



3D Printed Raspberry Pi B+ Enclosure

Created by Ruiz Brothers



<https://learn.adafruit.com/3d-printed-raspberry-pi-b-plus-enclosure>

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Overview

<https://www.youtube.com/watch?v=LAGcv7MiHr0> (<https://adafru.it/dP5>)

In this project we're designing and 3D printing an enclosure for the [Raspberry Pi B+](https://adafru.it/dP6) (<https://adafru.it/dP6>). The Model B+ has updated components, more USB ports and a better layout (with respect to 3D printing/enclosure design!)



Get inspired to design with style in mind, like why not put a face on it? This two piece design makes it easy to take apart. Using standoffs on both parts allow you to secure the enclosure together with machine screws.

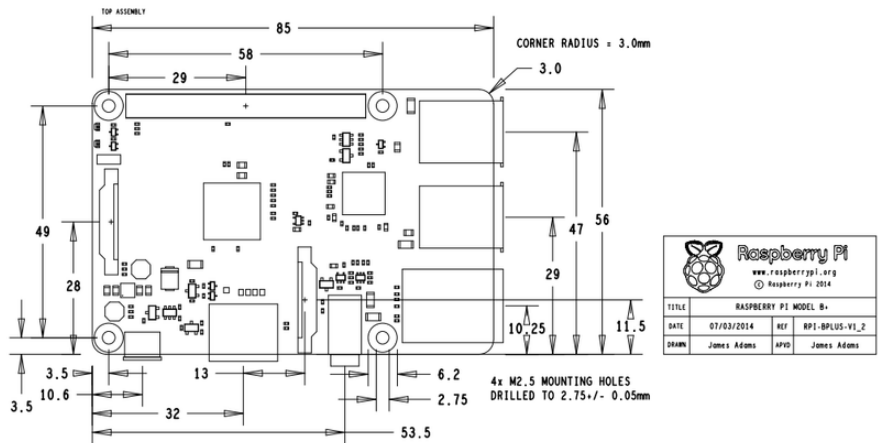
Prerequisite Guide

- [Introducing the Raspberry Pi B+](https://adafru.it/dP7) (<https://adafru.it/dP7>)

Parts, tools & supplies

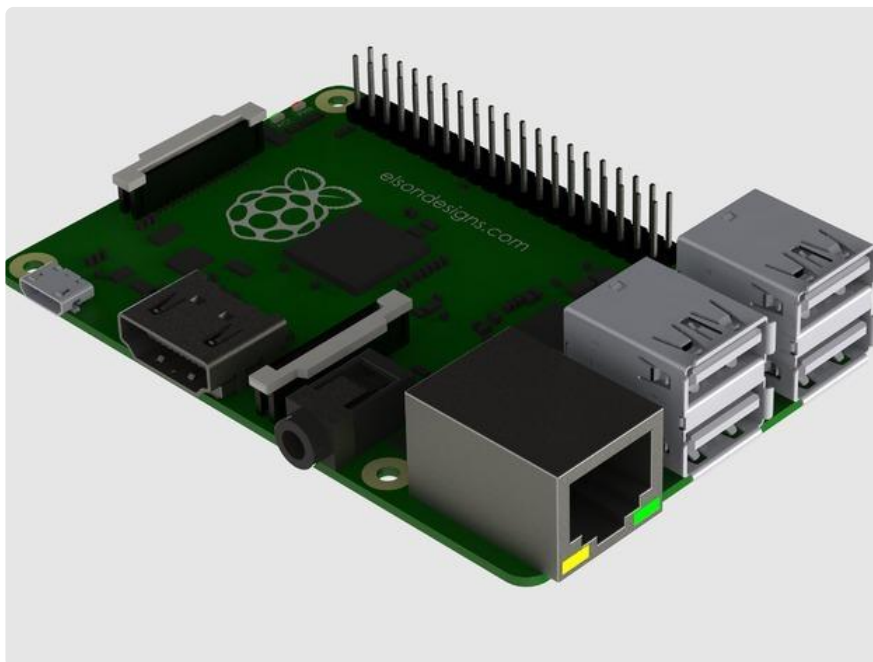
- [3D Printer](https://adafru.it/doT) (<https://adafru.it/doT>)
- [Raspberry Pi B+](http://adafru.it/1914) (<http://adafru.it/1914>)
- PLA/ABS Filament
- #4-40 x 1/2 IN Flat Phillips

Customization



Mechanical Drawing

The illustration above shows the Raspberry Pi B+ specifications. Here, you can see where the components are positioned relative to each other. Image above comes directly from [The Raspberry Pi foundation \(https://adafru.it/dP8\)](https://adafru.it/dP8).

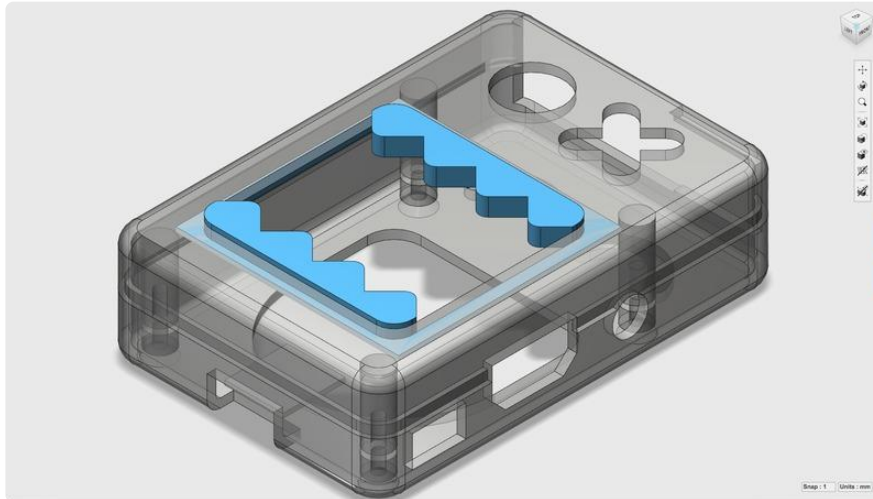


STEP and STL Files

3D models of the Raspberry Pi B+ are available for download. Most 3D CAD software can import STL files. The STEP file is a solid model that includes original data and the exact dimensions of the components.

[Download B+ Files](#)

<https://adafru.it/dP9>



123D Design

Our enclosure was designed in Autodesk 123D Design. The original solids are included in the 123DX if you're interested in modifying the design.

[Download Pi B+ Case Files](#)

<https://adafru.it/dPa>

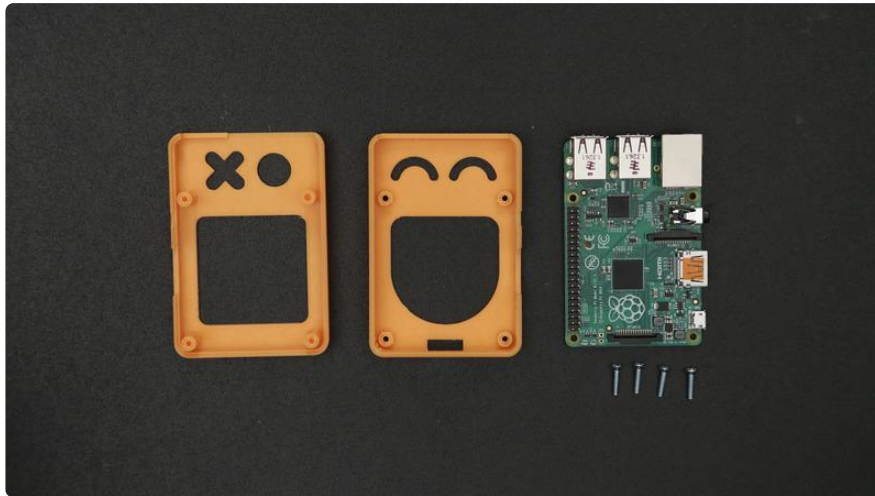
Learn 123D Design

Don't know how to use 123D Design yet? No problem! Check out our blog for awesome video tutorial to get you started.

[123D Tutorials](#)

<https://adafru.it/dPb>

3D Printing



Edit Design

<https://adafru.it/XLF>

Download STLs

<https://adafru.it/XMa>

piplus-top.stl
piplus-bottom.stl
piplus-teeth.stl

@230 PLA
15% Infill
0.2 Layer Height
2 Shells
90/120 Speeds

about 2 hours

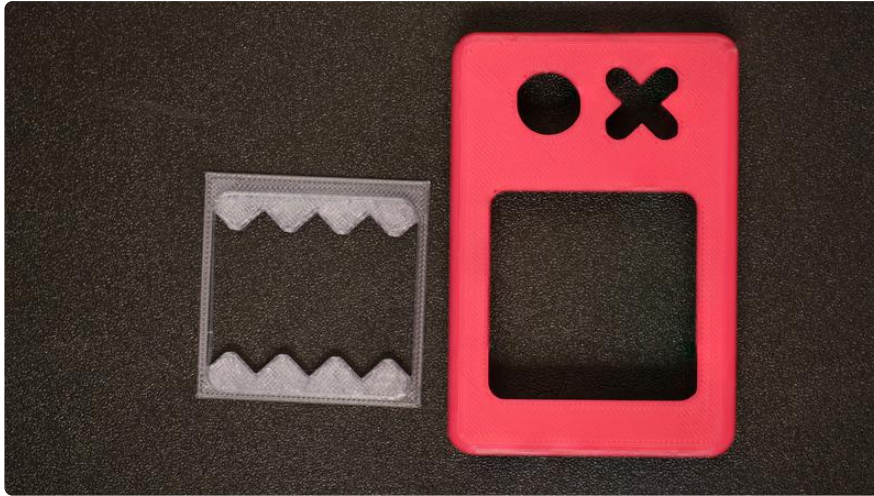
Slicing Software

The recommend settings above should work with most slicing software. However you are encouraged to use your own settings since 3D printers and slicing software will vary from printer to printer.

PLA or ABS Material

We recommend using PLA material for an easier print with high quality. The tolerance has been tested with PLA filament but should also work with ABS. The parts do not require any support material or a raft.

Assembly



Adding Teeth

We printed the `piplus-teeth.stl` part in transparent PLA to give the enclosure a bit of transparency. White PLA would also work well. The `piplus-teeth.stl` part will snap into the opening cut out in the `piplus-top.stl` part.



Secure Teeth

We recommend using adhesives to keep the teeth secured inside the enclosure part. This part has a fillet applied to the teeth, so they are not sharp and safe to touch!



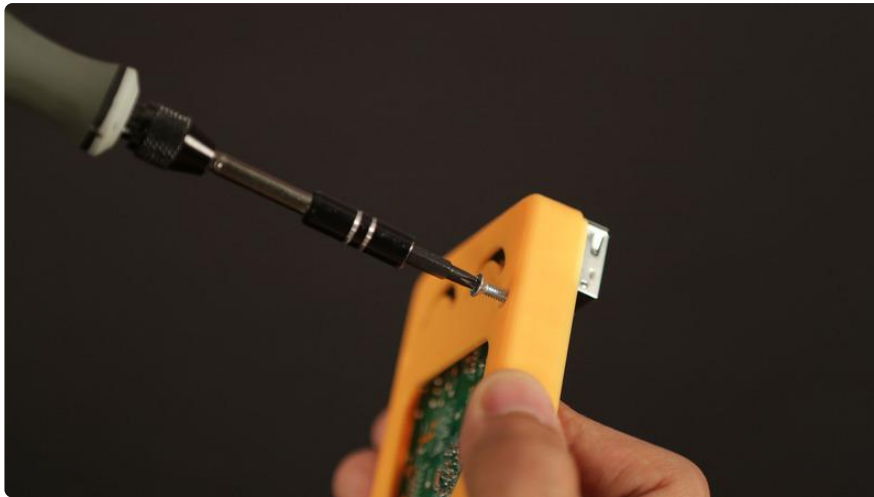
Insert Pi B+ into enclosure

Place the Raspberry Pi B+ on top of the inside of the piplus-bottom.stl part. Insert the Pi B+ at an angle so the audio/video jack is inserted first.



Pi B+ inside enclosure

Position the Raspberry Pi B+ over the pi-plus-bottom.stl part with the ports lined up with the openings in the part.



Secure Pi B+ to Enclosure

Add four #4-40 flat phillips screws to the mounting holes of the piplus-bottom.stl part. Fasten them until the screw reaches the PCB.



Secured Pi B+

Yey, the Raspberry Pi B+ is now secured to the piplus-bottom.stl part with four machine screws.



Close up Pi Enclosure

Position the piplus-top.stl part over the Raspberry Pi B+ with the ports lined up with the port opening. Snap it shut and fasten the 4 phillips screws until the enclosure is tight and secured.



Pi B+ Enclosure

The enclosure is 2mm thick and should protect the contents of the Raspberry Pi B+. Although the DOMO-KUN theme is nice, we encourage you to customize the design to fit your project.