This document describes how to build Micon Raser2 Kit.

1. Tool

You should prepare tools to assemble Micon Racer2.
They are plus-screw driver (Phillips screw driver : size of Japanese standard No.2) and nippers.

2.Parts

No	Reference	Part name	Model name	Qty	Photo
1	Board with devices	Micon Racer2 board	MMCR-FS5	1	
2	Assembly parts	Plastic parts	Plastic parts	1	
3	Assembly parts	Tires	Tires	1	
4	Assembly parts	Metallic bar	Metallic bar	1	
5	Assembly parts	DC motors	HFA-130RA-2270	2	
6	Assembly parts	Screws	M3x8mm	8	
7	Assembly parts	Nuts	M3	8	
6	Tool to remove cell	Tool to remove cell	Cell remover (wooden bar)	1	

3.Assemble

3.1 Separate plastic parts
Cut out all plastic parts from runner as photo below.
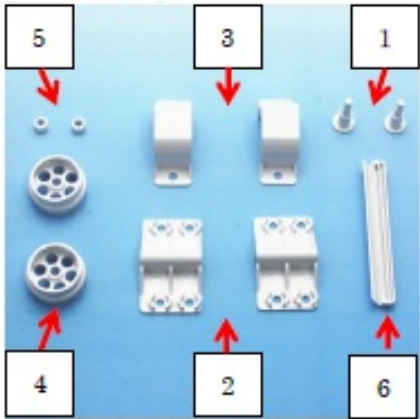
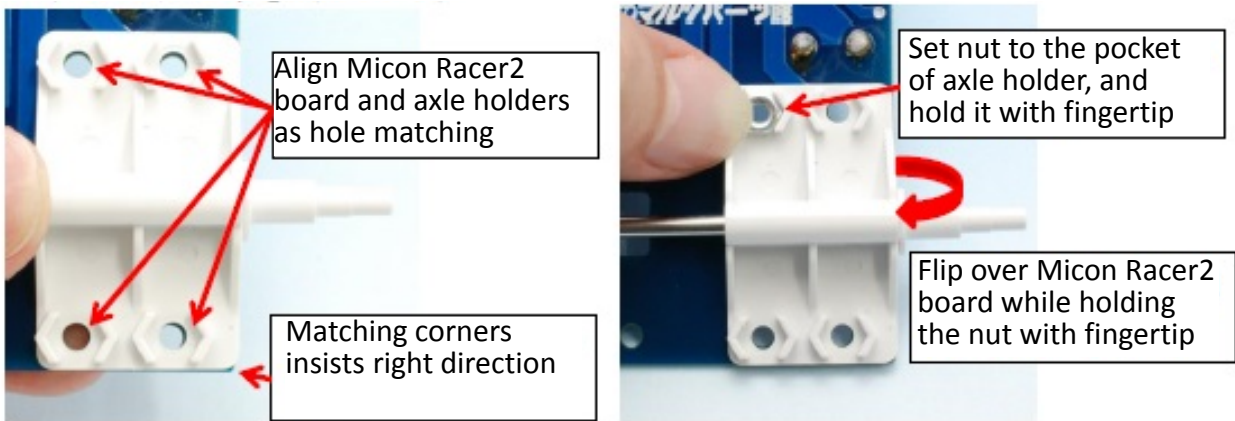| No.	Part name	Qty
1	Axle parts	2
2	Axle holders	2
3	Motor holder	2
4	Wheel for tires	2
5	Tire fixing parts	2
6	Front part	1

3.2 Build axle and bearing
Cover both side of metallic bar with Axle parts. Fix in axle parts firmly for non-idle.

Fix in axle parts firmly to both side of metallic bar
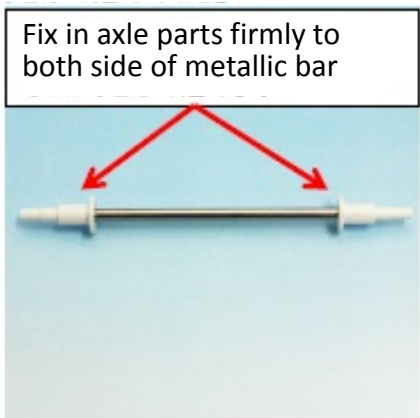
Fix axle holders with screws and nuts, tucking axle with Micon Racer2 board and axle holders.
Axle holders are not symmetric parts. As right direction adjusting the holes of Micon Racer2 board and axle holder, corners are aligned. Set nuts to the pocket of axle holders, and flip Micon Racer2 board while holding the nut with fingertip.

Align Micon Racer2 board and axle holders as hole matching

Matching corners insists right direction

Set nut to the pocket of axle holder, and hold it with fingertip

Flip over Micon Racer2 board while holding the nut with fingertip

Sink a screw to the holding nut, and screw down clock wise with plus-screwdriver to fix axle holder. As same operations for other three points, completion of mounting axle and axle holders on Micon Raser2 board.
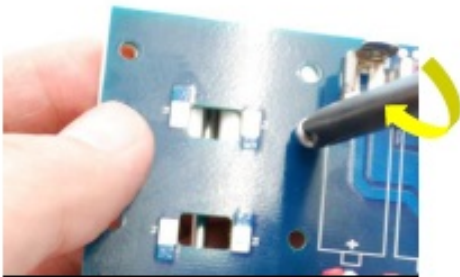
Fix axle holder screwing down with plus-screwdriver.

Completion of mounting axle and axle holders on Micon Racer2 board

3.3 Mounting motors
Set motors on Micon Racer2 board, and fix them with U-shape motor holders.
Set Motors as their terminals contact to lands of Micon Racer2 board firmly. If the terminals are bending, stretch them. Set nuts to the outside pocket of axle holders, and flip Micon Racer2 board while holding the nut with fingertip.

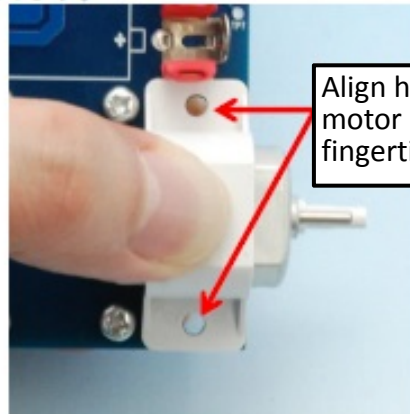Confirm terminals are not bending
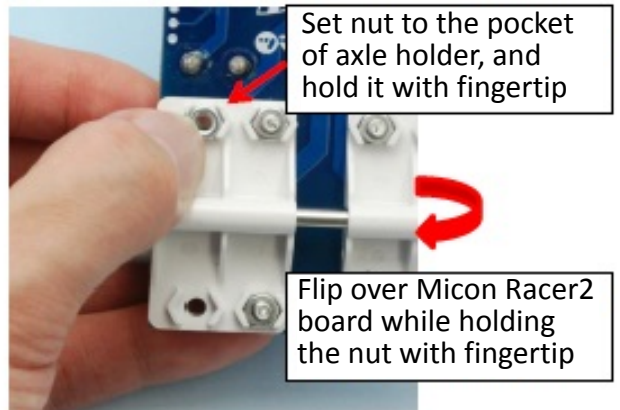
Set nut to the pocket of axle holder, and hold it with fingertip

Flip over Micon Racer2 board while holding the nut with fingertip

Place motor on Micon Racer2 board as putting boss of motor into cutout.
Tuck motor with Micon Racer2 board and motor holder.
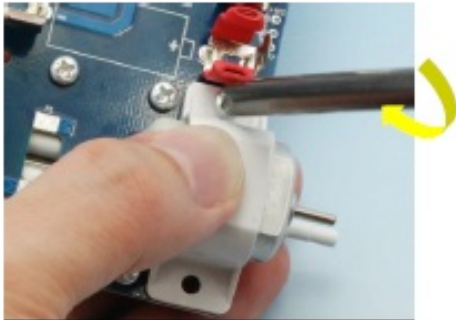

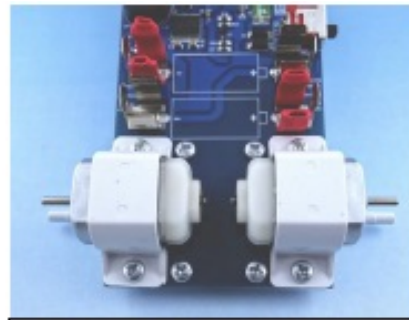Place motor as putting boss of motor into cutout

Align holes and hold motor holder with fingertip

As same operations for other three points, completion of mounting motors on Micon Raser2 board.
l

Fix motor holder screwing down with plus-screwdriver.

Completion of motor mounting

3.4 Tires
Assemble tires with combination of plastic wheel and tire, and put them on.

Cut off tire from runner.

Fit tires and wheels

Tires are not symmetry parts, having in/out sides.
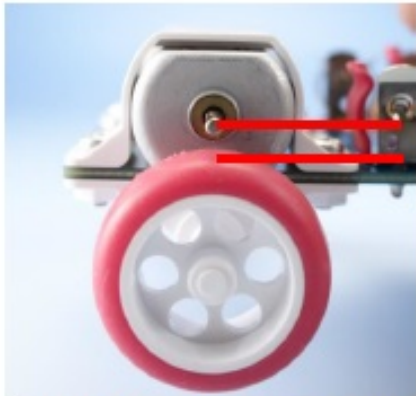Inside of wheel has a bulge of axle pipe.

Inside of wheel has a bulge of axle pipe.

Mount tires to Micon Racer2 with tire fixing parts.

While Micon racer2 is holding as suspending, motor shaft doesn't touch tire.
While it's placed on, motor shaft touches tire, and power is translated.

While Micon racer2 is holding as suspending, motor shaft doesn't touch tire.

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3.5 Front part
Put front part on Micon racer2 instead of front tires, as below photo.
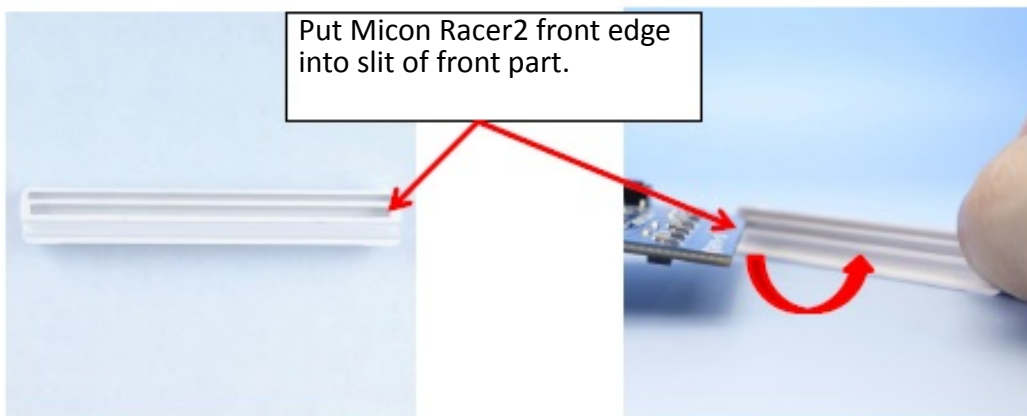
Put Micon Racer2 front edge into slit of front part.

Front part has two slits. Both slits are available, but heights differ, 3mm or 5mm. The height defines the distance of IR sensor and truck surface. You can select them according to the circumstances, such as brightness or lights condition. You should select as the sensors work correctly.
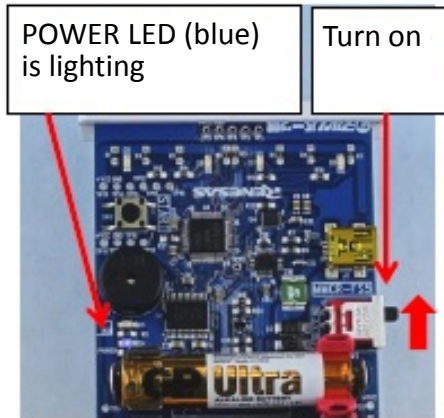

5mm
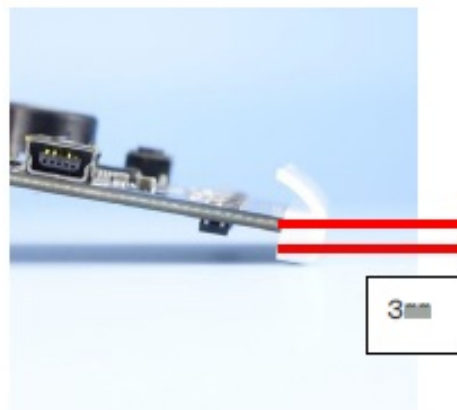
3mm

4. Completion (Turn on)

After assemble completion, set cells and turn on. When it turns on, the POWER LED (blue) is lighting.
Caution:
Initially Micon Racer2 programmed with test-program. So, if you push on on-board push switch, it start running.

POWER LED (blue) is lighting

Turn on

LEDs(red) are lighting according to sensor working
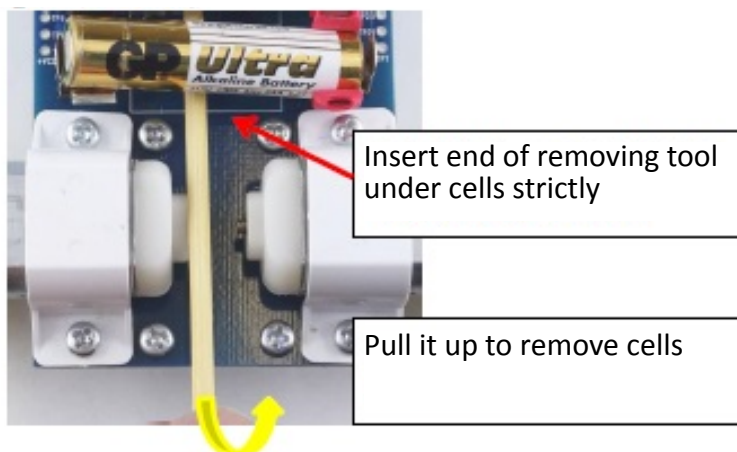
Assembling is completed.
Next step is programming.

5. Replacement cells

Caution:
Removing cells with finger may cause trouble of wounding. Use Cell remover for safe replacement of cells.
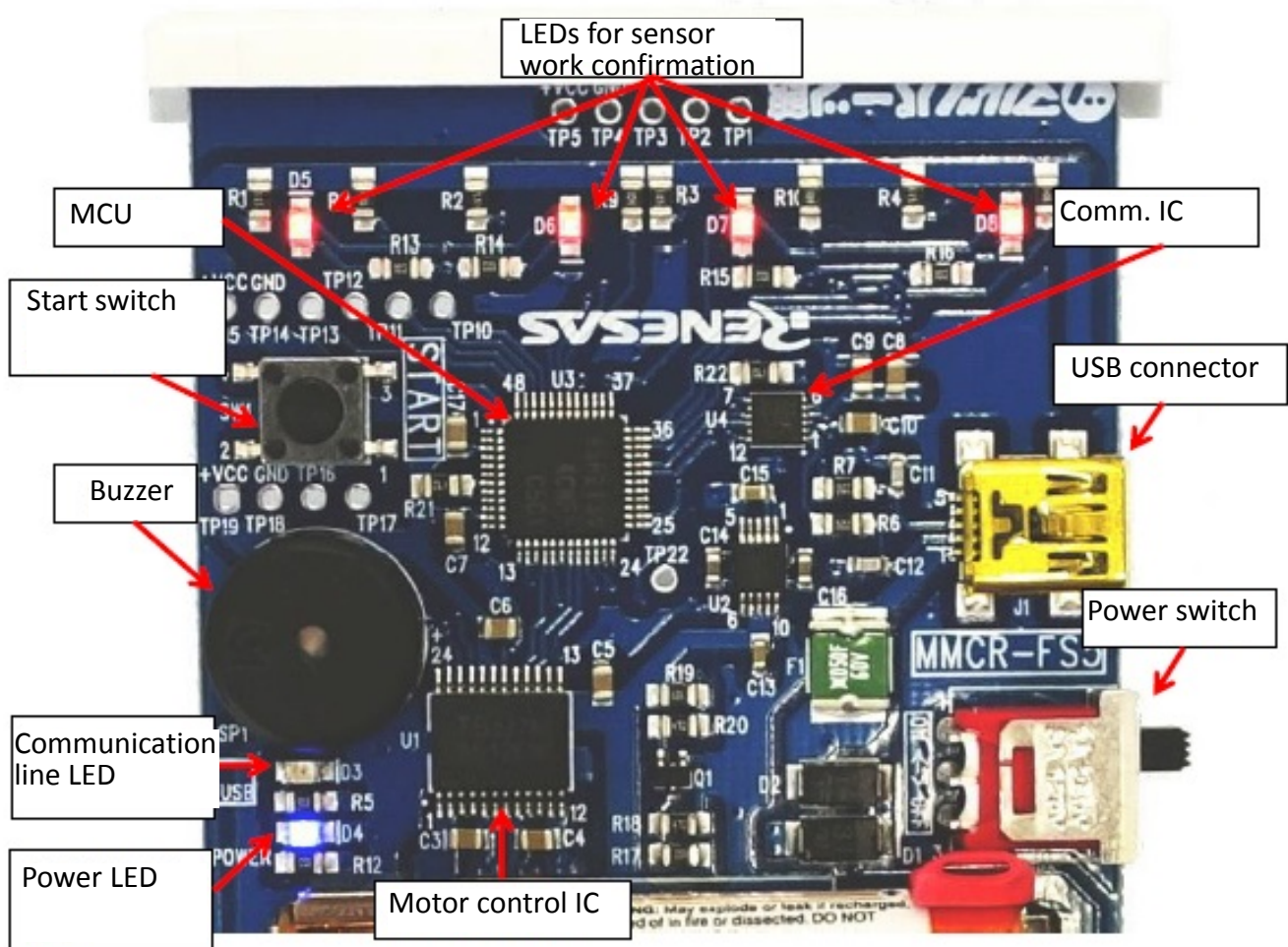As photo below, insert end of Cell remover under cells strictly, and pull up to remove cells.

Insert end of removing tool under cells strictly

Pull it up to remove cells

6. Description of electronic parts

Front part of Micon Racer2 consists advanced electronic parts. Wrong operation may cause failure.

Caution:

1. Do not wet. Liquid affect them badly.
2. Easily damaged by static electricity. Much static electricity charges to human body, especially winter season with nit sweater. The electricity may damage Micon Racer2.
3. Handle with care
4. Plug in/out USB cable carefully.
5. Do not let running motor to stop forcedly. Forced motor stopping may cause large current in electric circuits. It may burn ICs.