

smorphi

transforming learning with
transformer robots

assembly & info

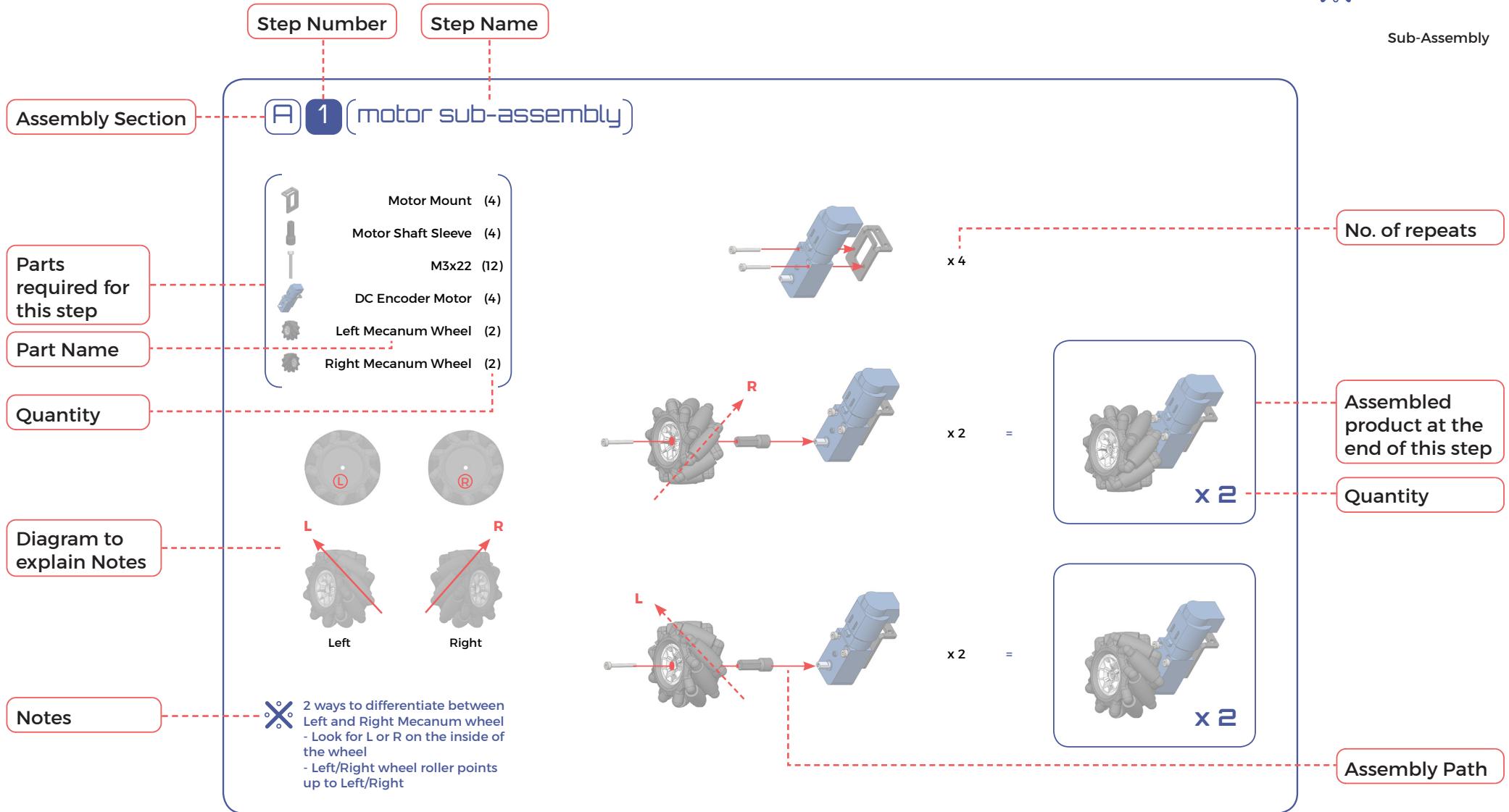
(contents)

BASIC ASSEMBLY TIPS	(02)
SMORPHI ASSEMBLY	
A MECHANICAL	(03)
B ELECTRONIC	(07)
APP	(14)
FURTHER EXPLORATION	(19)

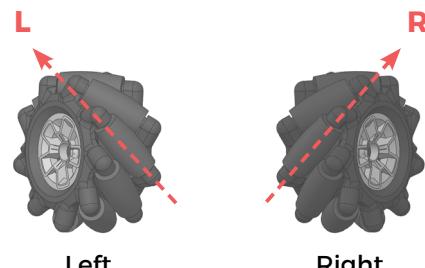
(basic assembly tips)

Symbols Used

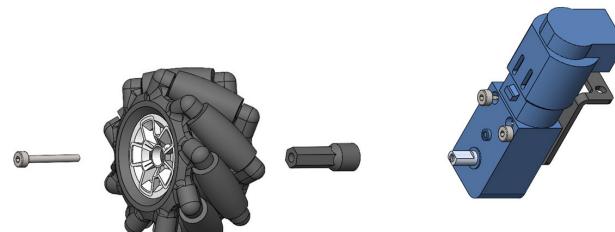
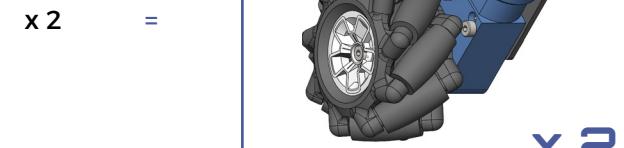
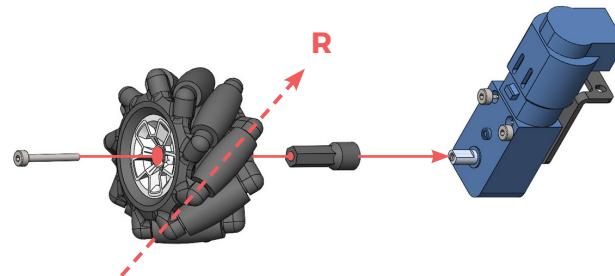
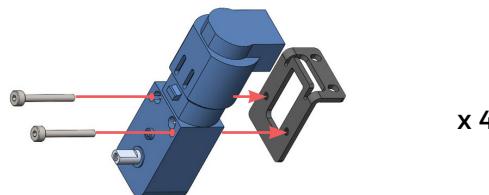
- ↷ Rotate Part
- Assembly Path
- ☒ Important Note
- Sub-Assembly



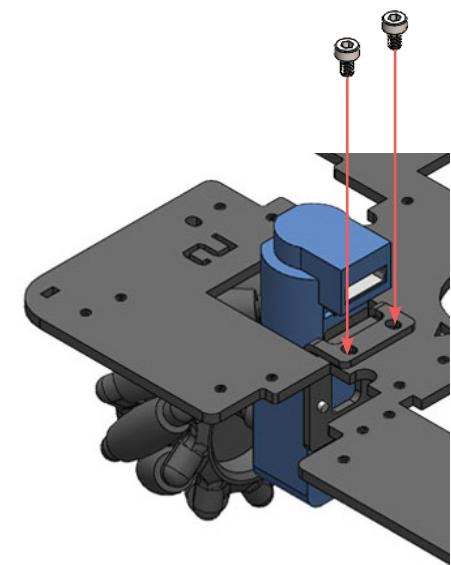
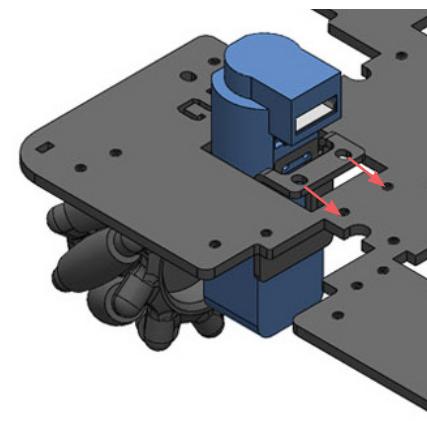
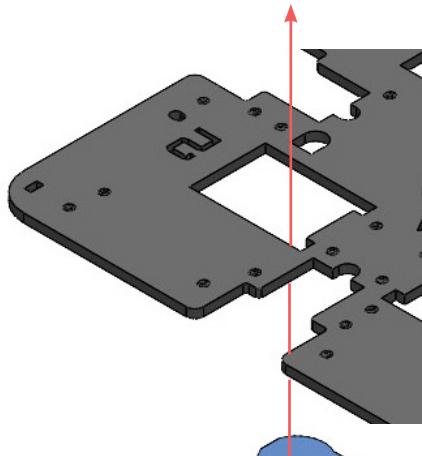
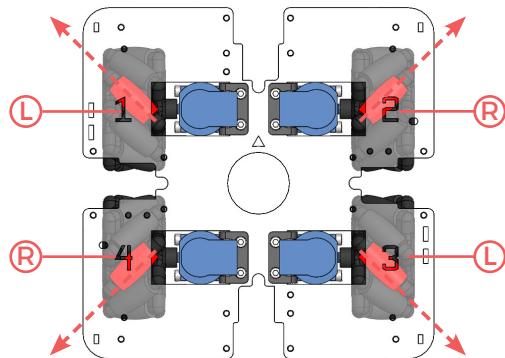
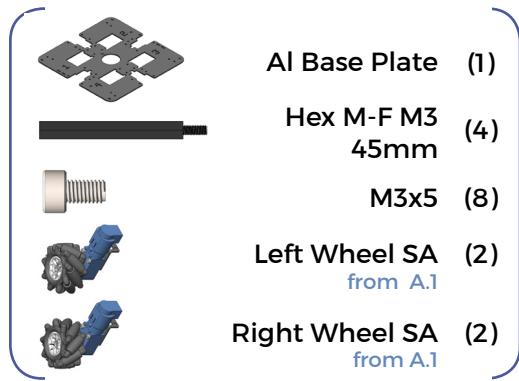
A 1 (motor sub-assembly)



2 ways to differentiate between Left and Right Mecanum wheel
- Look for L or R on the inside of the wheel
- Left/Right wheel roller points up to Left/Right



A2 (base module sub-assembly)

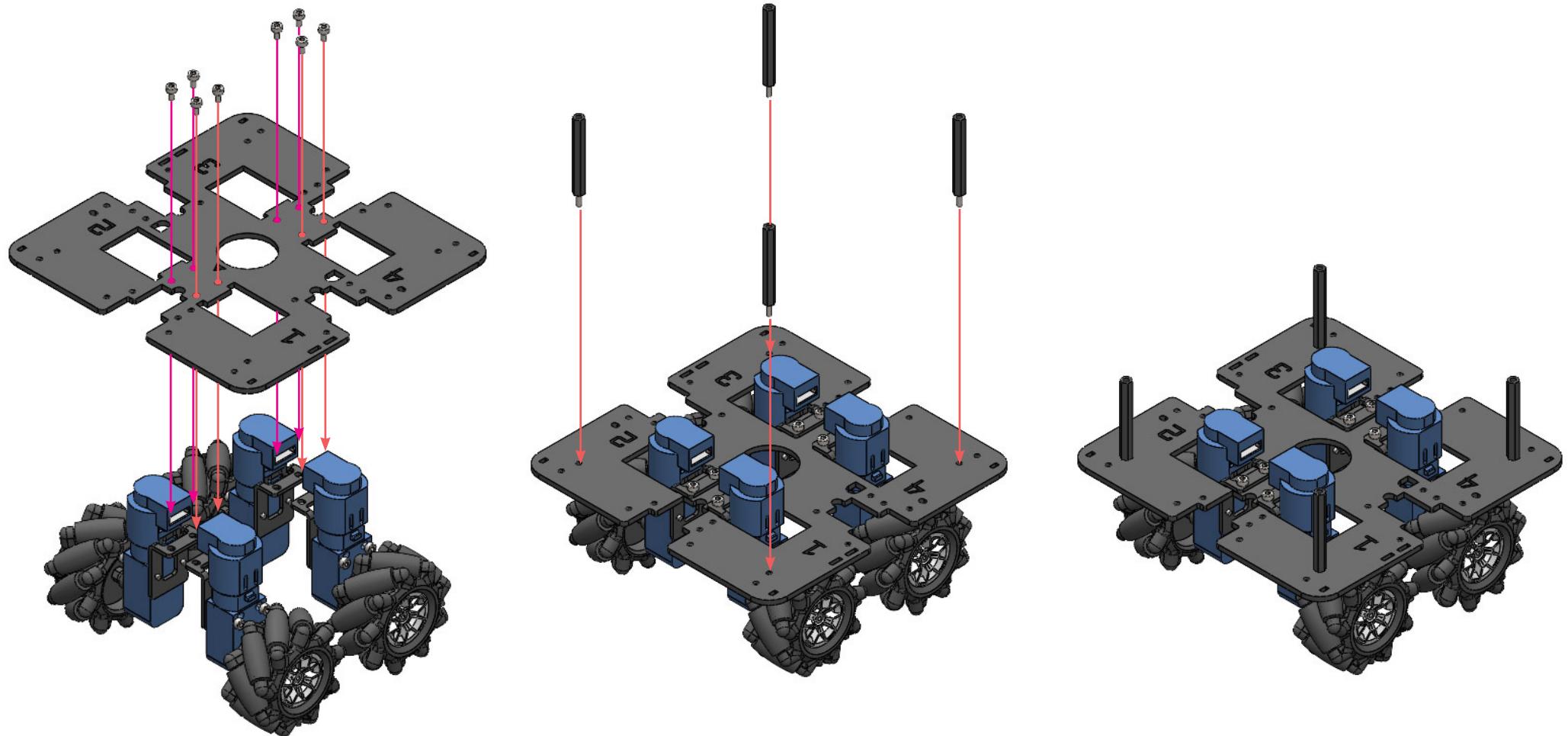


✖ Make sure that the numbers are facing the right way up as shown in the plan view above.

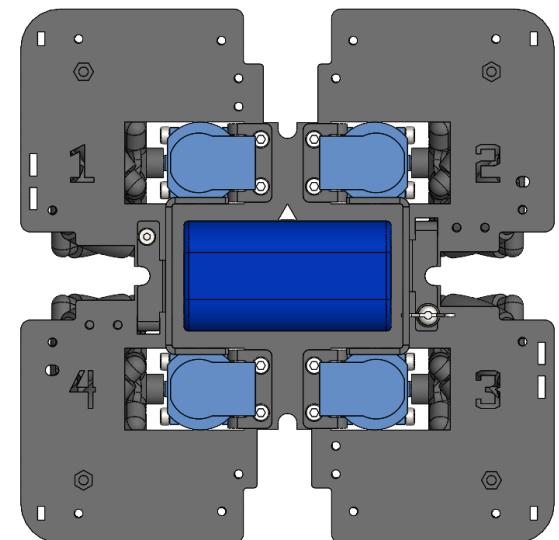
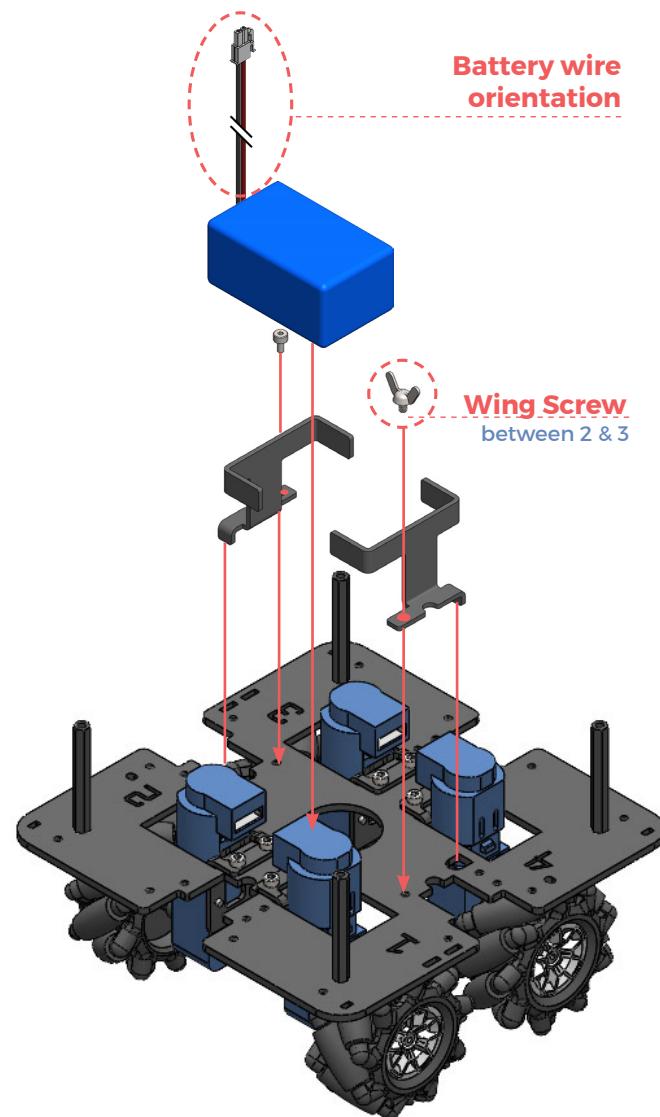


✖ Before attaching each wheel, check that the wheel is of the correct orientation for each numbered slot.

A3 (base module assembly)

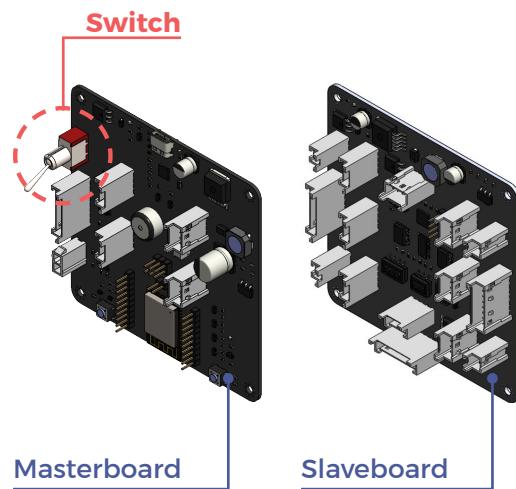
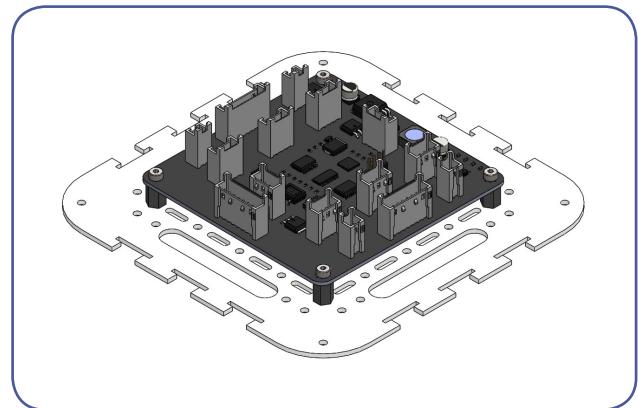


A 4 (mechanical sub-assembly)

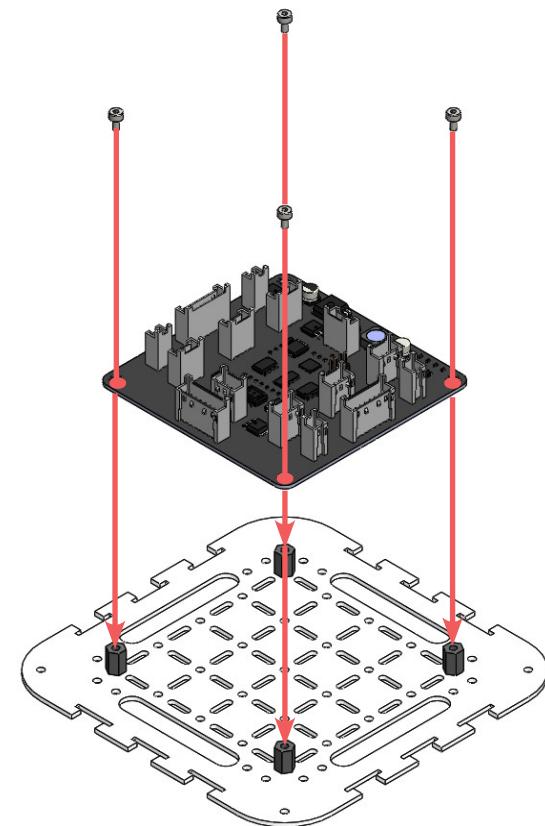
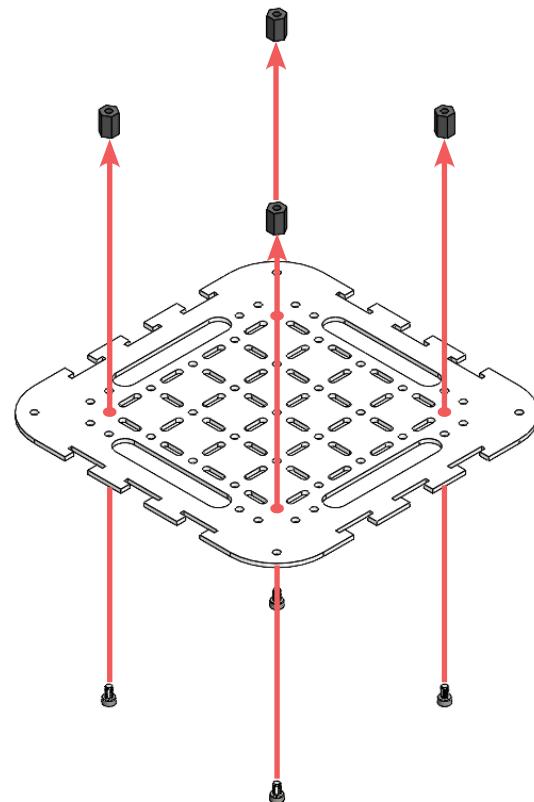


✖ Check that the parts have been attached in the right location.

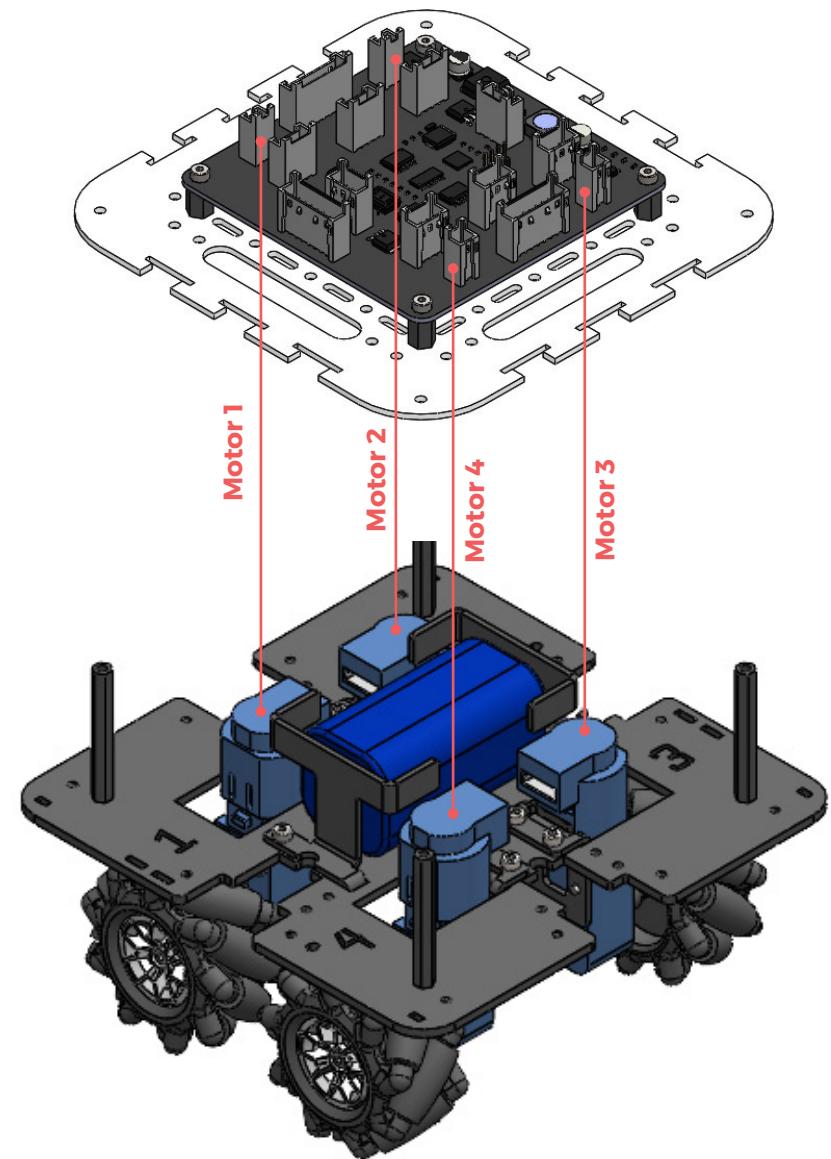
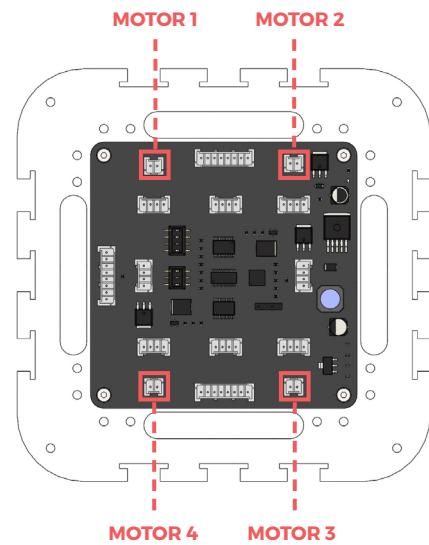
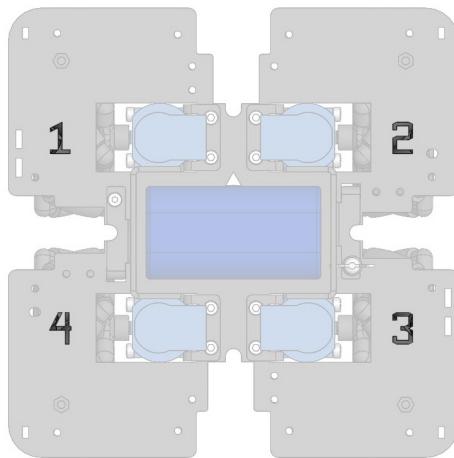
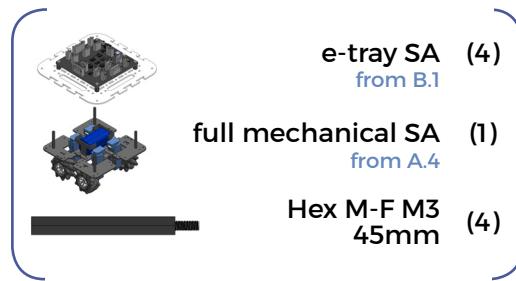
B 1 (e-tray sub-assembly)



- ✗ Make sure that you are attaching the slaveboards and not the masterboard.
- ✗ How to differentiate between masterboard and slaveboards:
 - Masterboard has a special switch



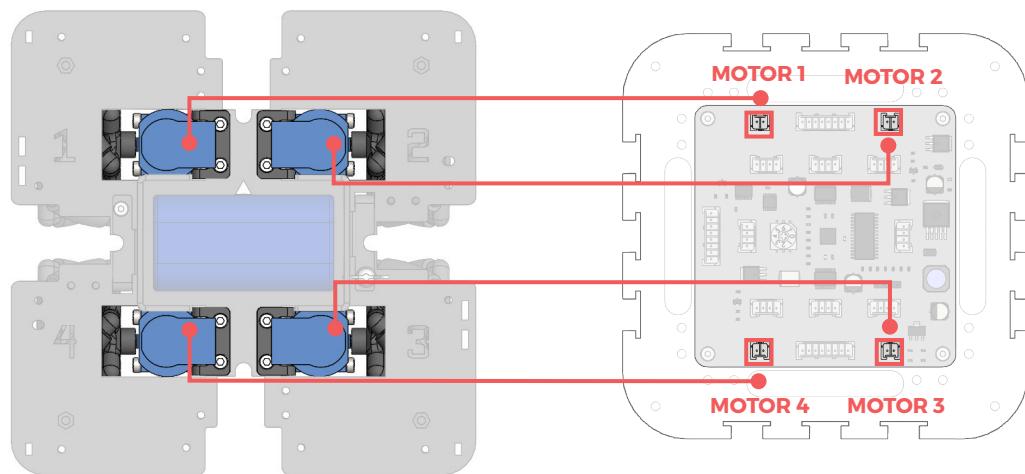
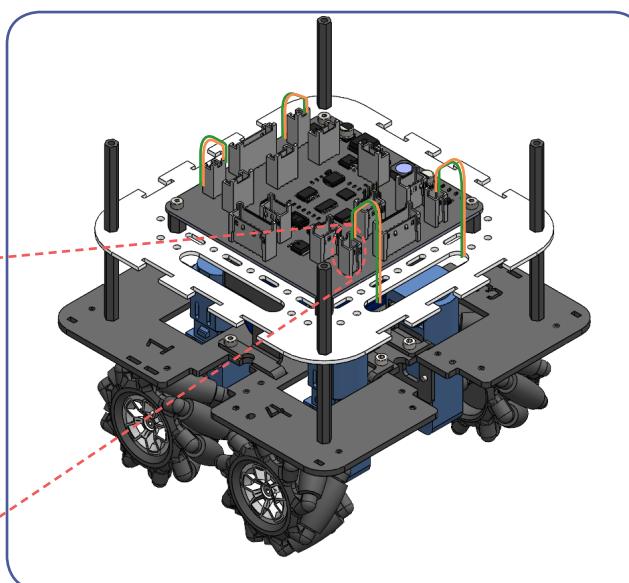
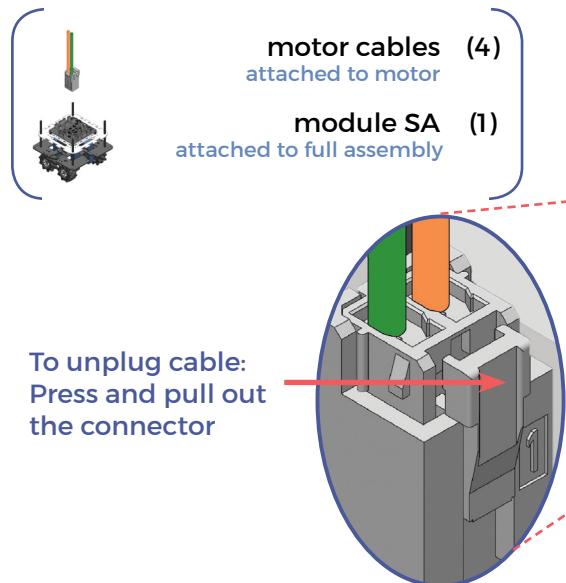
B2 (e-tray onto mechanical assembly)



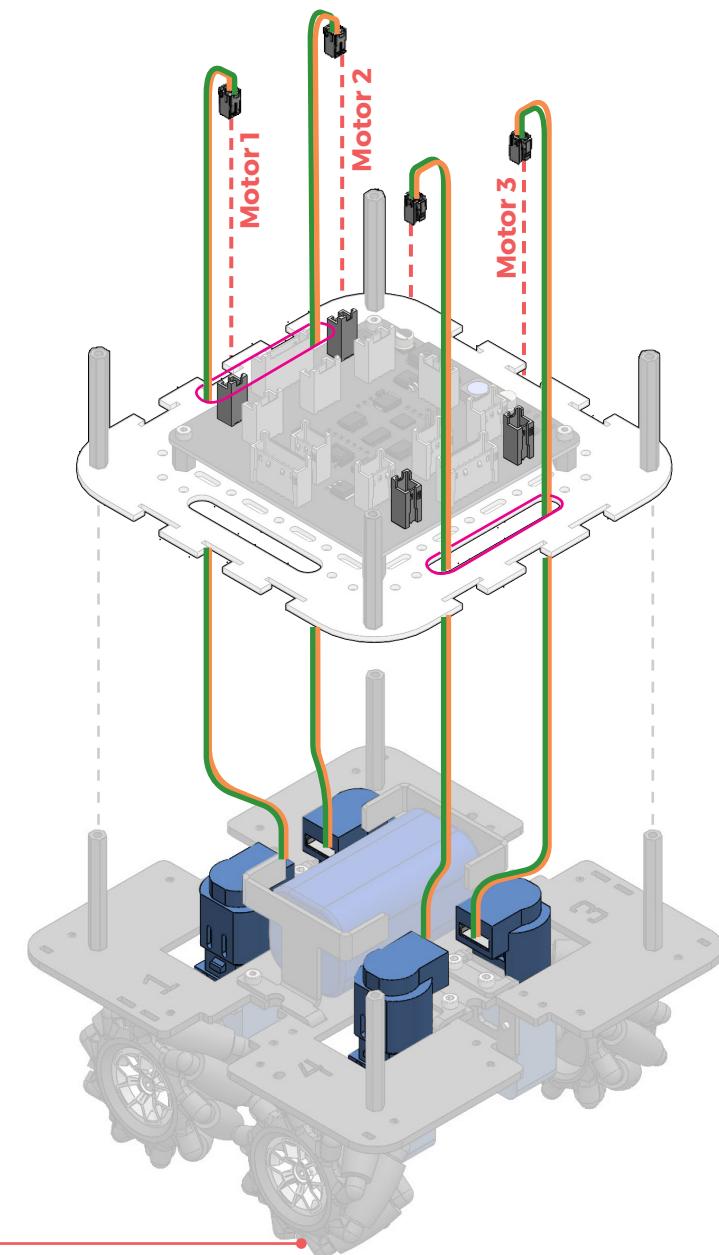
Orientate e-tray SA and base module as shown on the right.
Motor 1 connector on e-tray should be on top of Motor 1 of base module.
Same goes for Motor 2, 3 and 4.



B3 (all module motor cable connection)

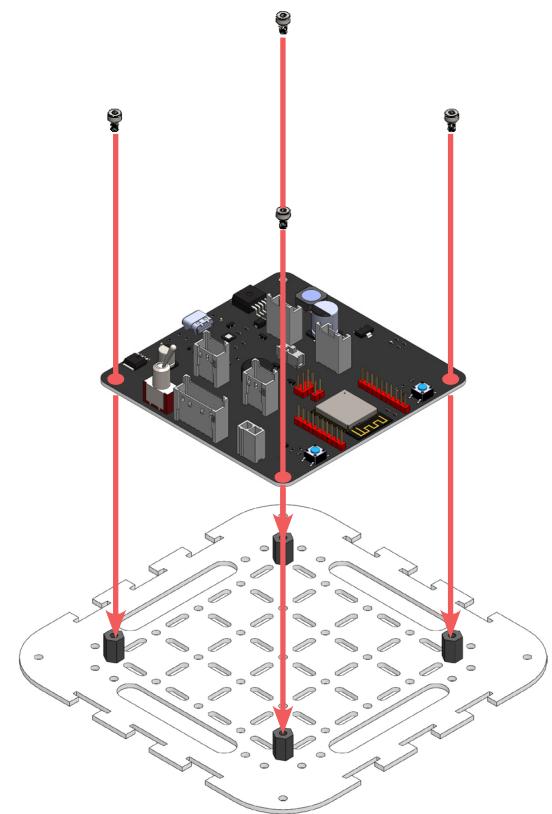
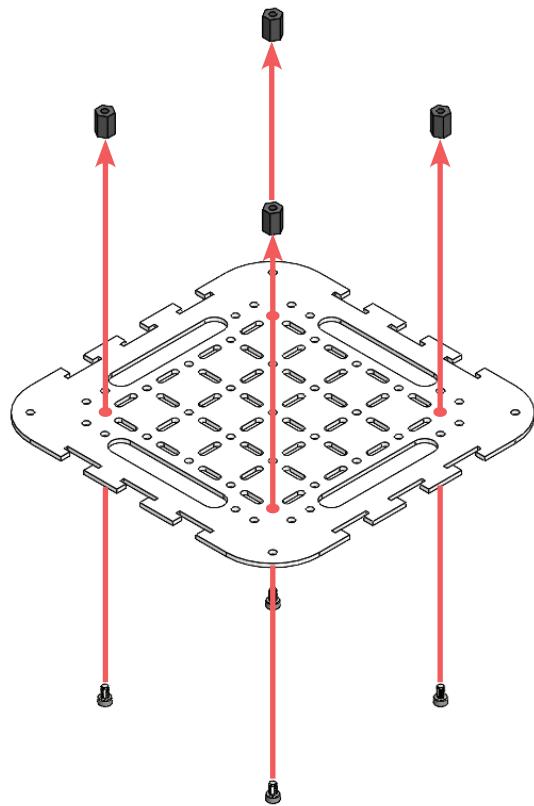
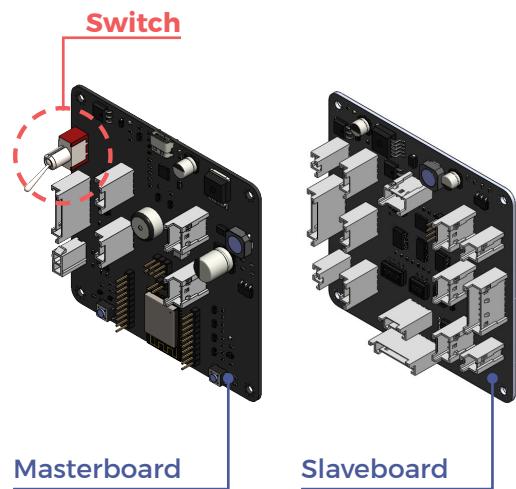
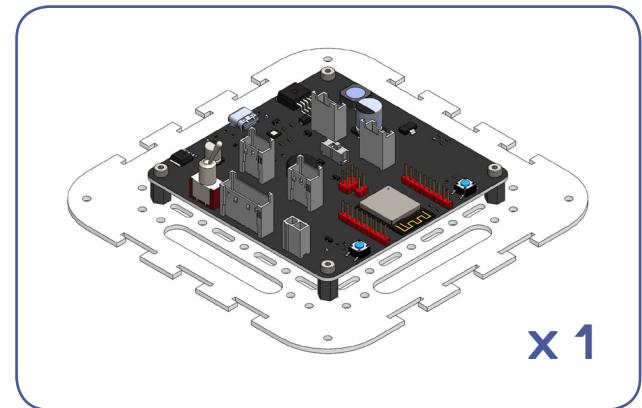


Make sure that Motor 1 is connected to Motor 1 connector on Slaveboard; the same goes for Motor 2, 3 and 4.



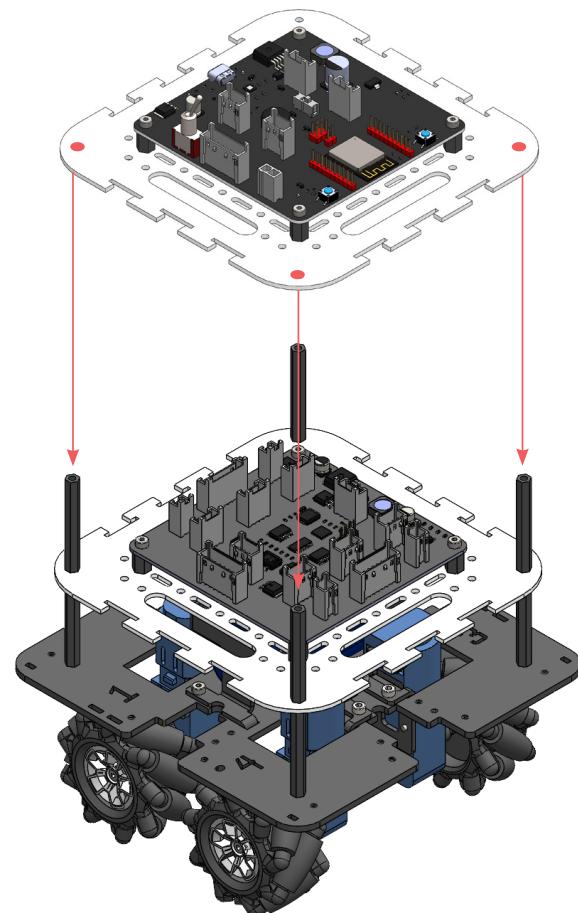
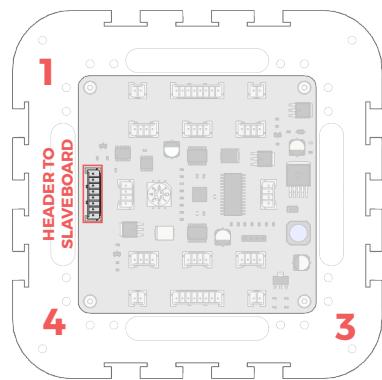
Opening to pass wire through

B 4 (masterboard e-tray sub-assembly)

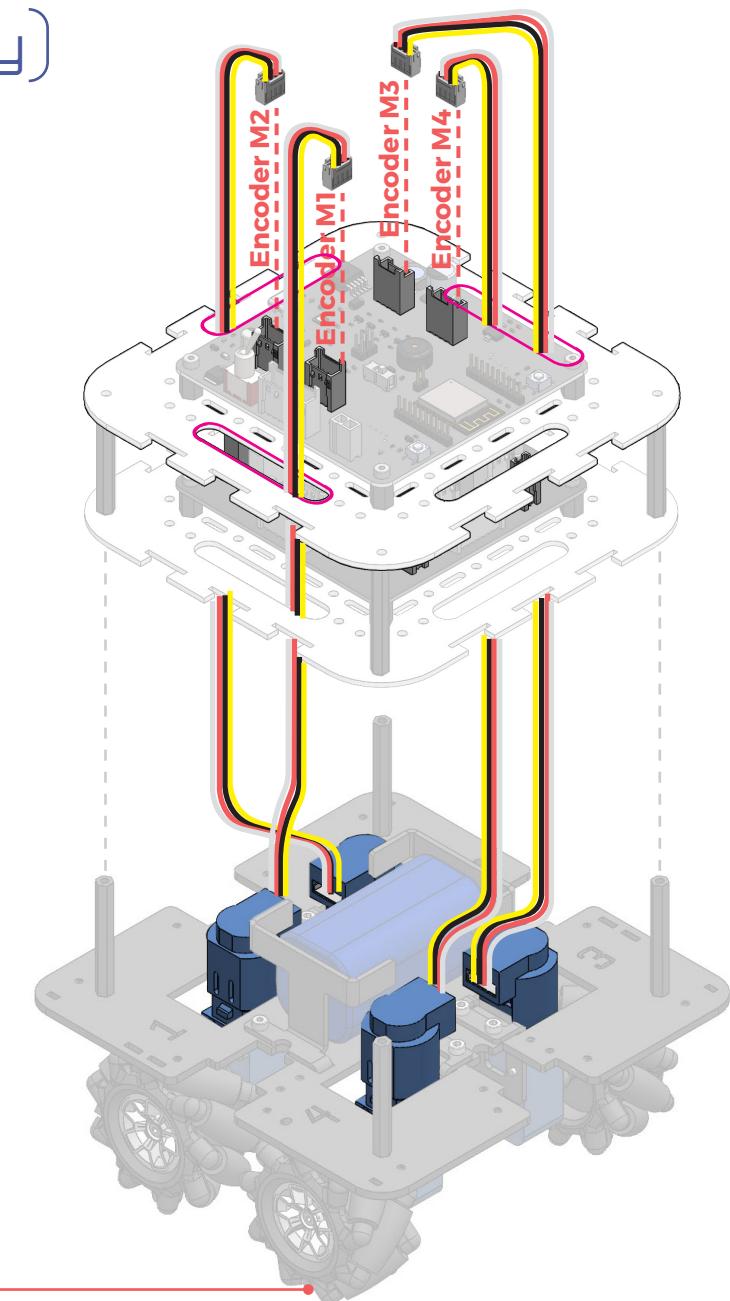


- ✗ Make sure that you are attaching the masterboard and not the slaveboards.
- ✗ How to differentiate between masterboard and slaveboards:
 - Masterboard has a special switch

B5 (master board and encoder motor assembly)



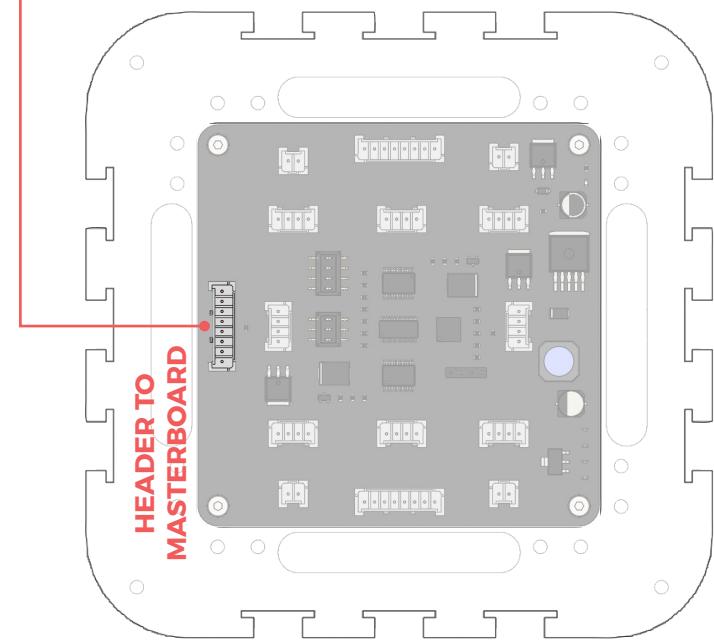
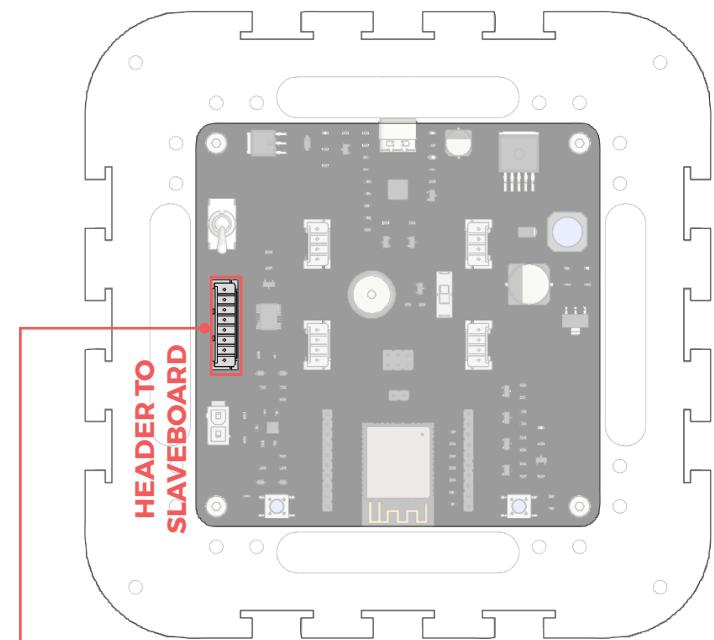
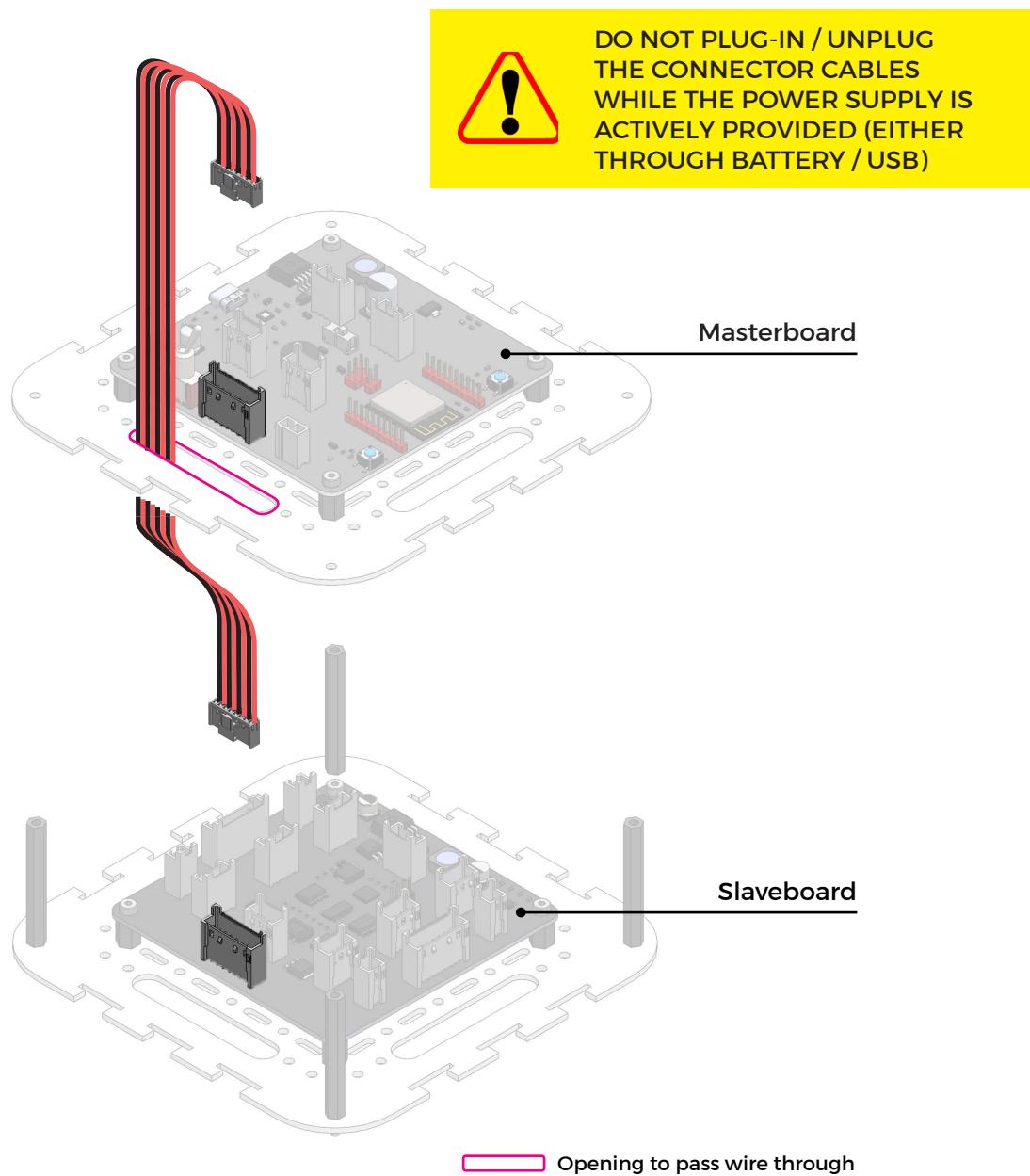
Align the header to slaveboard connector on the masterboard to face the side connecting Motor 1 and 4.



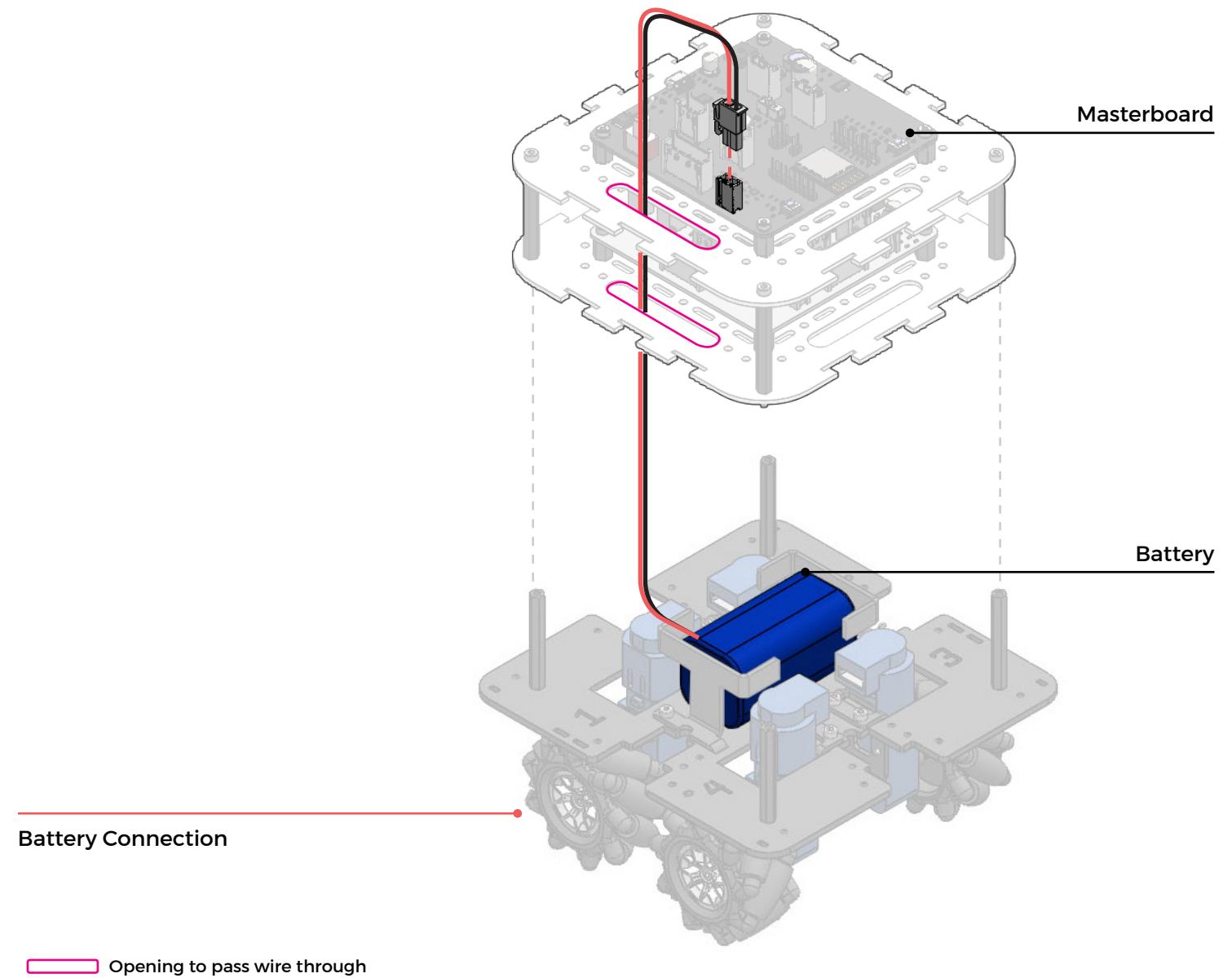
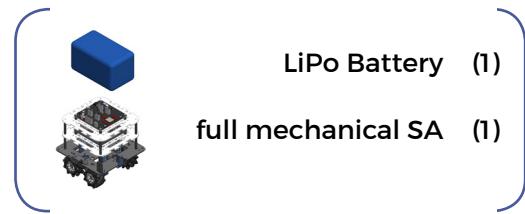
Motor Connection

Opening to pass wire through

B6 (masterboard e-tray onto main assembly)



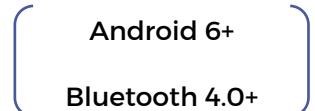
B7 (connect battery to masterboard)



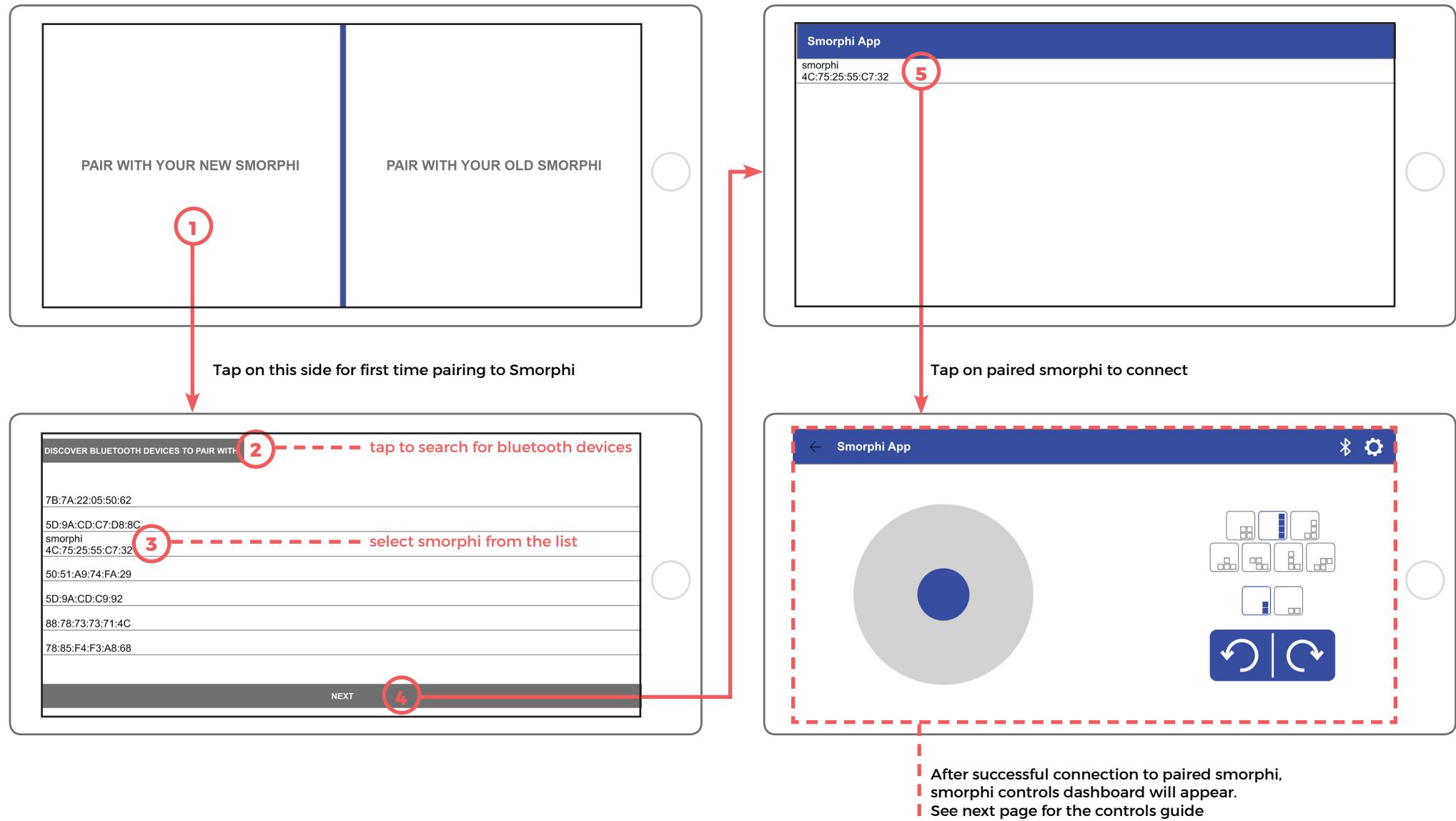


1. App Download.

Smorphi App Information

App Icon & Name	 smorphi
System Requirements OS Requirements	 Android 6+ Bluetooth 4.0+
Available Platforms	(Android)
Download from	(Google Play)

2. Bluetooth Connection. Turn on Smorphi and the Bluetooth of your smart device. Tap on Smorphi app icon to launch application.



3. Smorphi controls dashboard guide.

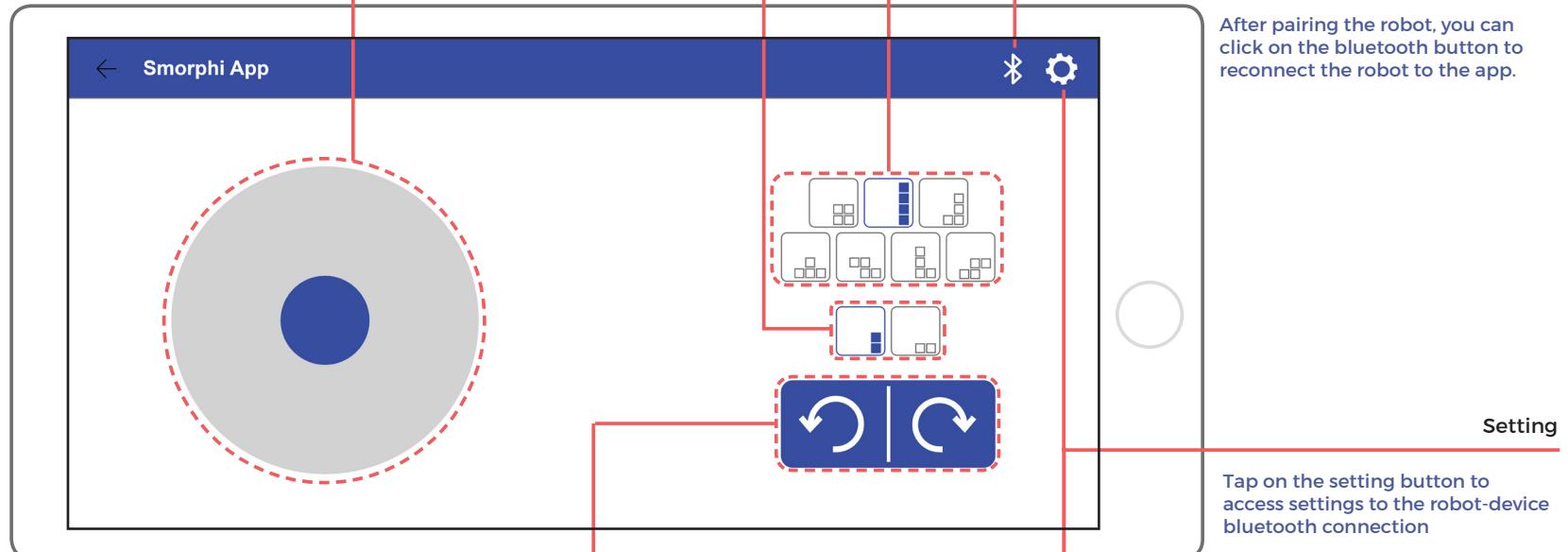
Direction & Speed Joystick Control (Smorphi Mini/Square)

Direction Control

Move Joystick in intended direction
Smorphi will move in the direction that the user intend

Speed Control

Speed of smorphi is controlled by how much the user push the joystick from centre



Pivot Turning

Press and hold to pivot the robot around centre

Shape Transformation Control (Smorphi Mini)

Shape Transformation Control (Smorphi Square)

Current Shape | Highlighted Shape on Highlighted Button

Shape Transformation

Note: Wait for Smorphi to finish transforming before attempting another shape transformation

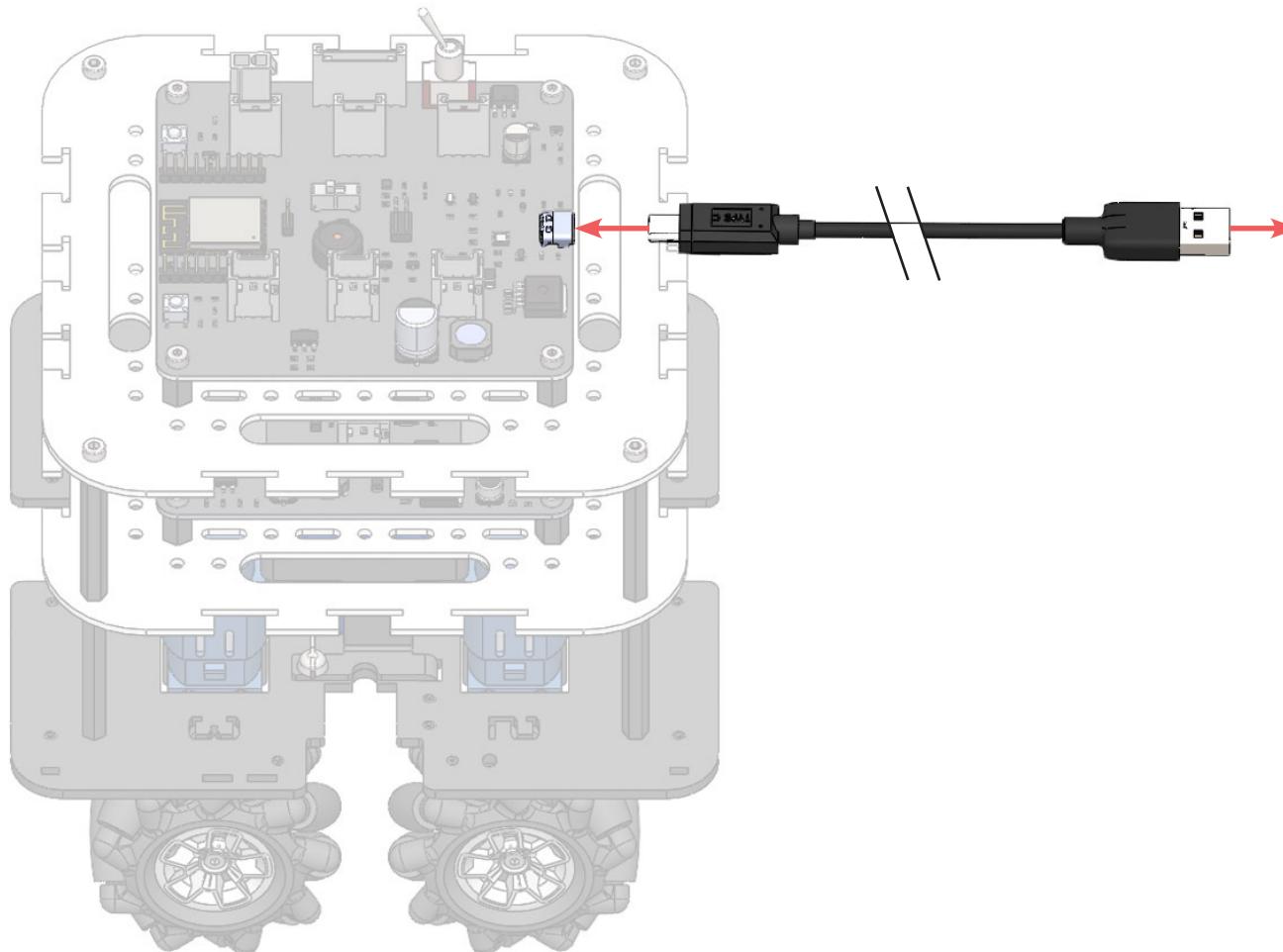
Bluetooth

After pairing the robot, you can click on the bluetooth button to reconnect the robot to the app.

Setting

Tap on the setting button to access settings to the robot-device bluetooth connection

(connect to laptop)

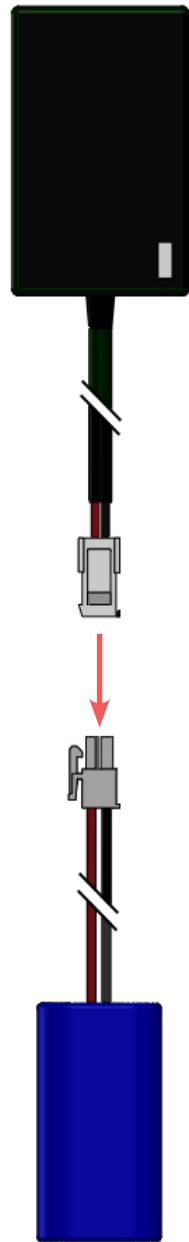


**Laptop/
Computer**



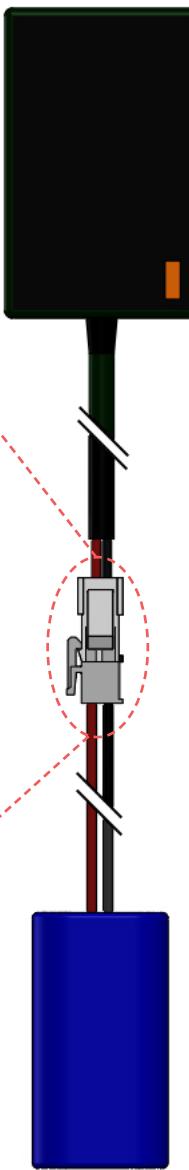
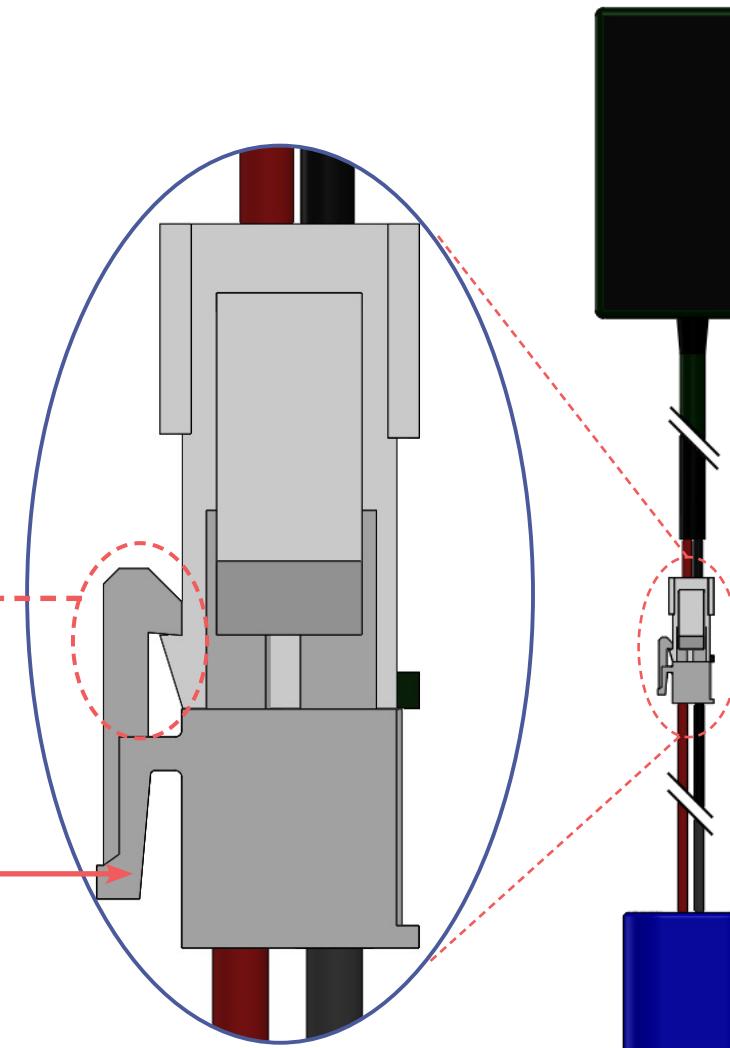
Plug in the USB-C cable as shown above to connect the masterboard to the computer.
It allows us to upload our code from our computer onto the masterboard.

(charging)

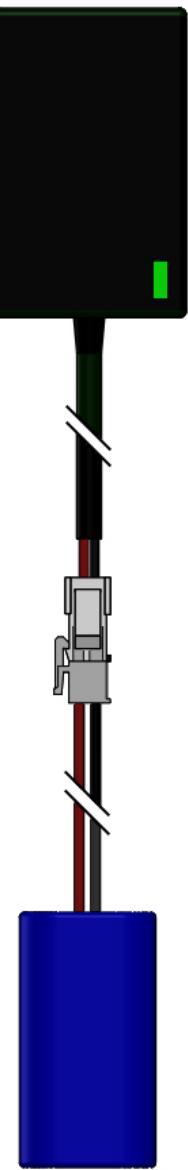


Make sure the battery connector is latched onto the charger connector

Press to release the latch when inserting or plugging out the charger



When battery is charging, an orange light will be shown on the charger. Once battery is fully charged, a green light will be shown



(further exploration)

Please visit the following link to setup the Smorphi software libraries.

**[https://github.com/WefaaRobotics/
smorphi_single/wiki/Robot-Exercises](https://github.com/WefaaRobotics/smorphi_single/wiki/Robot-Exercises)**

