How to Make a Makeblock Music Robot with the Music Robot Kit

by **Makerworks** on October 30, 2013

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Intro: How to Make a Makeblock Music Robot with the Music Robot Kit

Makeblock is an aluminum extrusion based construction system that provides an integrated solution for aspects of mechanics, electronics and software design. With Makeblock you can make professional robots, toy machines or even art-ware. It's super easy-to-use and helps bring your creations to life. The only limit is your imagination.

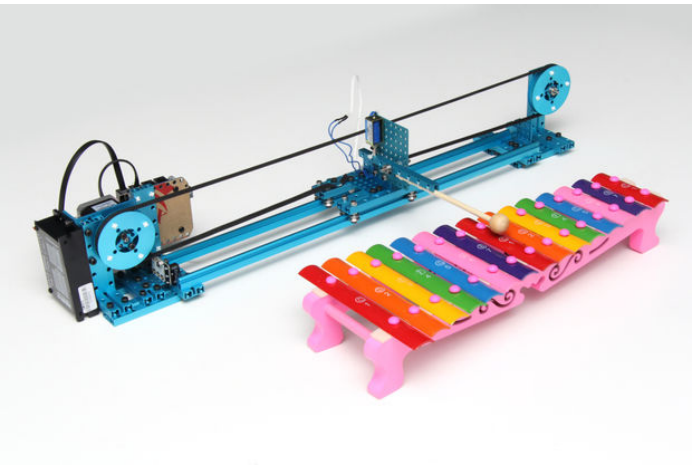
For more information, please visit Makeblock website here .

The Music Robot was built with the timing belt, sliding rail, step motor, electromagnet, motor driver and an Arduino Uno. And even you can build a play the piano robot with Makeblock by yourself.

So far the robot can be controlled by application via USB cable installed on computer, and it can also be controlled by the Smartphone through the Bluetooth. The special application for Android Phone is in planning.

Getting Started

This instructable, Making Music with Makeblock, will show you the step-by-step instructions on how to build a robot to play the Xylophone by Makeblock.
Now let's have some fun!



Step 1: Materials list

Materials list:

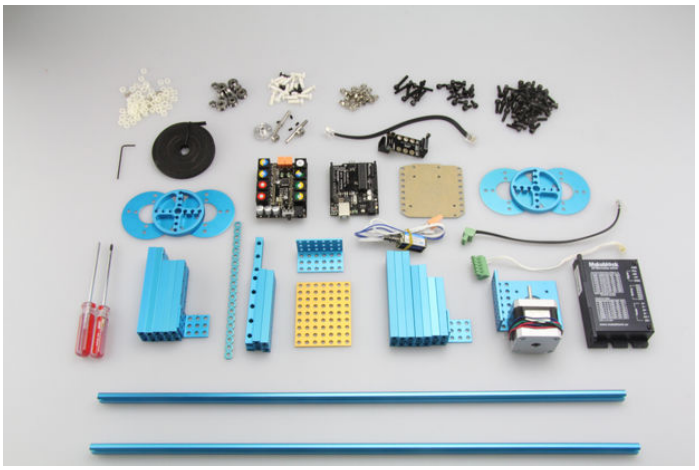
1 × Beam 0808-80
1 × Beam 0808-128
3 × Beam 0824-64
5 × Beam 0824-80
7 × Beam 0824-96
1 × Beam 0824-128
1 × Plate 7x9
1 × Bracket 3×6
4 × Bracket 3×3
1 × Step Motor Bracket
2 × Timing Pulley 90T
4 × Timing Pulley Slice 90T
1 × Link Rod
2 × Slider 496
1 × Timing Belt 2m
8 × V-slot Bearing
4 × Flange Bearing 4×8×3mm
1 × Shaft Connector 4mm
2 × Threaded Shaft 4×31mm
2 × Shaft Collar 4mm
5 × Headless Screw M3×5
15 × Plastic Rivet R4120
4 × Plastic Rivet R3075
20 × Plascic Ring 4x7x2mm
10 × Plastic Ring 4x8x1mm
4 × Countersunk Screw M3×8
15 × Screw M4×8
50 × Screw M4×14
10 × Screw M4×22
20 × Nut M4
20 × Nylon Lock Nut 4mm
1 × Cross Screwdriver
1 × Screwdriver 3mm
2 × Screwdriver 1.5mm
5 × Nylon Cable Ties

Electronic Modules List:

1 × Meduino
1 × Acrylic Arduino Bracket
1 × Me-BaseShield

1 × Solenoid-12V
1 × Stepper Motor
1 × Me-Stepper Motor Driver
1 × Me-Limit Switch
1 × USB Cable
2 × 6P6C cable 20cm
1 × Wall Adapter Power Supply - 12VDC

Xylophone:
1 × Xylophone
1 × Xylophone Hammer

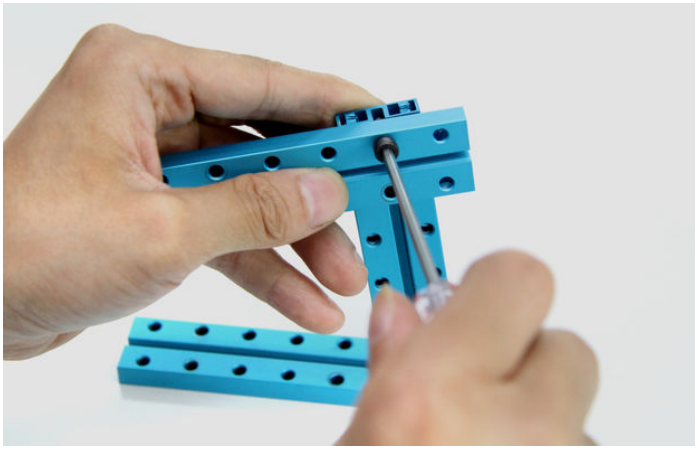


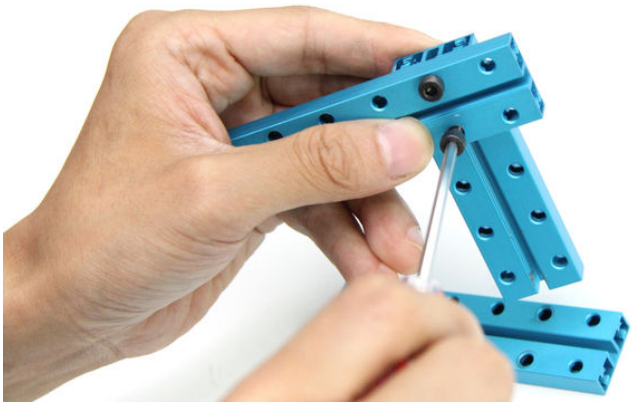
Step 2: Tools

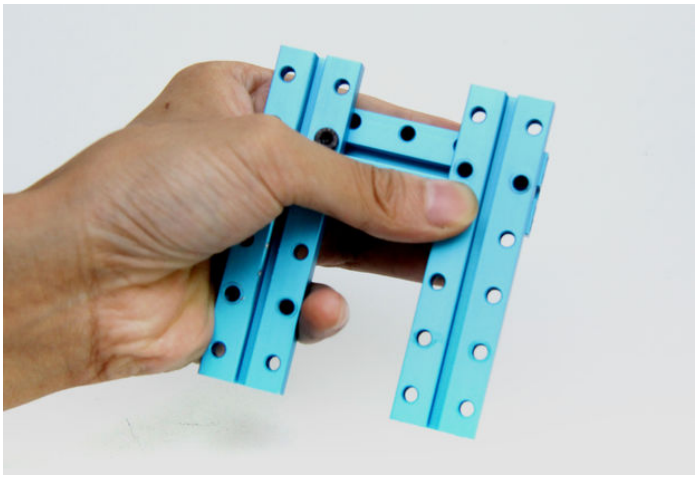
Tools :
1.5mm Hexagonal Screwdriver
3mm Hexagonal Screwdriver
Cross Screwdriver
Slotted Screwdriver
Pincer Pliers
Scissors
Glue Gun
Adhesive Tape

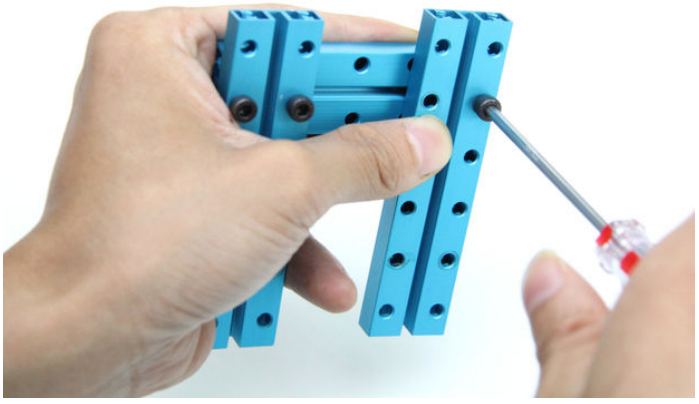
Step 3: Driven Pulley Holder

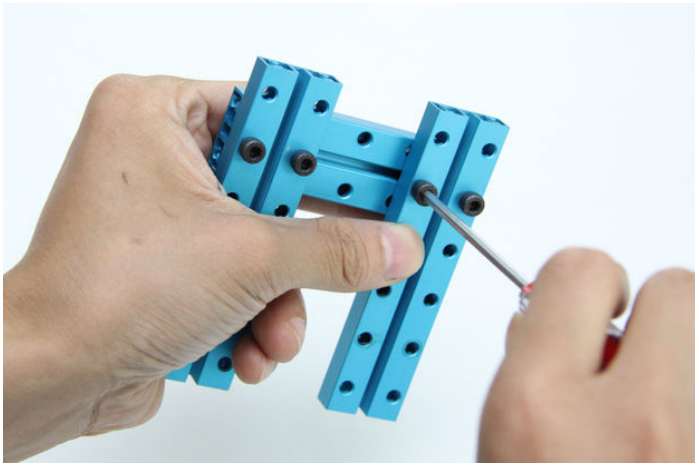
Materials List:
3 × Beam 0824-80
2 × Beam 0824-96
1 × Bracket 3×3
1 × Timing Pulley 90T
2 × Timing Pulley Slice 90T
4 × Plastic Rivet R4120
2 × Flange Bearing 4×8×3mm
1 × Threaded Shaft 4×31mm
1 × Shaft Collar 4mm
1 × Headless Screw M3×5
2 × Screw M4×8
1 × Nut M4
10 × Screw M4×14

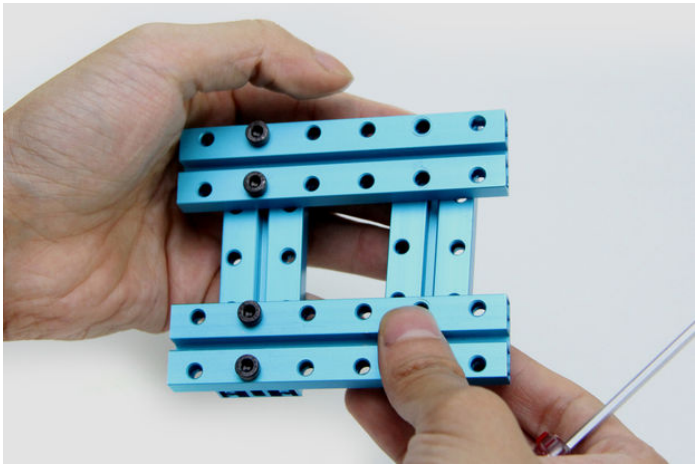


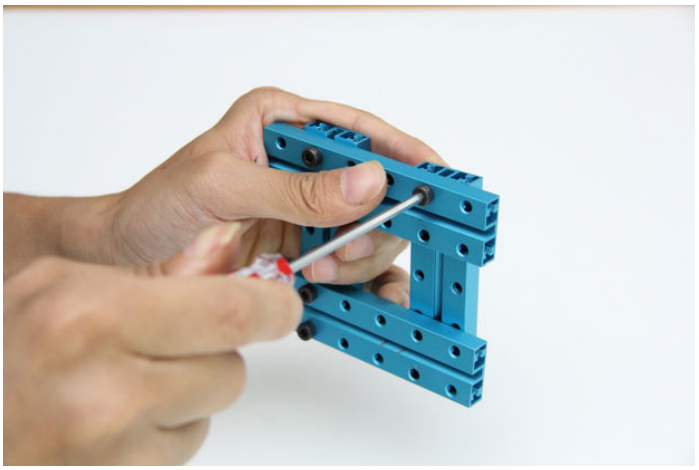


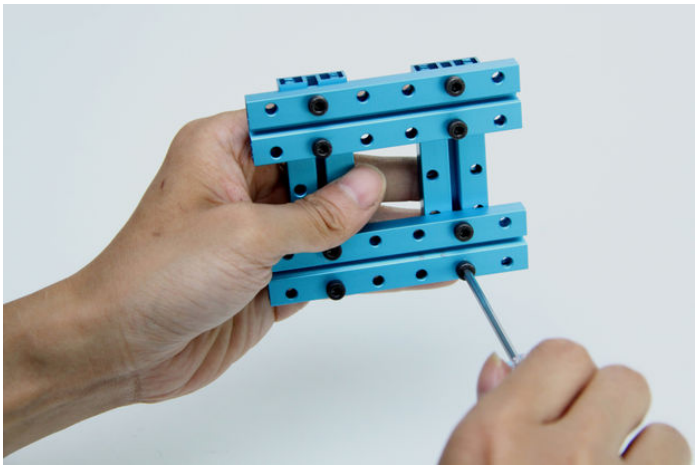


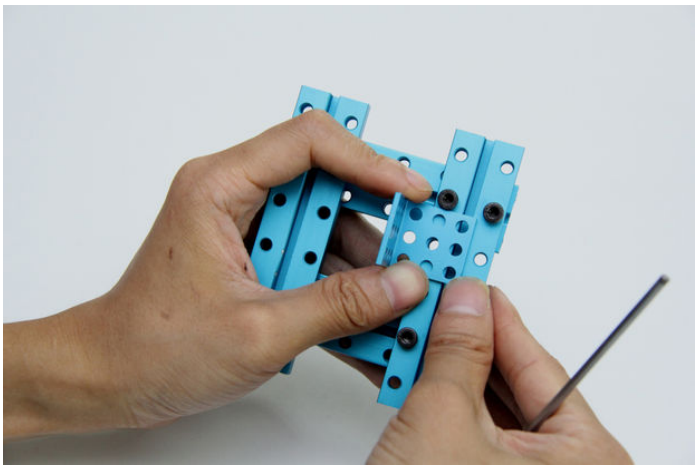


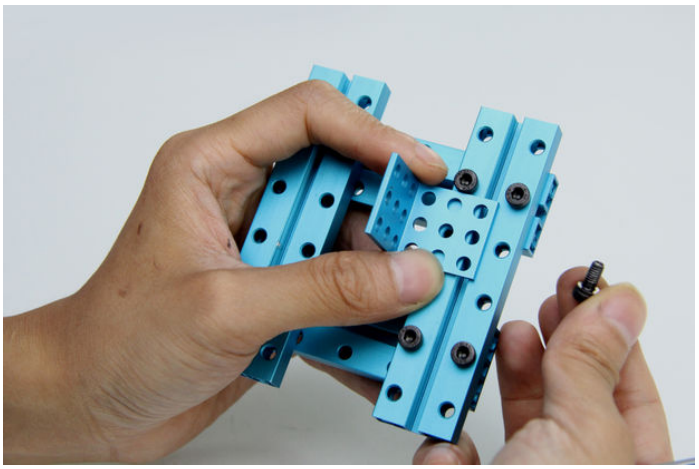


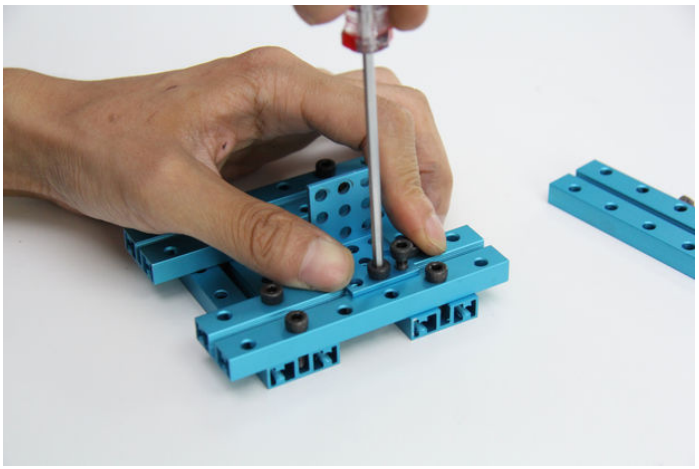


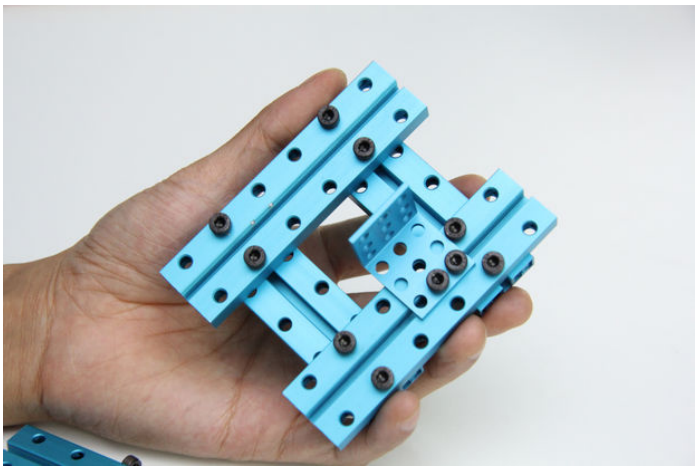


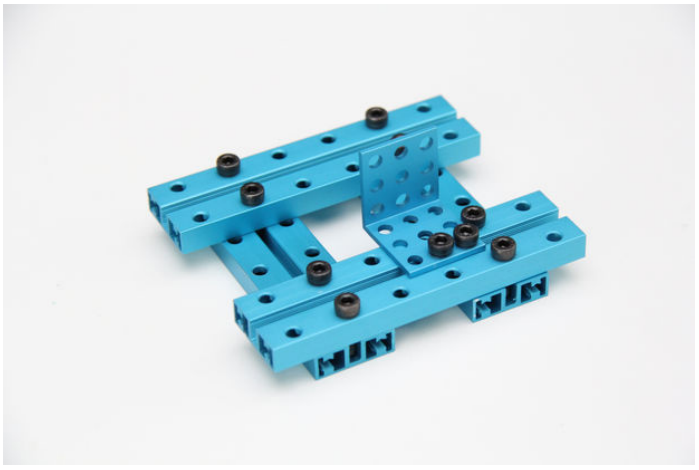


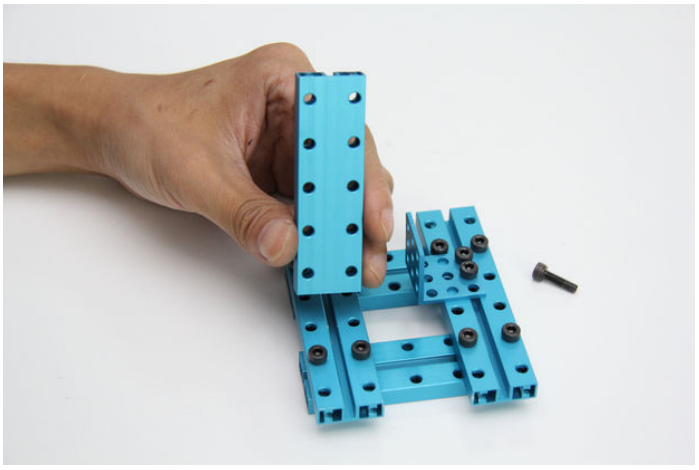


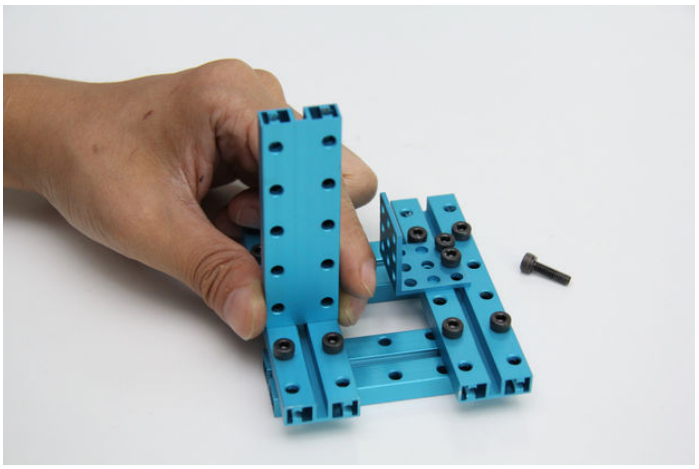


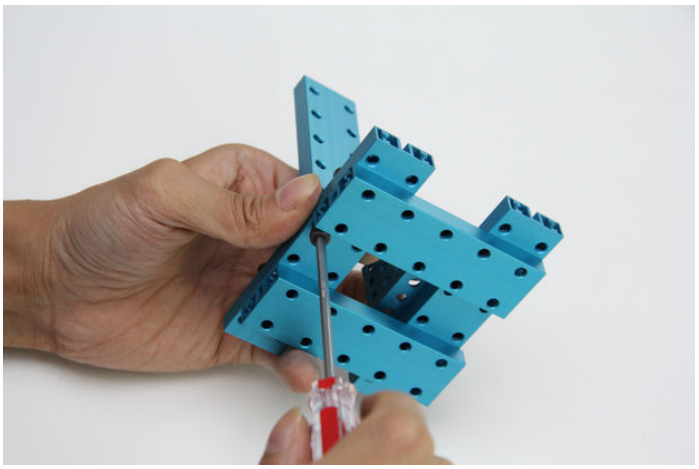


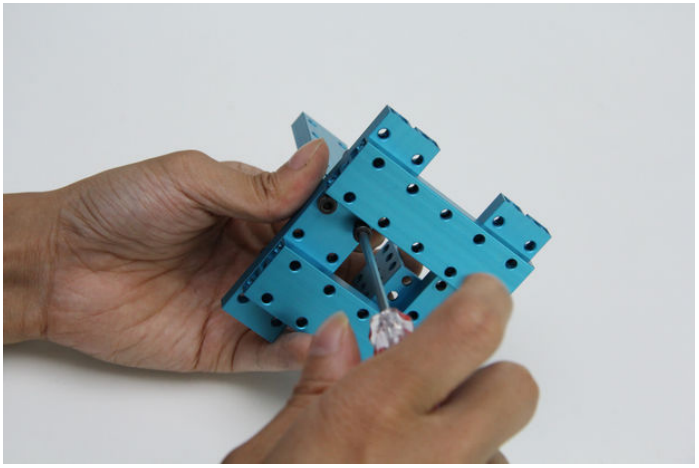


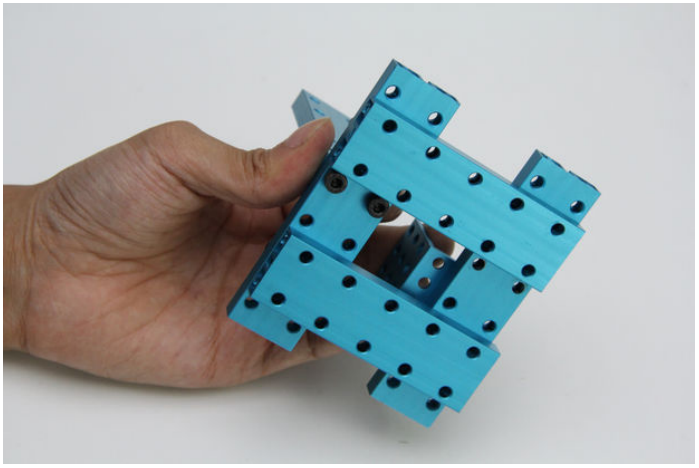


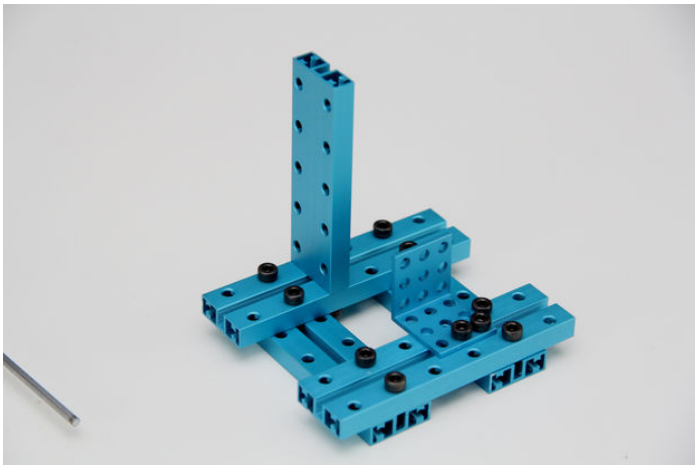


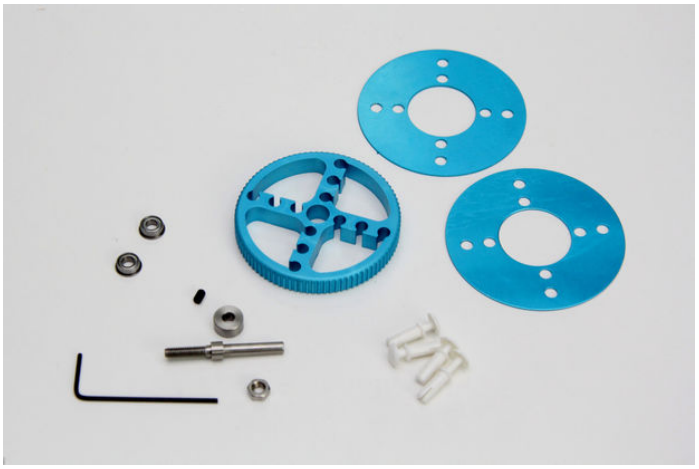


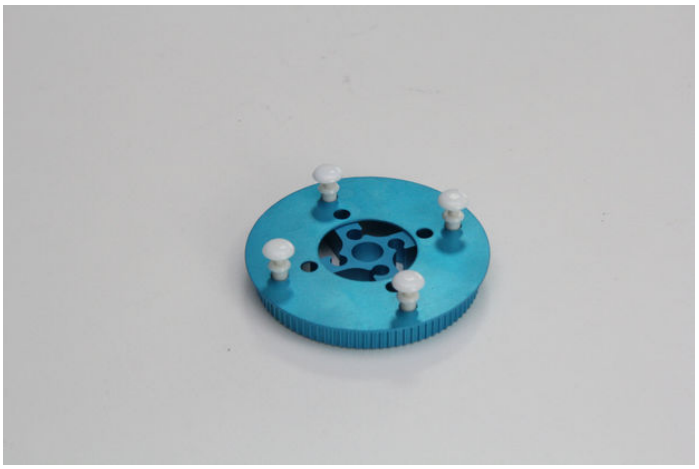


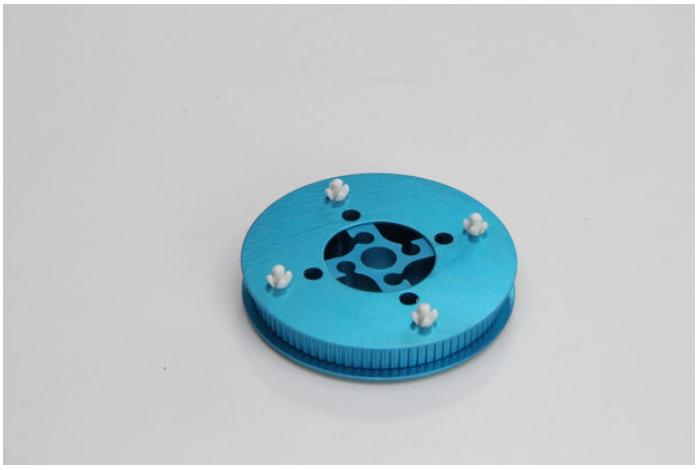


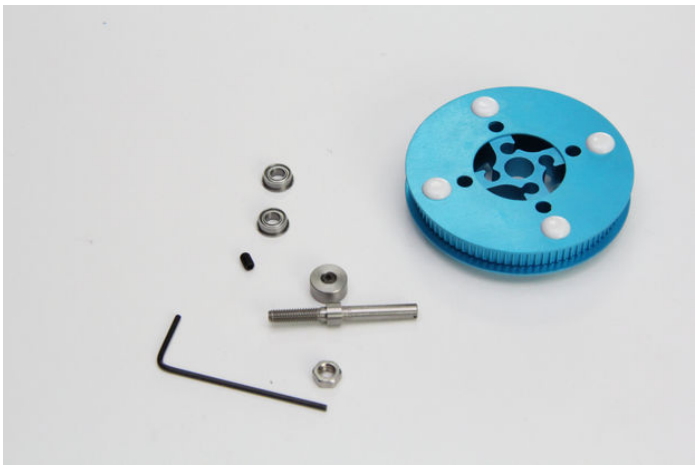


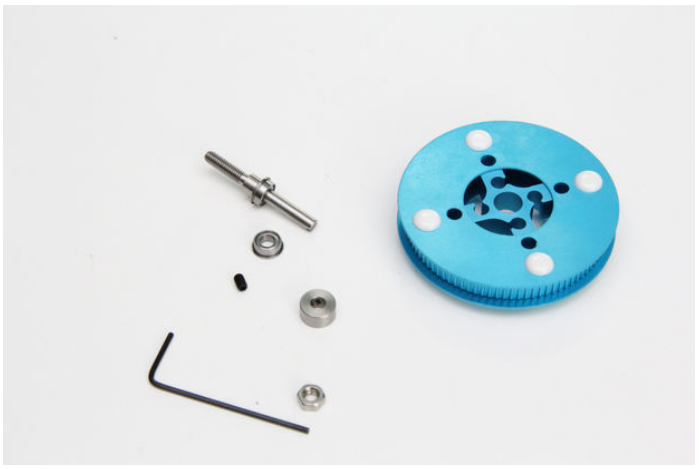


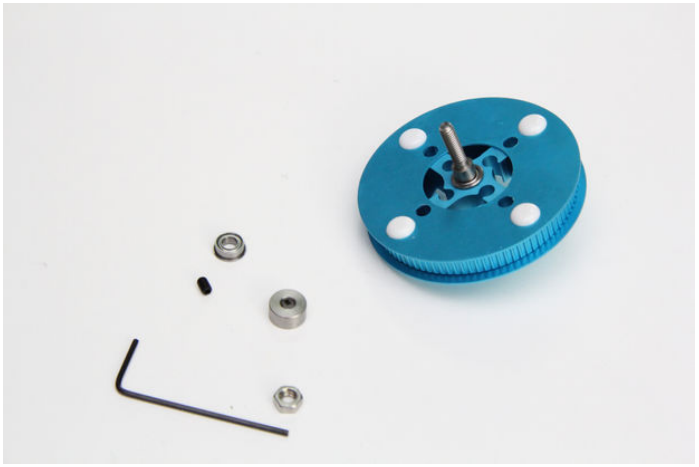


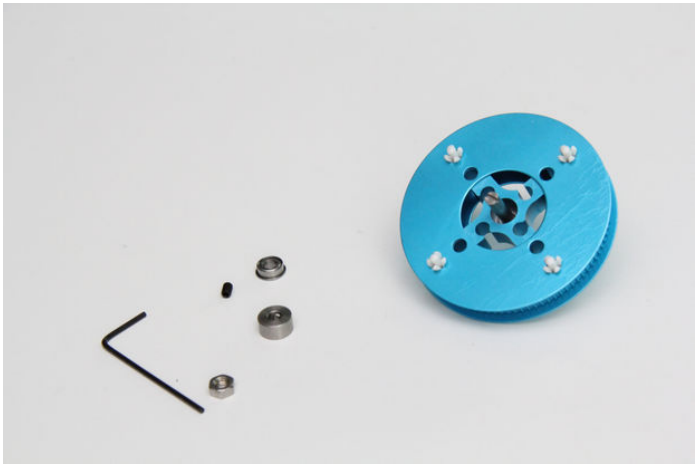


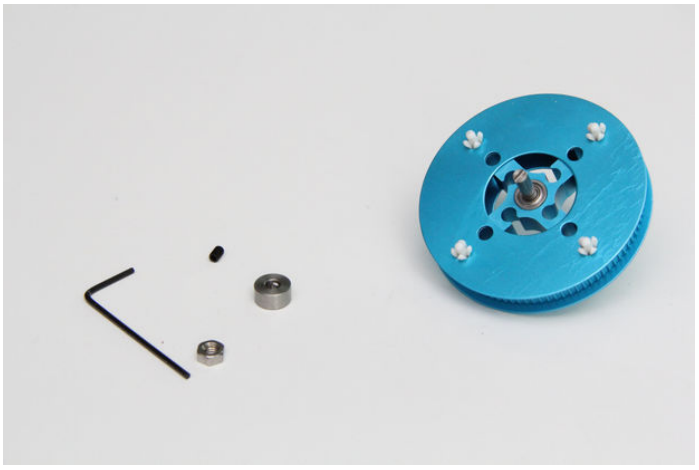


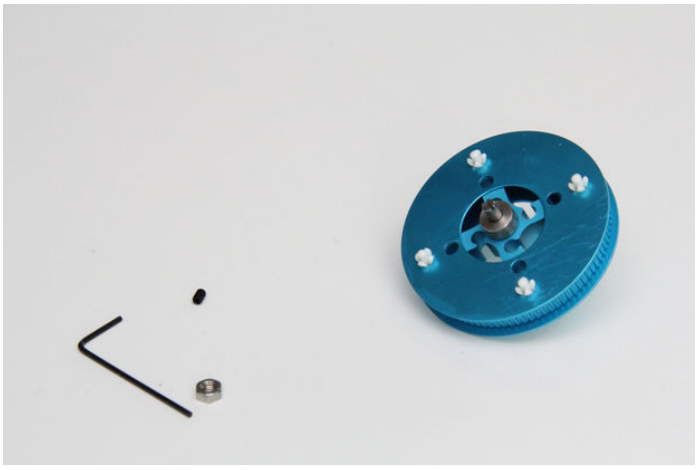


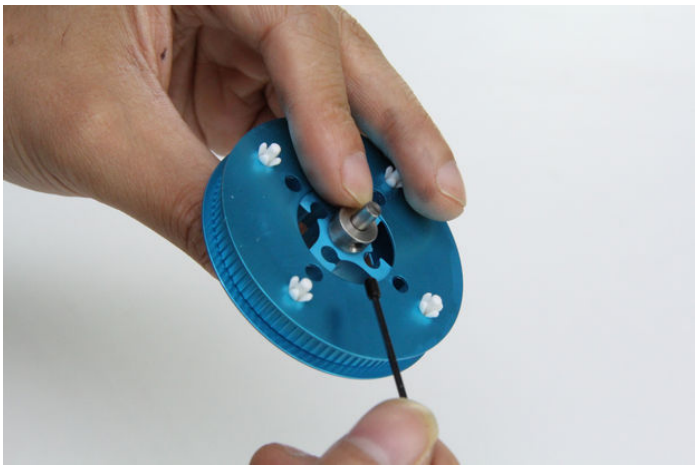


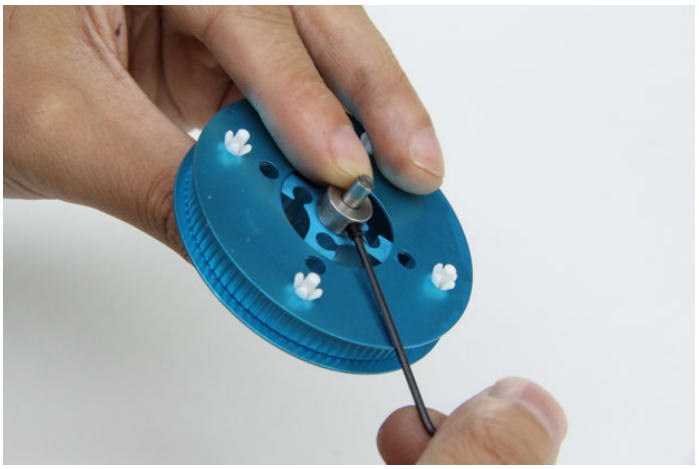


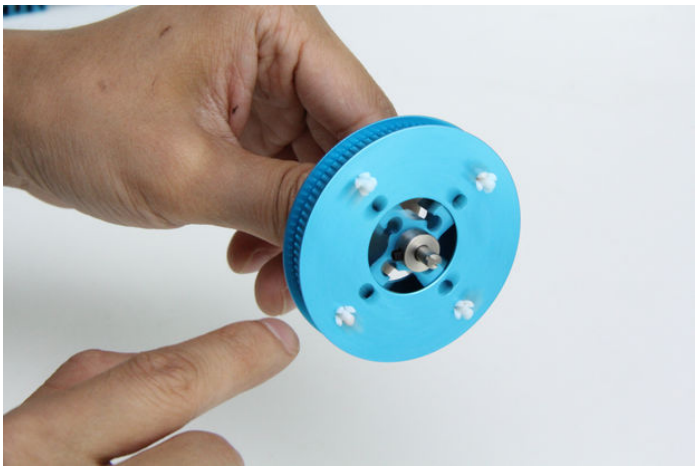


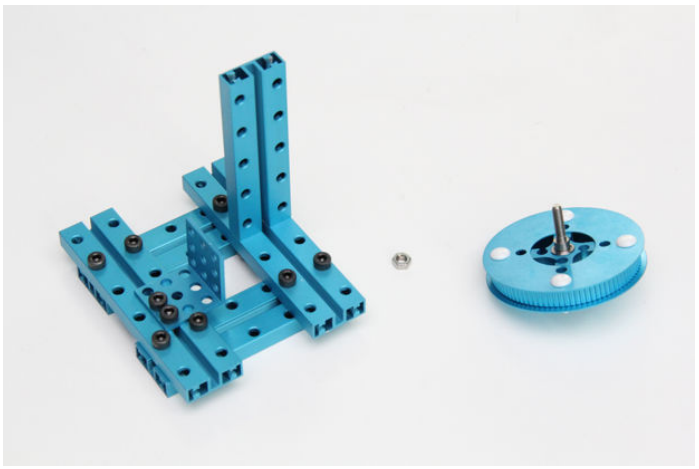


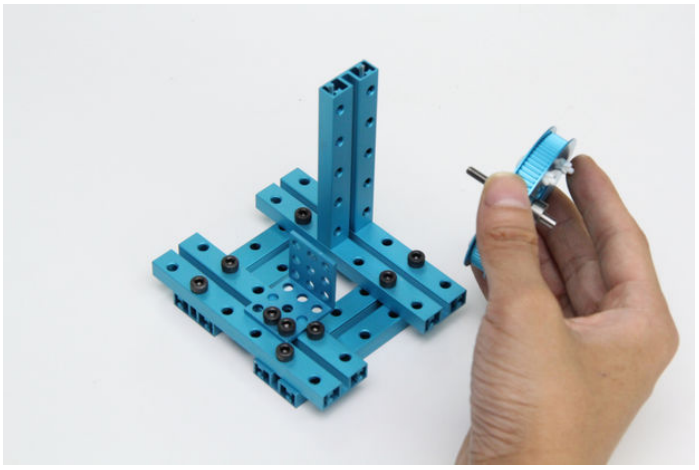


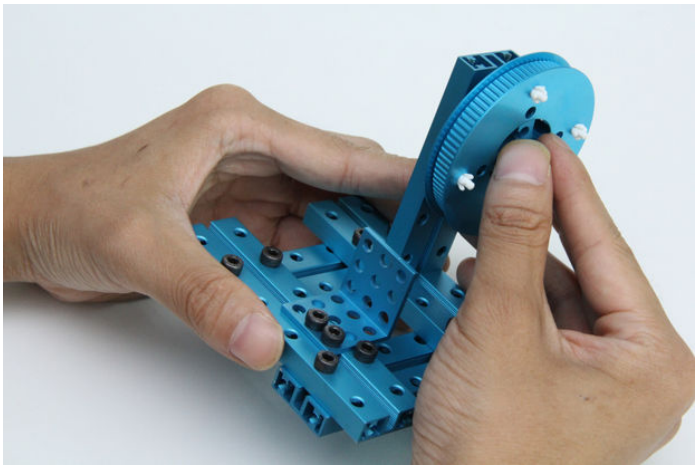


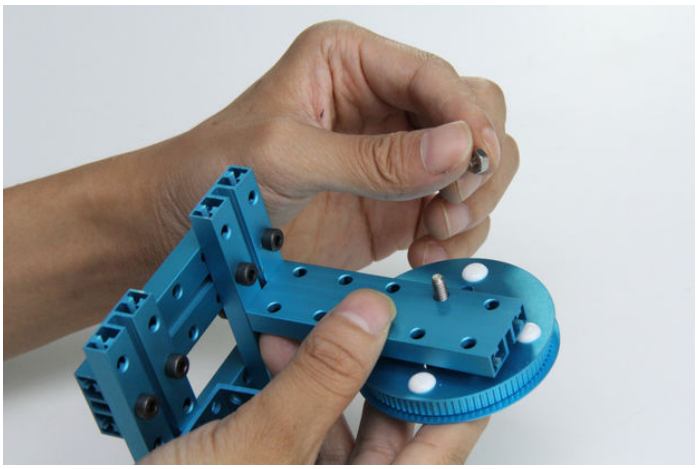


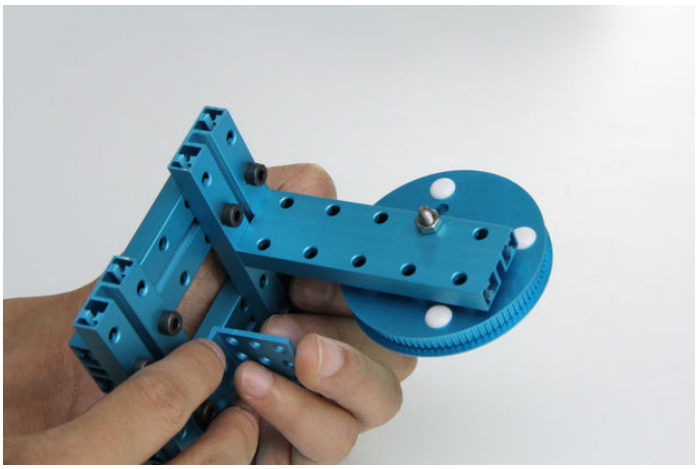


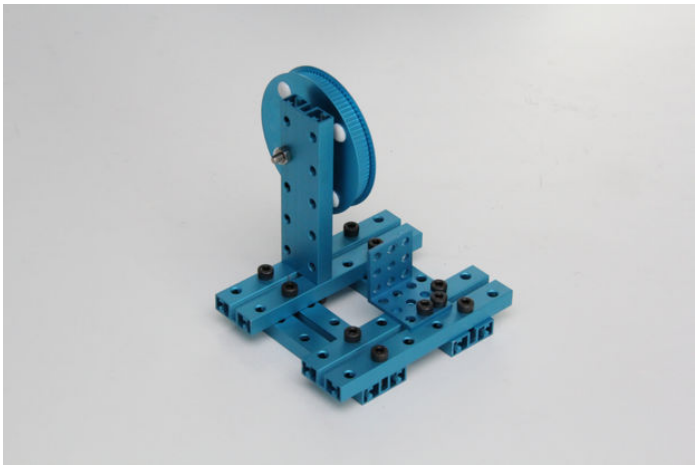












Step 4: Cut Link Rod

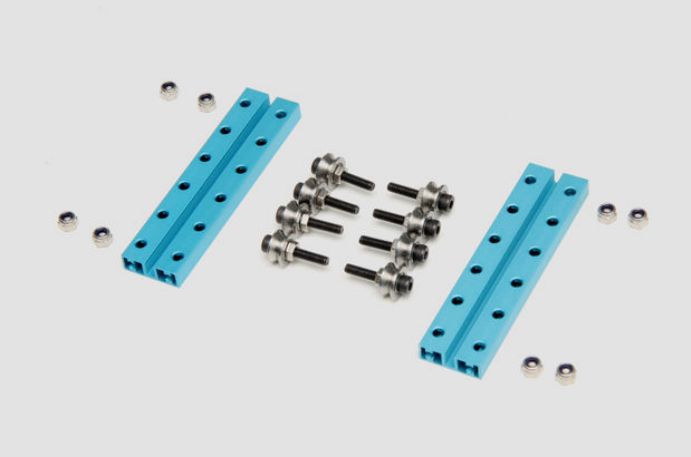
Materials list:
1 × Link Rod

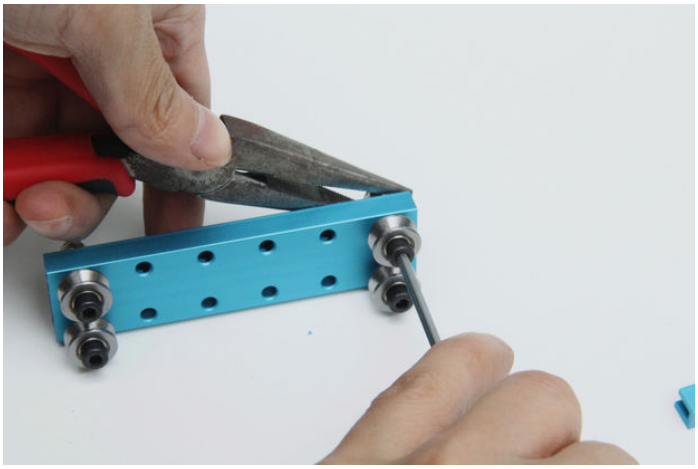
Procedure:
Cut the Link Rod by using the Pincer Pliers.

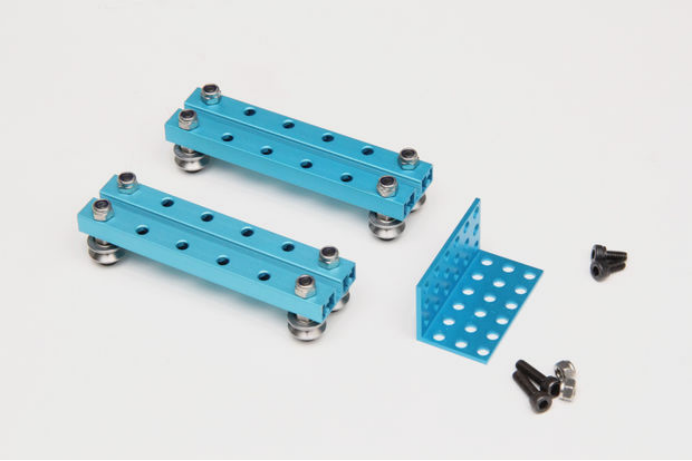
Step 5: Slider Device and Music Play Arm

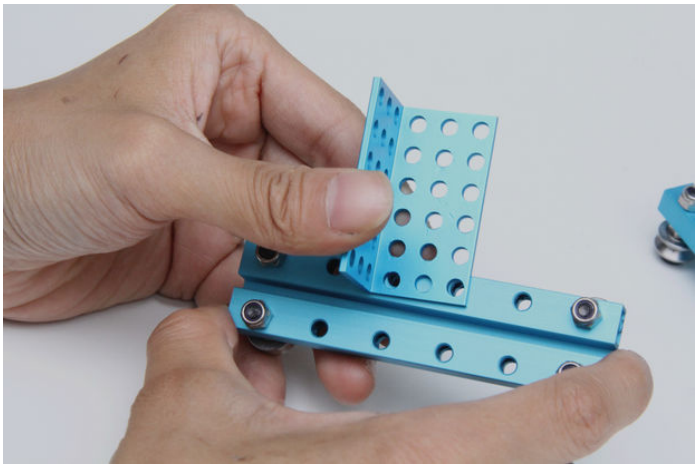
Materials List:

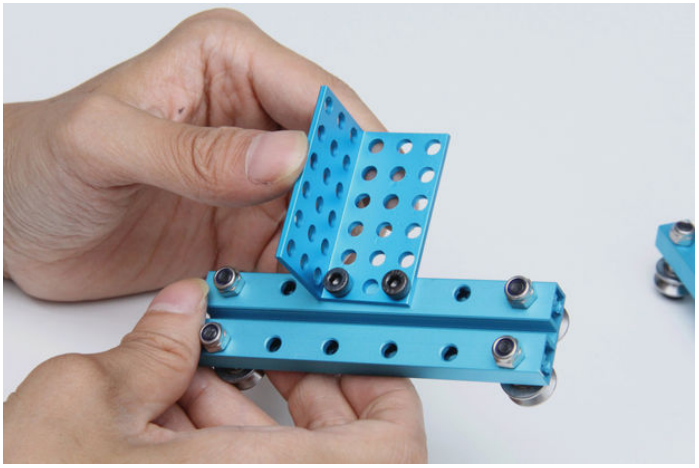
1 × Beam 0808-128
2 × Beam 0824-128
1 × Bracket 3×6
1 × Bracket P3
1 × Plate 7×9
8 × Bearing for Slider
1 × Threaded Shaft 4×31mm
1 × Shaft Collar 4mm
1 × Headless Screw M3×5
5 × Screw M4×8
9 × Screw M4×14
8 × Screw M4×22
22 × Nut M4
1 × Solenoid - 12v

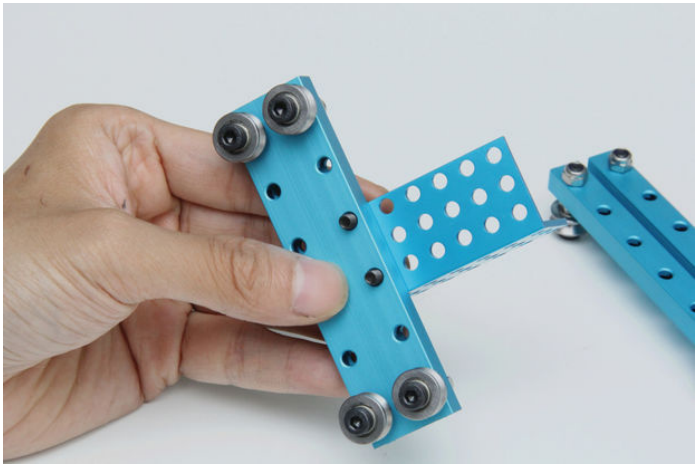


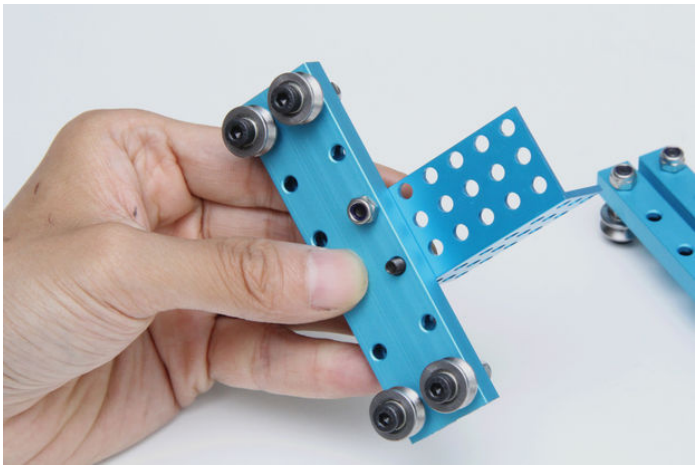


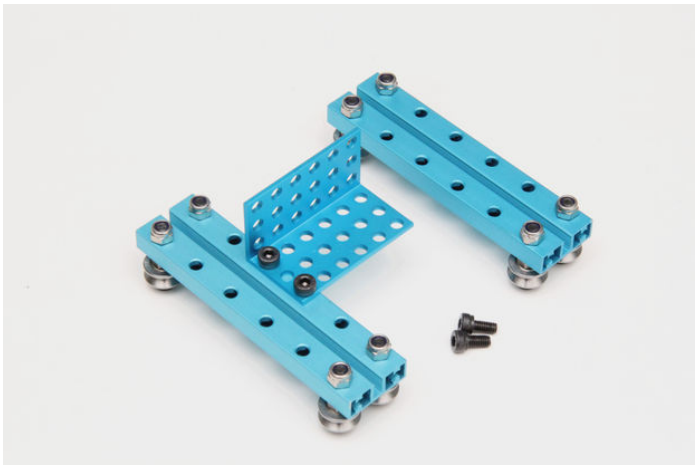


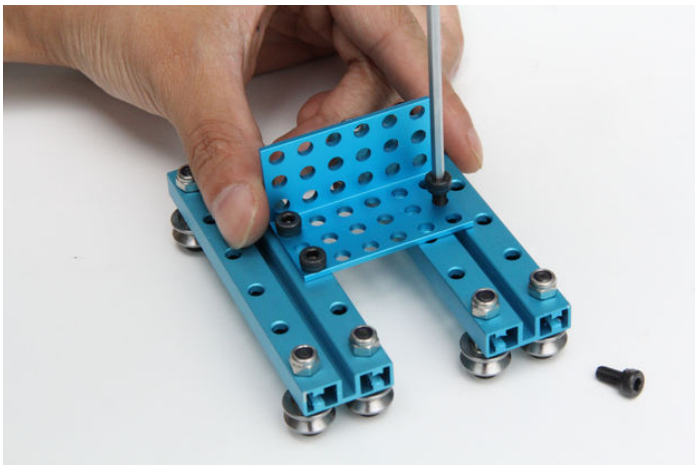


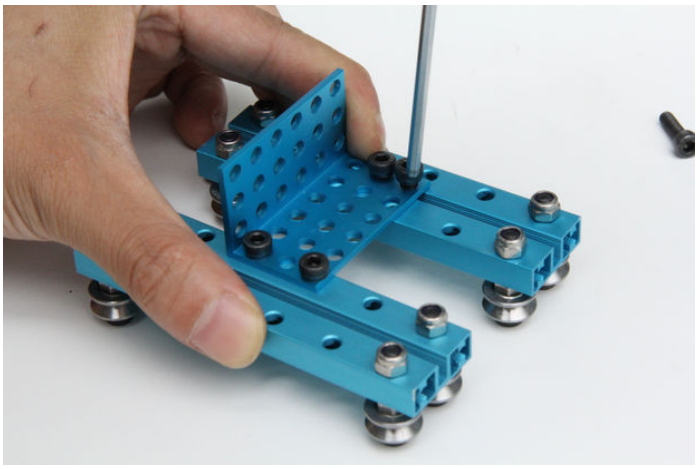


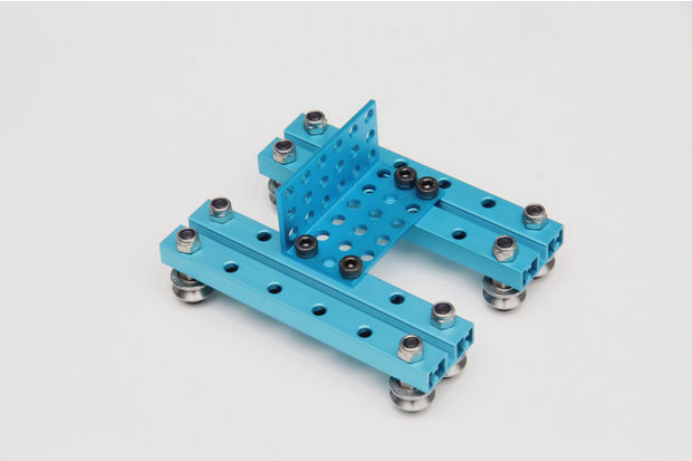


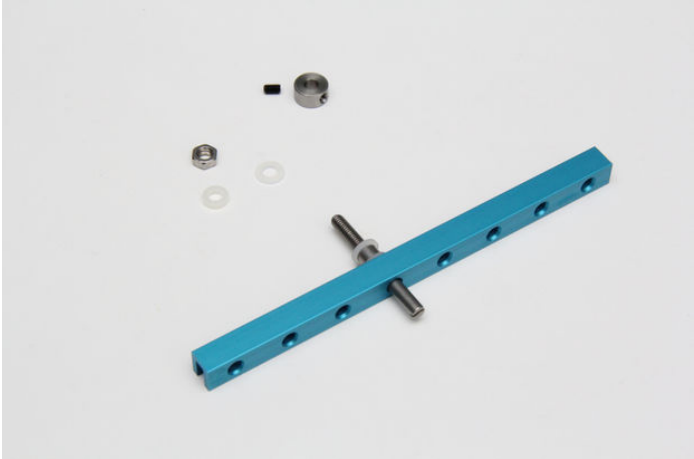


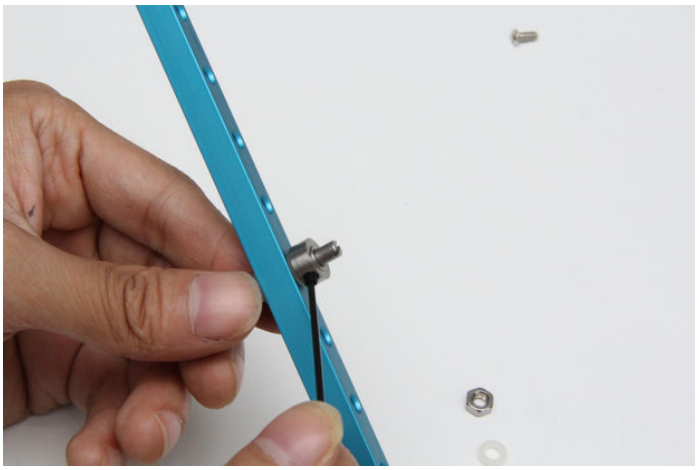


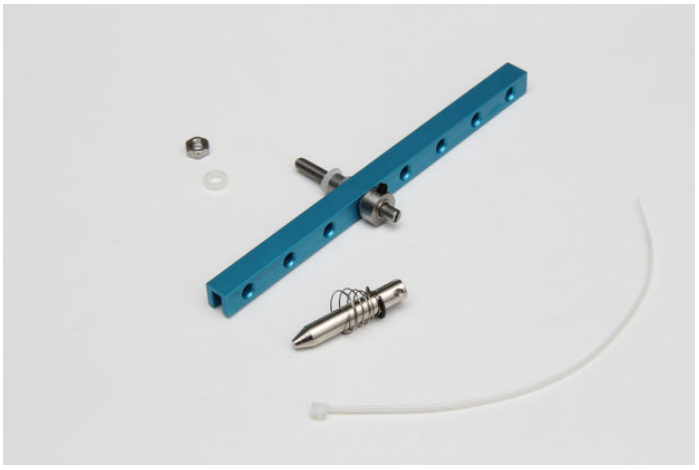


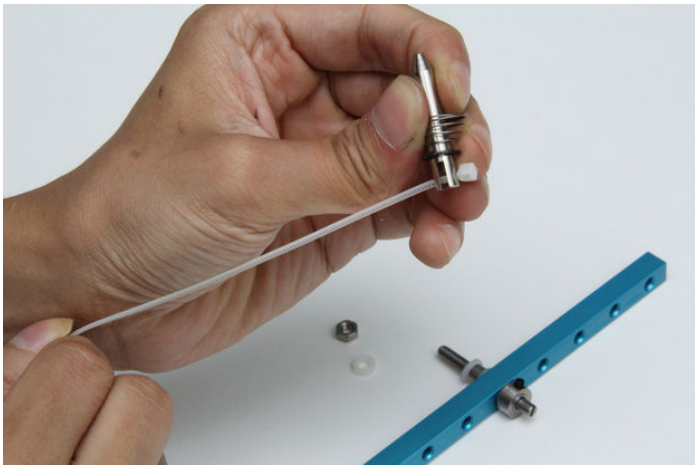


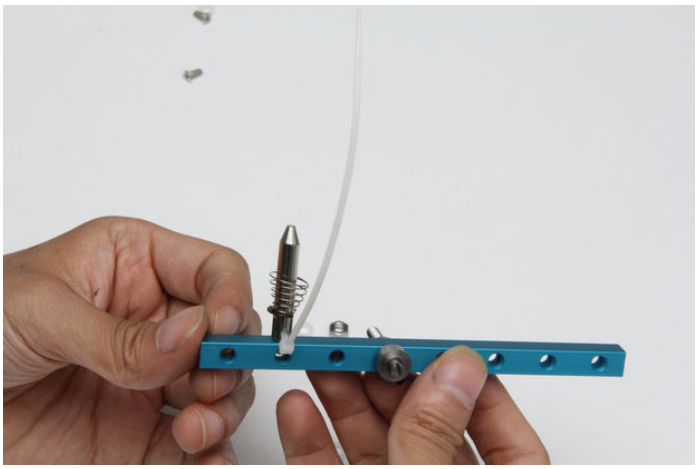


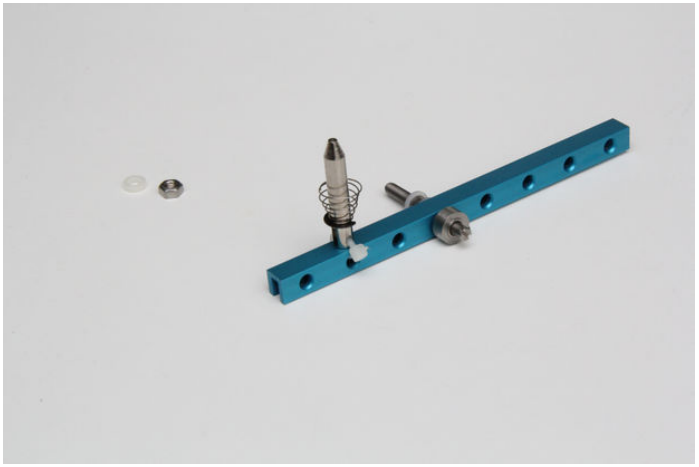


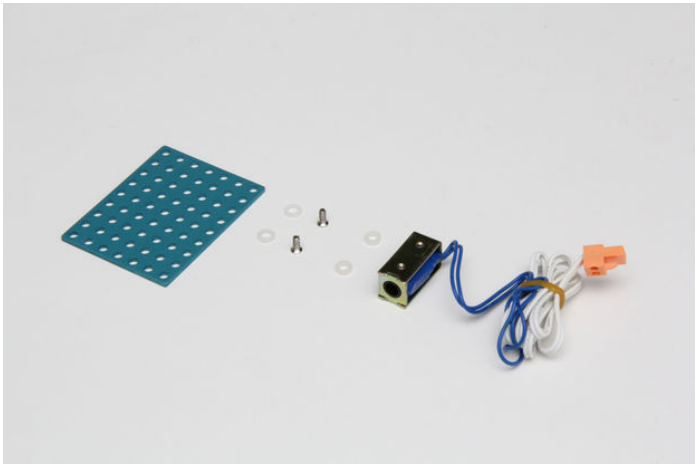


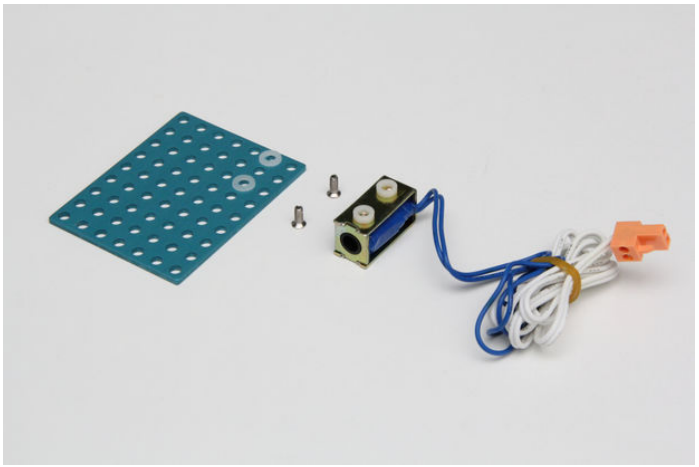


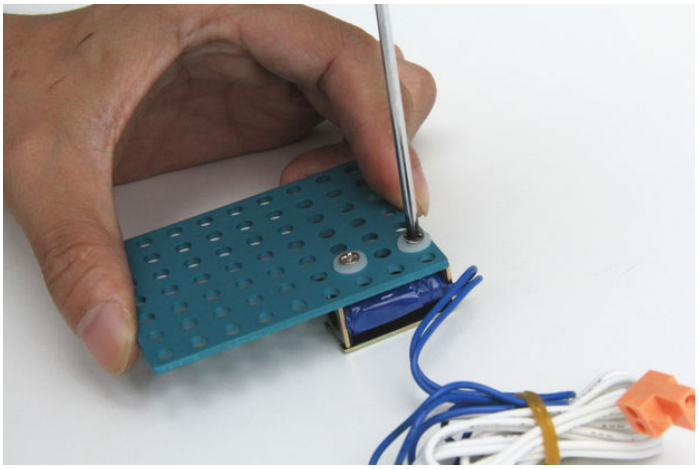


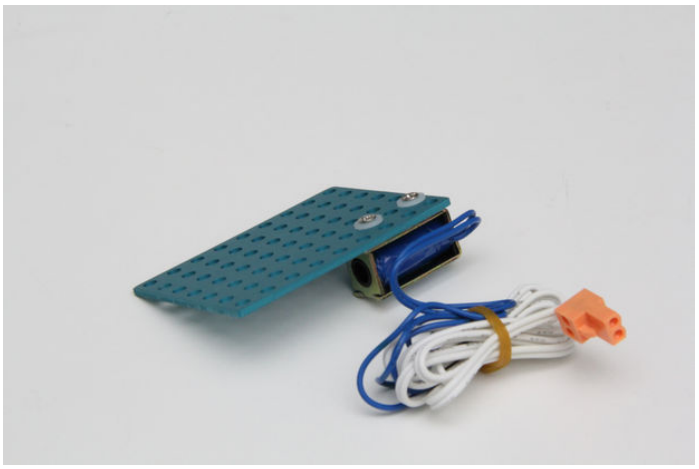


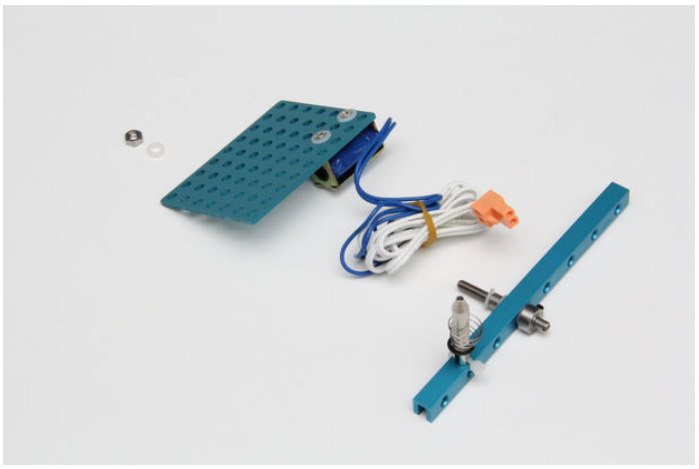


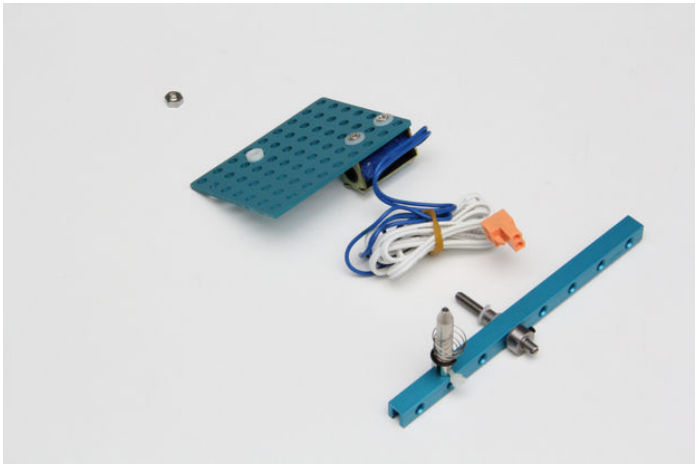


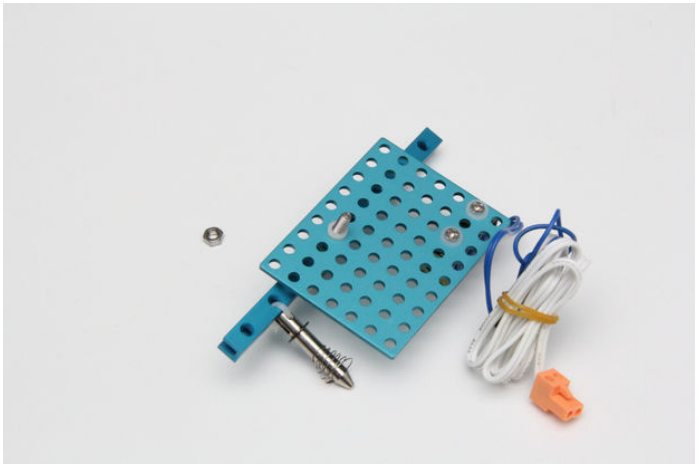


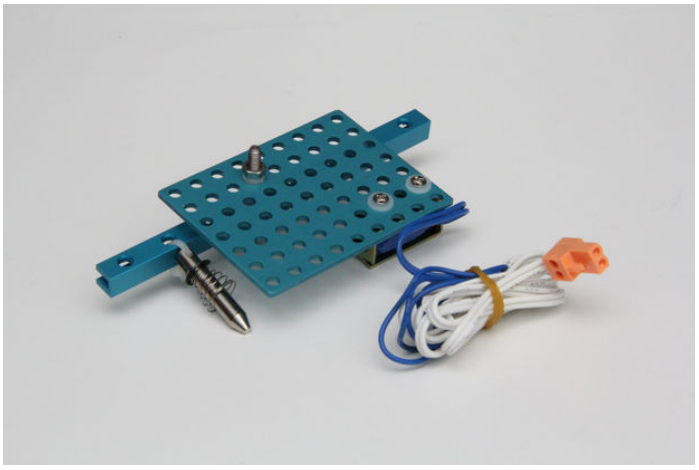


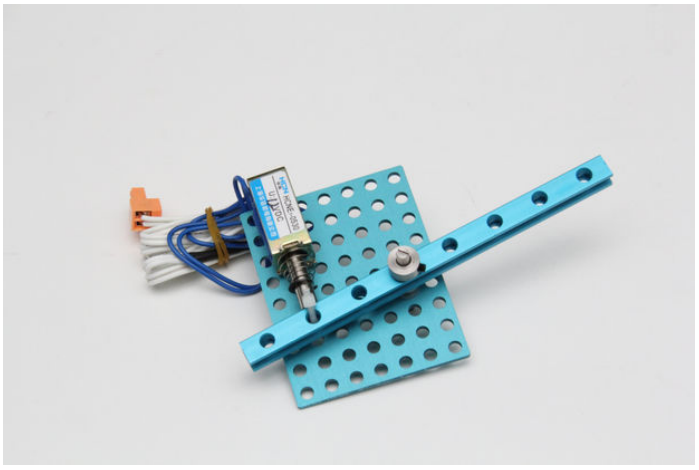


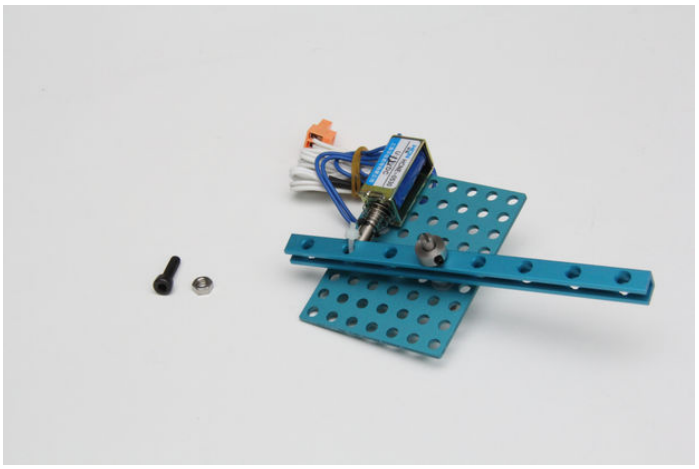


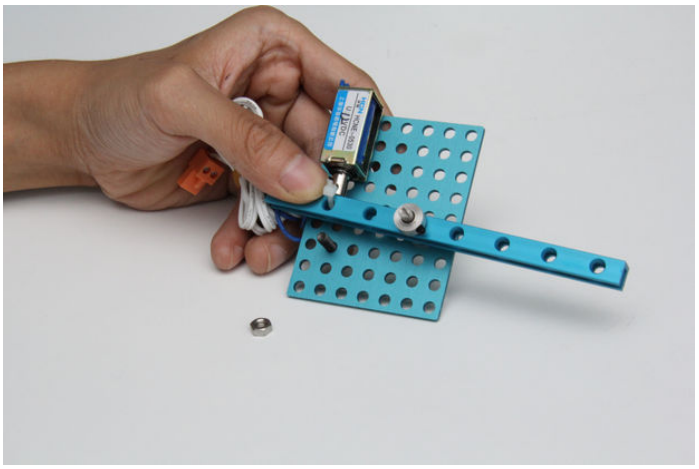


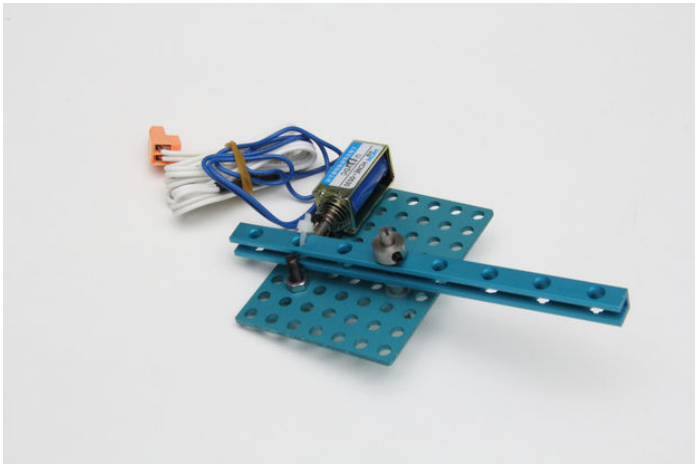


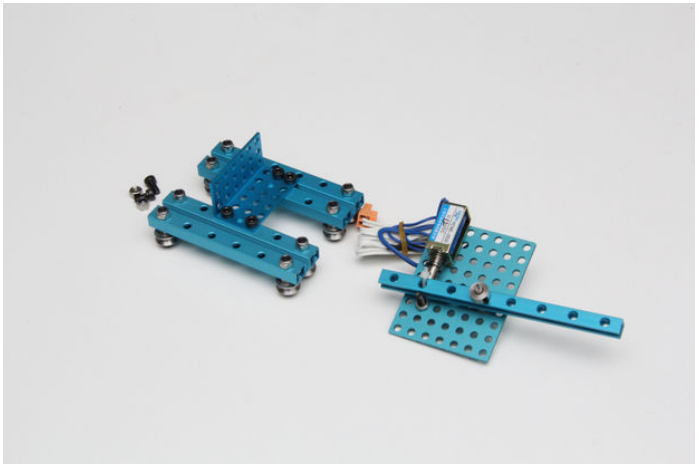


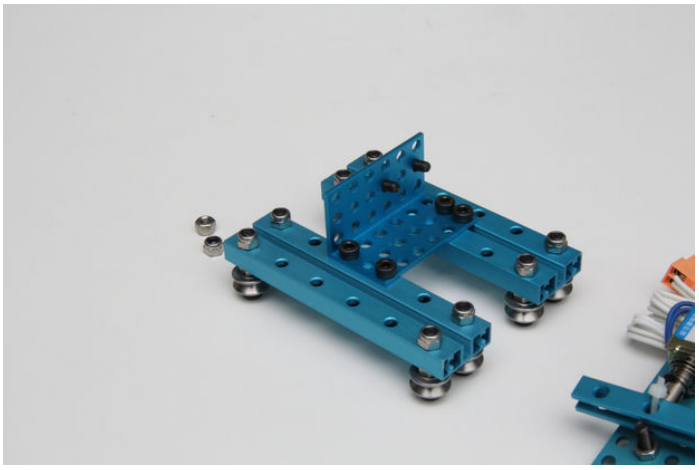


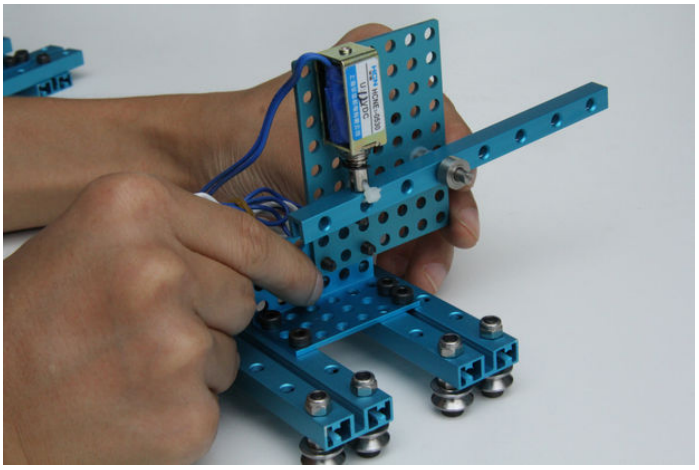


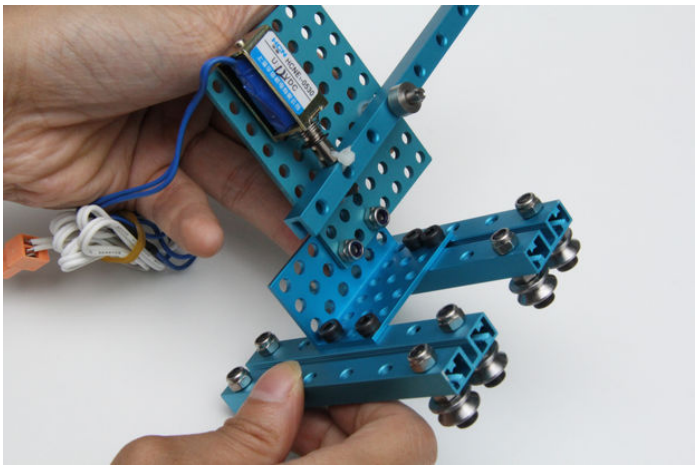


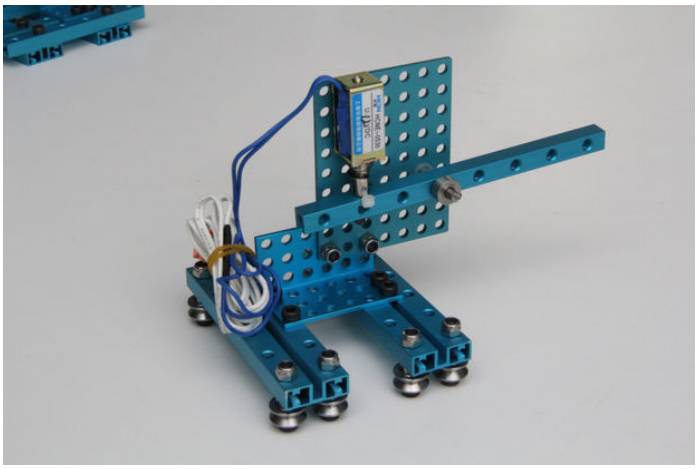


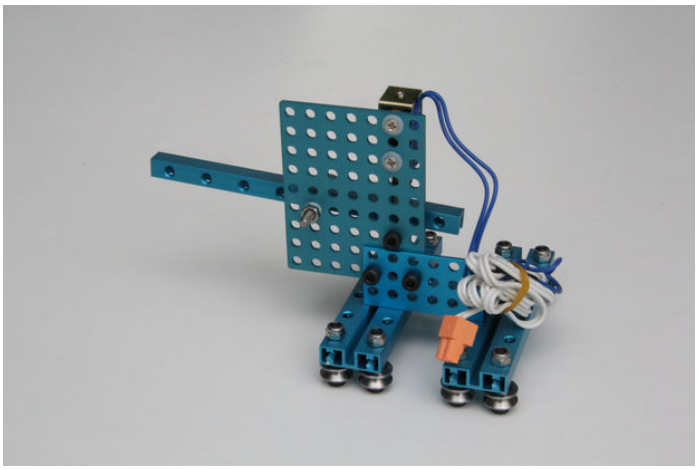








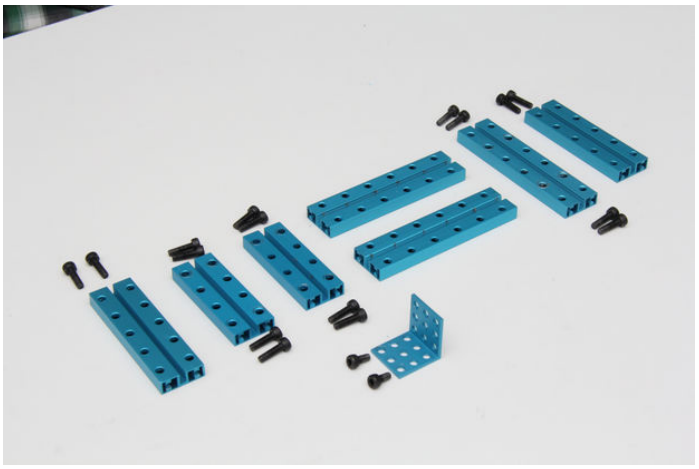


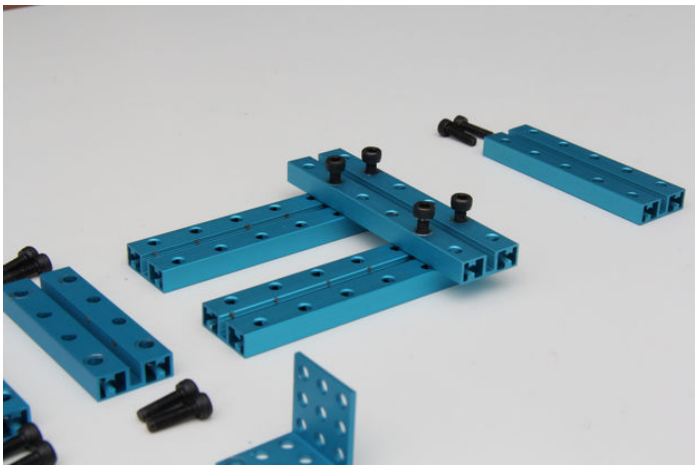


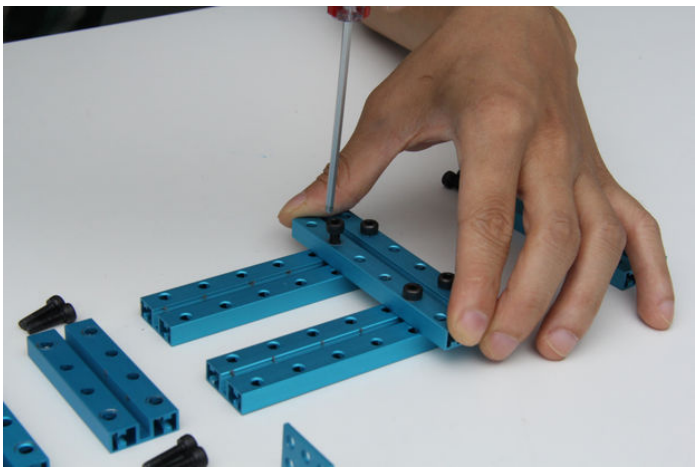
Step 6: Stepper motor and electronic modules Holder

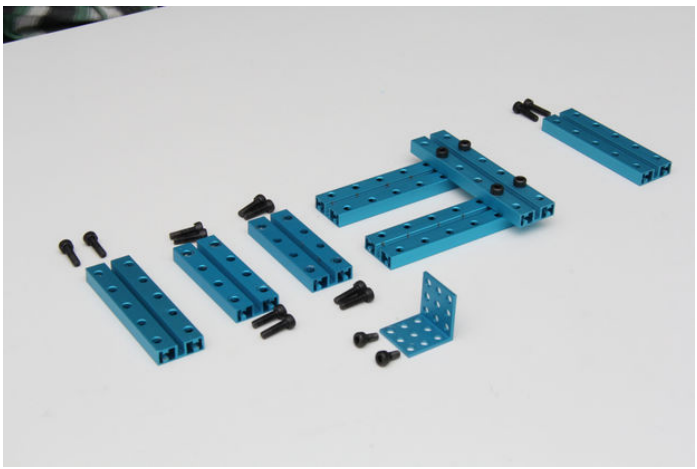
Materials List:

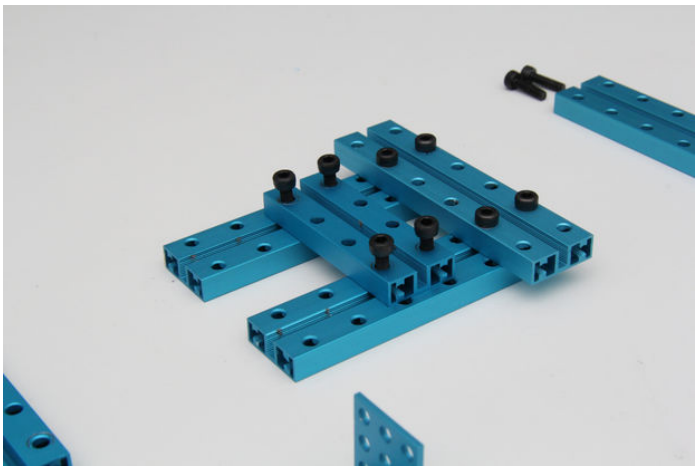
2 × Beam 0824-64
2 × Beam 0824-80
3 × Beam 0824-96
1 × Bracket 3×3
2 × Screw M4×8
16 × Screw M4×14

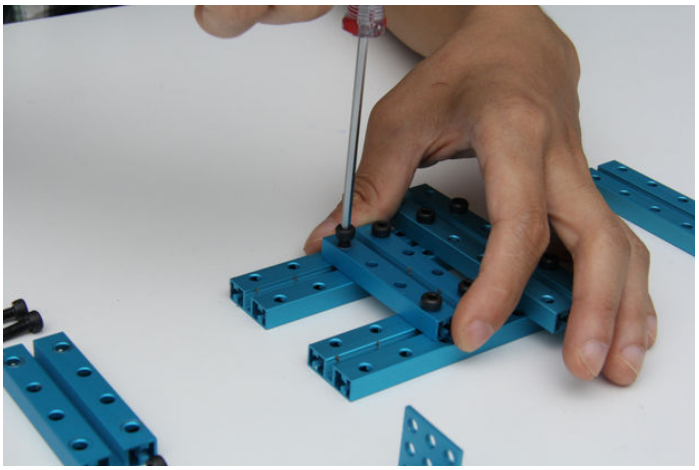


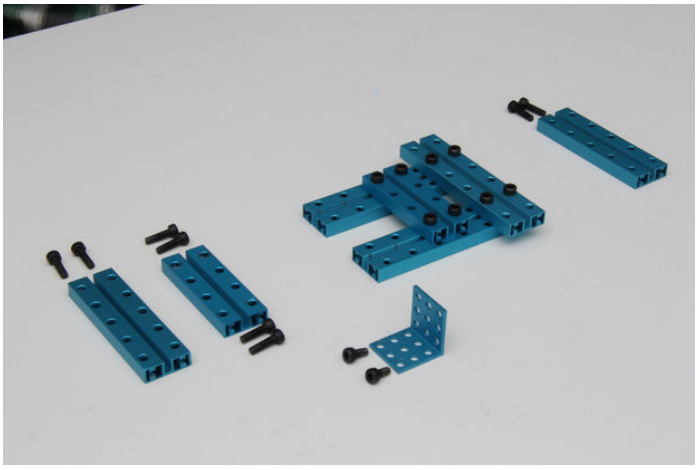


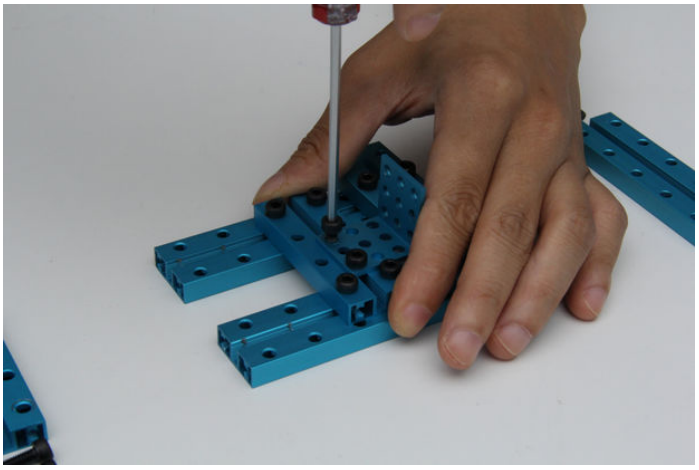


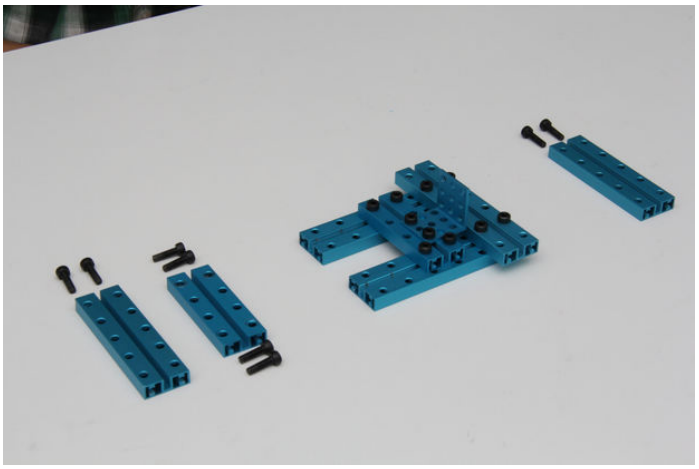


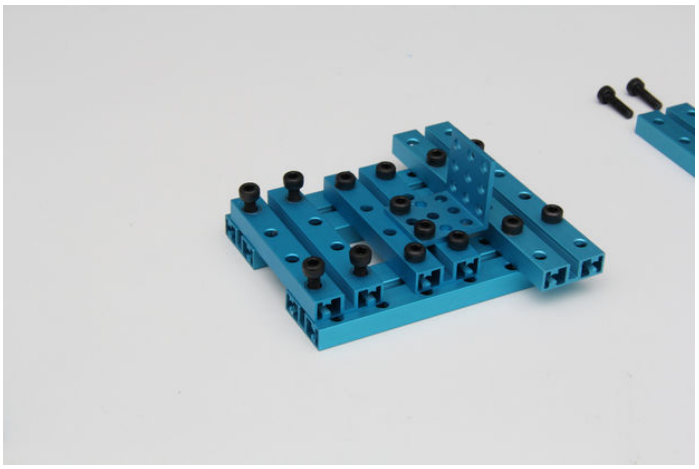


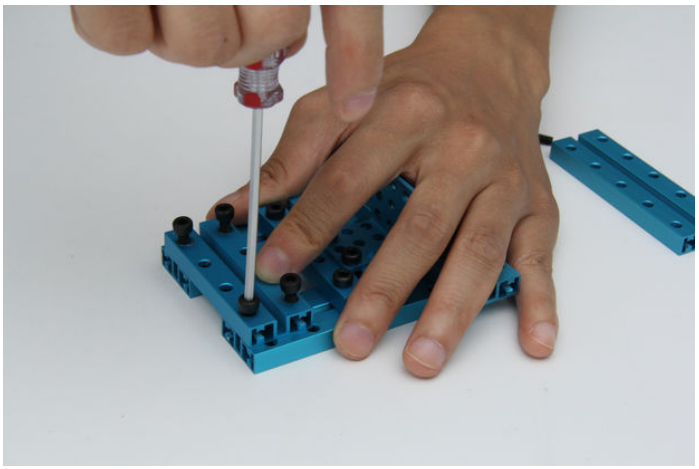


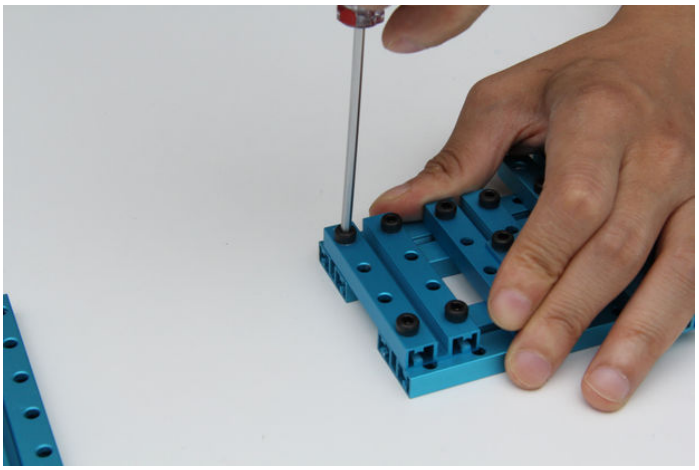


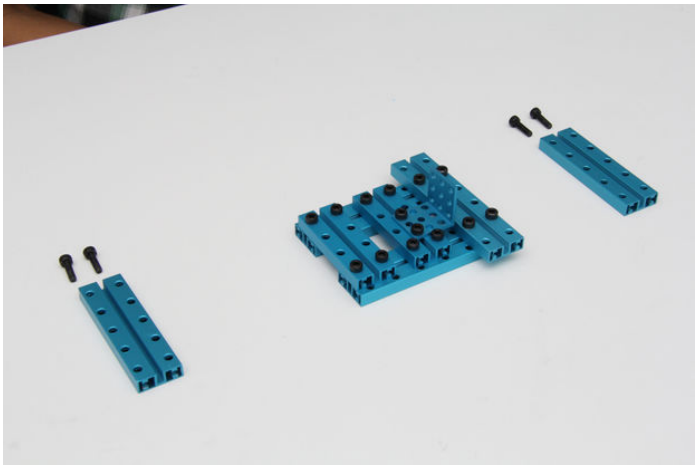


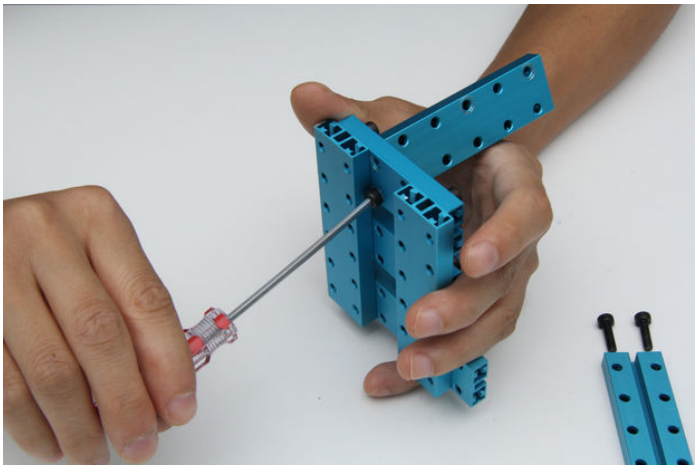


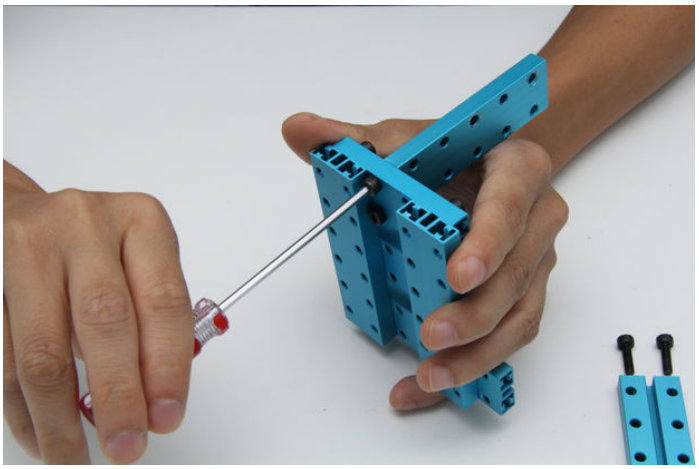


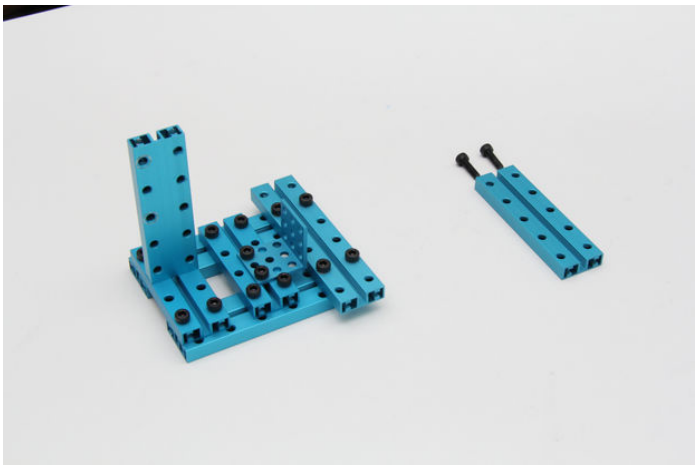


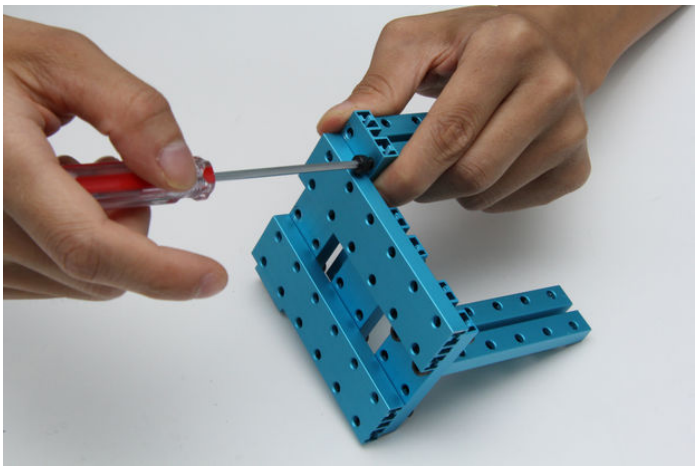


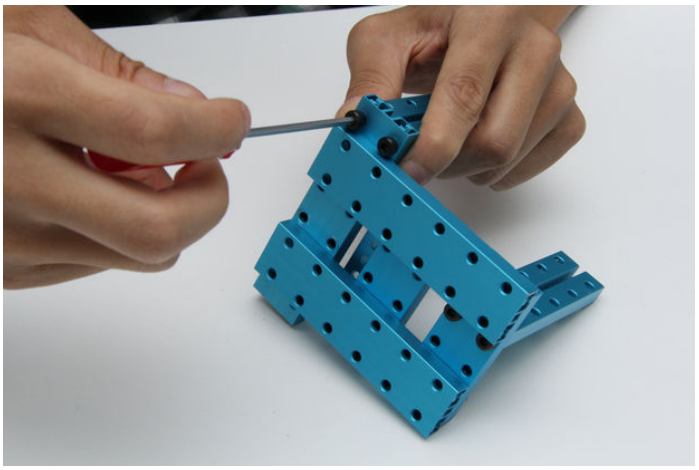


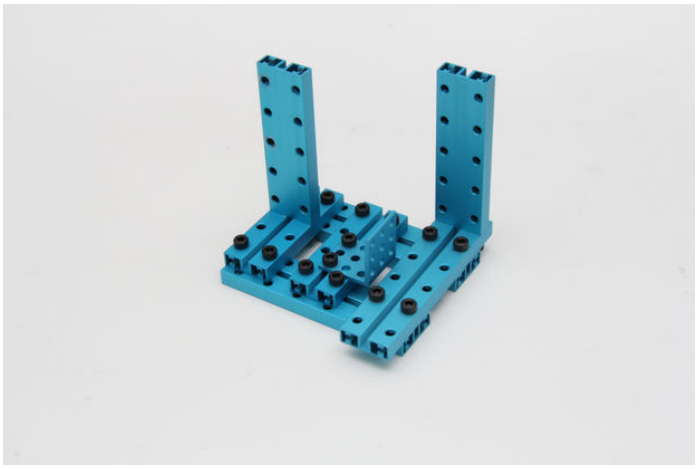








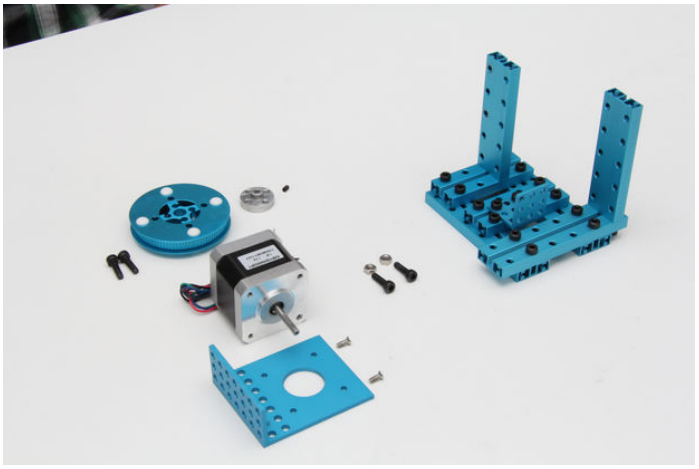


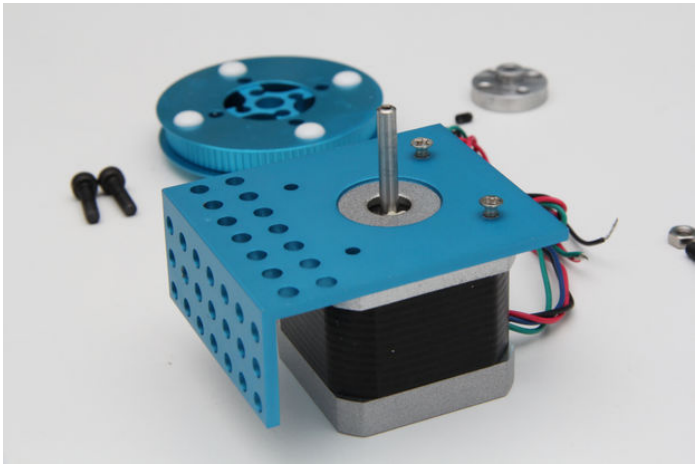


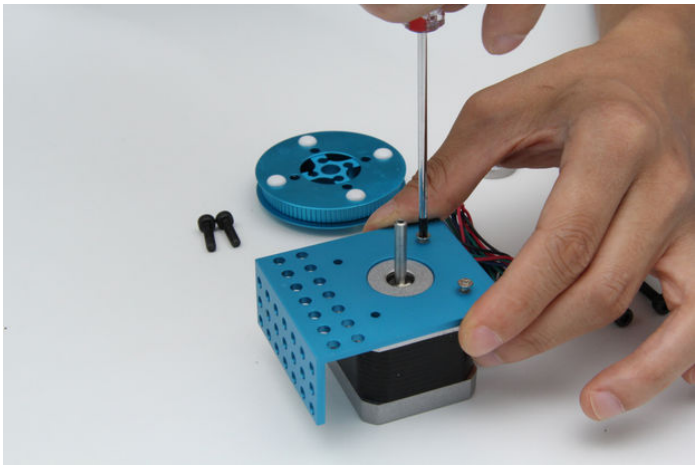
Step 7: Add Stepper Motor

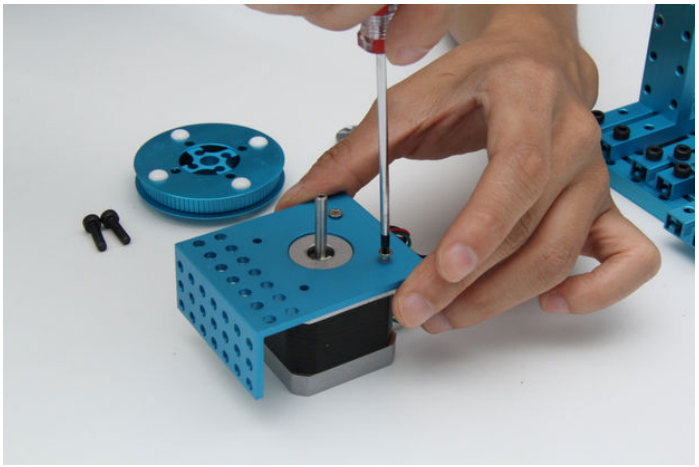
Materials List:

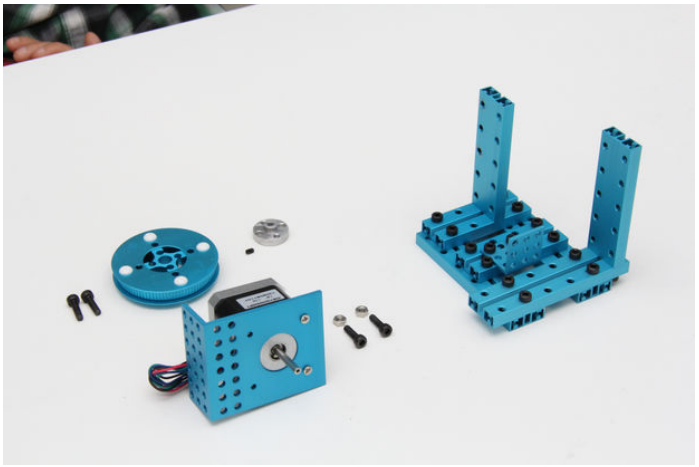
1 × Step Motor
1 × Step Motor Bracket
1 × Timing Pulley 90T
2 × Timing Pulley Slice 90T
4 × Plastic Rivet R4120
1 × Shaft Connector 4mm
1 × Headless Screw M3×5
2 × Countersunk Screw M3×8
4 × Screw M4×14
2 × Nut M4

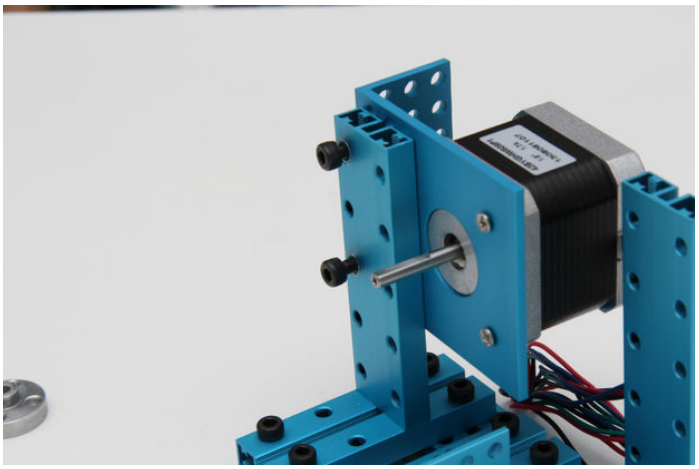


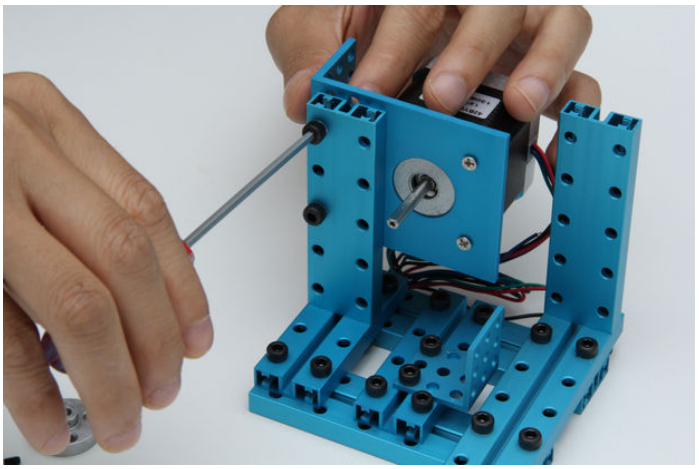


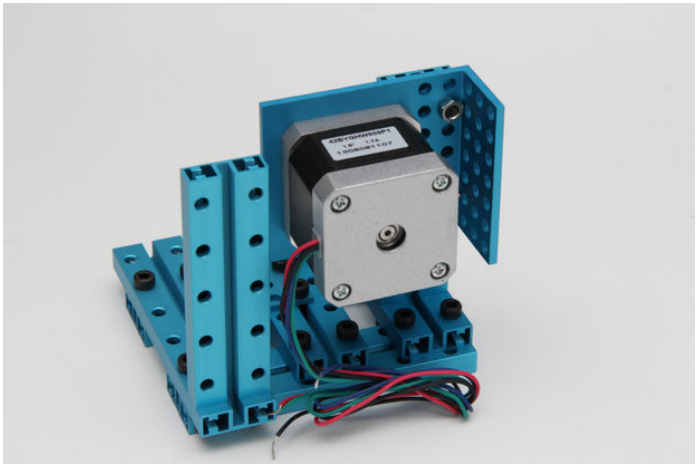


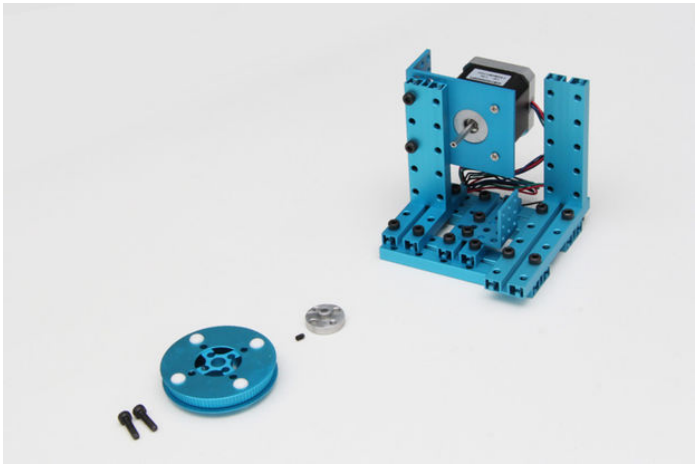


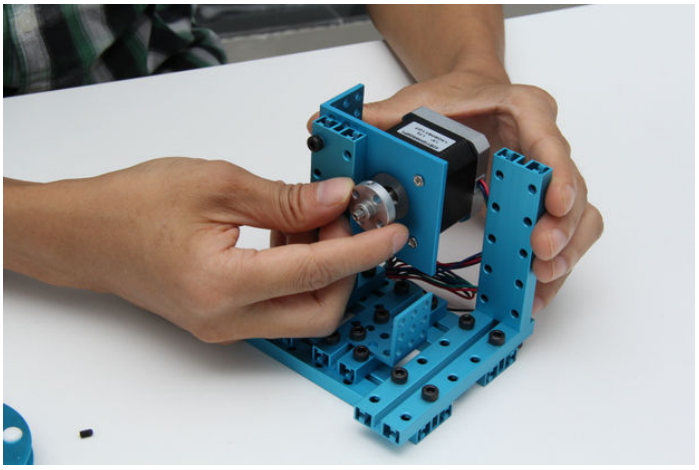


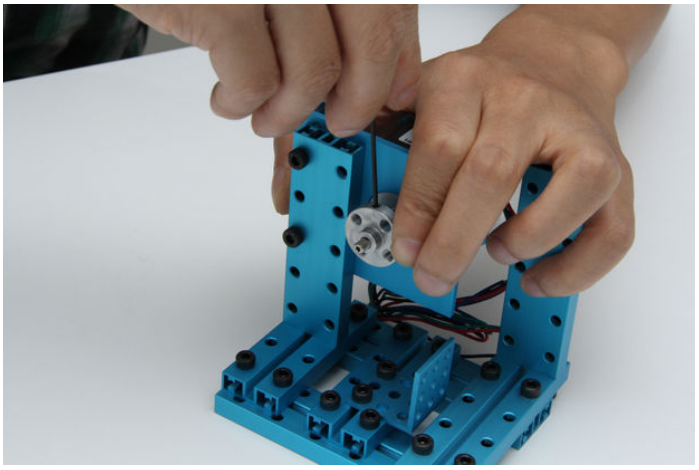


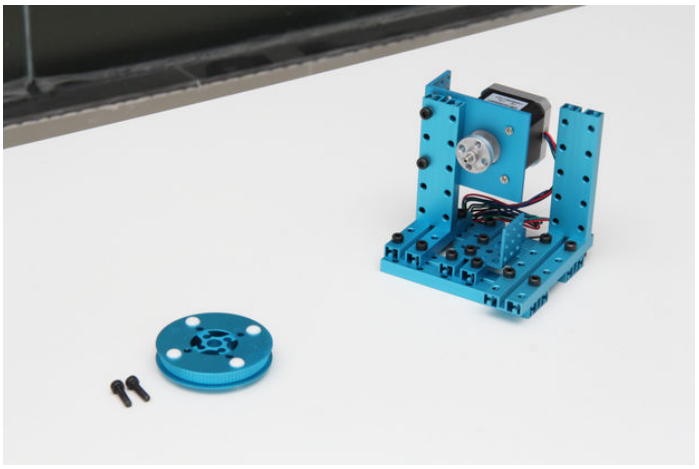


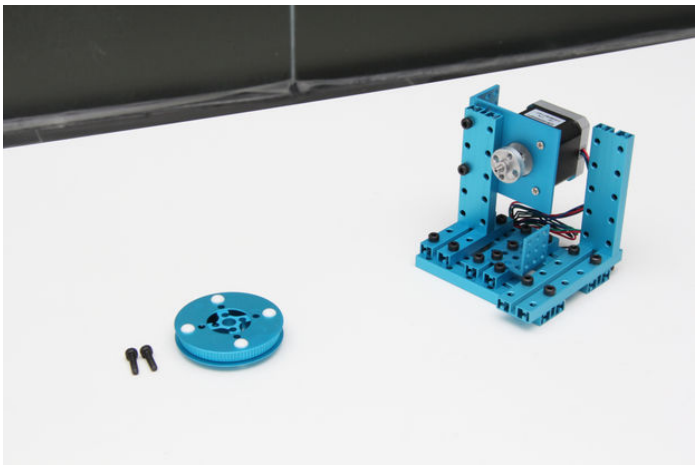


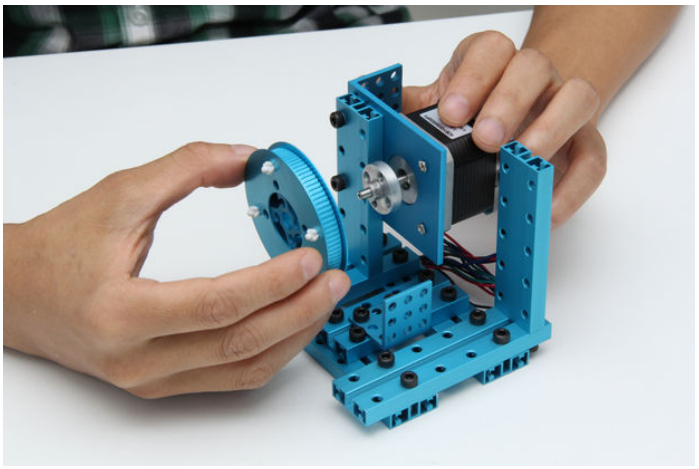
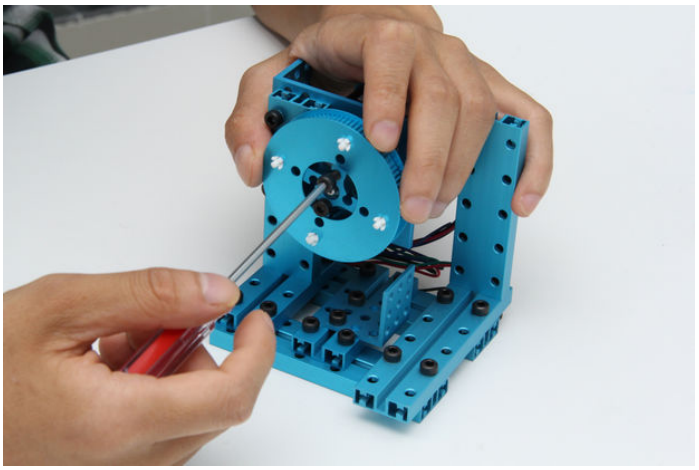
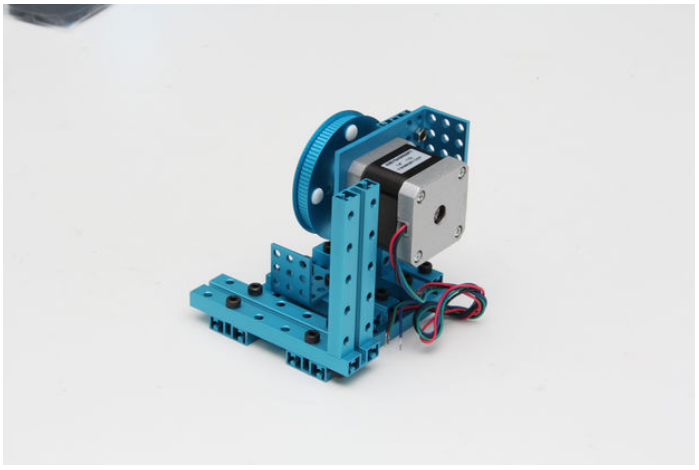
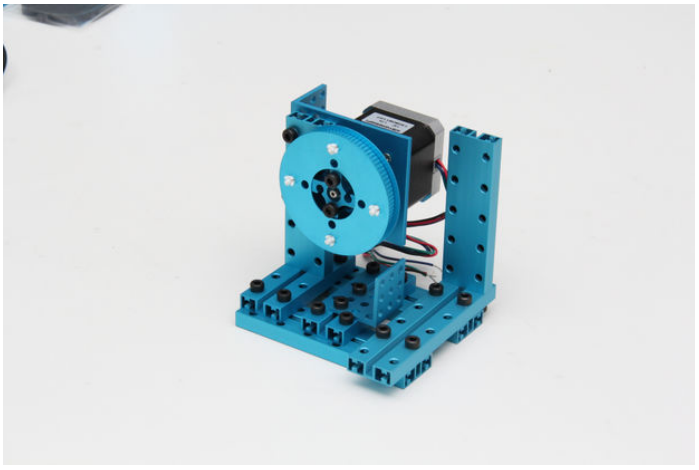
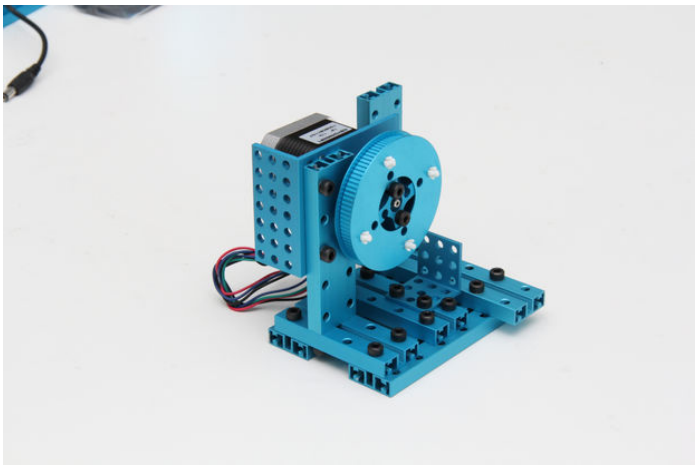
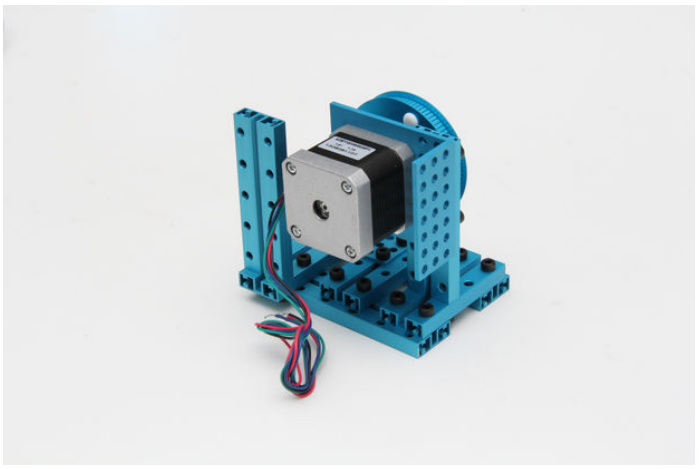








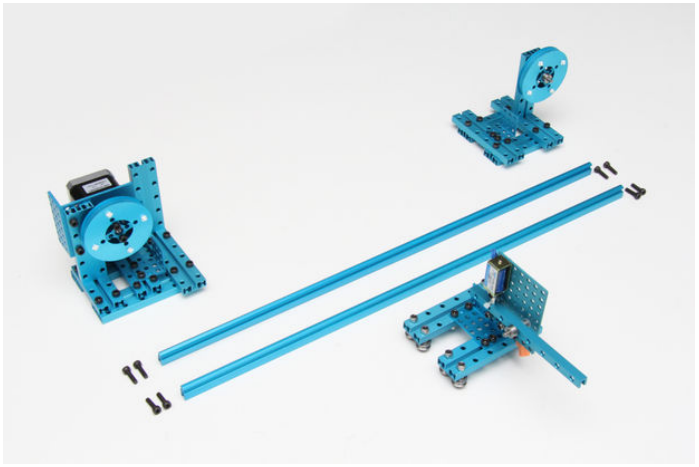


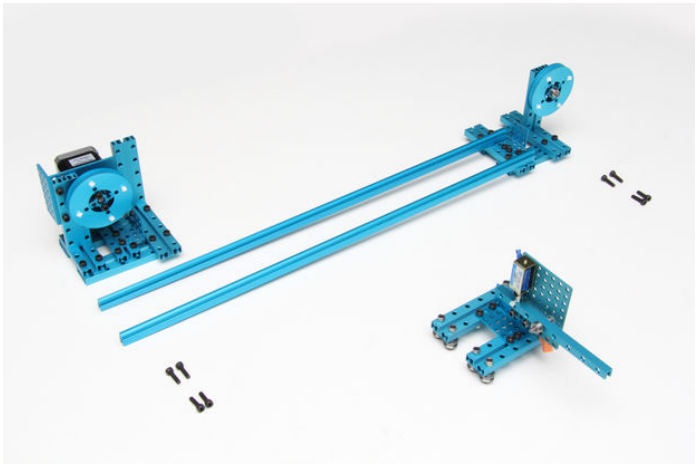







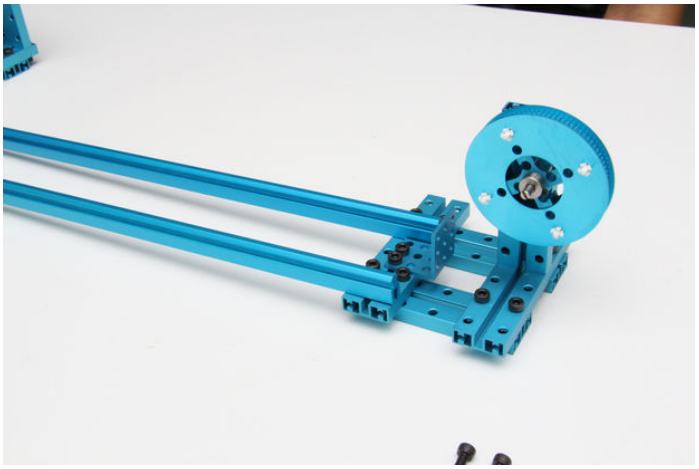
Step 8: Install to the Slider

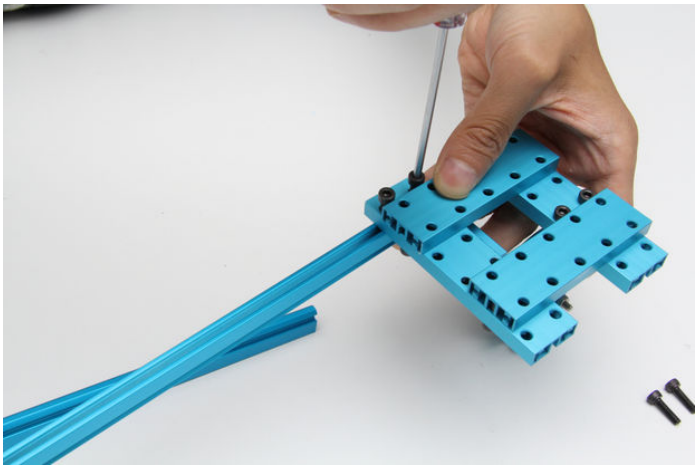
Materials List:
2 × Slider 496
8 × Screw M4×14

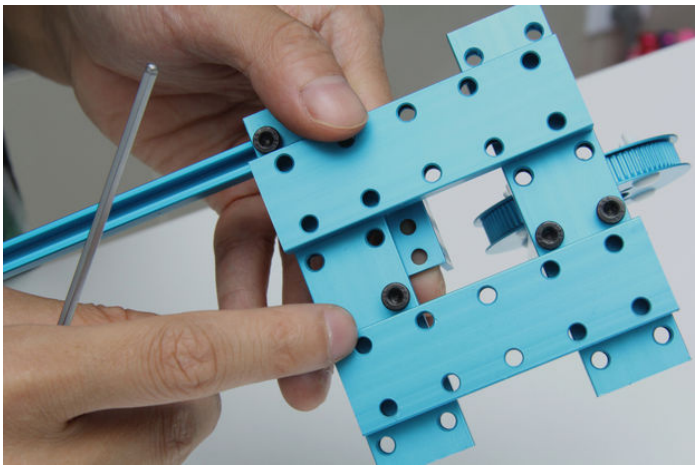
Procedure:
1. Install the Driven Pulley Holder to the Slider.
2. Install the Slider Device to the Slider.
3. Install the Step Motor and Electronic Modules Holder to the Slider.

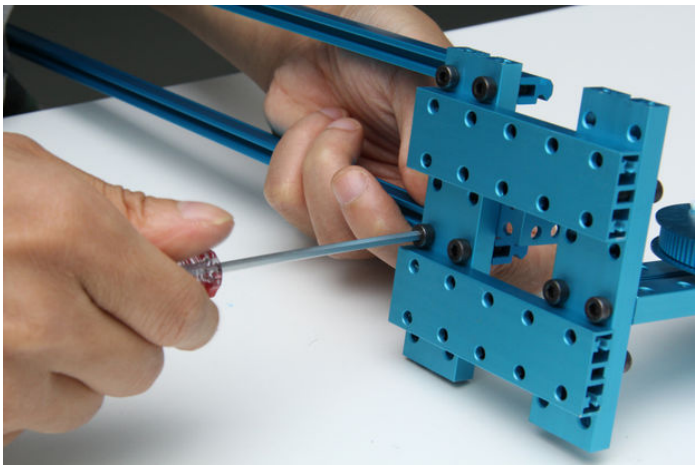


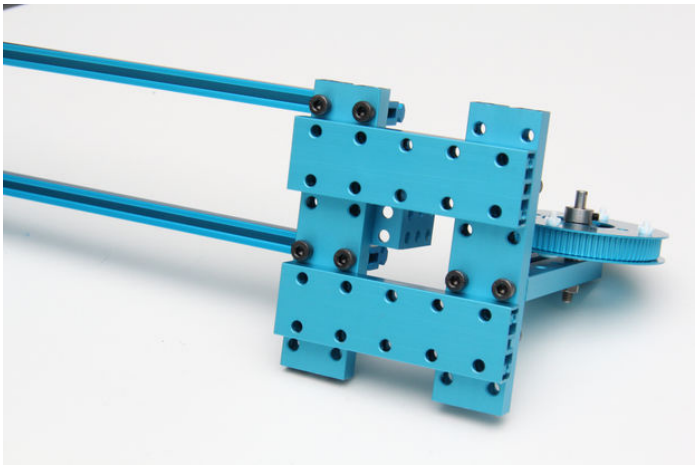


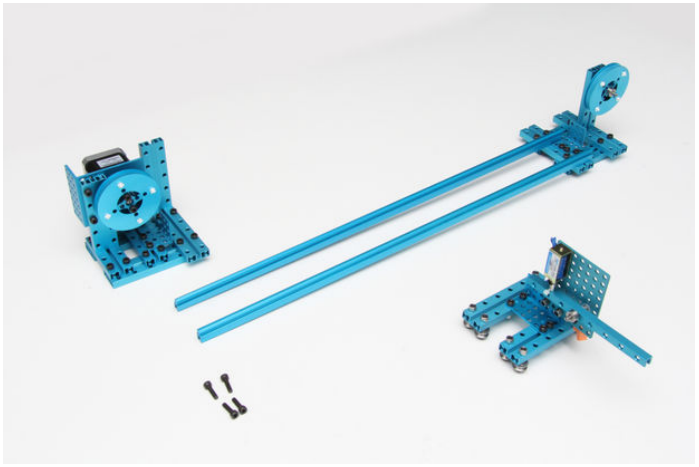


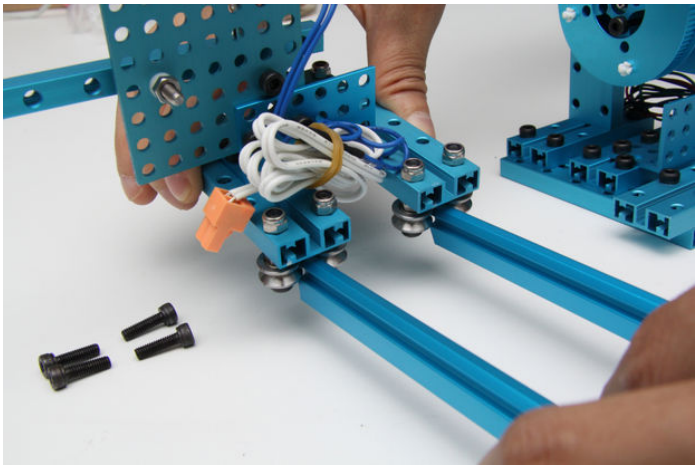


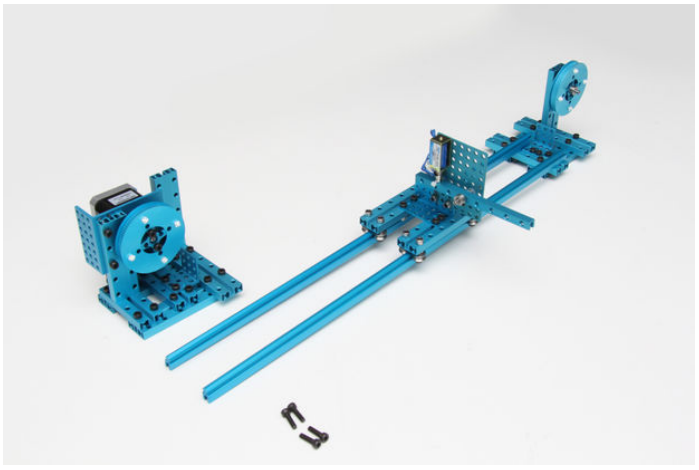


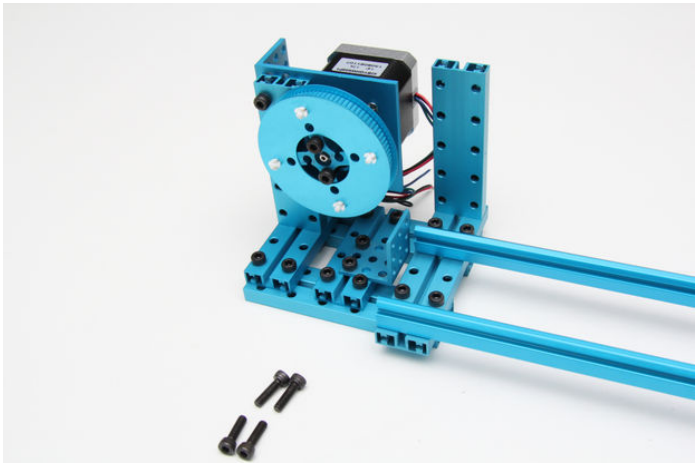


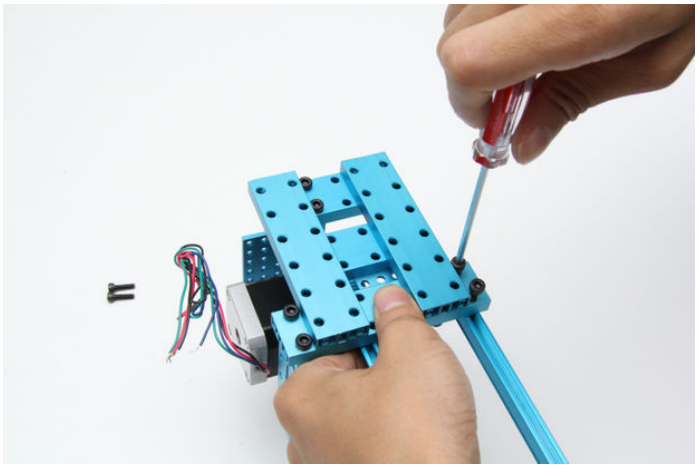


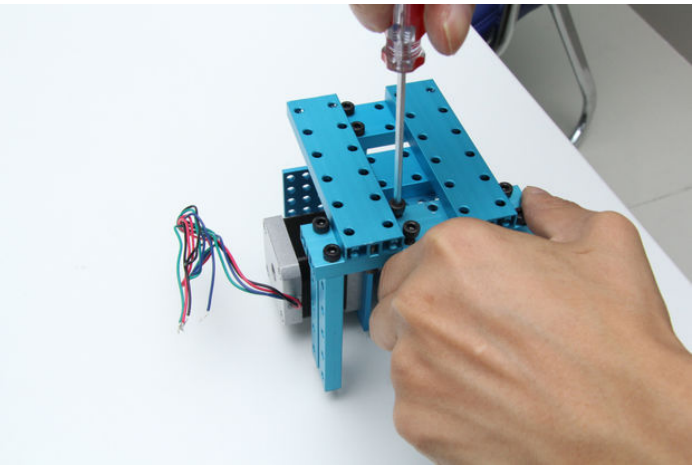


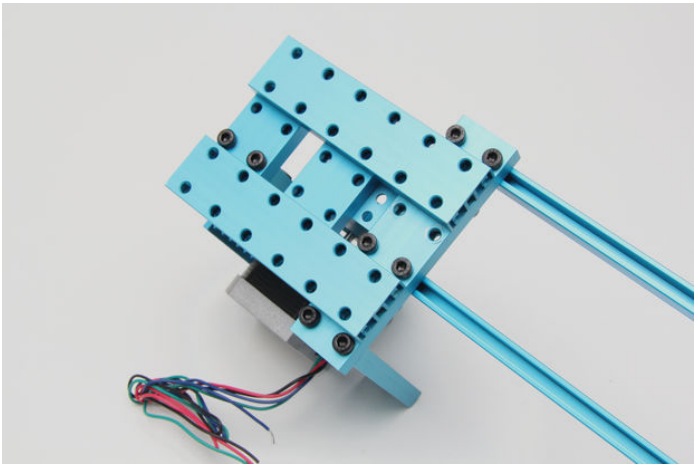


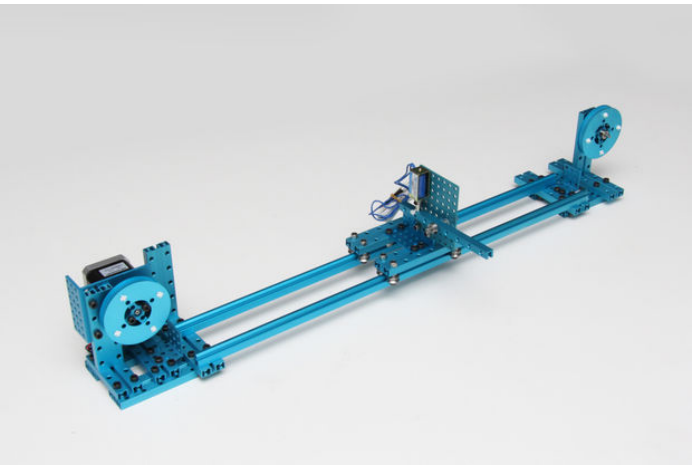








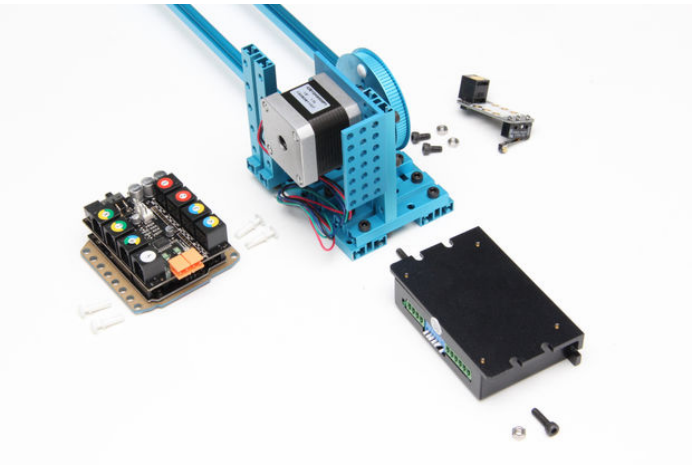


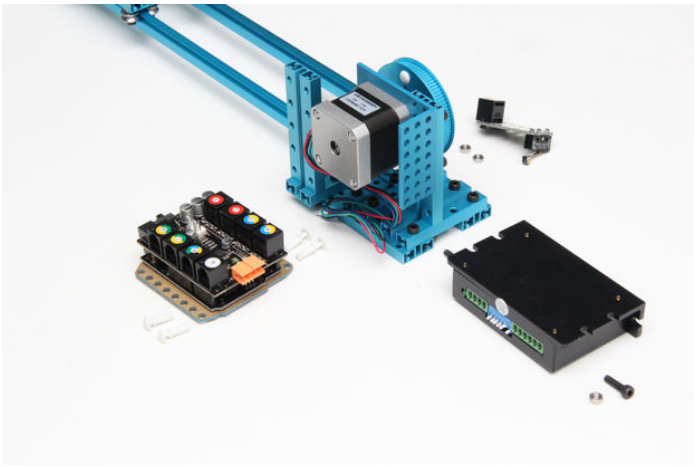


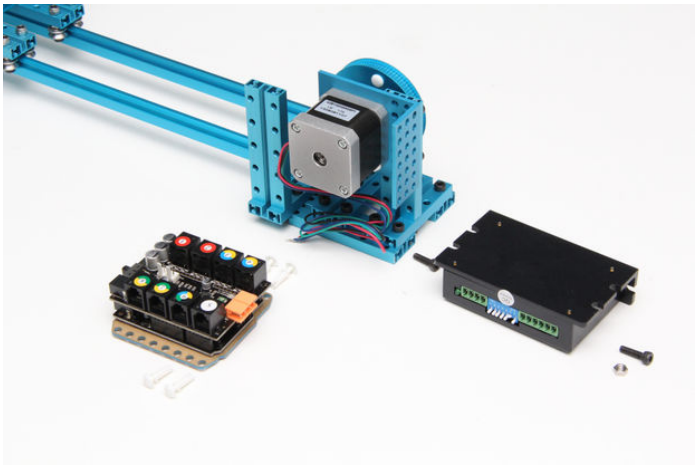
Step 9: Add Electronic Modules

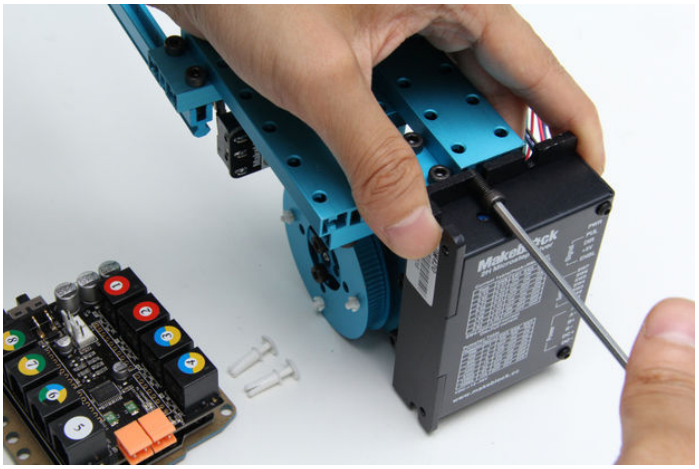
Electronic Modules List:

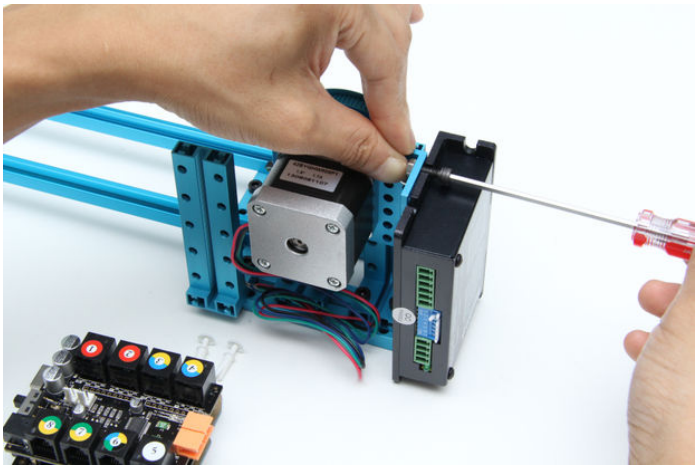
1 × Arduino
1 × Acrylic Arduino Bracket
1 × Me-BaseShield
1 × Step Motor
1 × Step Motor Controller
1 × Me-Limit Switch
4 × Plastic Rivet R4120
2 × Screw M4×8
2 × Screw M4×14
3 × Nut M4

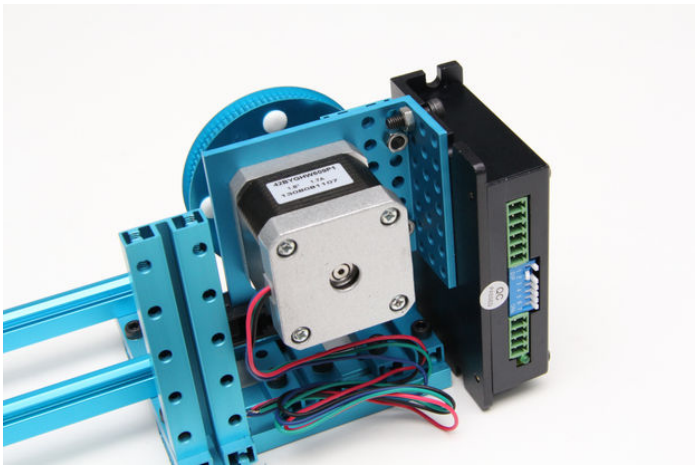


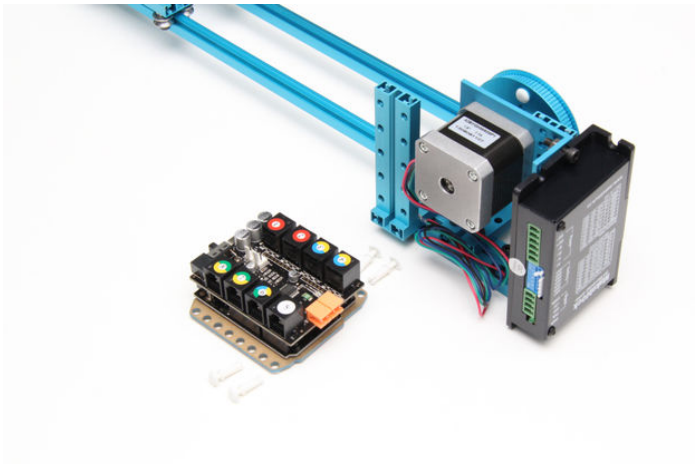


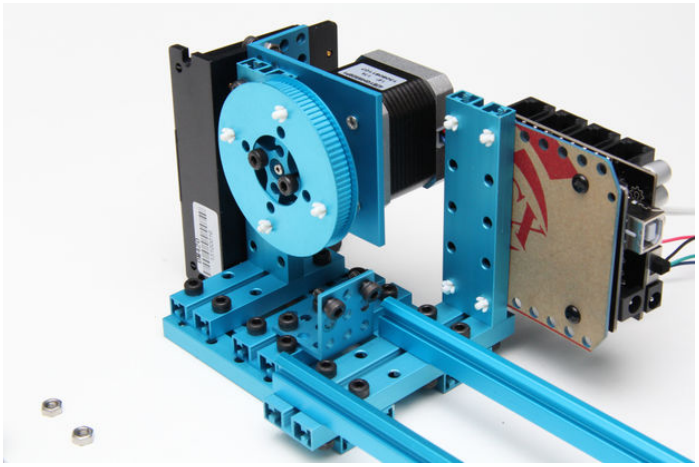


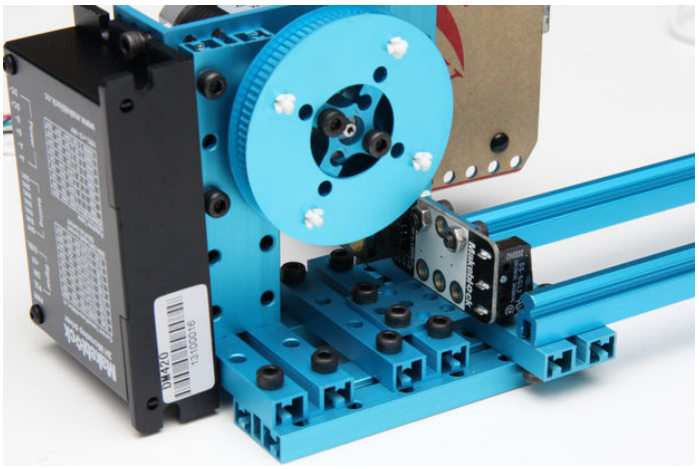


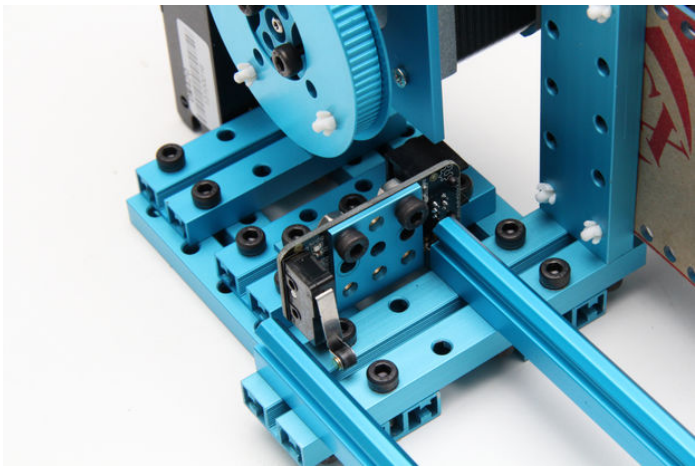


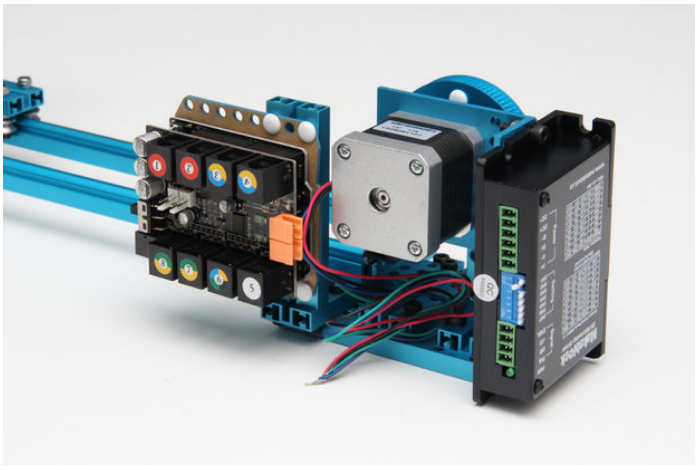


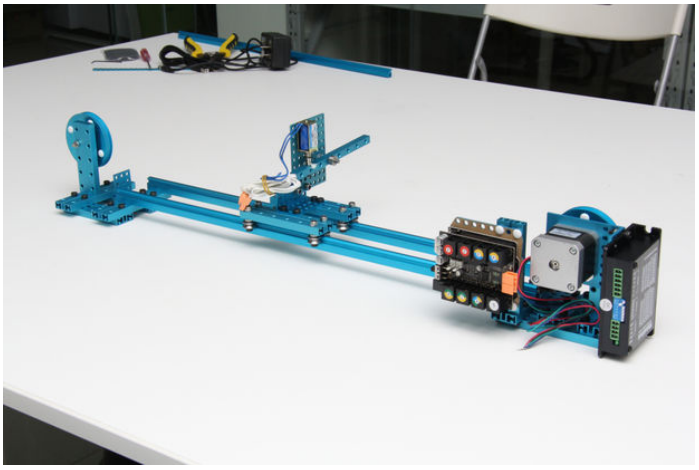








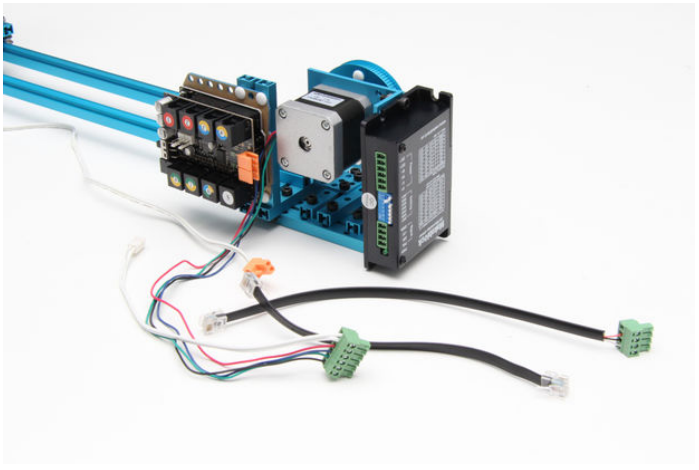


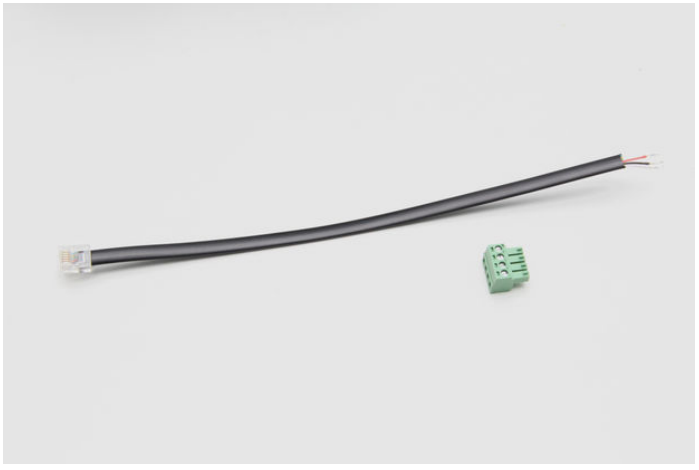


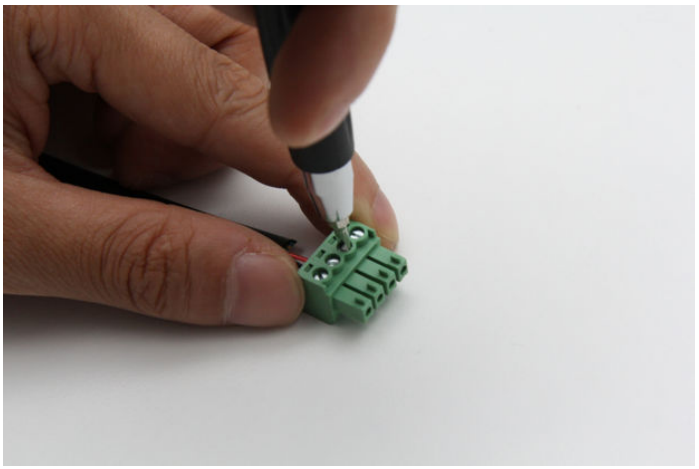
Step 10: Connect the Electronic Modules

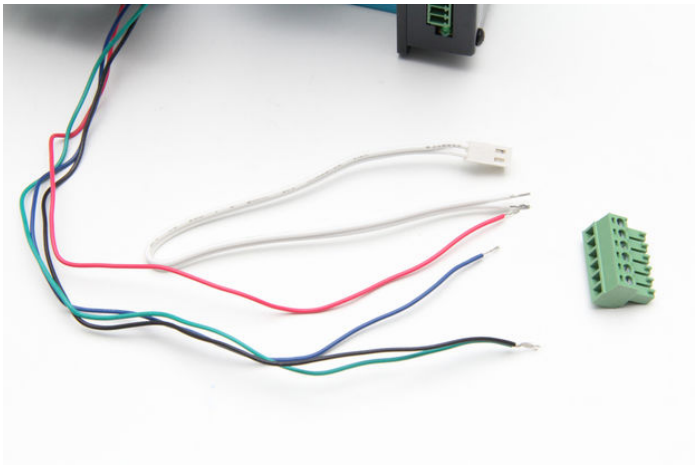
Materials List:
2 × 6P6C cable 20cm

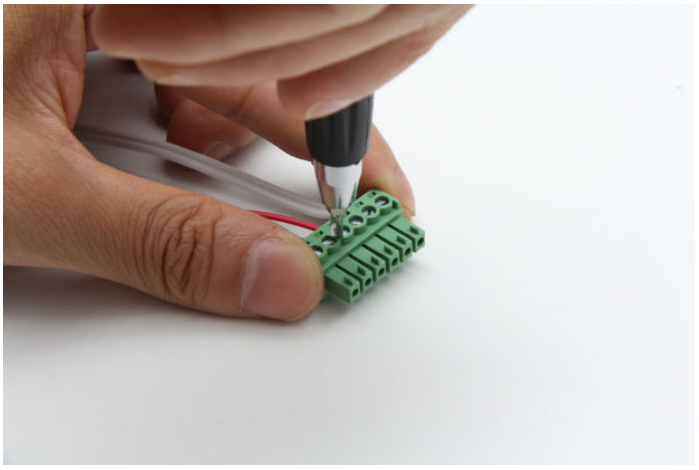
Procedure:
1. Connect the Step Motor to the Step Motor Controller.
2. Connect the Step Motor Controller to Me-BaseShield.
3. Connect the Limit Switch to Me-BaseShield.
4. Connect the Solenoid-12V to Me-BaseShield.

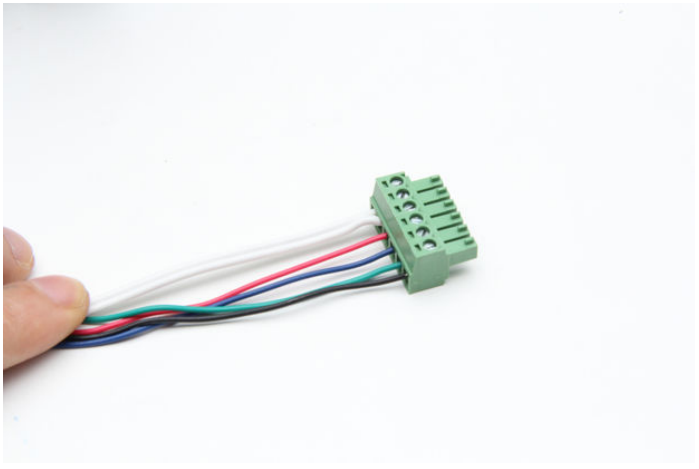


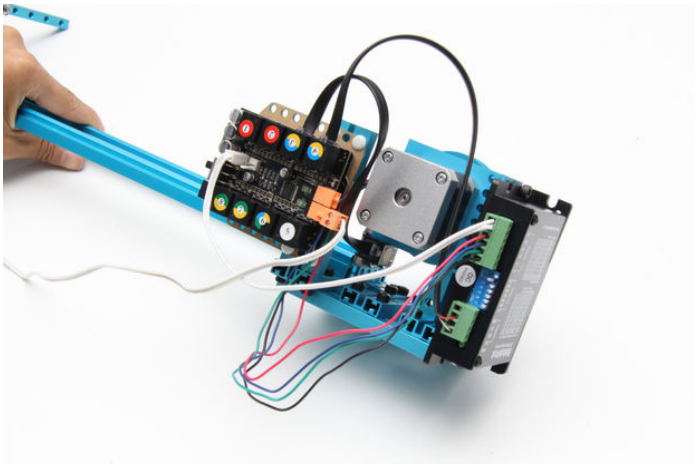


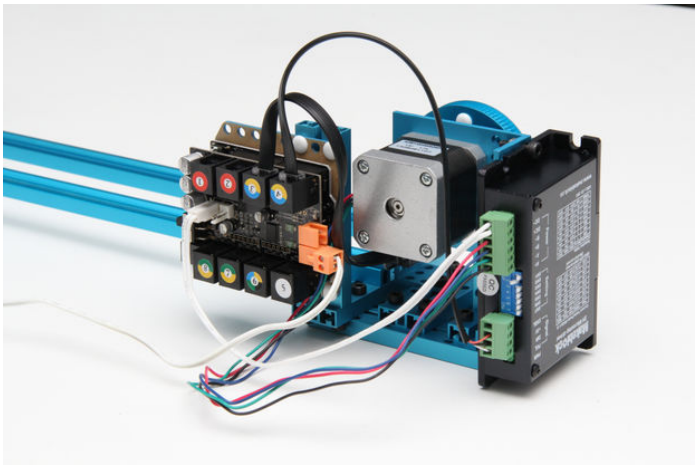


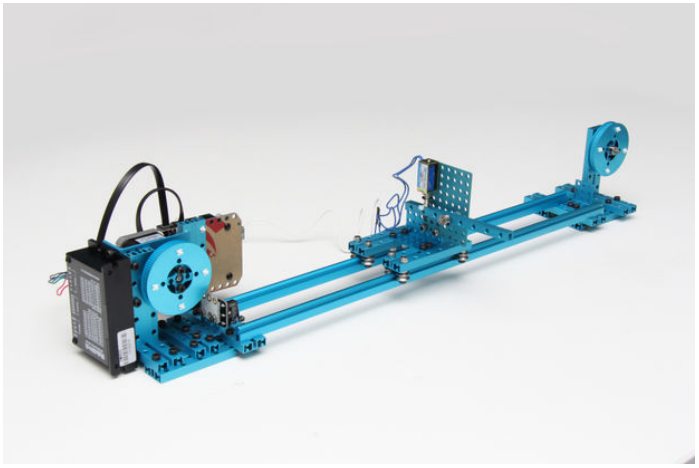






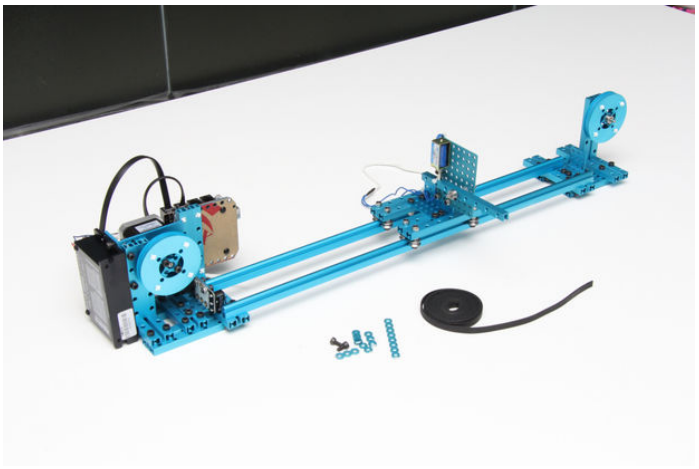


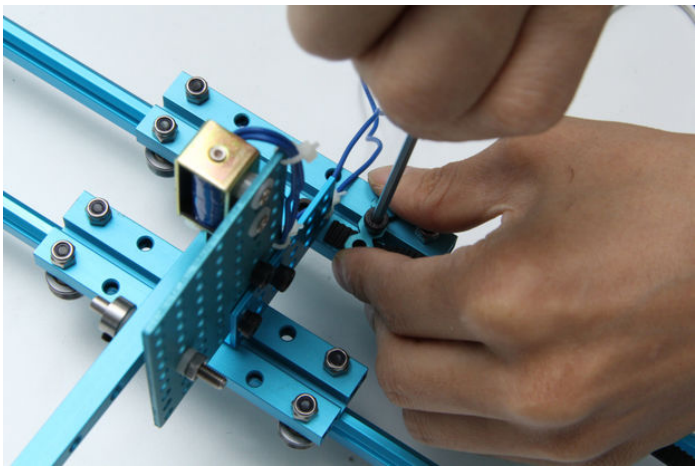


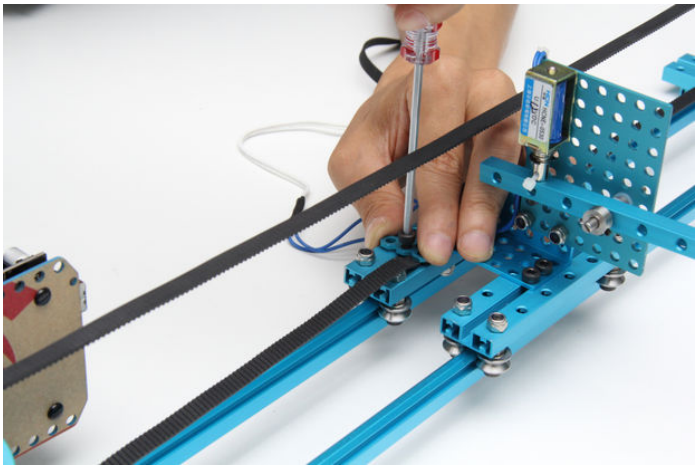


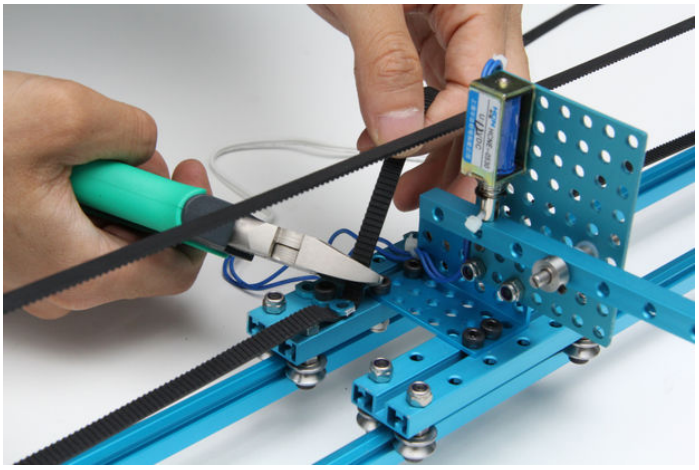
Step 11: Add Timing Belt

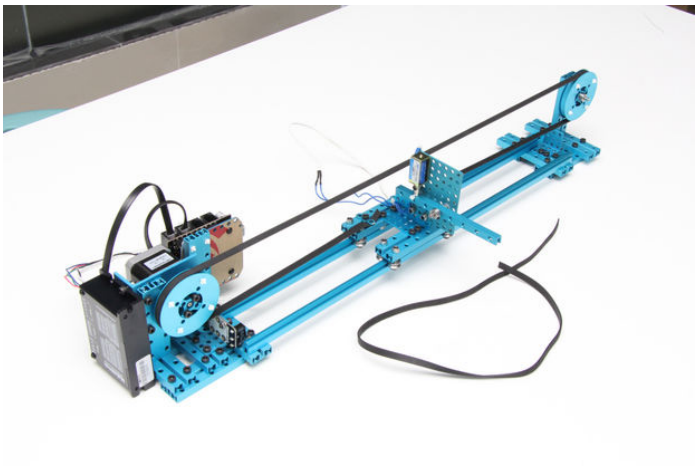
Materials List:
1 × Timing Belt
1 × Link Rod
2 × Screw M4×8

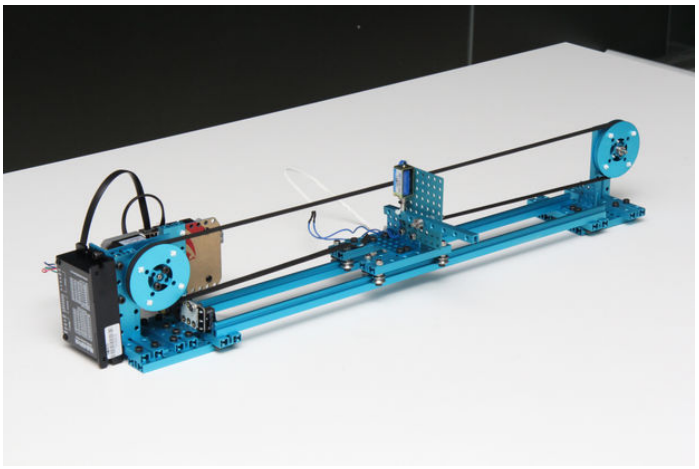


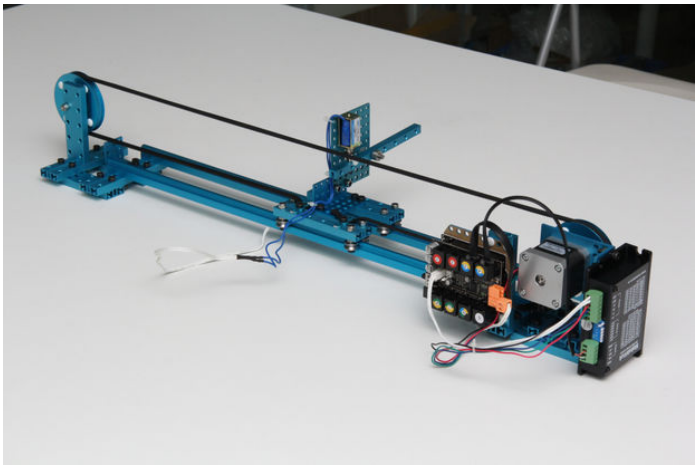








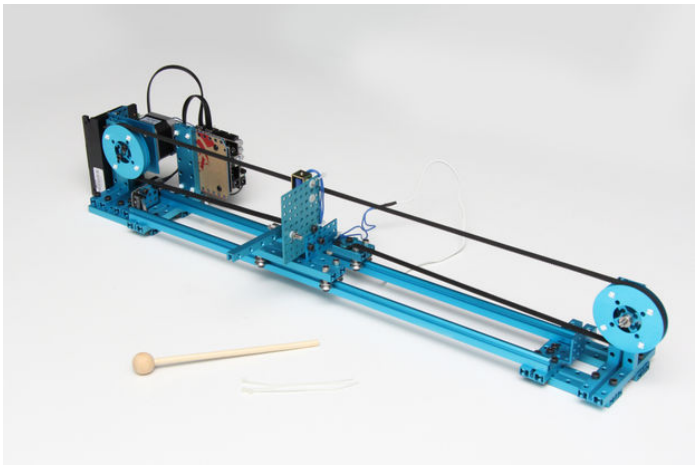


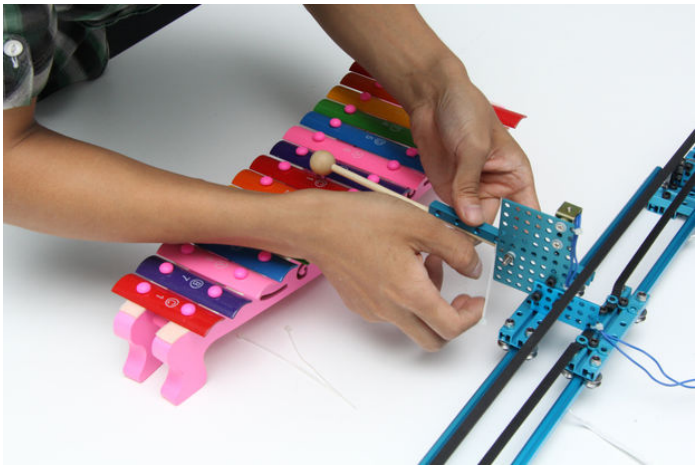


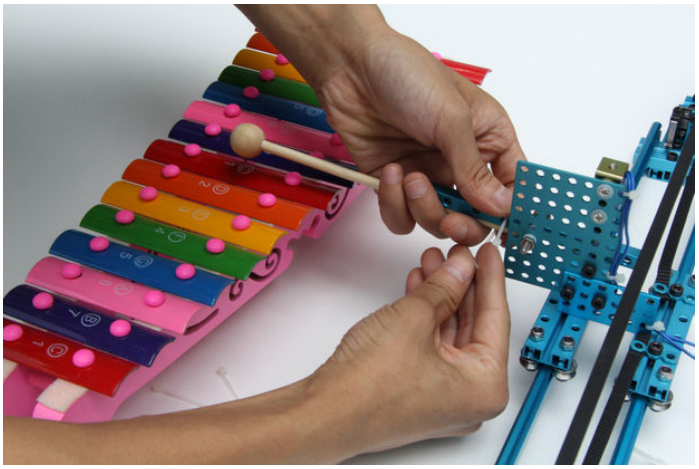
Step 12: Add Xylophone hammer

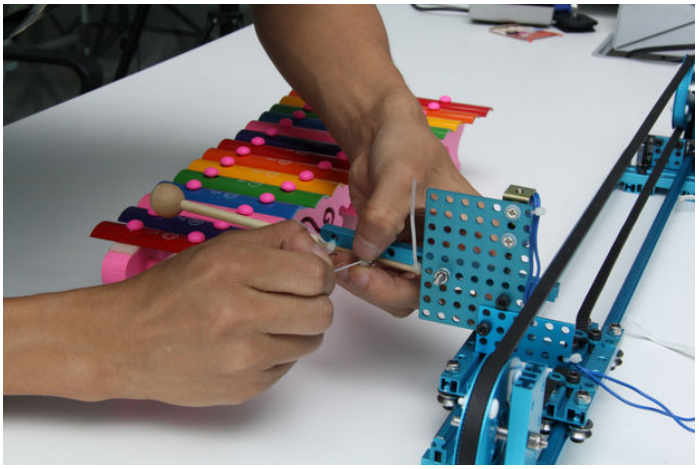
Materials List:
1 × Xylophone Hammer
4 × Nylon Cable Ties

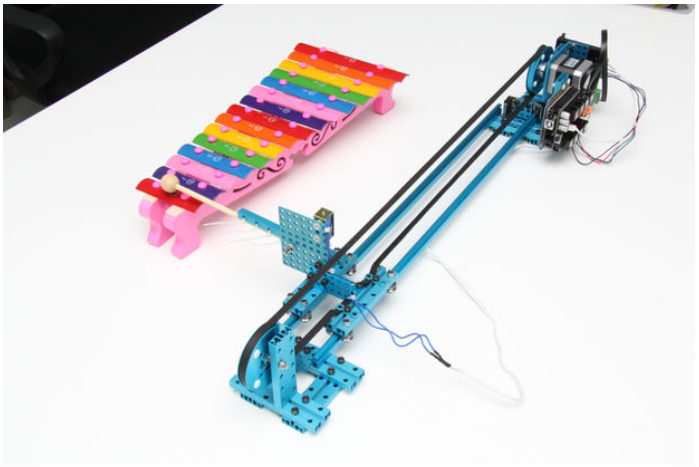
Procedure:
Install the Xylophone Hammer on Beam 0808-128 by Nylon Cable Ties.

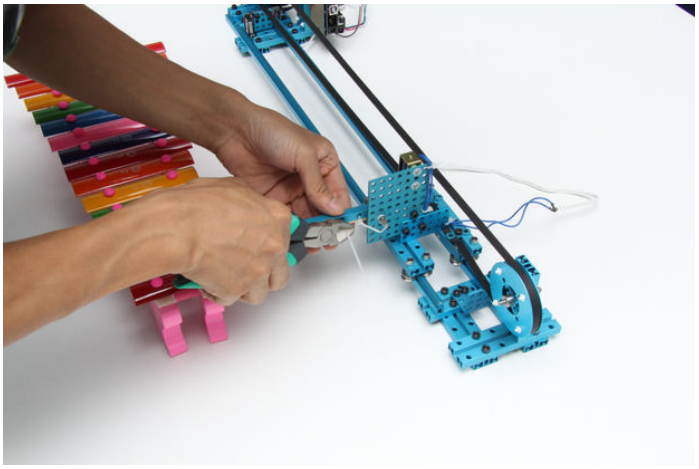


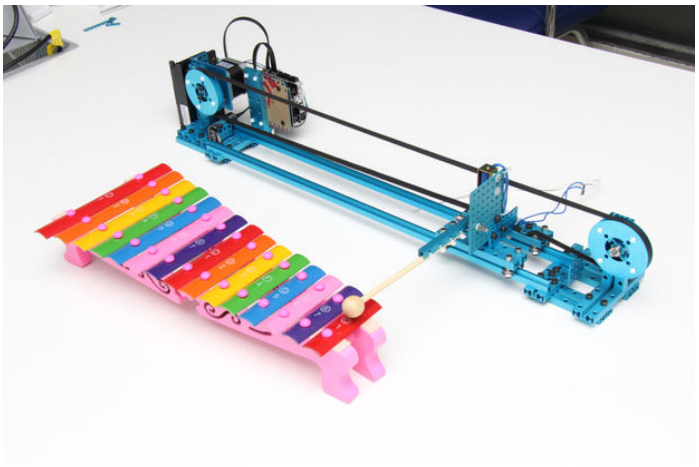


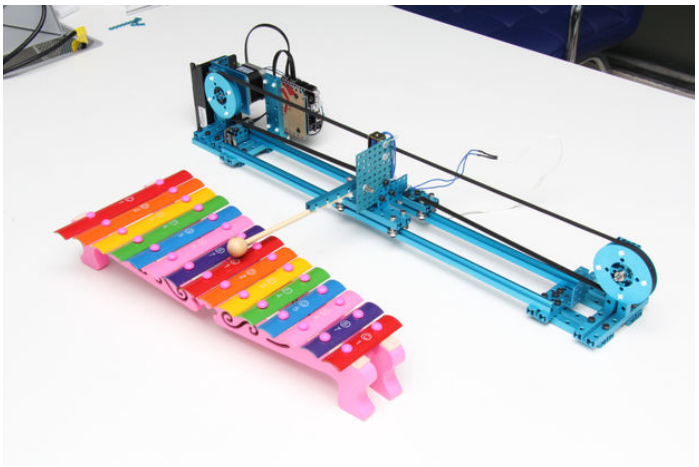


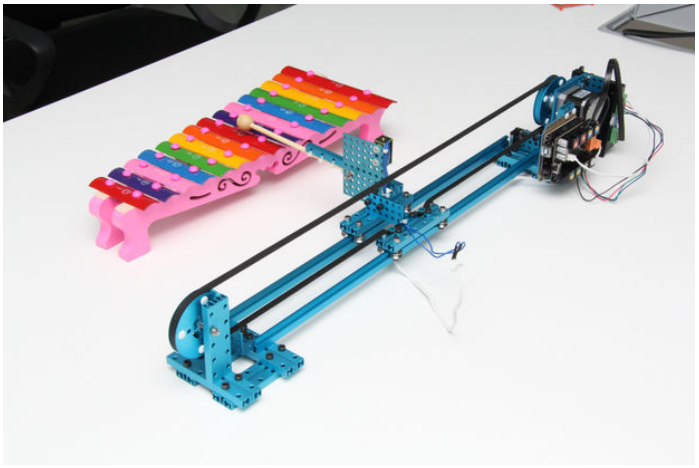


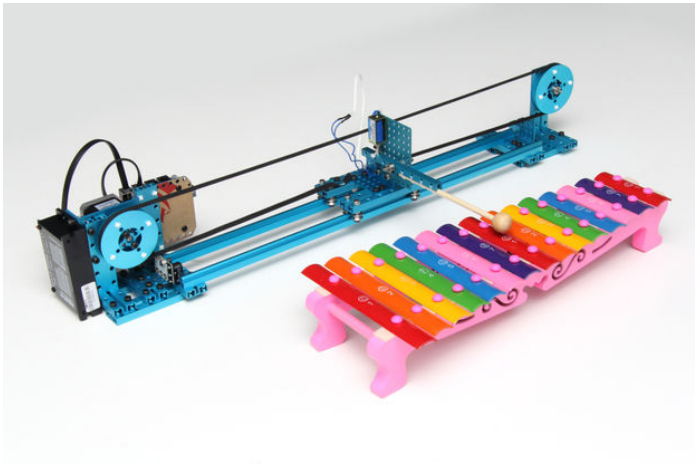












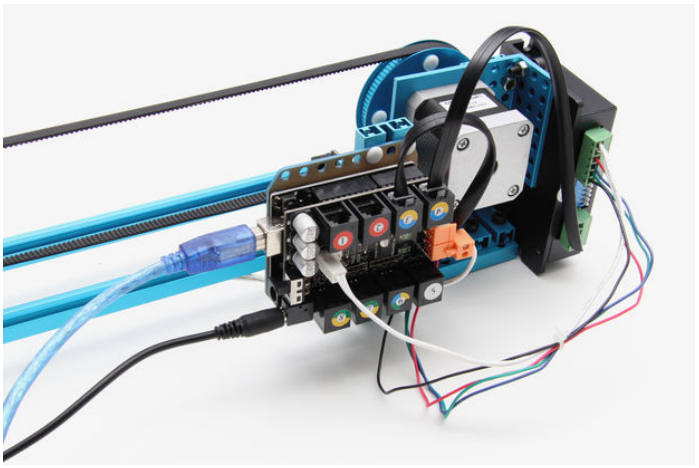
Step 13: Upload the Arduino Code and Play the Music

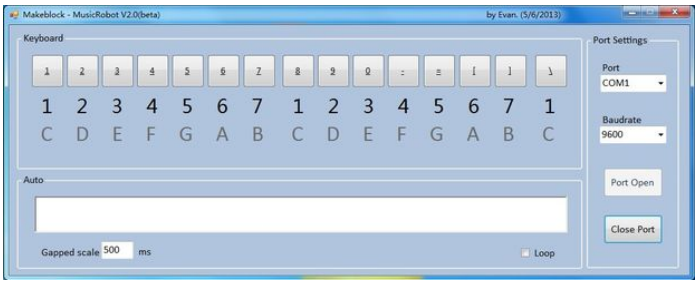
Materials list:
1 × USB Cable(A plug to B plug)
1 × Wall Adapter Power Supply - 12VDC

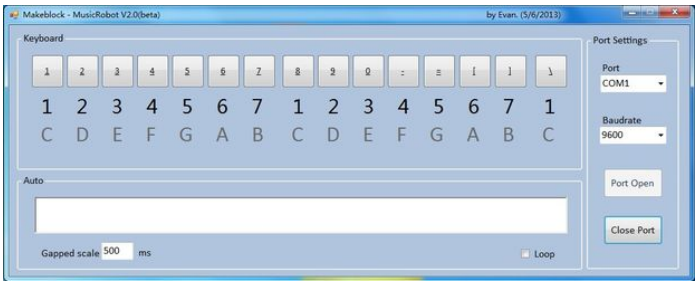
Procedure:
1. Connect the Arduino to the computer by using the USB cable.
2. Connect the Wall Adapter Power Supply - 12VDC on the Arduino.
3. Upload the Arduino Code of the Music Robot.

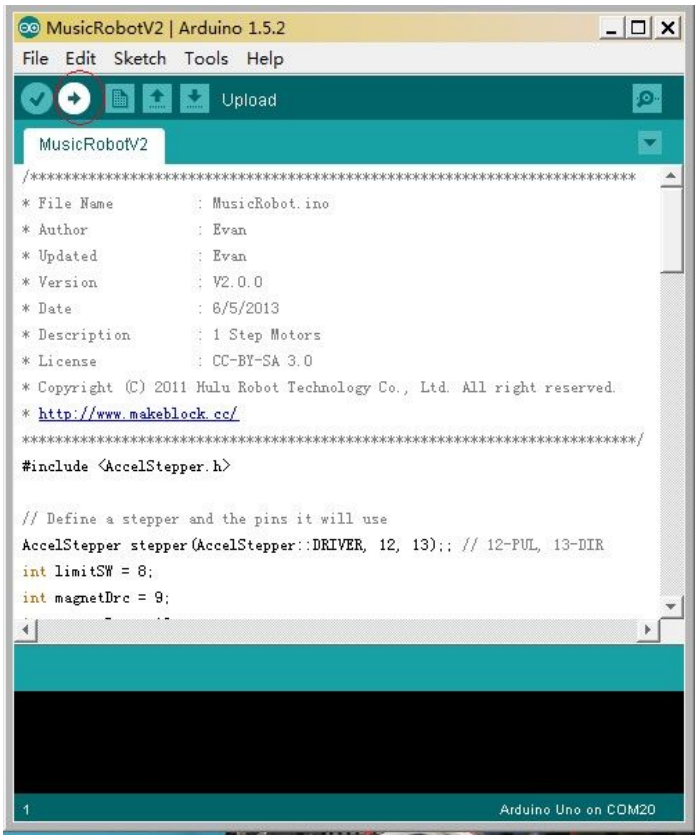
The Arduino Code and the application for windows can be downloaded here .

The Music Robot can also be controlled by the SmartPhone through the bluetooth, and the special application for Android Phone is in planning.









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Makeblock Walle by Makerworks

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How to make a XY-plotter with Makeblock by Makerworks