



Case for Circuit Playground

Created by Ruiz Brothers



<https://learn.adafruit.com/case-for-circuit-playground>

Last updated on 2024-06-03 02:13:47 PM EDT

Table of Contents

3D Printing 3

- [3D Printed Case](#)
- [The Shapes Edition](#)
- [Slim and Accessible](#)
- [Snap Fit Design](#)
- [Prerequisite Guides](#)
- [3D Printing Services](#)
- [CURA Slice Settings](#)
- [Parts and Supplies](#)
- [Fusion 360 Archive](#)

Assembly 7

- [JST Slide Switch Adapter](#)
- [Install Switch](#)
- [Installed Switch](#)
- [Tack Battery](#)
- [Install Battery](#)
- [Connect Circuit Playground](#)
- [Mount Board](#)
- [Install Cover](#)
- [Make, Remix and Share](#)
- [Recharging Battery](#)

3D Printing



3D Printed Case

Are you looking for a way to protect your shiny new Circuit Playground? A 3D printed case can make it easy to keep your board safe and sound. You can mount the case to anything and embed it into other objects for quick projects.

The Shapes Edition

This is a series of 3D printed cases designed to house a Circuit Playground, battery and switch. Three different shapes can be used for different applications. The board appears recessed allowing the NeoPixels to have a wider spread of light.



Slim and Accessible

The Circuit Playground is exposed, allowing the buttons and sensors to be accessible for interaction and hooking up other components. A port opening allows a microUSB port for programming and powering.



Snap Fit Design

Each case features a "locking" cover that snap fits shut when the nubs on the inner edges mate with indentations on the lip. Cutouts allow cables to plugin to the various connector ports.



Prerequisite Guides

If your new to electronics and the Adafruit Circuit Playground, I suggest you walk through the following guides to get the basics. The Adafruit Circuit Playground guide will walk you through setting it up.

- [Collin's Lab – Soldering](https://adafru.it/wsa) (<https://adafru.it/wsa>)
- [JST Slide Switch Adapter](https://adafru.it/vjb) (<https://adafru.it/vjb>)
- [Circuit Playground Classic](https://adafru.it/ncG) (<https://adafru.it/ncG>)
- [Circuit Playground Express](https://adafru.it/adafruit-cpx) (<https://adafru.it/adafruit-cpx>)



3D Printing Services

Don't own a 3D Printer? Download the STL files and upload them to [3D Hubs](https://adafru.it/ldo) (<https://adafru.it/ldo>) to order the parts from a local maker and have them shipped to you. You can also search for local hacker/maker spaces for getting access to a 3D printer.

Quality		⚙️	
Layer Height	∅	0.2	mm
Initial Layer Height	∅ ↻	0.2	mm
Line Width	↻ i	0.5	mm
Wall Line Width		0.5	mm
Outer Wall Line Width		0.5	mm
Inner Wall(s) Line Width	↻ i	0.43	mm
Top/Bottom Line Width		0.5	mm
Shell		∨	
Wall Thickness		1	mm
Wall Line Count	↻ i	2	
Outer Wall Wipe Distance		0.2	mm

CURA Slice Settings

Here's a screenshot of the settings used to 3D print the top and bottom halves of the case. To get the most accurate tolerances for the snap fit features, you'll want to adjust your slice settings accordingly. The parts were tested with PLA filament, other materials that have more shrinkage such as ABS or Nylon may have different tolerances.

Download STLs

<https://adafru.it/1a0q>

Download CAD Source Files

<https://adafru.it/1a0r>



Parts and Supplies

You want to use machine screws (sized M3 x .45 x 5mm) to secure the Circuit Playground to the case. If you'd like to add a battery, you can make a slide switch adapter to easily power it on and off.

2 x M3 Hardware Screws

M3 x .5 x 5mm metric Phillips flat head machine screws

[https://](https://www.albanycountyfasteners.com/3-MM-x-5-Phillips-Flat-Head-Machine-Screw-p/1011-1006.htm)

www.albanycountyfasteners.com/3-MM-x-5-Phillips-Flat-Head-Machine-Screw-p/1011-1006.htm

1 x 500mAh Battery

Lithium Ion Polymer Battery - 3.7v 500mAh

<https://www.adafruit.com/product/1578>

1 x Slide Switch

Breadboard-friendly SPDT Slide Switch

<https://www.adafruit.com/product/805>

1 x Battery Extension Cable

JST-PH Battery Extension Cable - 500mm

<https://www.adafruit.com/product/1131>

1 x Mounting Putty Tack

Loctite Fun-Tak Mounting Putty 2-Ounce

[https://www.amazon.com/dp/](https://www.amazon.com/dp/B001F57ZPW/)

[B001F57ZPW/](https://www.amazon.com/dp/B001F57ZPW/)

Fusion 360 Archive

If you'd like to make changes or upgrades to the 3d model, you can download the fusion 360 archives in many different formats such as STEP, SAT, Solidworks, Sketchup and more!

[Square Case](https://adafru.it/zPf)

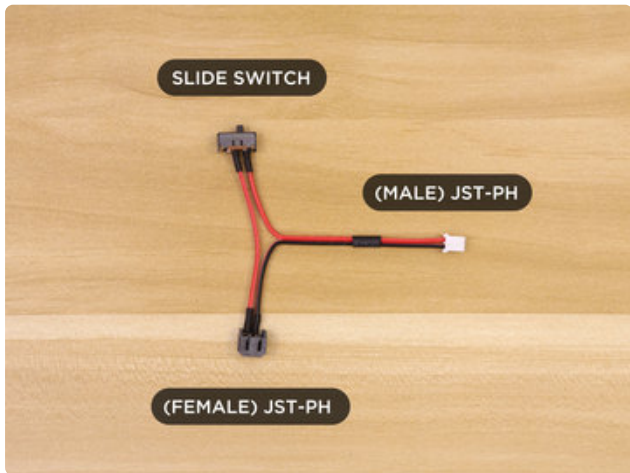
<https://adafru.it/zPf>

[Circular Case](https://adafru.it/zPA)

<https://adafru.it/zPA>

[Hexagonal Case](#)

Assembly



JST Slide Switch Adapter

You'll want to fashion your own slide switch adapter so it's easy to disconnect the battery when it gets low. The switch can stay put in the case while the battery is removed for recharging. Follow our [guide for a tutorial \(https://adafru.it/vjb\)](https://adafru.it/vjb) on how to make your own.

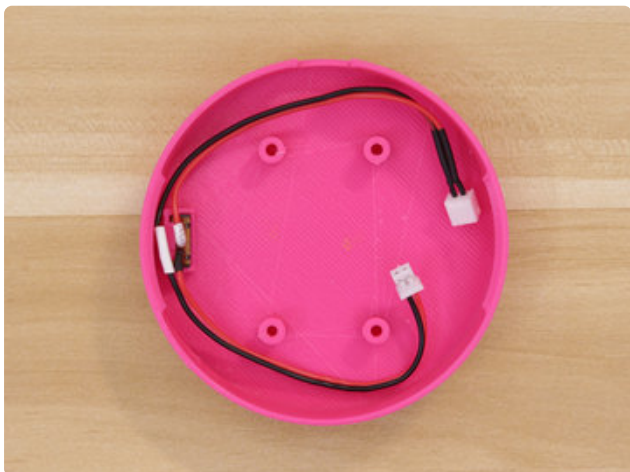
How To DIY Slide Switch Adapter

<https://adafru.it/vjb>



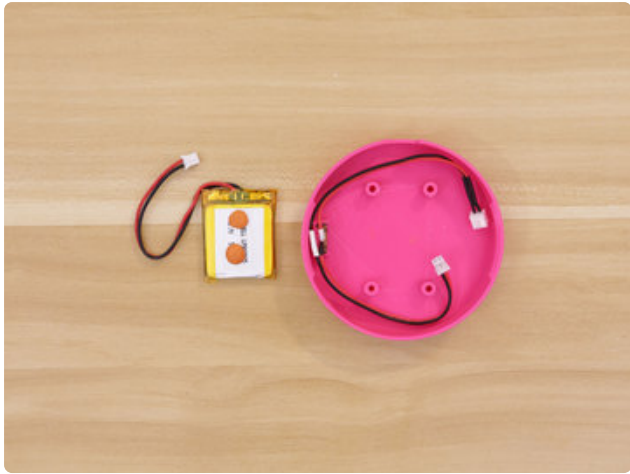
Install Switch

You'll want to insert the switch into the holder at a 45 degree angle while pressing down. The body of the switch should have a snug fit with the holder.



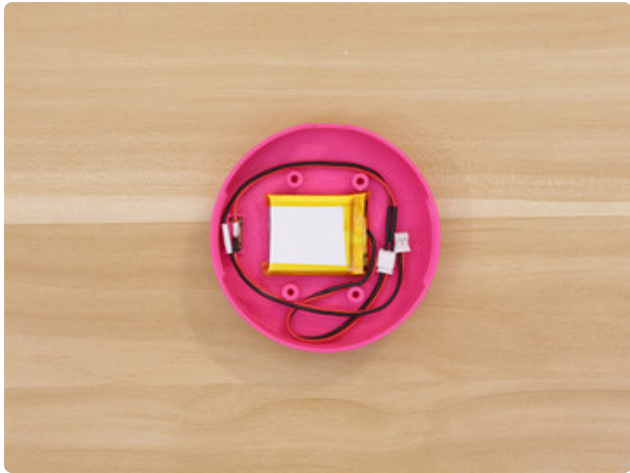
Installed Switch

Arrange the wires inside the case so the cabling is neatly laid out. The JST connectors can be oriented to match up with the ports on the Circuit Playground.



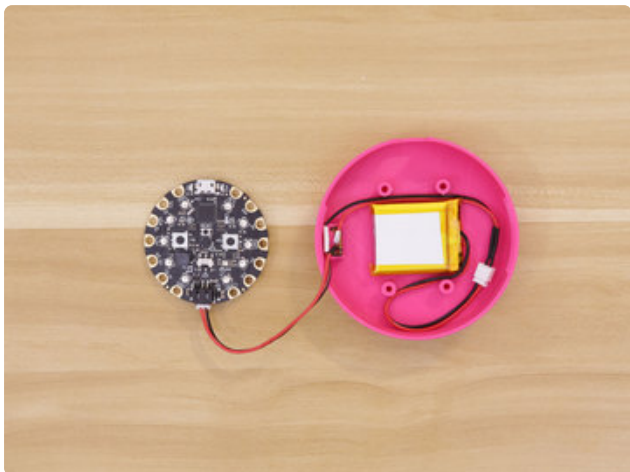
Tack Battery

Stick small pieces of mounting putty onto the surface of the lipo battery. This will keep the battery secured underneath the Circuit Playground and prevent it from rattling inside the case.



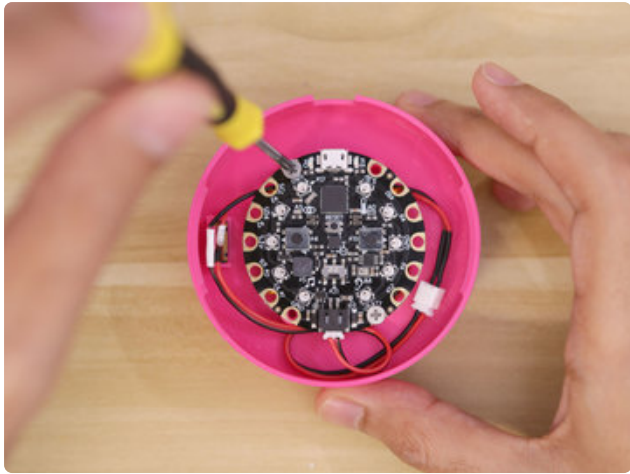
Install Battery

Plug in the JST cable from the battery to the connector on the slide switch. Place the battery in the center of the case and press down to set the mounting tack.



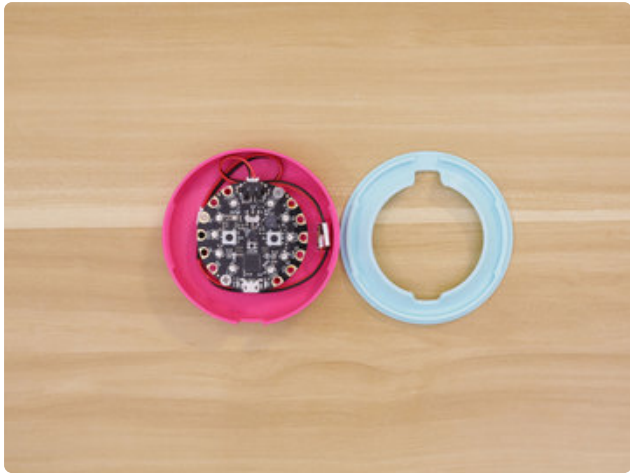
Connect Circuit Playground

Plug in the male JST connector from the slide switch to the port on the Circuit Playground. You'll want to keep the wiring from getting tangled, so keep adjusting the cabling until they're nice and neat.



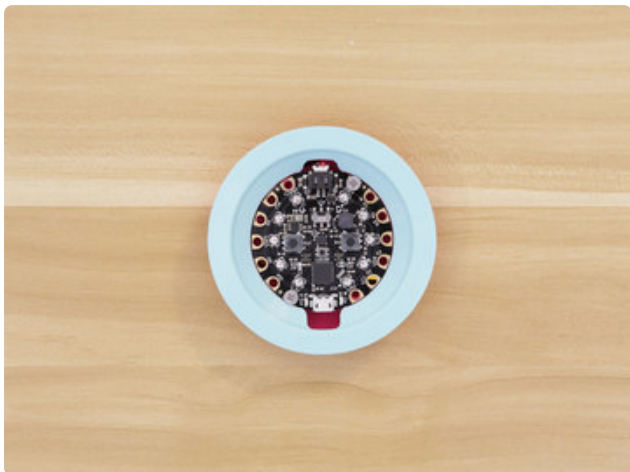
Mount Board

Place the Circuit Playground board over the four standoffs with the micro USB port facing the opening on the side of the case. Line up the mounting holes with the holes on the board. While holding the board down, insert and fasten machine screws until fully tight.



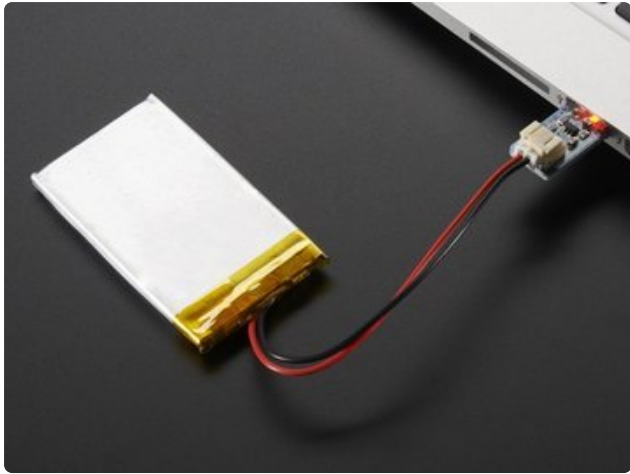
Install Cover

Inspect the wiring and adjust the cabling as necessary. Orient the cover so the larger opening is lined up with the micro USB port on the Circuit Playground. Place the cover on top of the case and firmly press down until it clicks into place.



Make, Remix and Share

Please post and share your Circuit Playground case! You can use the 3D model as a starting point to make upgrades or tweaks.



Recharging Battery

When the battery gets low, you can use [the Adafruit Micro Lipo Charger \(http://adafru.it/1304\)](http://adafru.it/1304) to recharge over USB. It's so small and handy you can keep it in the case!