HalloWing Case
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https://learn.adafruit.com/hallowing-case

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Overview

In this project we're making a 3D printed case for the hallowing! We added spikes to design, making it easy to attach to pumpkins! This last minute halloween prop is easy to 3D print and stick onto almost any soft surface!

The Adafruit hallowing is a full tricked-out Feather M0 Express with sensors and a built in screen.

Our 3d printed case features spikes! These decorative and functional spikes allows you to attach to pumpkins! This is the cleanest way to decorate your pumpkin this year.

Prerequisite Guides

If you're new to Adafruit CRICKIT, Circuit Python and soldering, take a moment to walk through the following guides to get you started.

This is Hallowing ()
Welcome to Circuit Python ()
This is Hallowing..this is Hallowing...
Hallowing! Hallowing! Are you the kind of person who doesn't...
https://www.adafruit.com/product/3900

Lithium Ion Polymer Battery - 3.7v 500mAh
Lithium-ion polymer (also known as 'lipo' or 'lipoly') batteries are thin, light, and powerful. The output ranges from 4.2V when completely charged to 3.7V. This...
https://www.adafruit.com/product/1578
Convex Plastic Lens with Edge
The eyes have it! Add this little lens to make a big expression with our Spooky Eyes demo for microcontrollers or Raspberry Pi. These are plastic lenses, with brilliant clarity and a...
https://www.adafruit.com/product/3917

Convex Glass Lens with Edge - 40mm Diameter
The eyes have it! Add this little lens to make a big expression with our Spooky Eyes demo for microcontrollers or Raspberry Pi. These are gorgeous glass (not plastic/acrylic)...
https://www.adafruit.com/product/3853

Clear Acrylic Lens Holder + Hardware Kit for HalloWing
Here is the perfect kit for mounting a convex lens (glass or plastic) to your
https://www.adafruit.com/product/4013

8 x M2 x 4mm Metric Flat Head Screws
Phillips Flat Head Metric Screws

Eye Animation

The HalloWing M0 Express ships with a pre-programmed eye animation. Just plug in a lipo battery to the JST PH connector to power on the board. The HalloWing M0
Express can be programmed over microUSB – Also recharge the lipo battery. Additional eye animations can be quickly flashed to the board via a UF2 file. Follow the HalloWing guide to learn how to upload new eyes and code.

HalloWing Eye Guide

3D Printing

What If I Don't Have A 3D Printer?

Not to worry! You can use a 3D printing service such as 3DHubs or MakeXYZ to have a local 3D printer operator 3D print and ship you parts to you. This is a great way to get your parts 3D printed by local makers. You could also try checking out your local Library or search for a Maker Space.
3D Printed Parts

The enclosure is comprised of four parts. Each part is listed below with a description. Parts with mounting holes and standoffs can be tapped with an M2.5 size screw tap – This creates precise threads needed for fastening screws. These parts are designed for FDM style 3D printers.

<table>
<thead>
<tr>
<th>File</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>file.stl</td>
<td>Top cover part for convex lens.</td>
</tr>
<tr>
<td>file2.stl</td>
<td>Bottom cover part, fits 400mAh lipo</td>
</tr>
<tr>
<td>file3.stl</td>
<td>Top part, no lens.</td>
</tr>
<tr>
<td>file4.stl</td>
<td>Bottom part, fits 100mAh lipo battery.</td>
</tr>
</tbody>
</table>

Edit Fusion360 files

Download STLs

3D Source Files on GitHub
Snap Fit Tolerances

The four parts are designed to snap fit together. Chamfered tabs on the inside edges of the frame lock into indentations along the lip of the top and bottom covers. To produce these tolerances, you may need to adjust printer's slice settings.

Slice Settings

Use these settings as reference. Values listed were used in Ultimaker's CURA 3.X slicing software.

- 0.2mm Layer Height / 0.4mm nozzle
- 0.38mm Line Width (inner & outer widths)
- 60mm/s printing speed
- 60% infill
- No support materials required

Design Source Files

The enclosure assembly was designed in Fusion 360. This can be downloaded in different formats like STEP, SAT and more. Electronic components like the board, displays, connectors and more can be downloaded from our Fusion 360 CAD parts github repo.

Adafruit Part CAD files

Monoprice Inventor II 3D Printer with Touchscreen and WiFi

The Monoprice Inventor II 3D Printer Touchscreen with WiFi is a perfect entry-level 3D printer with small footprint and reliable performance. It comes equipped with...

https://www.adafruit.com/product/3897
Assembly

Attach spikes

The spike will help us attach the Hallowing case to just about any soft surface. We used M2x4mm long screws to securely fasten them to the case, but we can also use glue.

Add four spike to the top and bottom case.
Position Battery

We can fit the battery between the two headers by wrapping the wires around and placing the battery in the middle of the PCB.

Mount Hallowing

Start with mounting the PCB the bottom case. Place it over the standoffs and press it down until it clicks into the tabs no the side.

Make sure to check the battery and wires aren't being kinked inside the case.
Mount Lens

Check that the two mounting posts are fully seated through the mounting holes. Gently place the plastic convex lens on top of the display.

Place the top cover over the lens and firmly press down to lock the case shut.

Be careful handling the case with the spikes mounted!
Foam Pumpkin

Optionally attach the HalloWing from the inside of a pumpkin! We used a foam pumpkin to reuse and reduce the mess. They’re normally hollow inside. Use a knife to carefully cut the top off – Try to cut at an angle to prevent the top from falling through.

Spade Drill Bit

To make the hole cut out for the display, we used a drill and a spade bit. The 1 3/8 inch bit is a close match to the diameter of the plastic lens (40mm diameter). Position and align the lens to get your desired position and then carefully drill into the side.

Attach Hallowing

Place the case over the hole and then gently press the spikes into the walls of the pumpkin. Decorate or just use as is!