



# EPIC MAKERS' BASE

## BUILD YOUR OWN BLUETOOTH SPEAKER

Assemble a functional Bluetooth Speaker

### Abstract

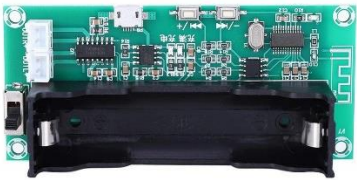



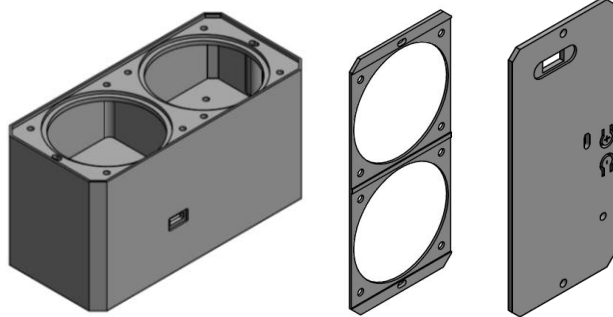
This guide will describe all the parts required to build a Bluetooth speaker and step by step assembly instructions.



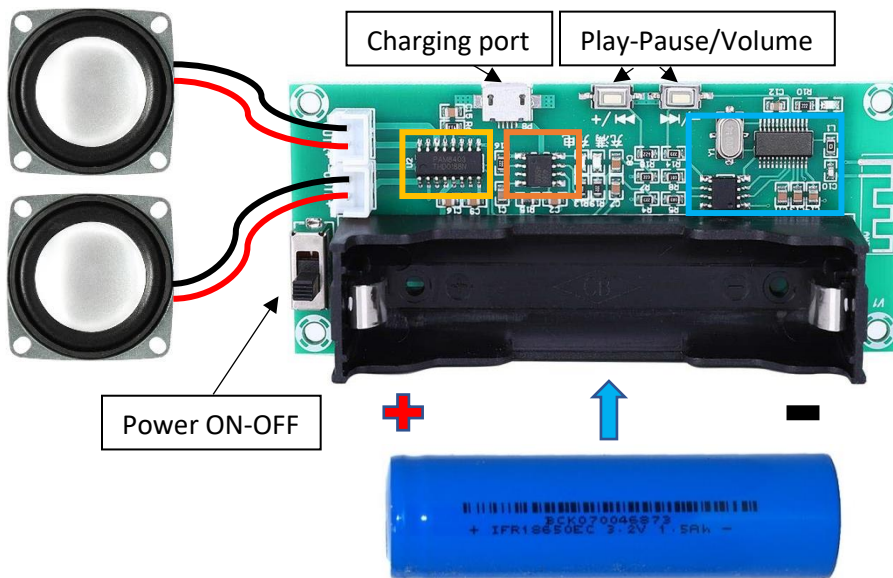
University  
of Windsor

EPICentre  
Entrepreneurship + Practice + Innovation

# Parts Required

	<p><b>Bluetooth Amplifier Board Module 2x5w</b> (1 piece)</p>
	<p><b>2-inch 40hm 3W Full Range Audio Speaker</b> (2 piece)</p>
	<p><b>18650 Li-Ion Cell</b> (1 piece)</p>
	<p><b>M3 x 6mm stainless steel bolts</b> (14 piece)</p>
	<p><b>3D printed parts</b></p> <ul style="list-style-type: none"><li>• Main body x1</li><li>• Back plate x1</li><li>• Front plate x1</li><li>• Power switch x1</li></ul>

# Circuit Description & 3D Printing



## Audio Amplifier (PAM8403):

The PAM8403 is a 3W, class-D audio amplifier. It offers low THD+N, allowing it to achieve high quality sound reproduction.

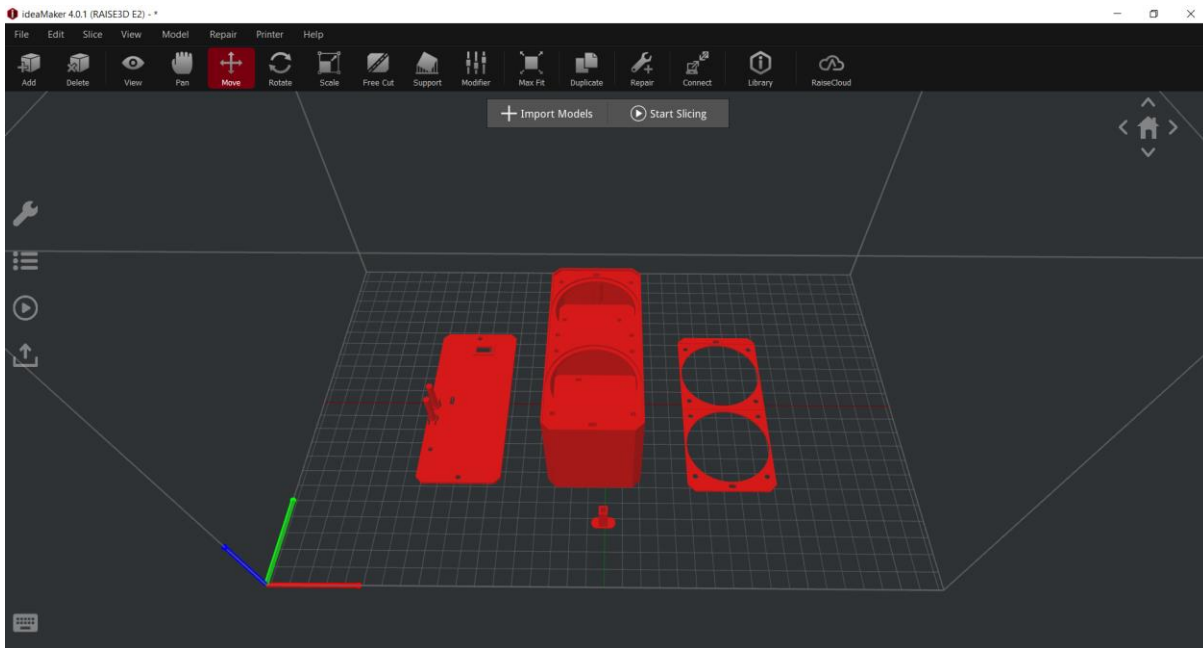
## Charging Circuit (TC4056A):

TC4056A It is a complete single lithium-ion battery with a constant current / constant-voltage linear charger. Bottom finned ESOP8 with DIP8 Package, with low external component count makes it Ideal for portable applications. You can use USB Power adapter or 5v power supply.

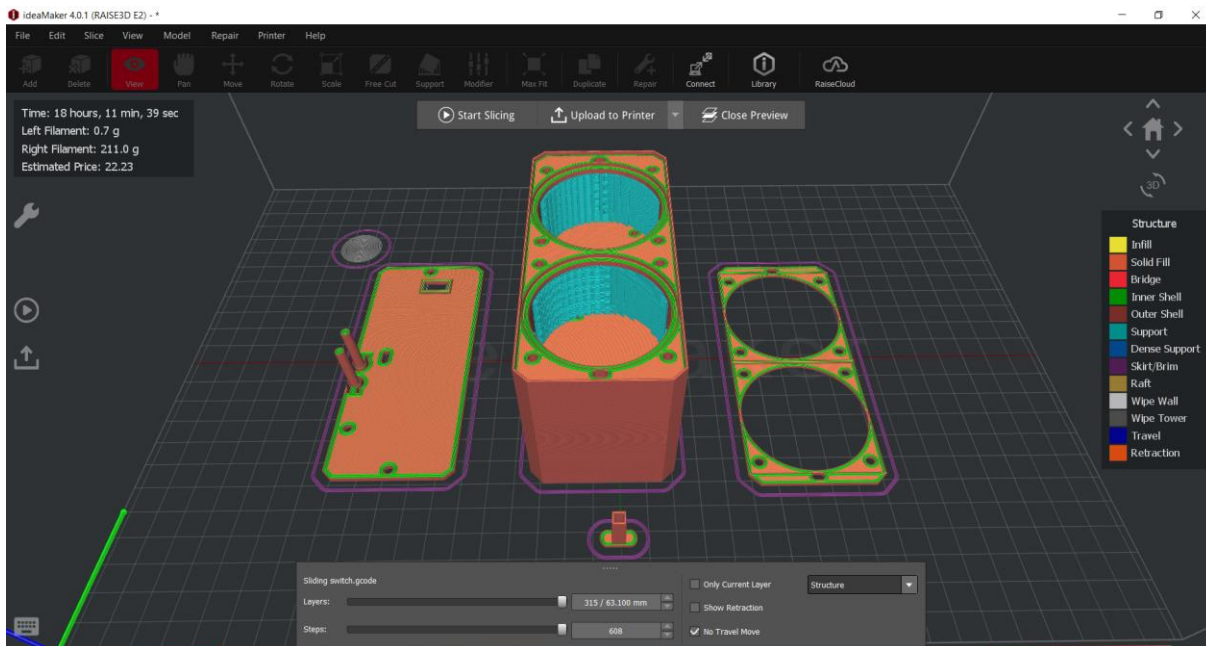
## Bluetooth Circuit:

Bluetooth 4.0 receiver with Play- Pause/Volume functionality.

# 3D Printing



Place all the components as shown in the image above.



Choose the resolution depending on the finish required and generate all supports. The image above is sliced with 0.3 mm layer height PETG.

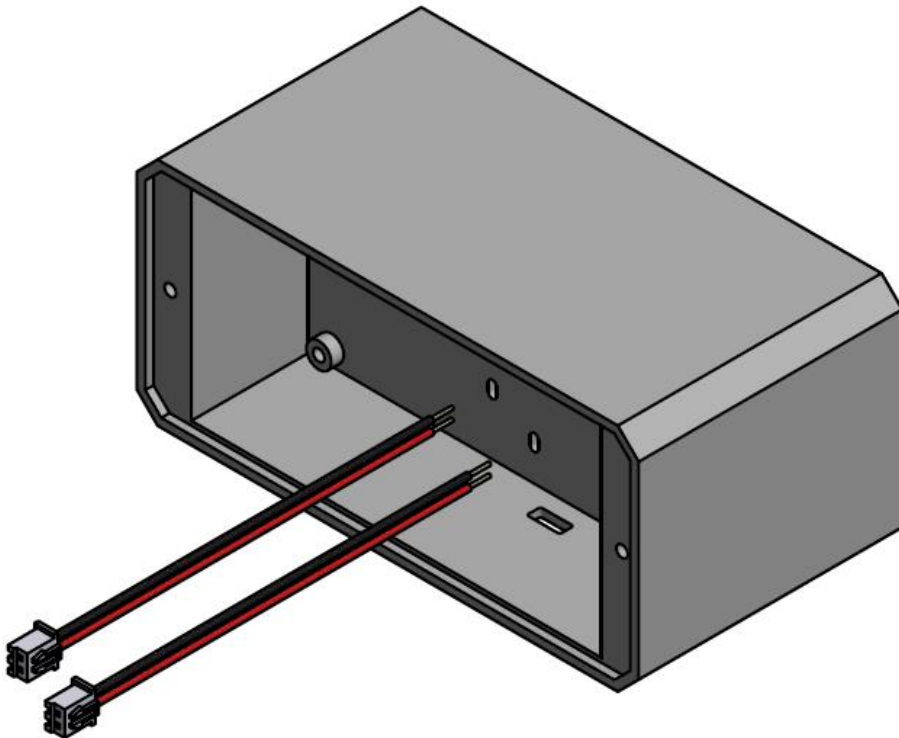
Link for 3D printing files: <https://drive.google.com/drive/folders/1ckQtuPdTJ0pKm9-zUYQTjfmXCVHBG8Qm?usp=sharing>

BLUETOOTH SPEAKER

# Assembly

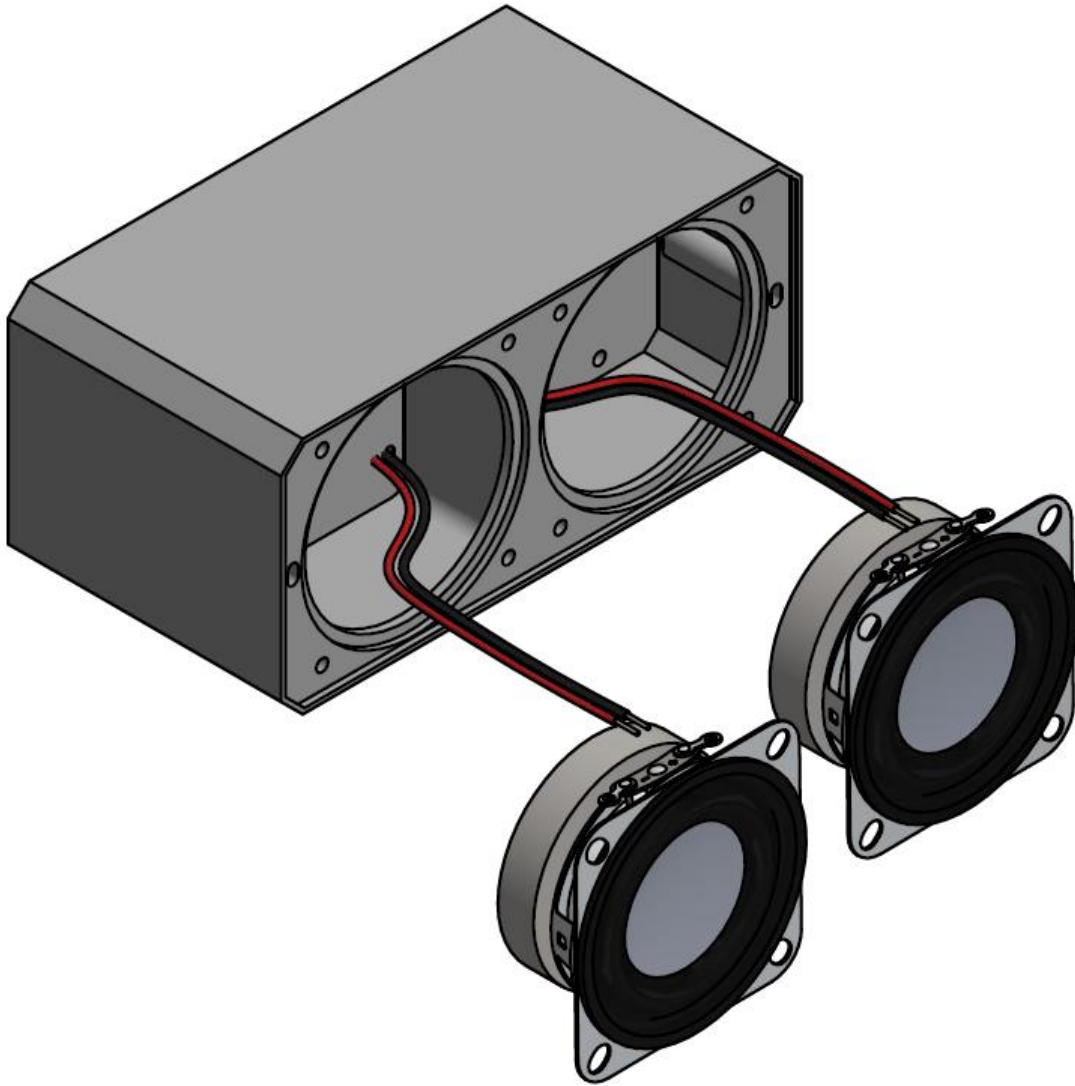
# 2

## Step 1



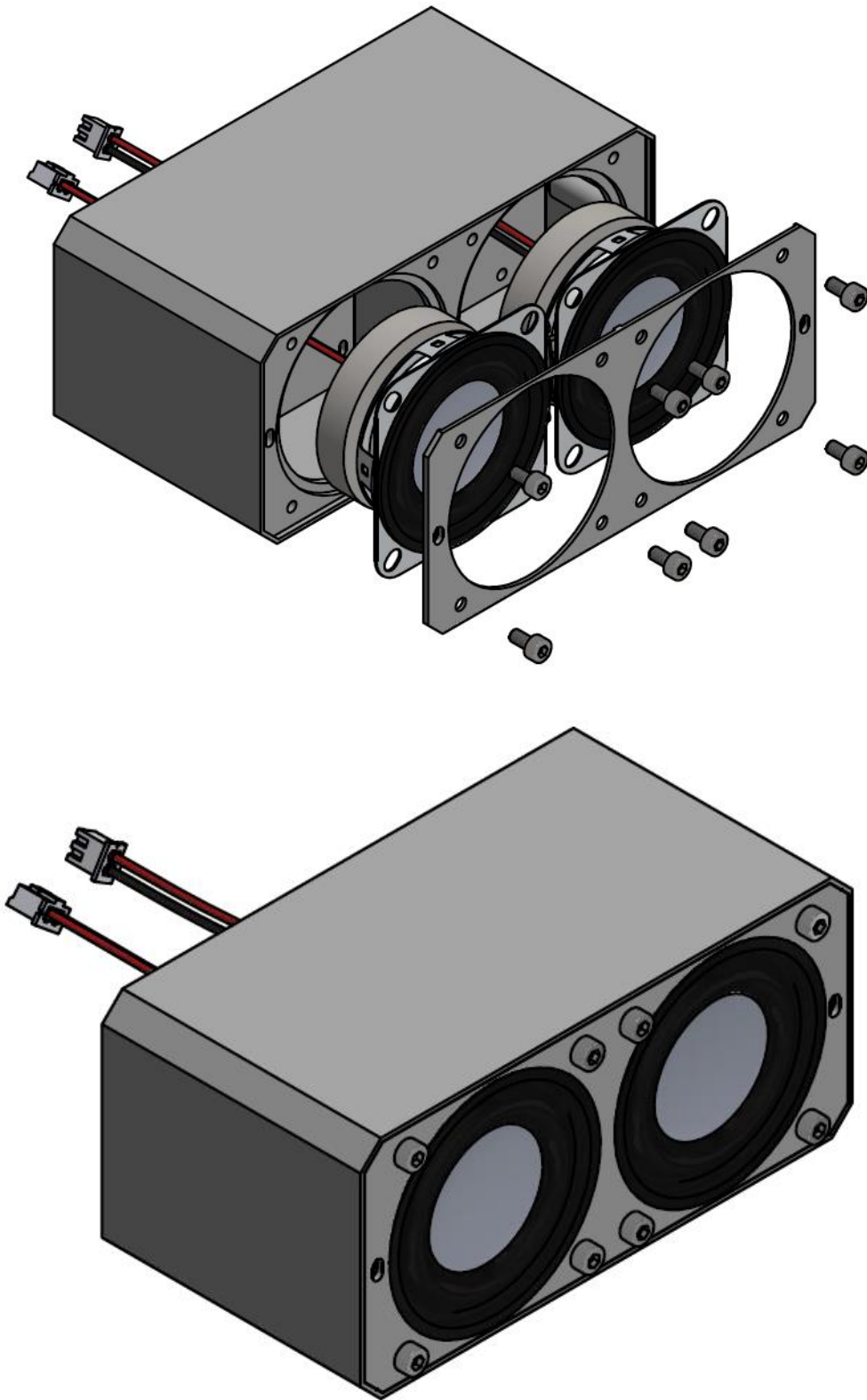
Inset the 2 cables in the hole.

## Step 2



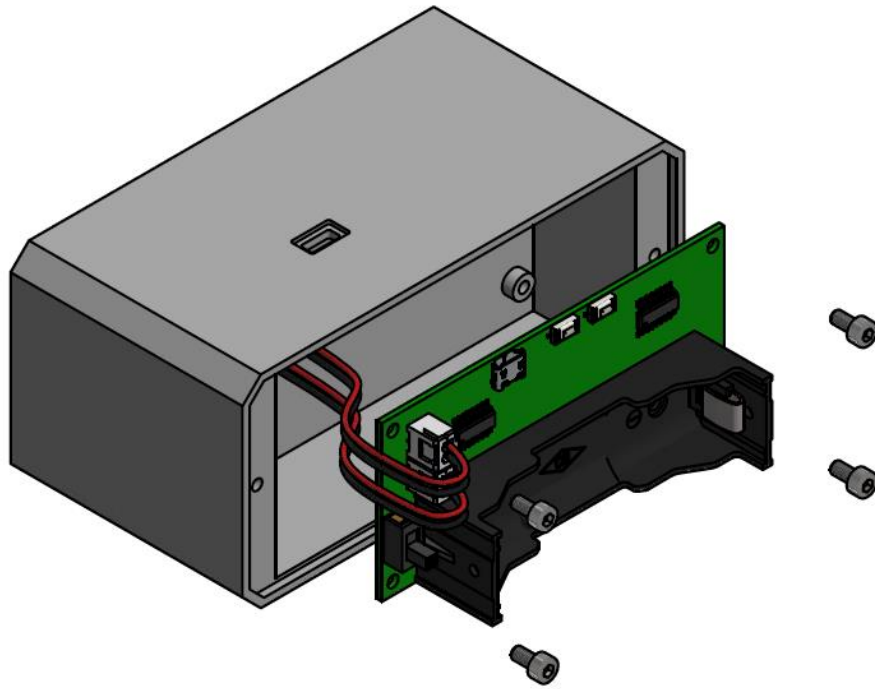
Solder the wires to speakers. Red to + and Black to -.

## Step 3



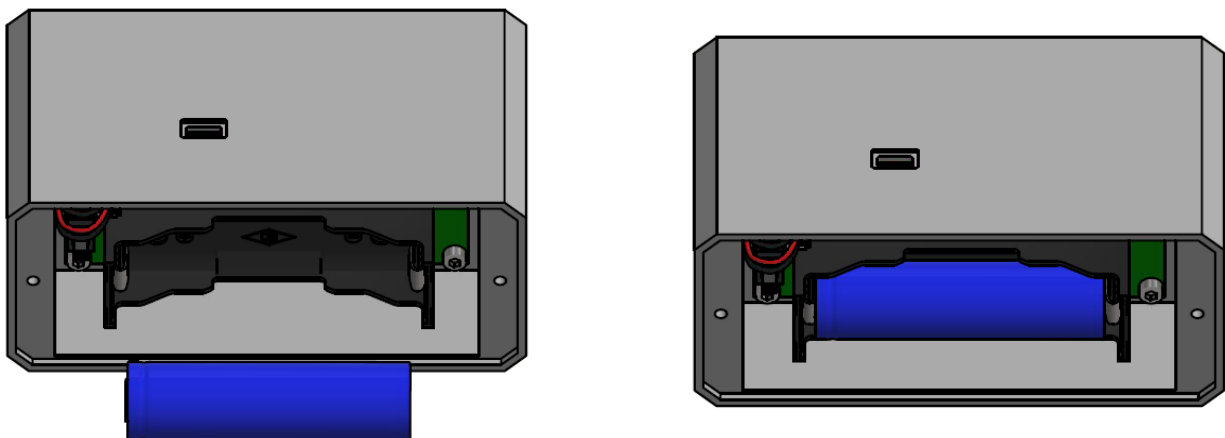
Screw in the speakers and the front plate to the main body using 8 M3 bolts.

## Step 4



Attach the JST connector to the Circuit board and screw the board to the main body using 4 M3 bolts.

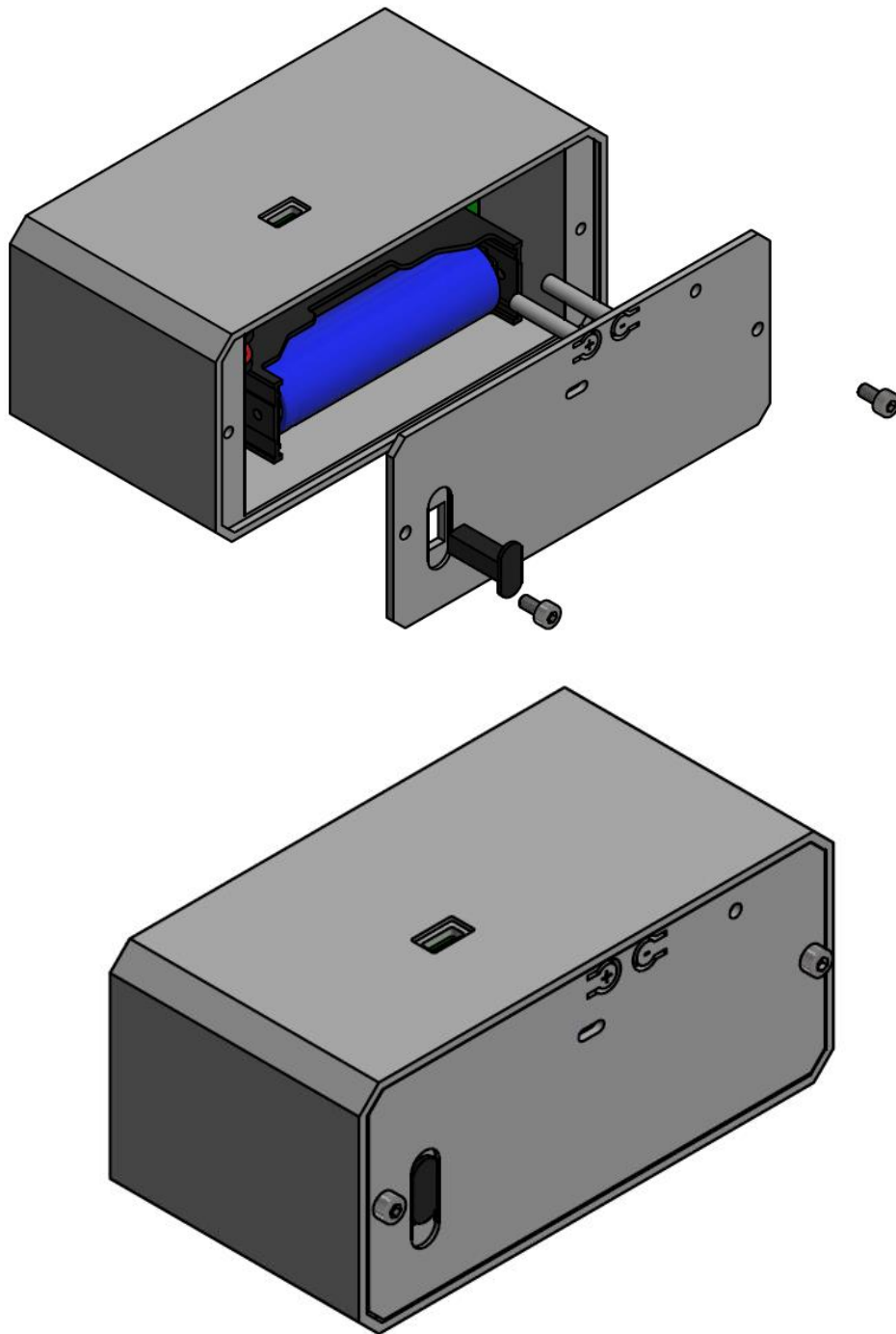
## Step 5



Inset the lithium-ion cell. **Note: Do not interchange the polarity or else the circuit will be damaged.**

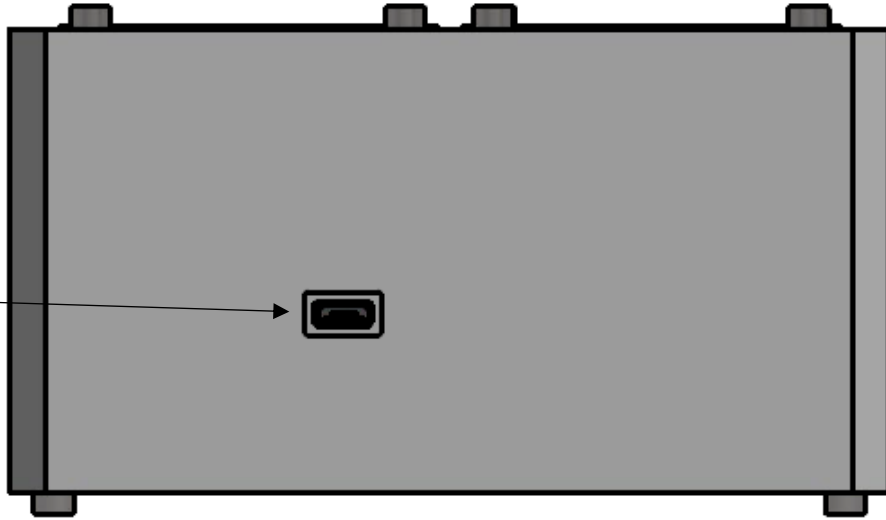


## Step 6



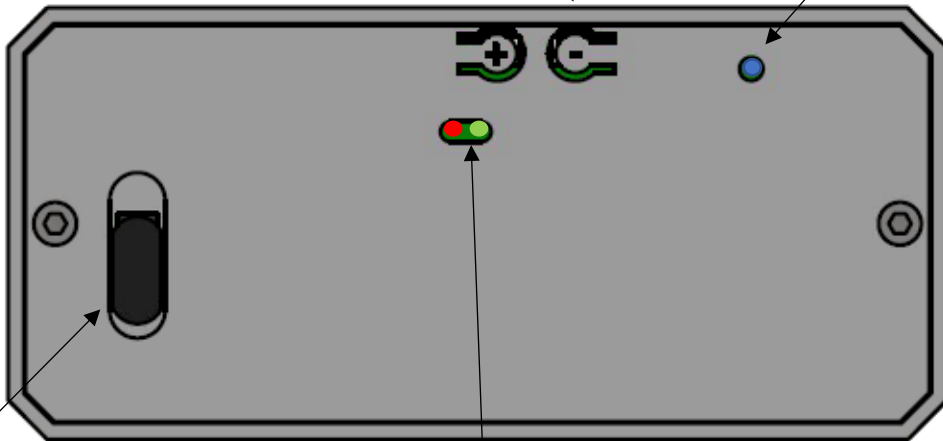
Bolt the back plate to the main body with 2 M3 bolts. Cap the slider switch on the button and slide it to turn ON or OFF the Bluetooth Speaker.

Charging port  
Micro USB



Play-Pause/Volume

Bluetooth ON indicator



Power ON-OFF

Charging Light  
Red – Charging  
Green – Charge Complete

# Contact Information

Contact us for any information at [makerspace@uwindsor.ca](mailto:makerspace@uwindsor.ca)

Website: [www.epicentreuwindsor.ca](http://www.epicentreuwindsor.ca)

Follow us on social media:

Facebook: @WindsorMoldGroupEPICMakersBase and @epicentre.uwindsor

Twitter: @UofW\_EPICentre

Instagram: @epicentre\_uwindsor

LinkedIn: epicentre-uwindsor