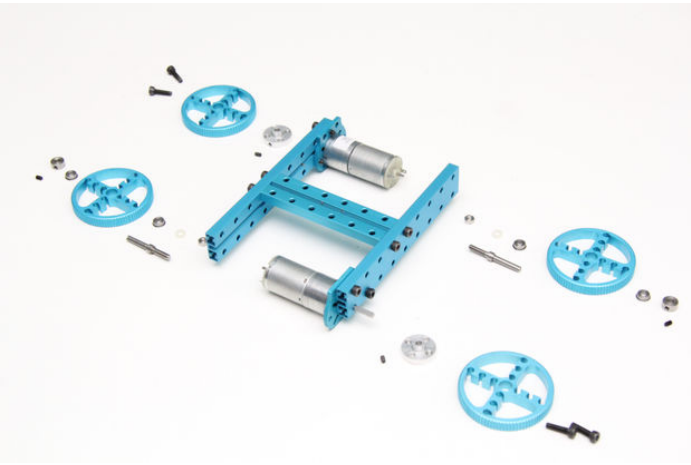


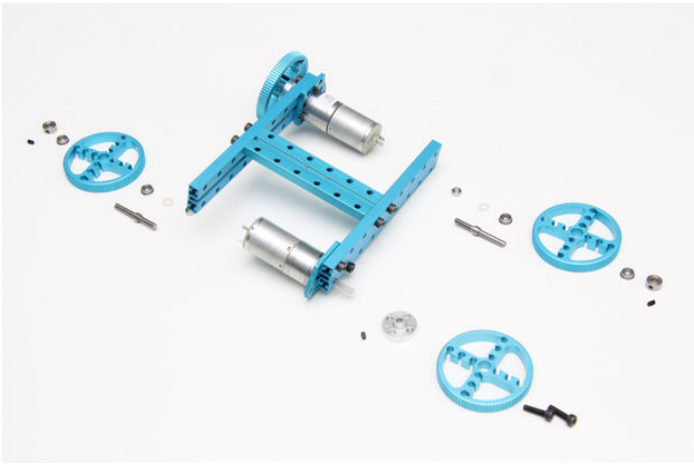


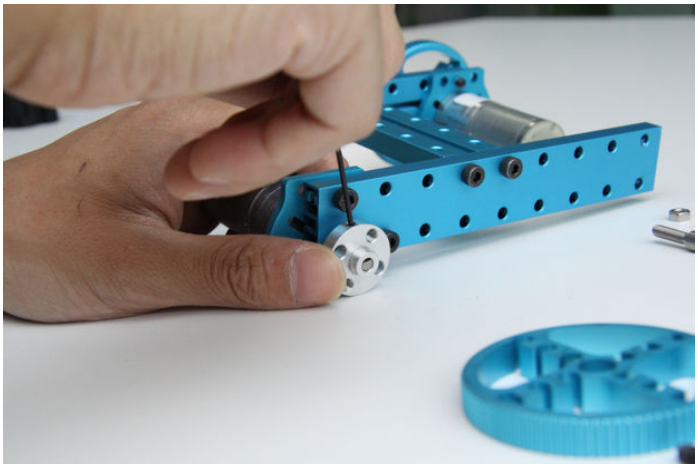
Step 4: Attach the Driven Wheels

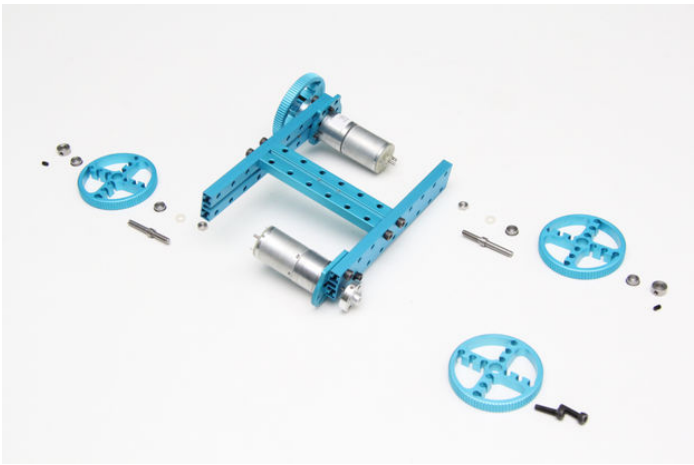
Procedures:

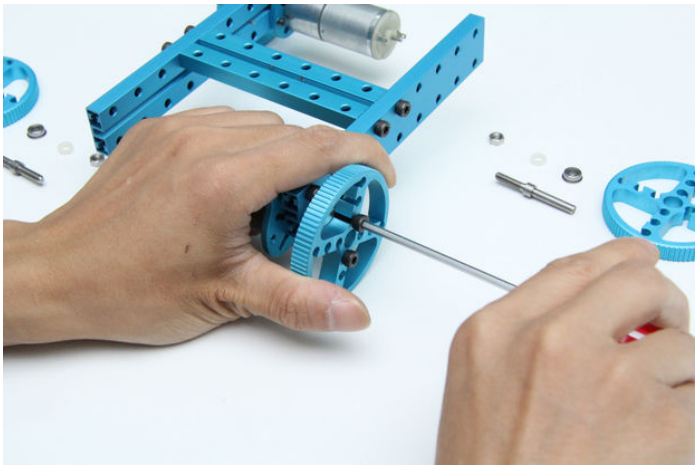
There are 4 wheels of this robot, 2 driving wheels and 2 driven wheels.
Firstly, add 2 driving wheels with Shaft Connector-4 as above pictures show.

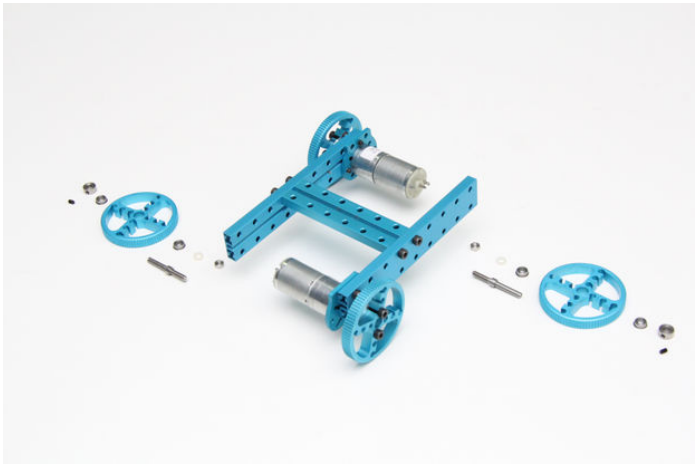








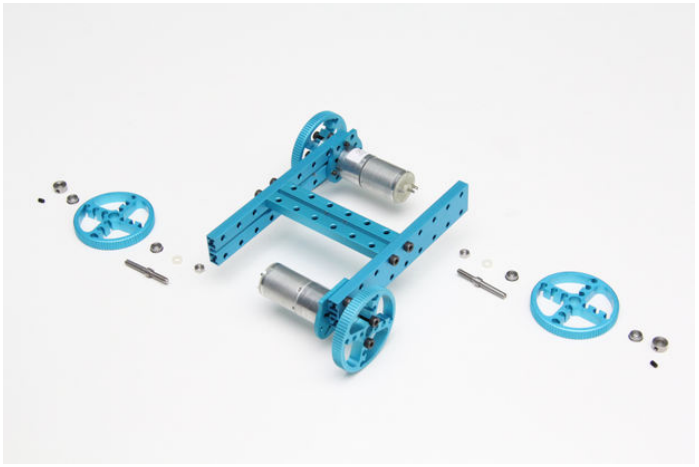


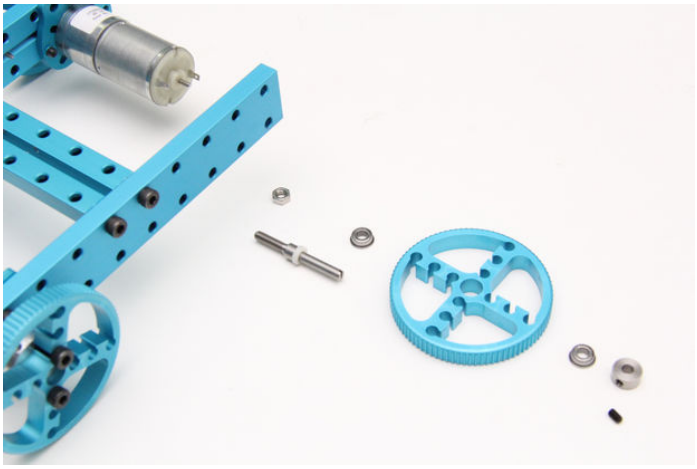


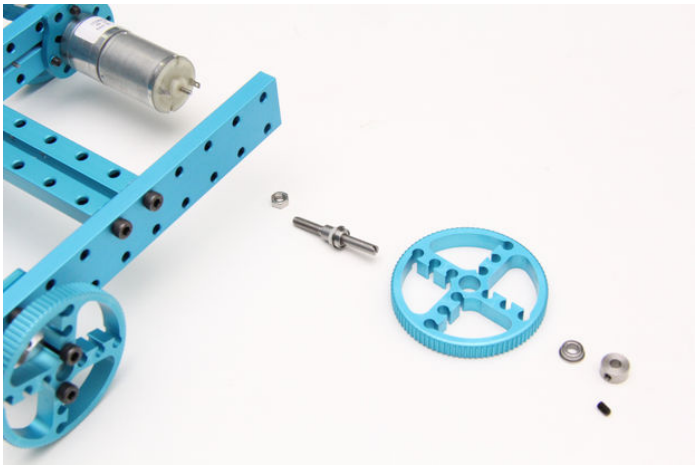
Step 5: Add the Driving Wheels

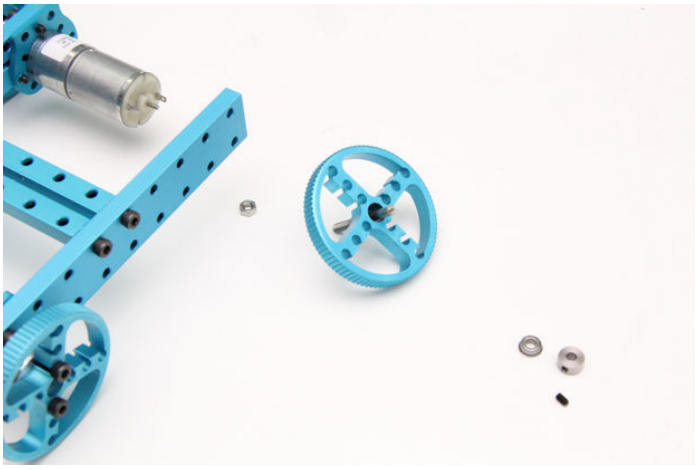
Procedures:

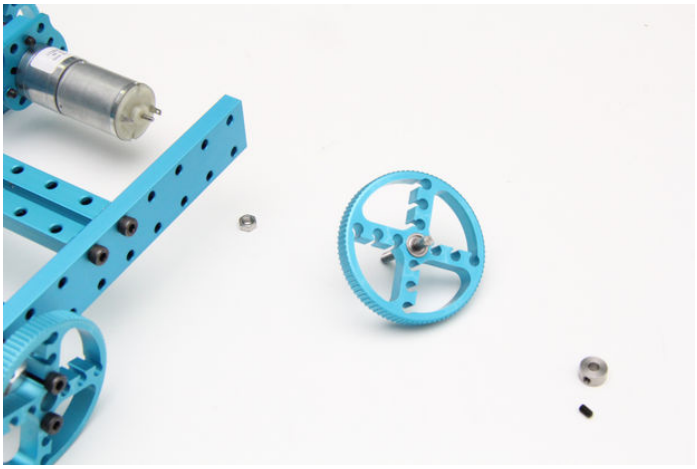
Firstly, build the 2 driving wheels.
Then install them on the chassis.
The pictures above show the steps.

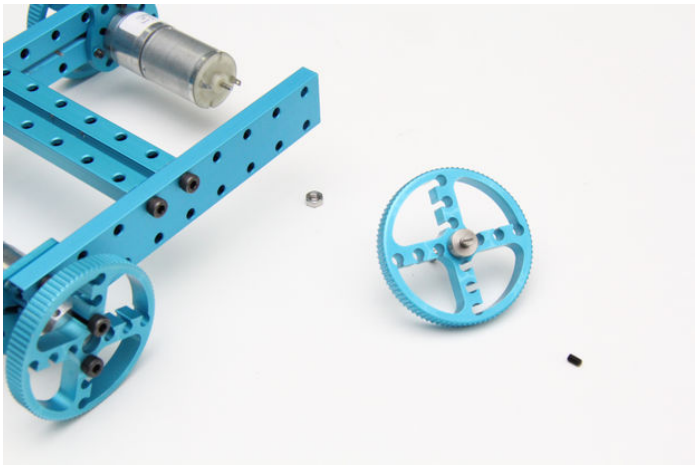


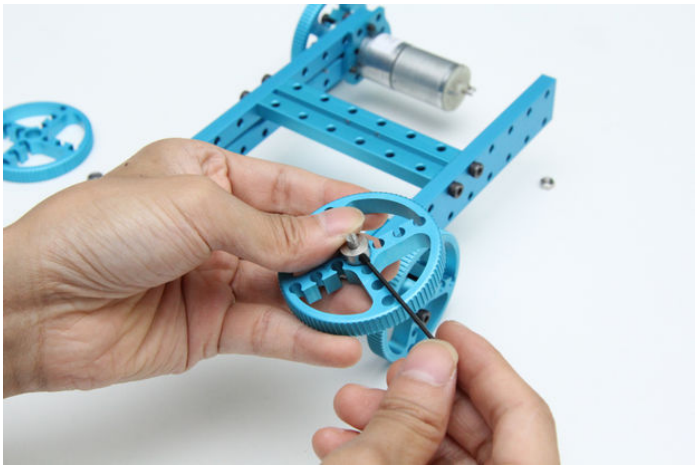


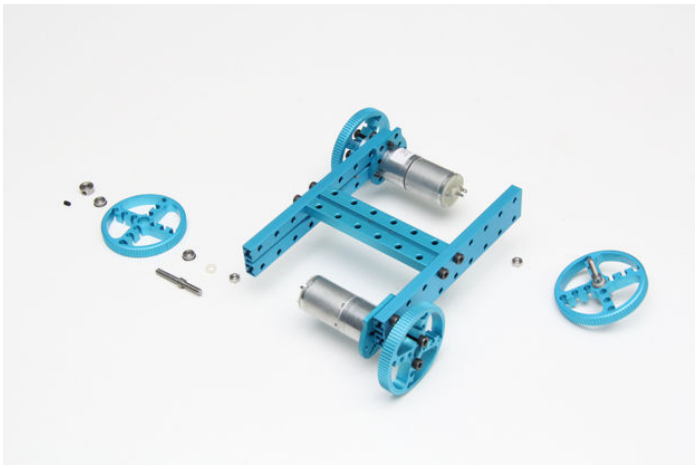


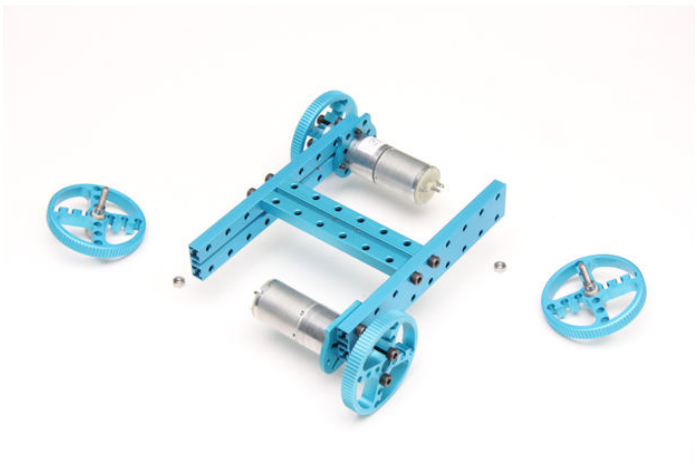


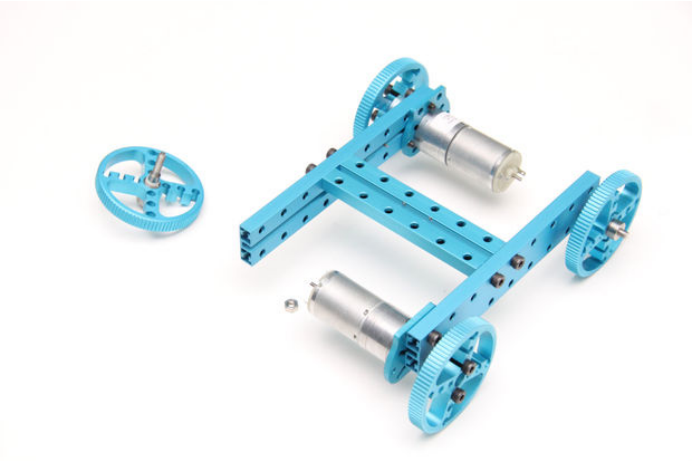


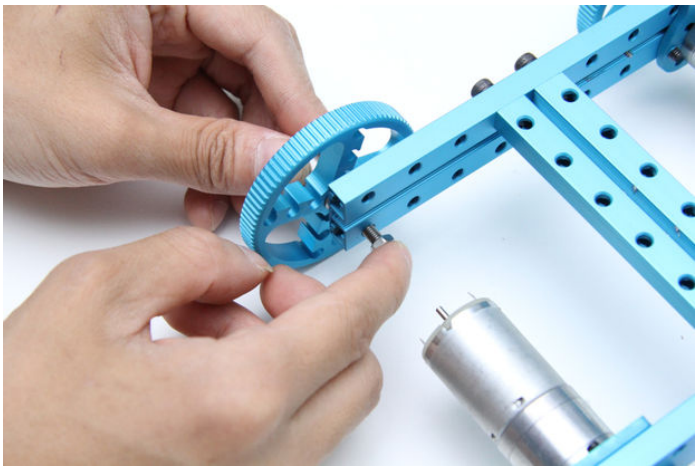


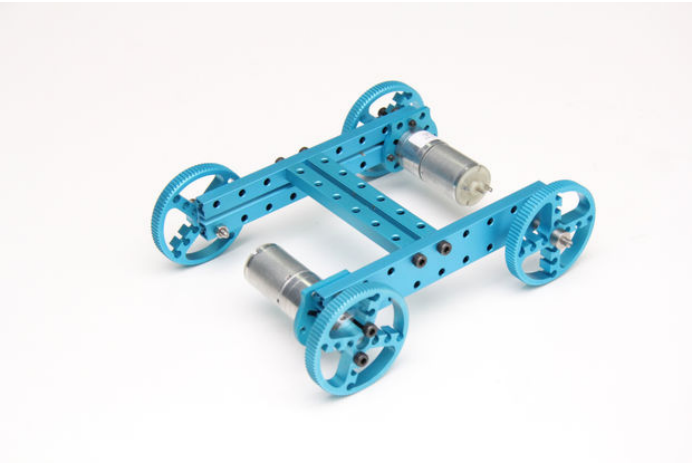


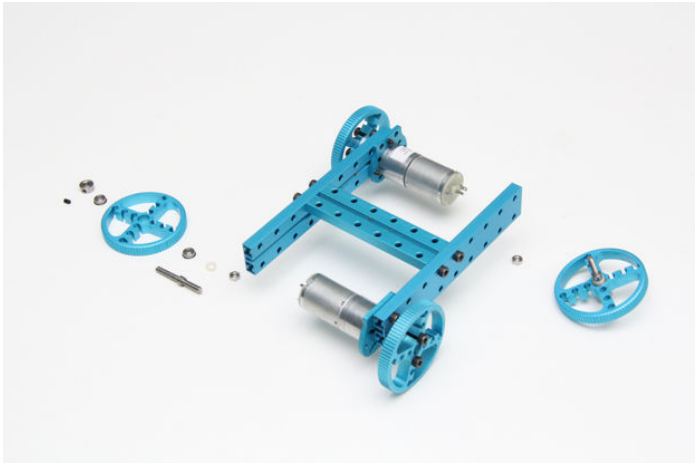












Step 6: Build Track of the Robot

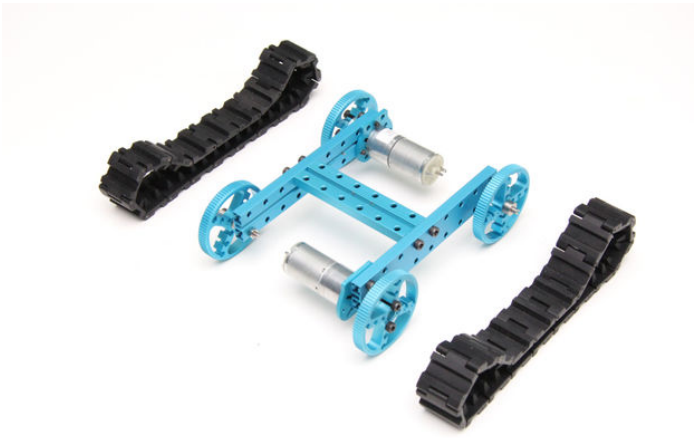
Procedures:

Each side of the robot need 19 pieces of track parts to build the track.
The pictures above show how to build the track.

Step 7: Install the tracks

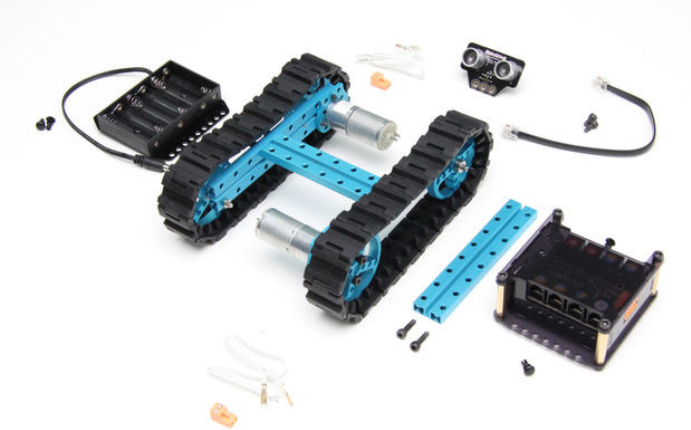
Procedures:

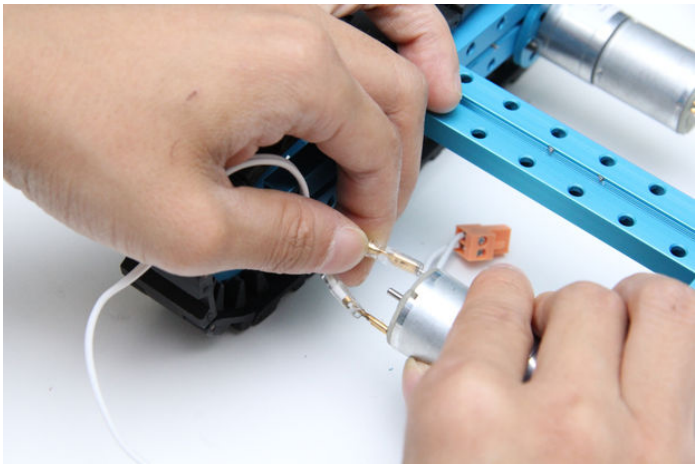
Install the 2 tracks to the robot as the pictures show.

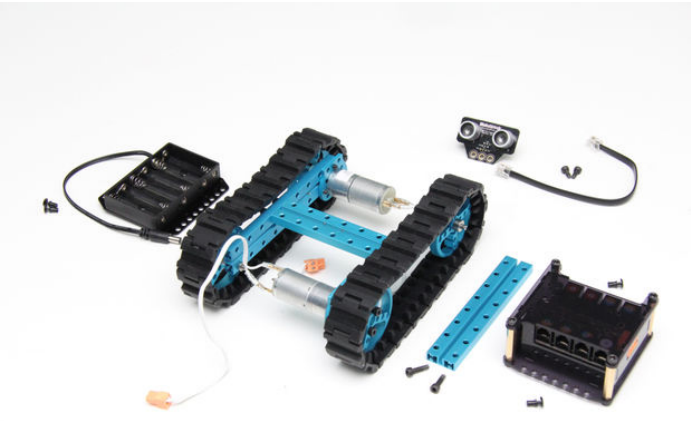


Step 8: Add the Motor Wires

Procedures:
Now let's add the electronic parts to the Small Tank you have built.
Add teh motor wires to the motors as above pictures show.



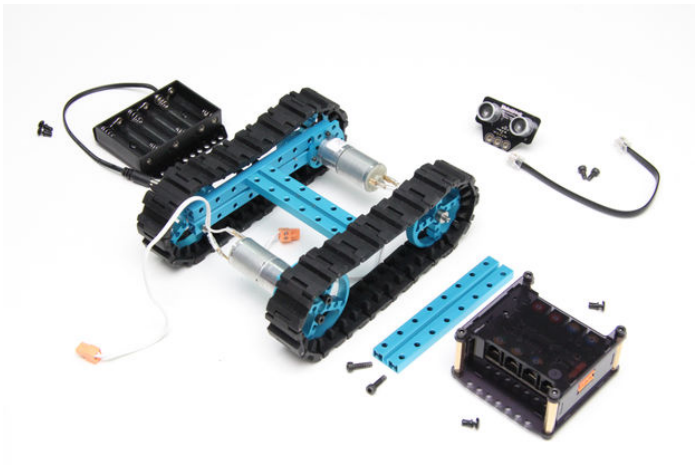


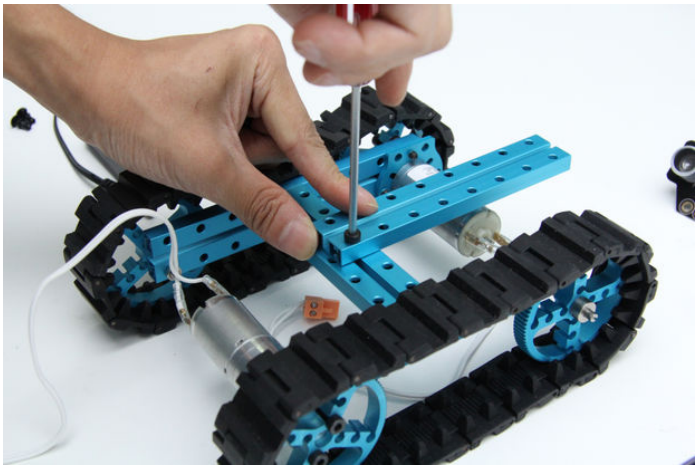


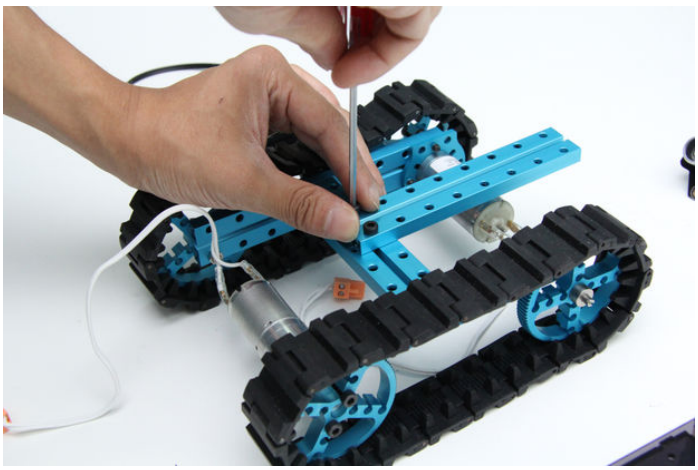
Step 9: Add the holder of the electronic modules

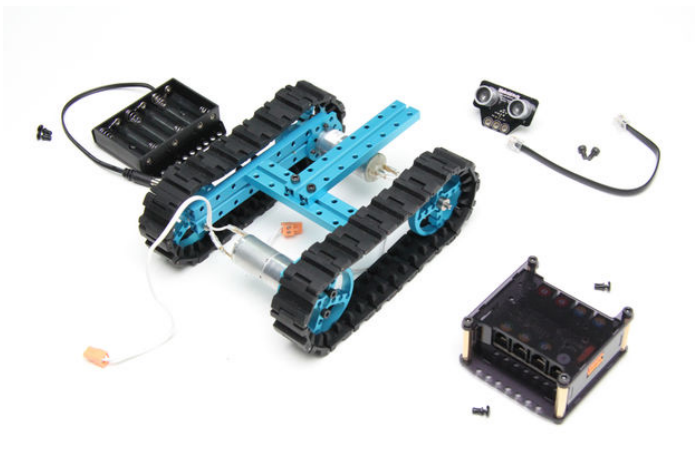
Procedures:

Before adding the electronic modules, we need add a holder to the robot.
The pictures above show how to add the holder.





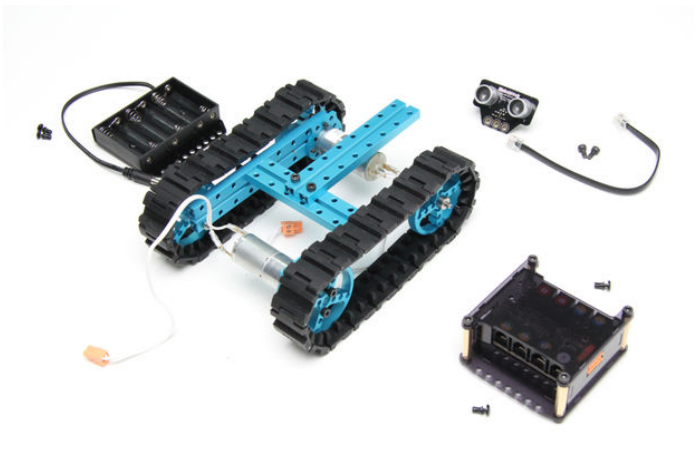


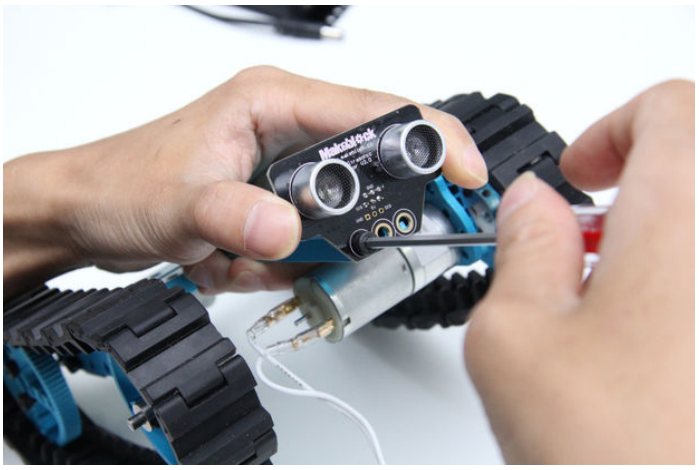


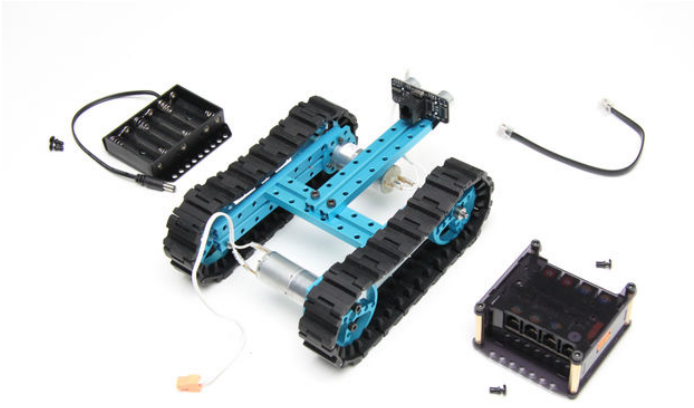
Step 10: Add Me Ultrasonic Sensor V2.0

Procedures:

Install Me Ultrasonic Sensor V2.0 with two Screw M4×8 as above pictures show.



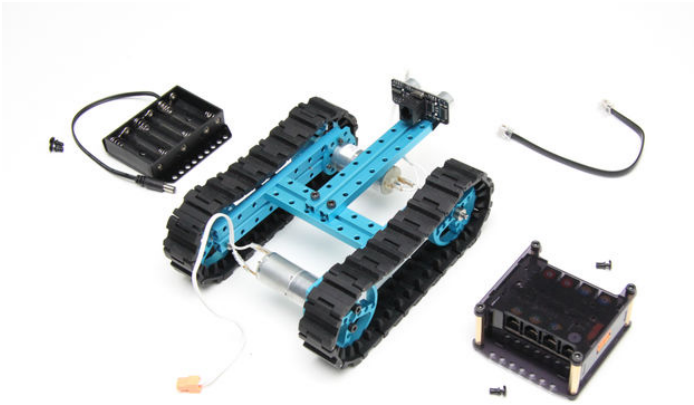


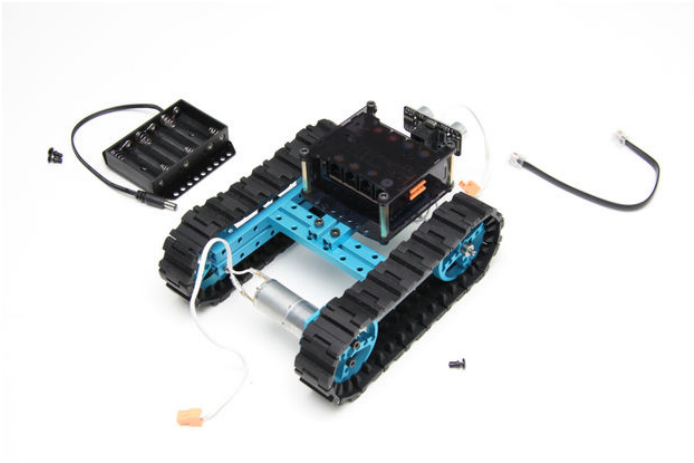


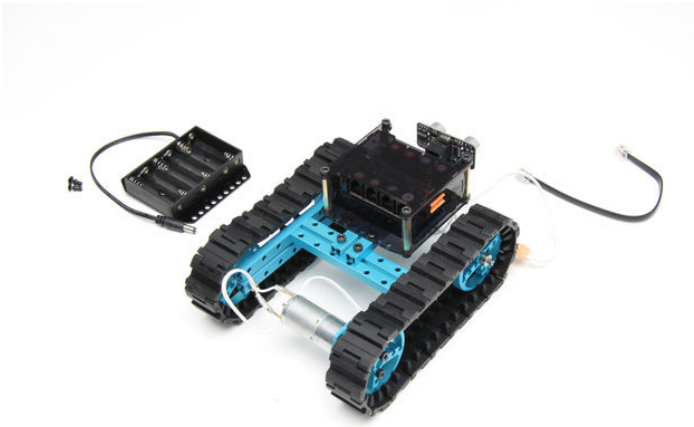
Step 11: Add Arduino & Me-Baseshield

Procedures:

In this step, we'll add Arduino & Me-Baseshield to the top of the Robot by using 2 Plastic Rivet R4060.



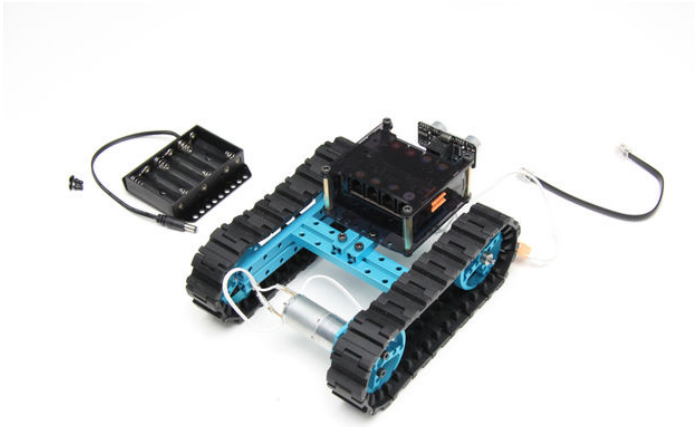


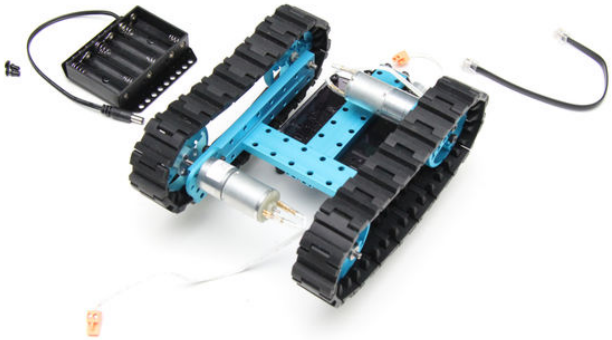


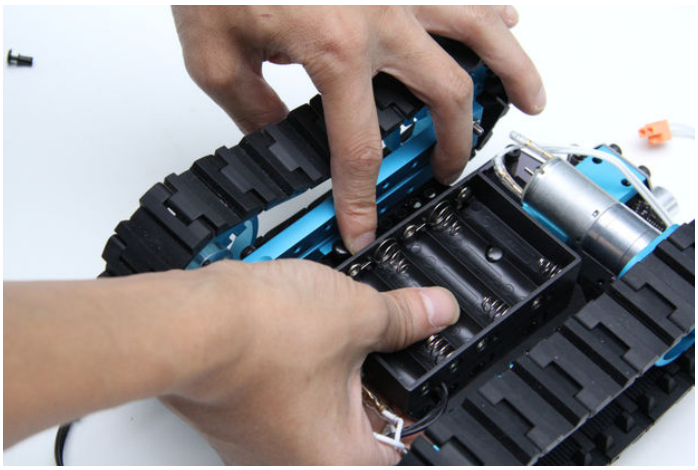
Step 12: Add the Battery Holder

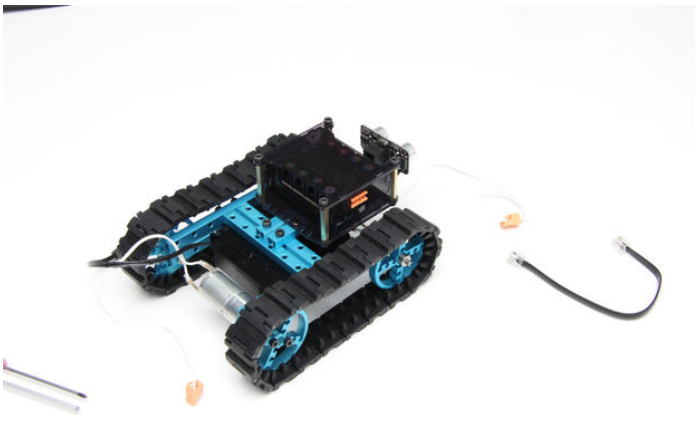
Procedures:

In this step, we'll add the Battery Holder to the bottom of the Robot by using 2 Plastic Rivet R4060.





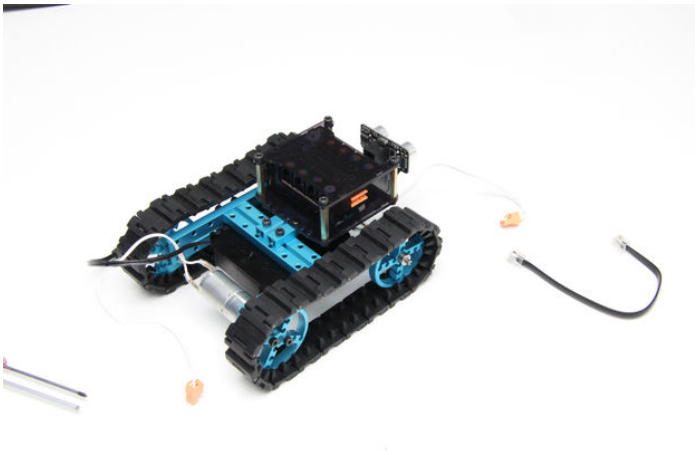


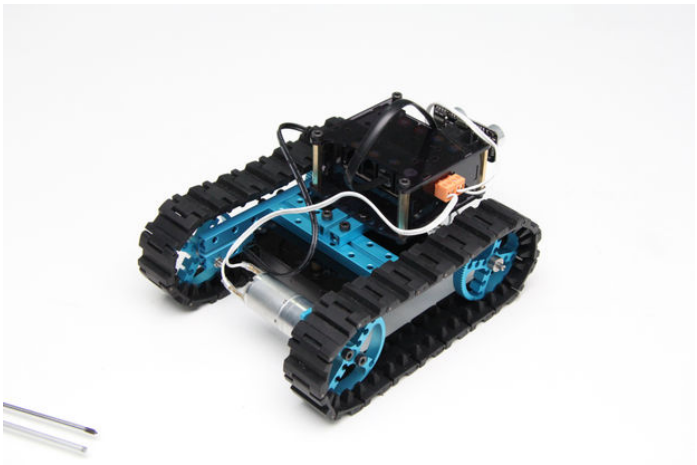


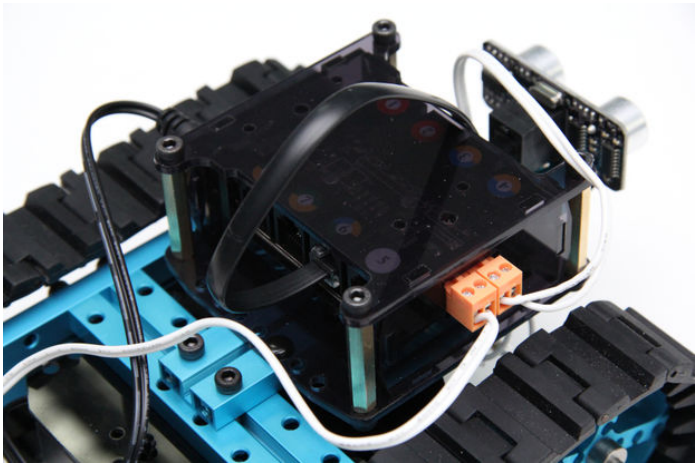
Step 13: Connect the Wires

Procedures:

It is easy to connect the wires now. The table above shows how to connect the motors and sensors to Me-BaseShield. After the connecting, we have made the Robot. The next step will show you how to upload the demo code and make the Robot run.







Cable Connections	
Electronic Module	**Port**
Motor on the Left side	Port M1
Motor on the Right side	Port M2
Me-Ultrasonic Sensor V2.0	Port 6

Related Instructables

How to make a Makeblock Remote Control 2WD Robot by Makerworks

A New Way to Make an Aluminium Alloy Robot by schang10

Makeblock Walle by Makerworks

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Autonomous Arduino Tank (A.A.T) by That-One-Kid