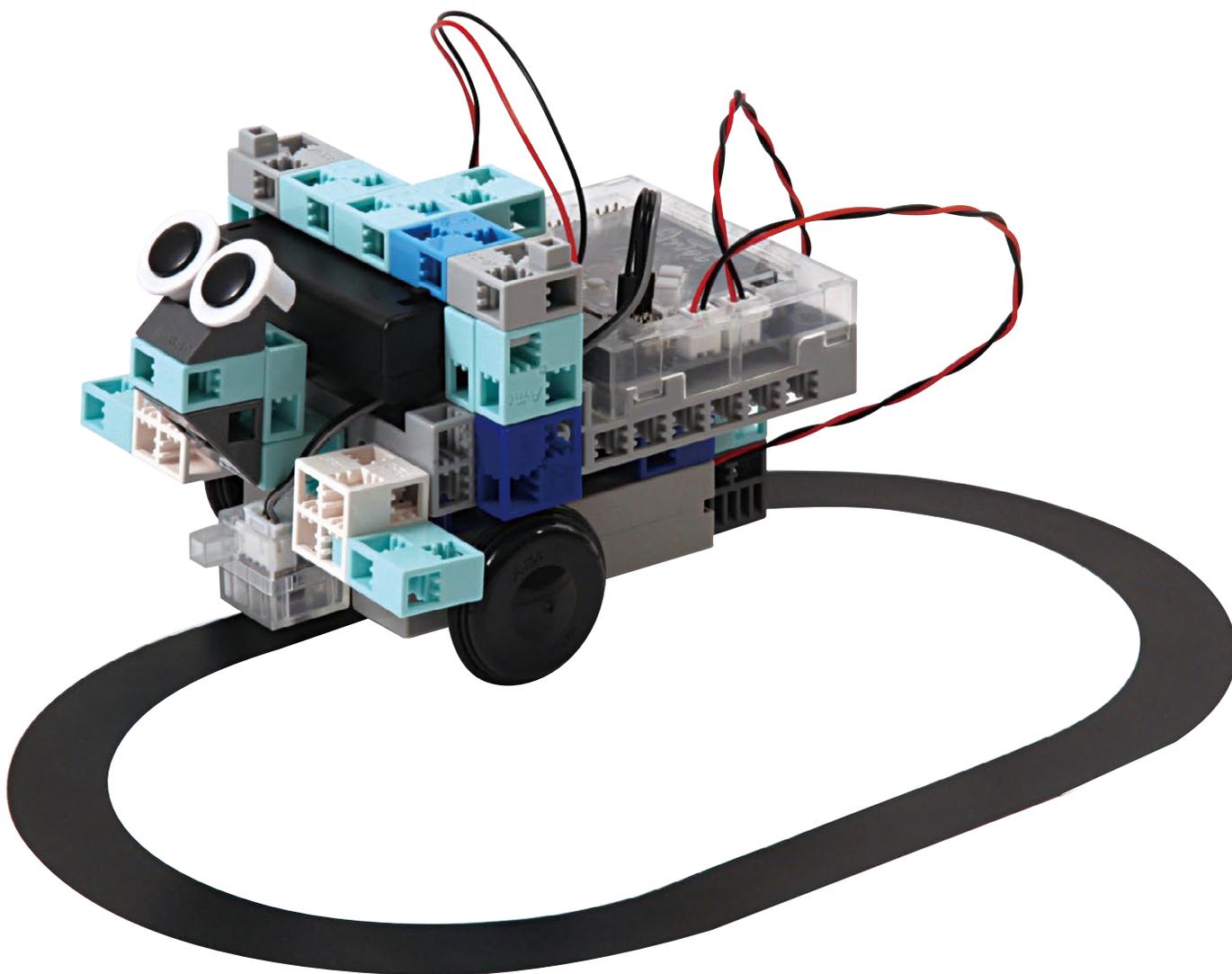


# Line Tracer

## Assembly Instructions



**Artec Co., Ltd.**

Address: 3-2-21 Kitakamei-cho, Yao-shi, Osaka  
581-0066 Japan

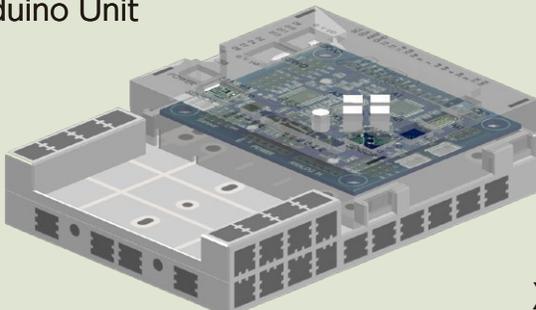
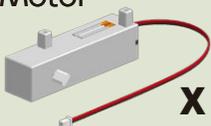
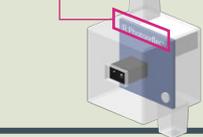
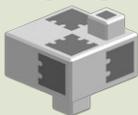
E-mail: [export@artec-kk.co.jp](mailto:export@artec-kk.co.jp)

Website: [www.artec-kk.co.jp/en](http://www.artec-kk.co.jp/en)

**Artec**<sup>®</sup> is a registered trademark of Artec Co., Ltd.  
in multiple countries including Japan, South Korea,  
Canada, and the USA.

# Line Tracer

## Components

 <p>Studuino Unit</p> <p><b>x 1</b></p>	 <p>Battery Box</p> <p><b>x 1</b></p>	 <p>USB Cable</p> <p><b>x 1</b></p>	
	 <p>DC Motor</p> <p><b>x 2</b></p>	 <p>Sensor Connecting Cable (three-wire 15 cm)</p> <p><b>x 1</b></p>	
 <p>Reflective Infrared Sensor IR Photorelector</p> <p><b>x 1</b></p>	 <p>Basic Cube (white)</p> <p><b>x 2</b></p>	 <p>Triangle A (gray)</p> <p><b>x 3</b></p>	
 <p>Half A (light gray)</p> <p><b>x 2</b></p>	 <p>Half B (blue)</p> <p><b>x 6</b></p>	 <p>Half C (light aqua)</p> <p><b>x 13</b></p>	 <p>Half D (aqua)</p> <p><b>x 1</b></p>
 <p>Hub</p> <p><b>x 2</b></p>	 <p>Wheel</p> <p><b>x 2</b></p>	 <p>O-ring</p> <p><b>x 2</b></p>	 <p>Disk</p> <p><b>x 2</b></p>

## Assembly Instruction Labels

**x 1**

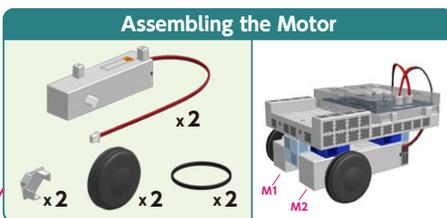
Shows the parts needed for assembly. Indicates the number of parts needed for assembly.



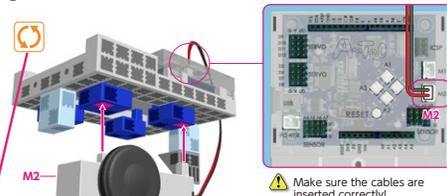
Indicates tips or warning when building a specific item.

**Line Tracer**

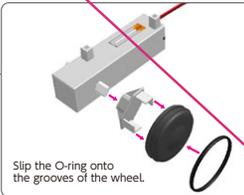
**Assembling the Motor**



① Connect the assembled DC Motor to M2.



⚠ Make sure the cables are inserted correctly!



Slip the O-ring onto the grooves of the wheel.

05

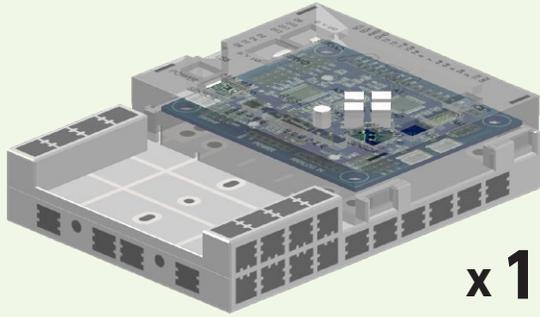
Shows an image of the completely assembled item.



Indicates when the direction of a component must be changed for assembly.

# Line Tracer

## Body Assembly (bottom)



x 1



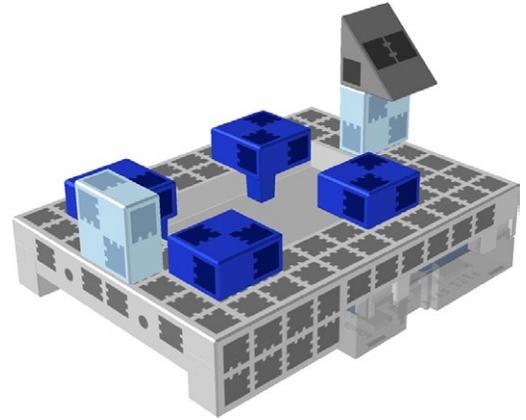
x 4



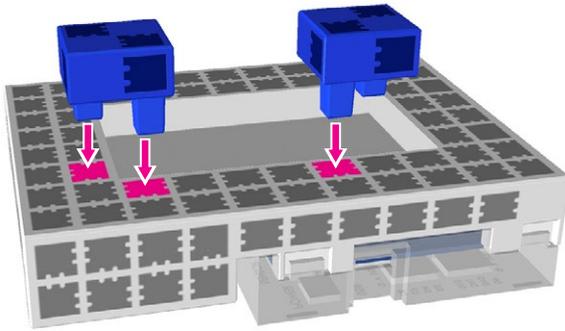
x 2



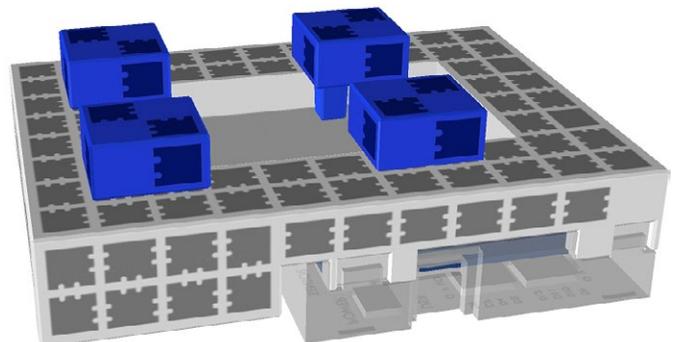
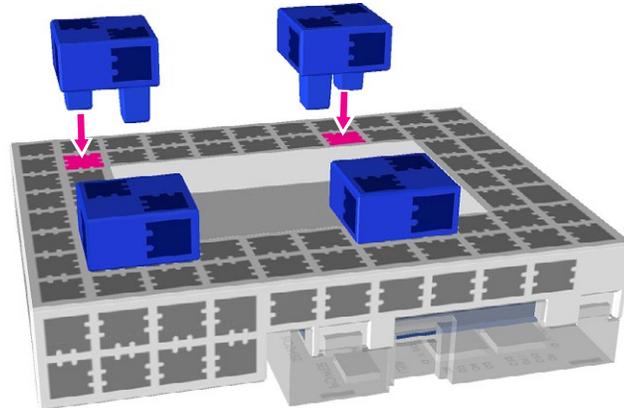
x 1



①

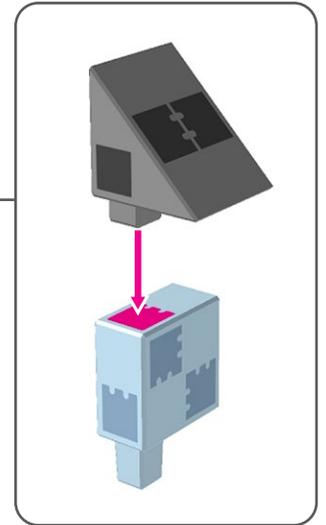
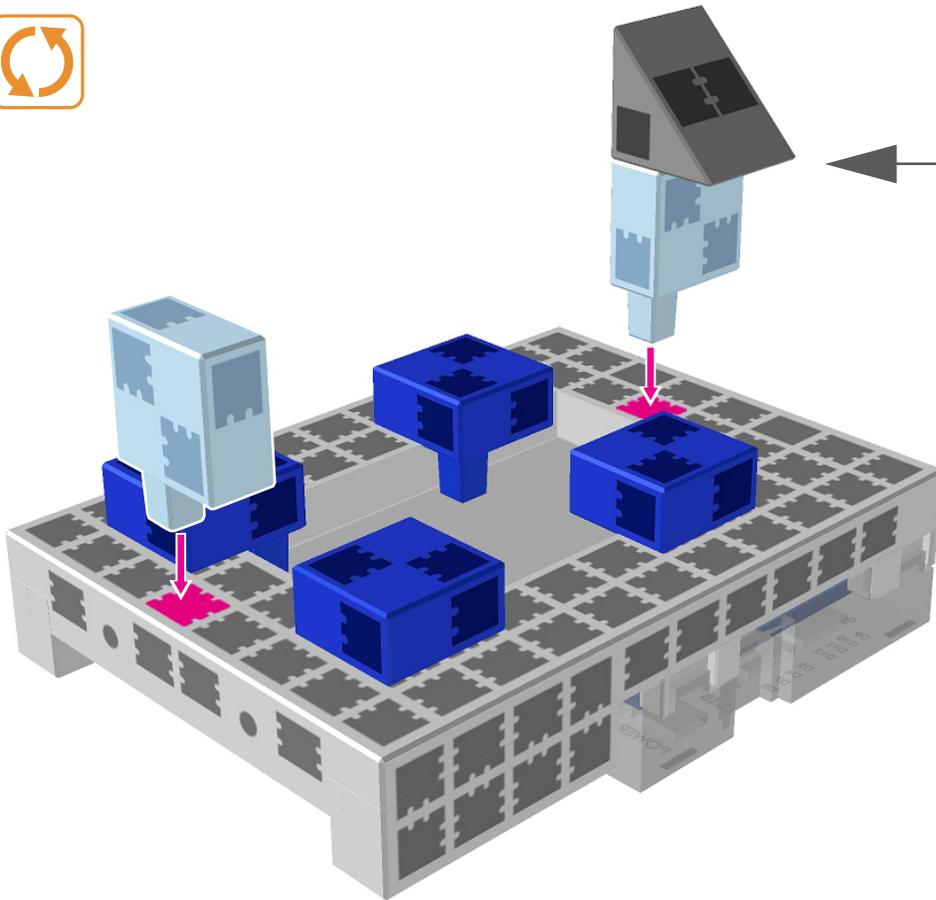


Make sure the Studuino unit is in the correct orientation!

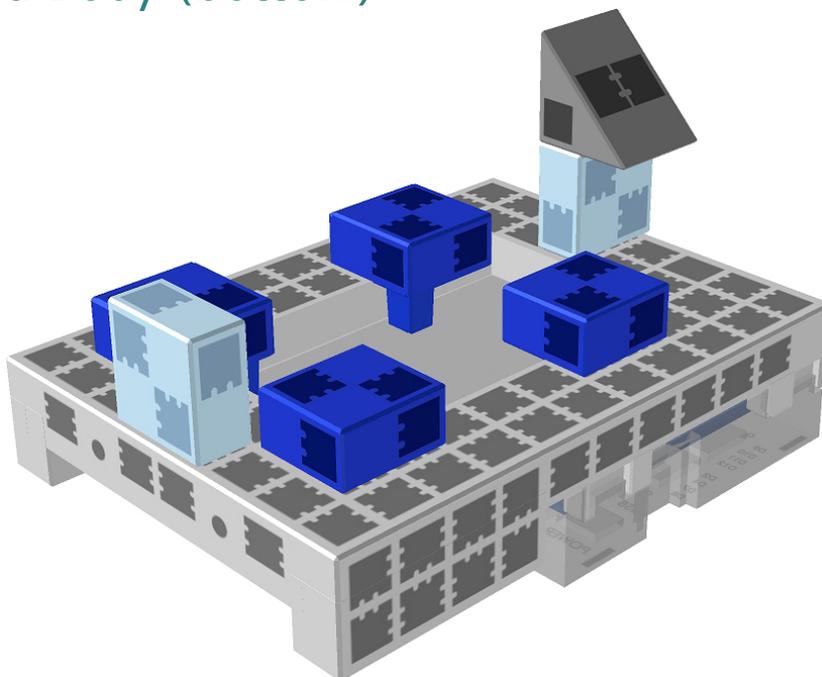


# Line Tracer

②

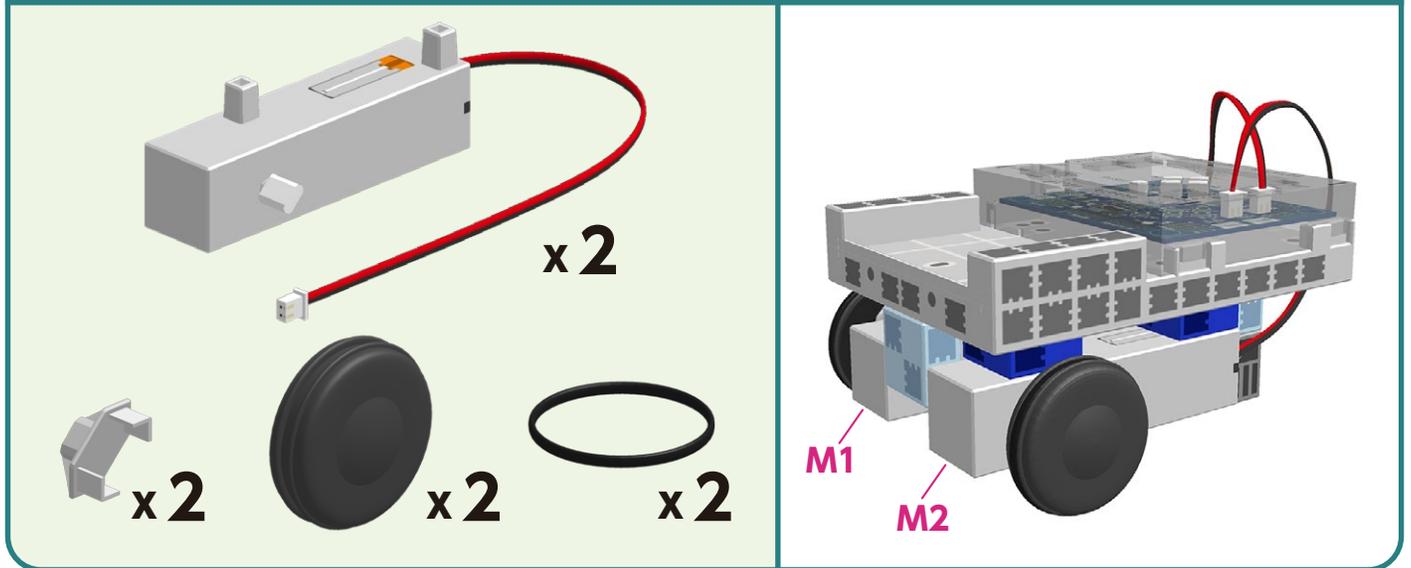


Completed Body (bottom)

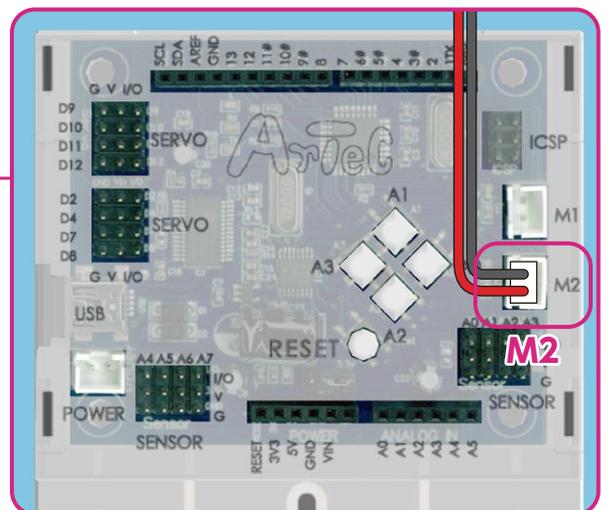
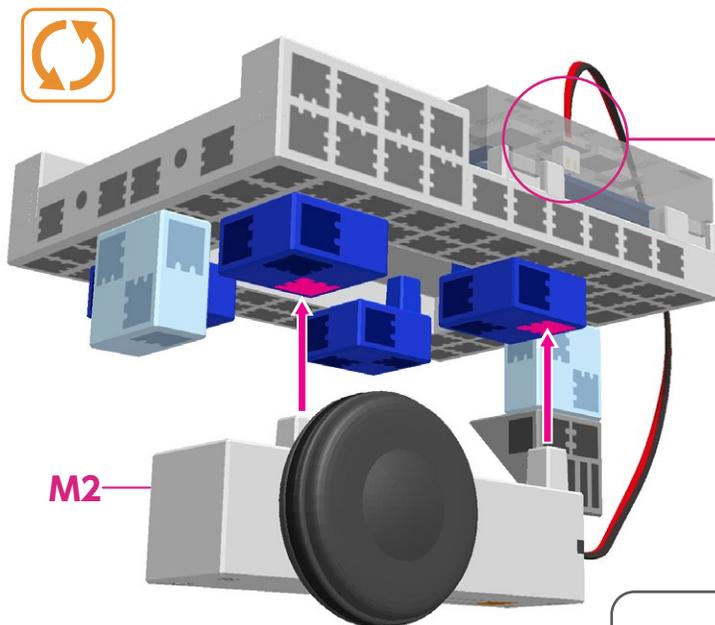


# Line Tracer

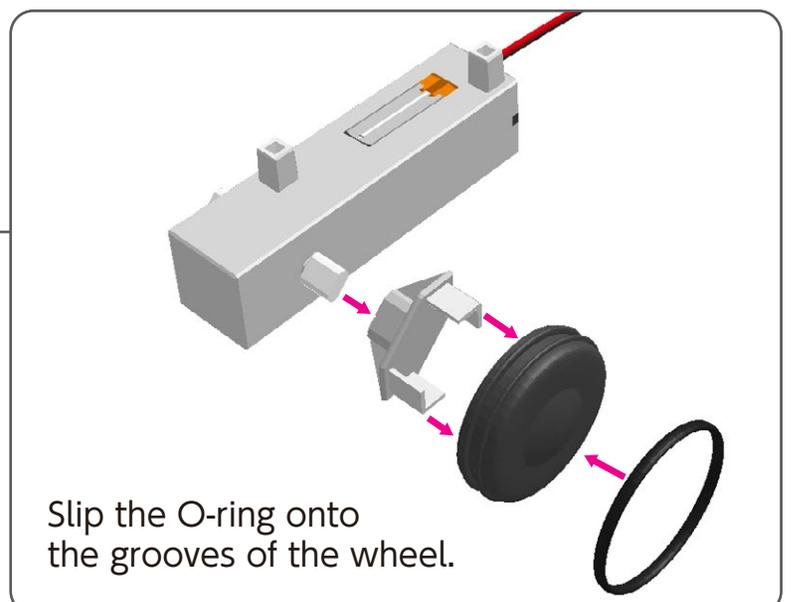
## Assembling the Motor



① Connect the assembled DC Motor to **M2**.

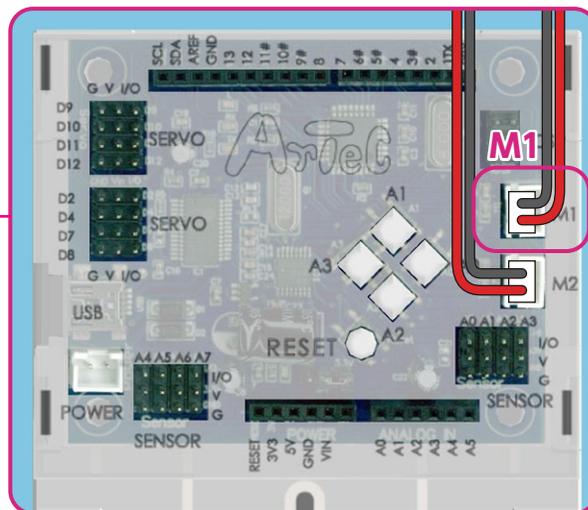
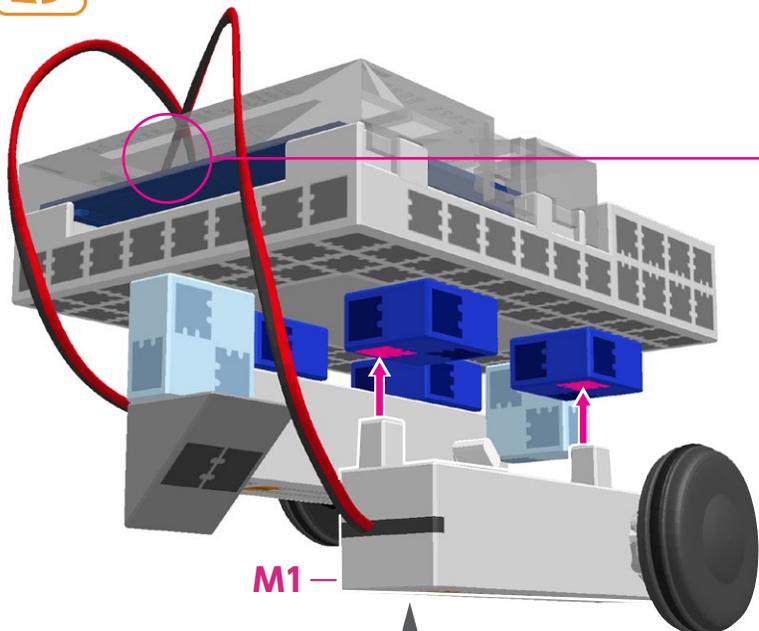


⚠ Make sure the cables are inserted correctly!

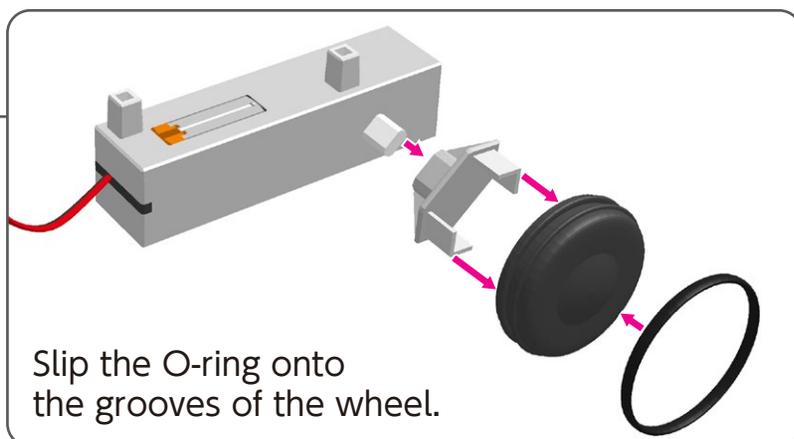


# Line Tracer

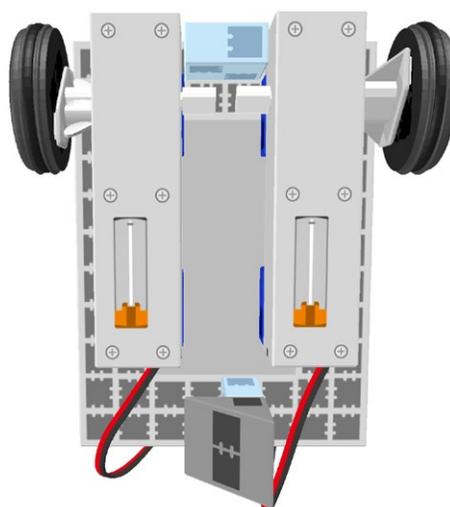
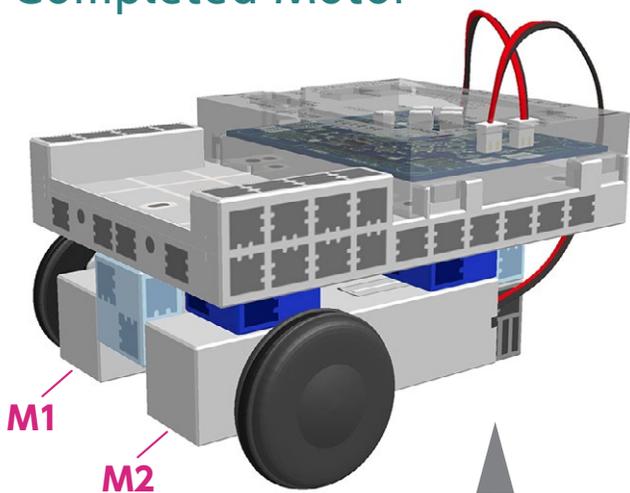
② Connect the assembled DC motor to **M1**.



 Make sure the cables are inserted correctly!



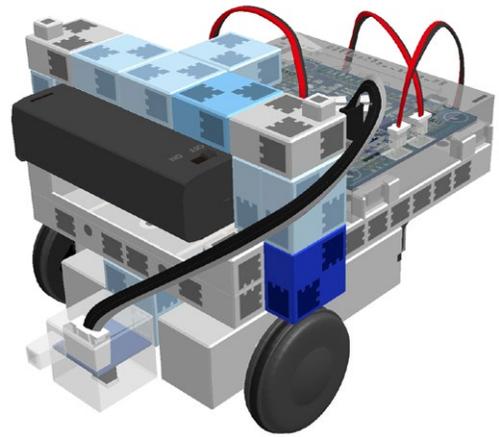
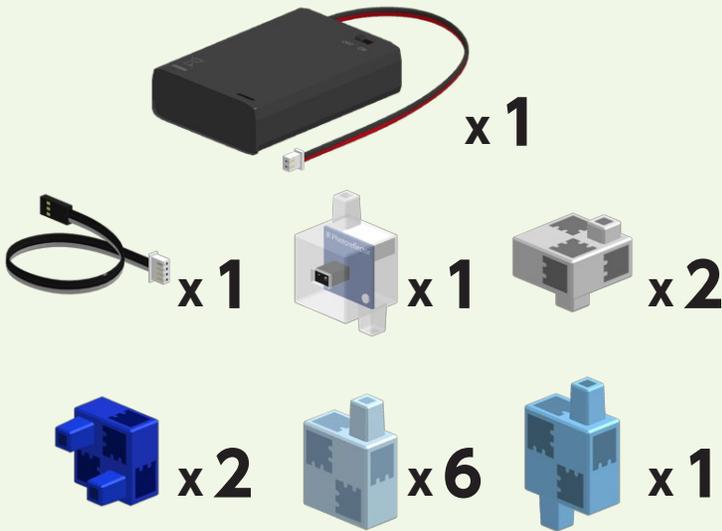
## Completed Motor



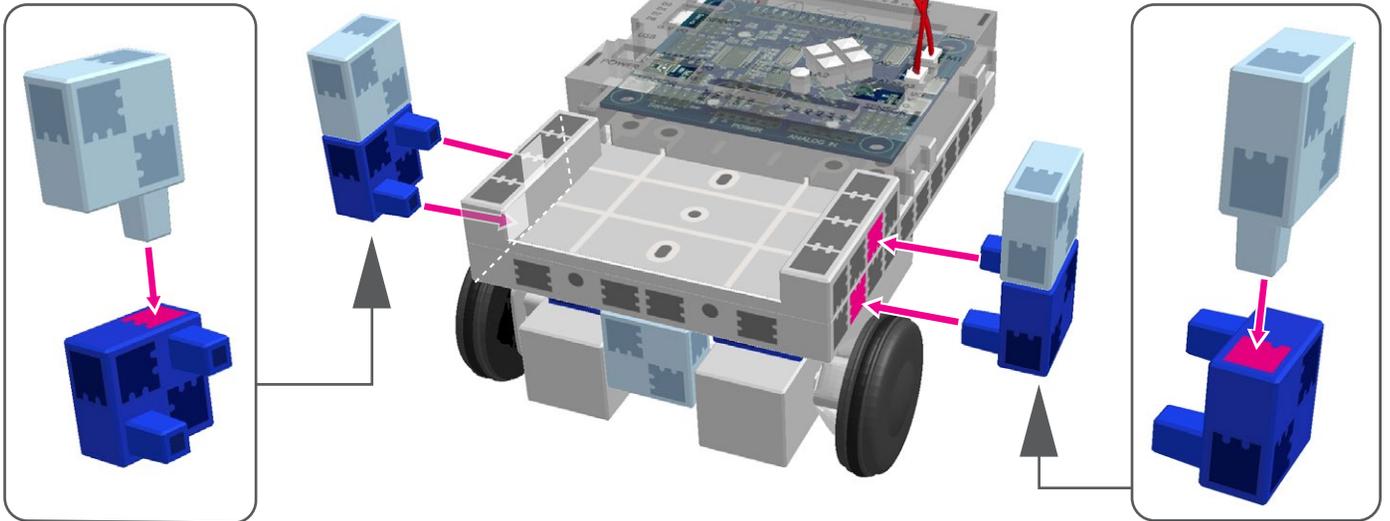
Back

# Line Tracer

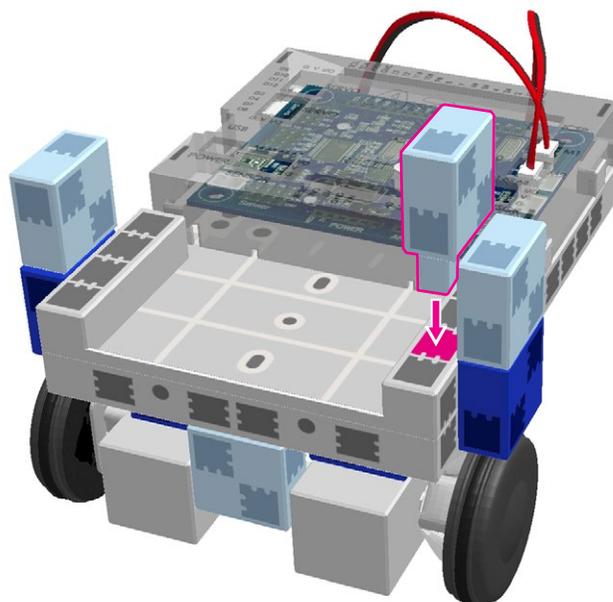
## Body Assembly (front)



①



②

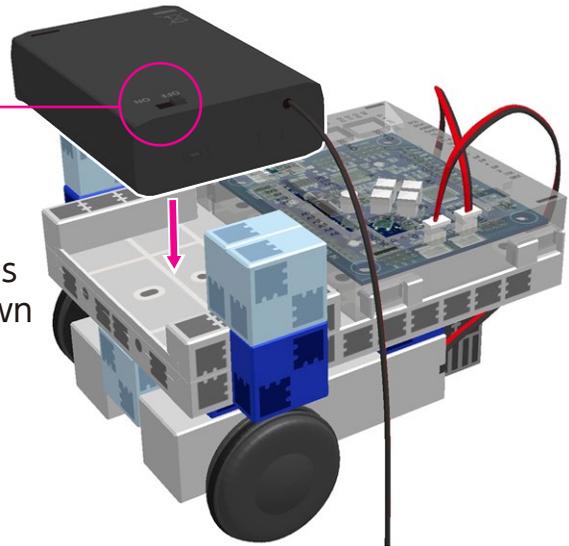


# Line Tracer

3

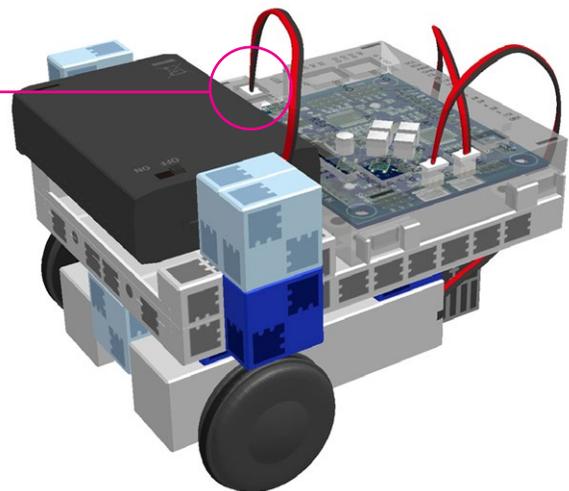
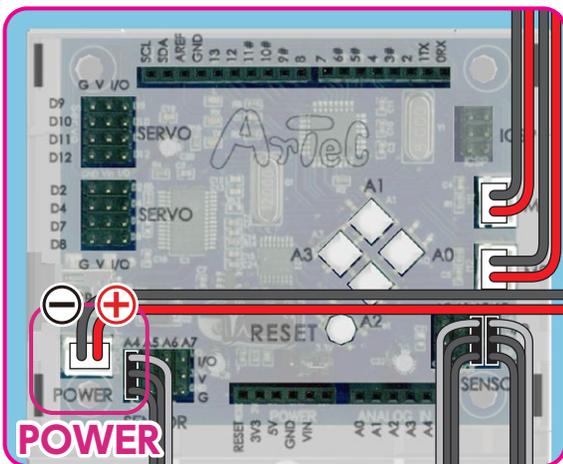


Be sure the battery switch is facing the direction as shown in the picture.



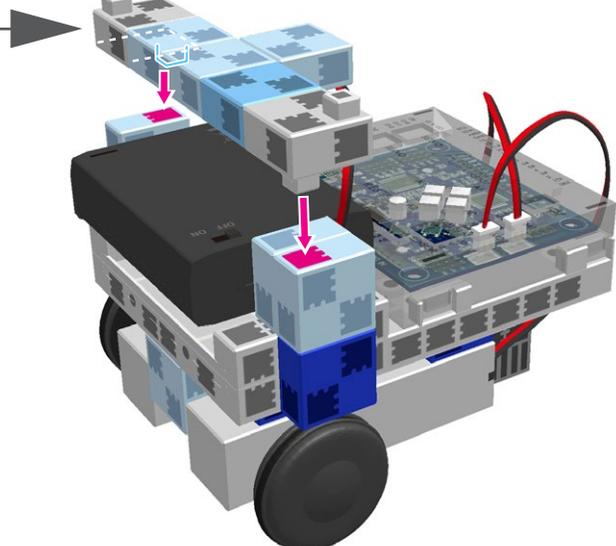
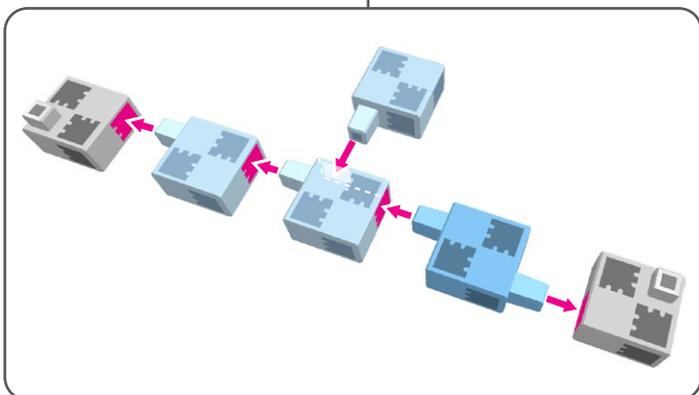
4

Connect the cables from the battery box to the **POWER** section.



Make sure the cables are inserted correctly!

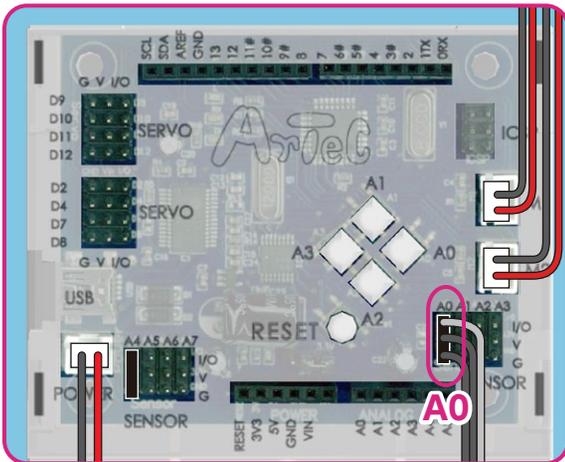
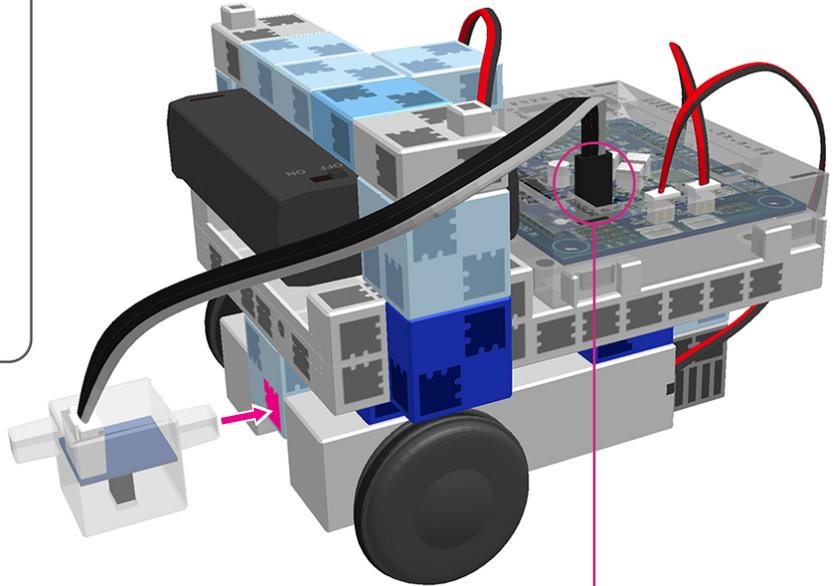
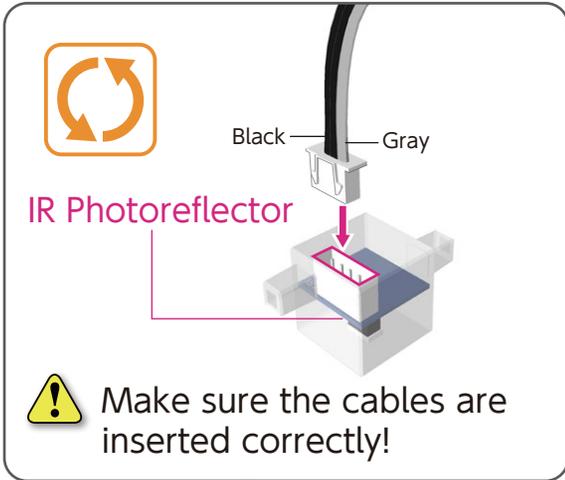
5



# Line Tracer

- 6 Connect the reflective infrared sensor ( IR Photorelector ) to **A0**.

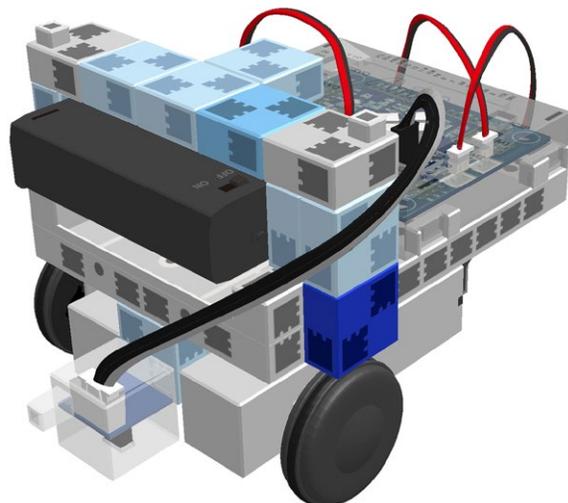
## Sensor Connecting Cable



! Make sure to place the gray cable in the correct orientation!

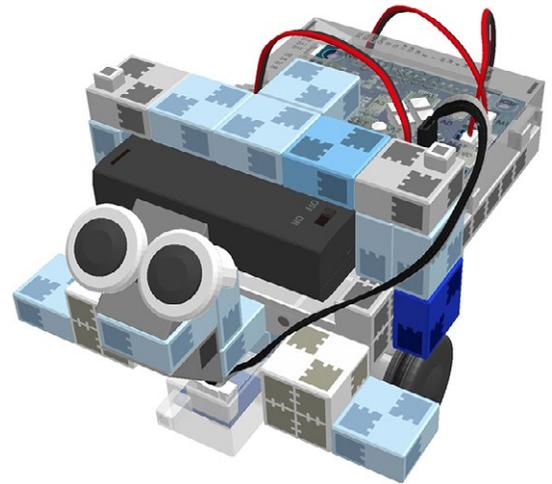
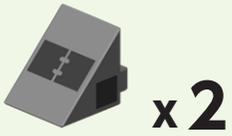
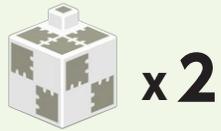
## Completed Body (front)

! Make sure the sensor cables are on the sides of the car body.

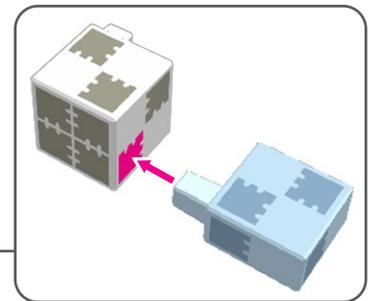
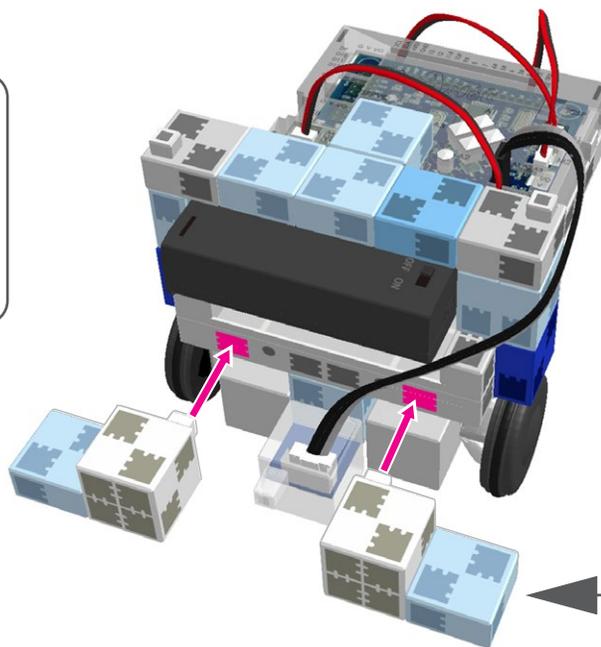
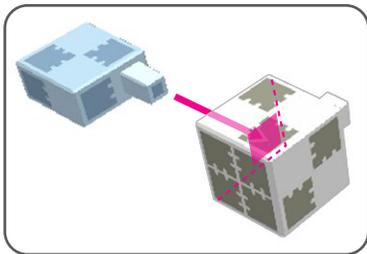


# Line Tracer

## Assembling the Head and Arms

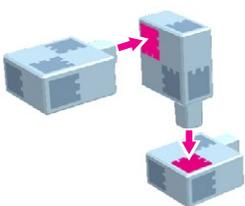


①

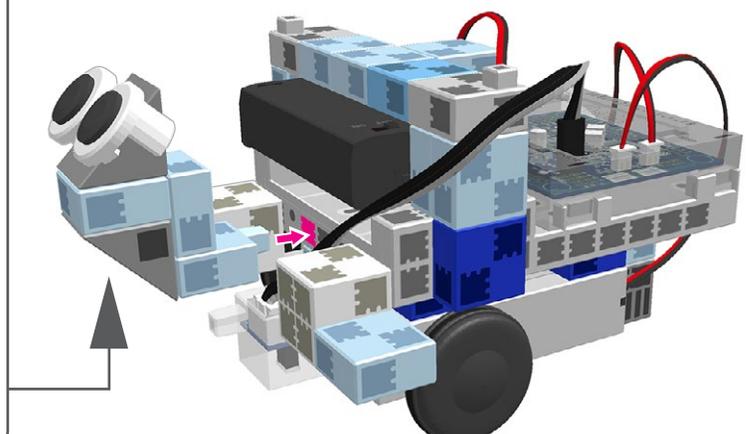
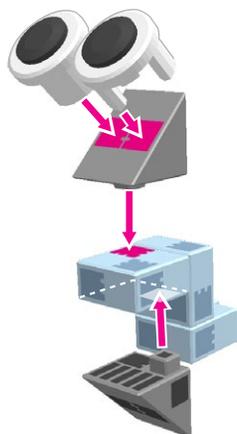


②

1.



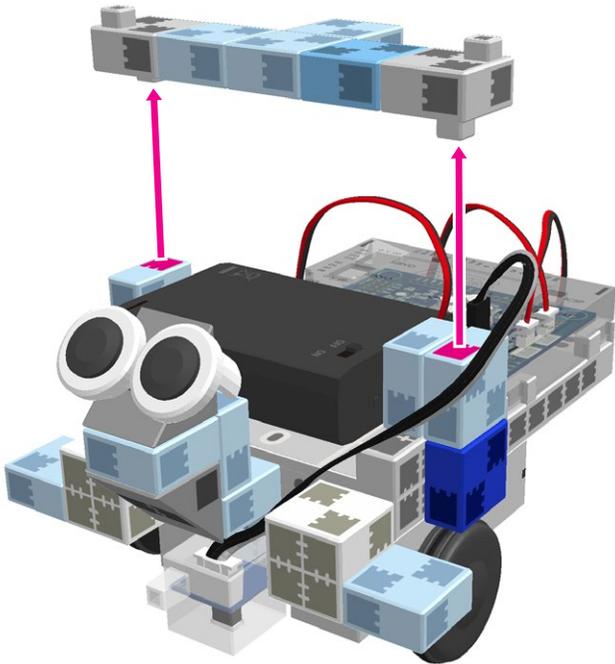
2.



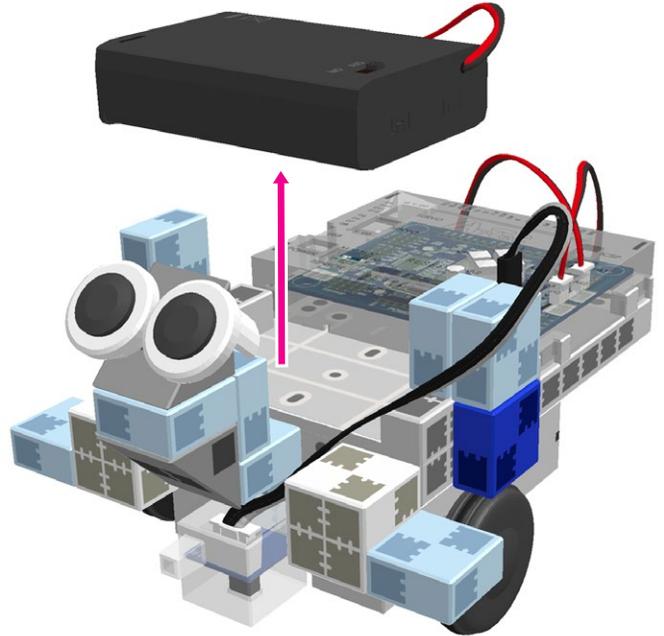
# Line Tracer

## Replacing the Batteries

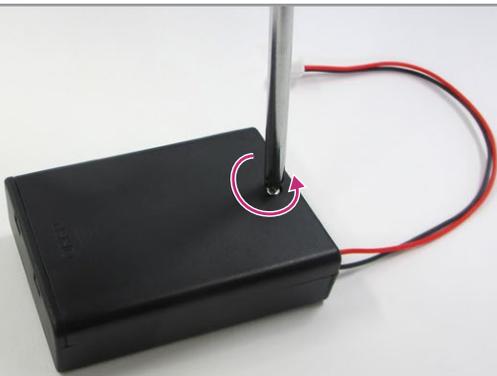
①



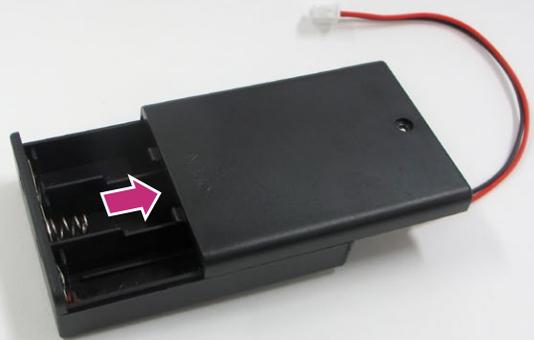
②



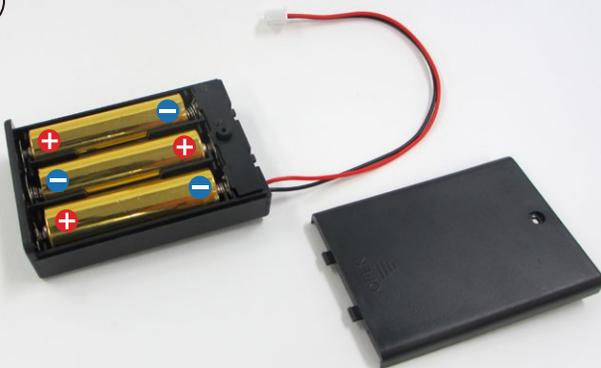
③



④



⑤



Use a screwdriver  
(Phillips #1) to open.



Insert batteries in the  
correct polarity.

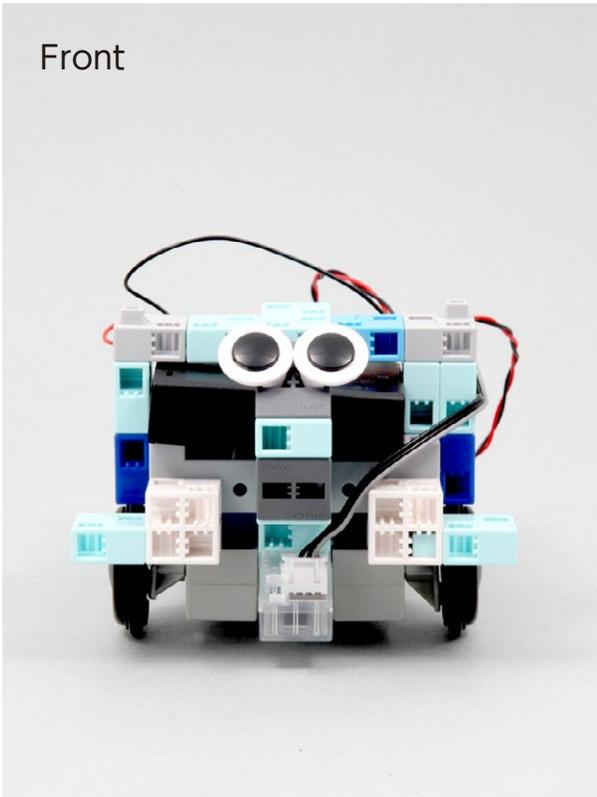
Put the lid of the battery  
box back in place.

# Line Tracer

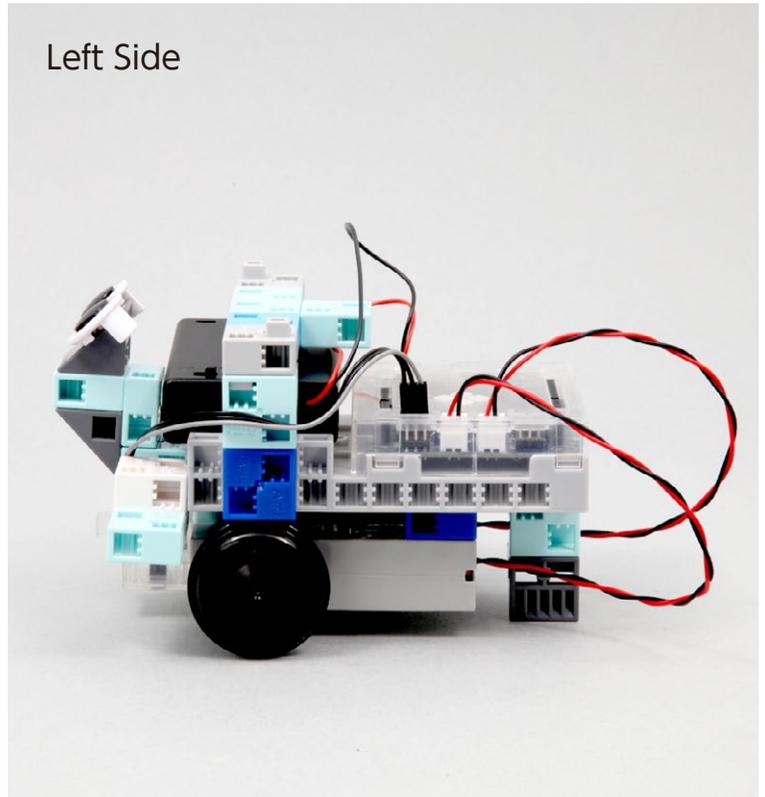
## Completed Line Tracer

- ⚠ Be cautious of cables that could become entangled in the moving parts of the motor and cause the robot to disconnect. Take care when arranging cables.
- ⚠ Before operating your robot, check the assembling instructions again to confirm your robot has been assembled correctly.

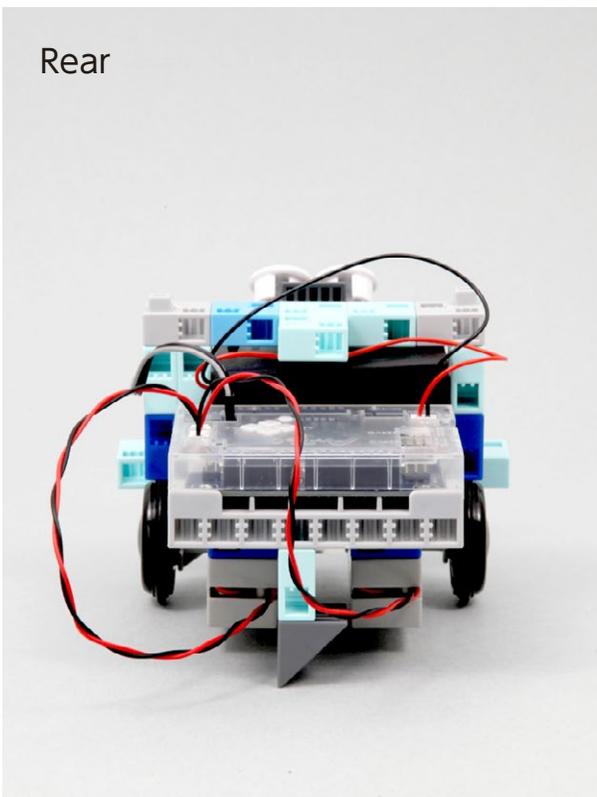
Front



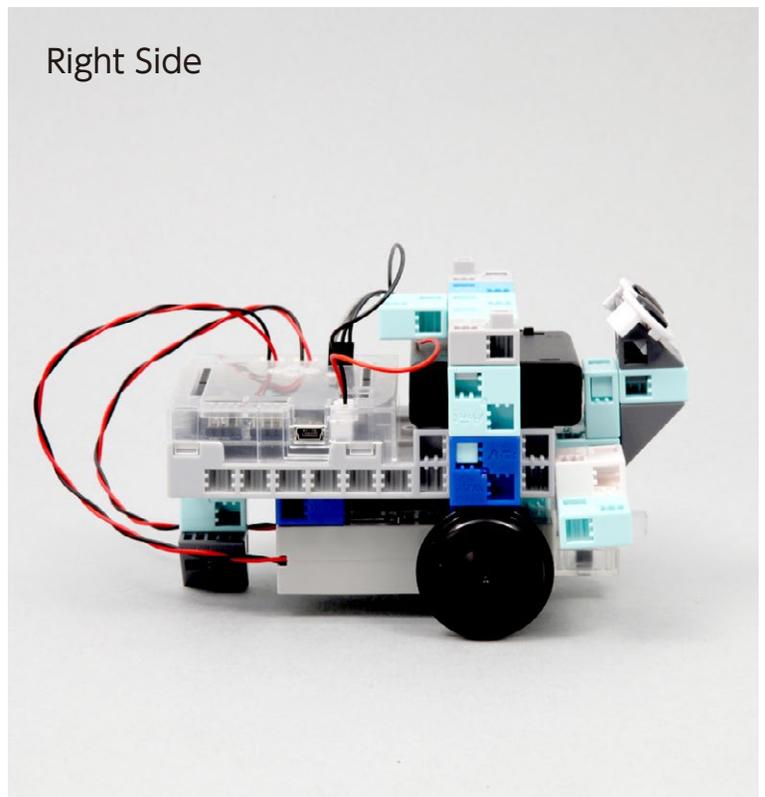
Left Side



Rear



Right Side



# Line Tracer

## Making Your Line Tracer Run

Install the software from the URL below to setup the **Studuino Programming Environment**.

★ Proceed to Step 1 when software installation is complete.

<http://www.artec-kk.co.jp/studuino/>

- ① Connect the USB cable to the PC and the Studuino unit.  
Refer to **1.3 Studuino** in **Studuino Programming Environment Manual** for more details.
- ② Download the program file **LineTracer.ipd** from the URL below in the **ArtecRobo** section.

<http://www.artec-kk.co.jp/artecrobo/>

- ③ Open the downloaded file.

- ④ Transfer the program to the Studuino unit by clicking the Transfer button .



- ⑤ Remove the USB cable from the Studuino unit.

# Line Tracer

## Making Your Line Tracer Run

- ⑥ On the last page of the instructions there is an A4 size printout of a run course for your robot.

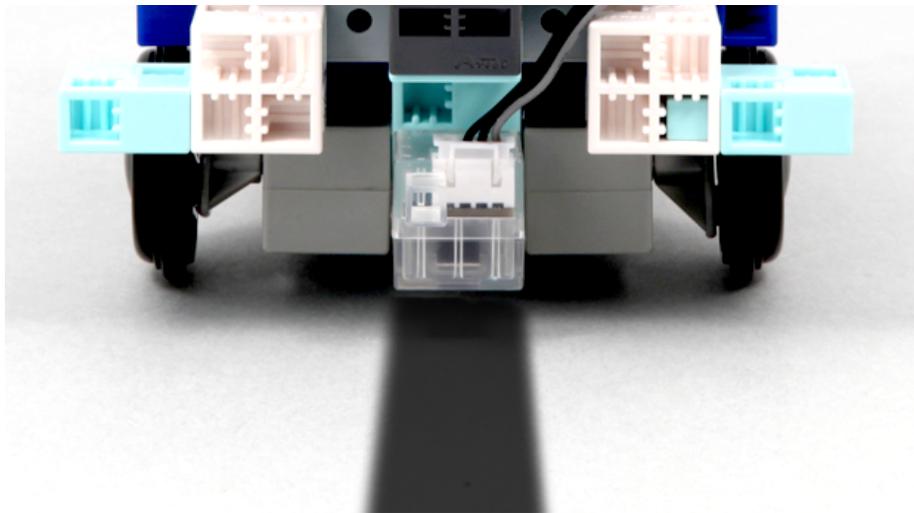
★ Your Line Tracer may have trouble detecting a course printed on glossy paper or using an inkjet printer. If your robot is having trouble, try reprinting your course on non-glossy paper or retracing the course using a magic marker!

If you cannot print out the course, you can draw your own. Draw the lines of the run course using a thick, black marker and white paper.

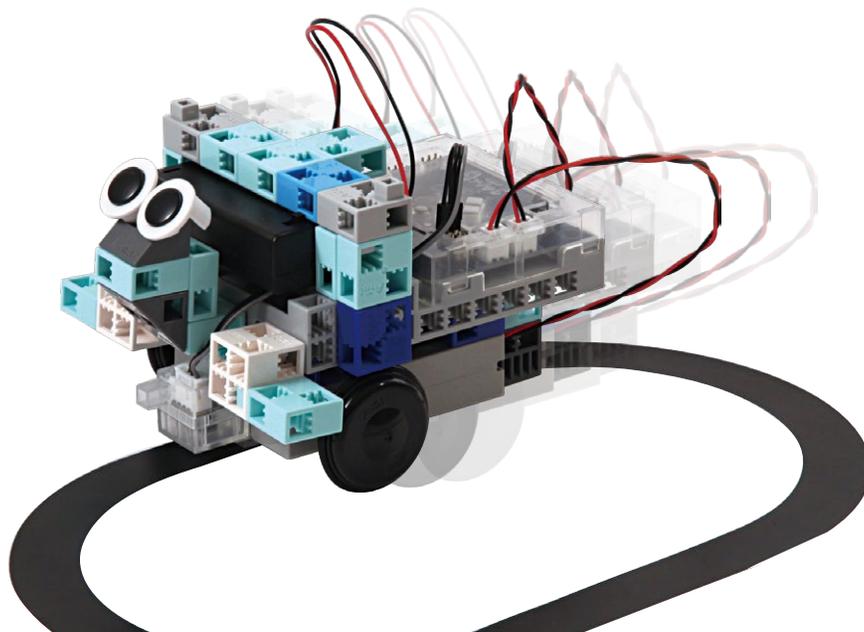
The thickness of the lines should be 20 mm or more.

Your robot cannot make sharp turns.

- ⑦ Place the robot onto the course where the left and right reflective infrared sensor can detect the course line.



- ⑧ Turn the switch of the battery box on and your robot will start walking.



# Line Tracer

## Sensor Calibration

Some sensors may not function properly after you run the program for the first time. If the sensors are malfunctioning, calibrate the sensor settings.



Click the corresponding sensor and you will see a box to adjust the range settings.

Drag the mouse left or right to adjust the range settings.

Refer to the **Condition Icon** sections in **4.4. The Attribute Field** of the **Studuino Programming Environment Manual** for more details.

