



3D Printed Starro Face Mask

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<https://learn.adafruit.com/3d-printed-starro-face-mask>

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Overview

In this project, we're making a Face Mask inspired by Starro from The Suicide Squad.

This mask is flexible and features blue and purples to look like those creepy starfish face huggers.

The HalloWing is the perfect board for this type of project!

It's an easy way to get an animation eyeball with no coding skills required.



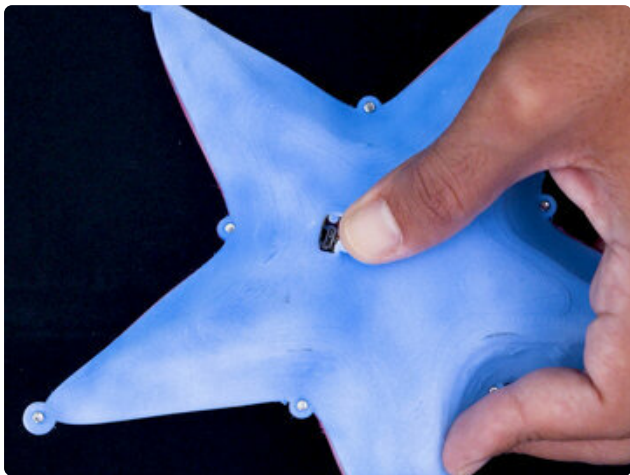
Construction



The mask is 3d printed in flexible filament so it can wrap around your face.

It's made from two separate pieces that are fastened together with machine screws.

All you need for this project is the HalloWing, a small LiPoly battery and a convex lens.



The mask is 3D printed in Ninjabflex. This filament features a shore hardness of 85A and it's both flexible and elastic.

The flap on the back allows access to the built-in power switch so it's easy to turn on and off.

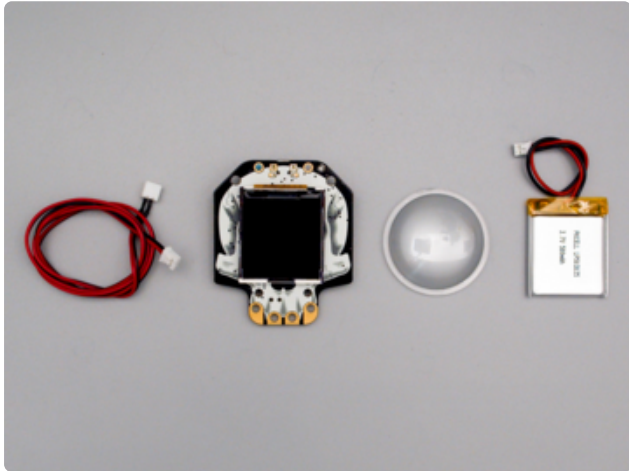
Rechargeable



Easily power up Starro! The HalloWing includes a LiPoly battery port with built in recharging capability!

Simply plug it via USB cable into a USB port to recharge the battery plugged into the JST port! While charging, the orange LED is lit. When the battery is fully charged and ready for use, the green LED turns on. Seriously, it could not get more easy!

Parts

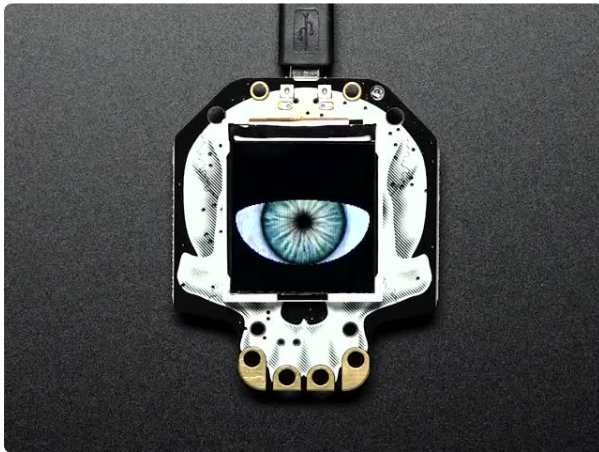


Components are housed inside Starro's body.

The lens press-fits into the lid in the center of the body.

Build-in standoffs help to securely mount the HalloWing to the upper half of the body.

JST extension cable can safely route the battery to a pocket.



[Adafruit HalloWing MO Express](https://www.adafruit.com/product/3900)

This is Hallowing..this is Hallowing...

Hallowing! Hallowing! Are you the kind of person who doesn't...

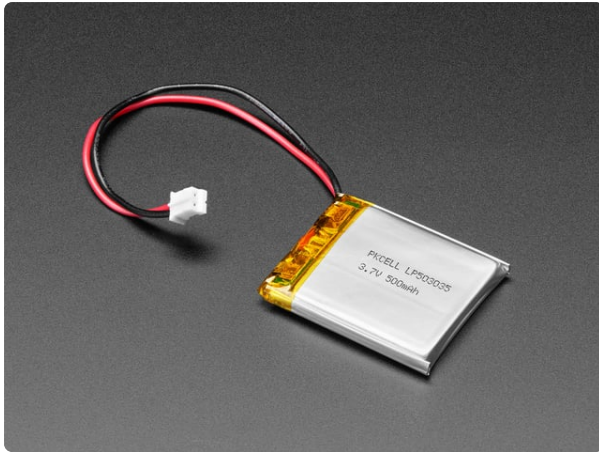
<https://www.adafruit.com/product/3900>



[Convex Plastic Lens with Edge](https://www.adafruit.com/product/3917)

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...

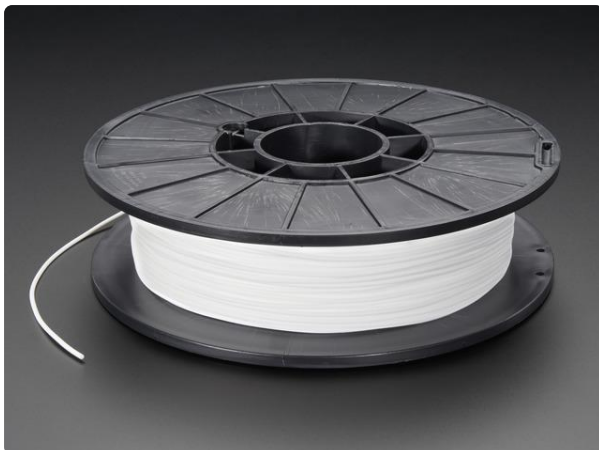
<https://www.adafruit.com/product/3917>



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>



NinjaFlex - 1.75mm Diameter - Snow White - 0.5 Kg

Discontinued - you can grab NinjaFlex - 1.75mm Diameter - Almond-Peach Smoothie - 0.50Kg...

<https://www.adafruit.com/product/1691>



NinjaFlex - 1.75mm Diameter - Semitranslucent White - 0.50 Kg

Looking beyond ABS? Tired of PLA? Open a world of possibilities, limited only by your imagination. NinjaFlex, a cutting-edge filament for 3D printers, is a specially formulated...

<https://www.adafruit.com/product/2445>



JST 2-pin Extension Cable with On/Off Switch - JST PH2

By popular request - we now have a way you can turn on-and-off Lithium Polymer batteries without unplugging them. This PH2 Female/Male JST 2-pin Extension...

<https://www.adafruit.com/product/3064>



[Adafruit HalloWing M4 Express - Goth Adafruit Black Edition](#)

This is Halloween..this is Halloween...
Halloween! Halloween! Following up on 2018's

<https://www.adafruit.com/product/4300>



[JST-PH Battery Extension Cable - 500mm](#)

By popular demand, we now have a handy extension cord for all of our JST PH-terminated battery packs (such as our Lilon/LiPoly and 3xAAA holders). One end has a JST-PH compatible...

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



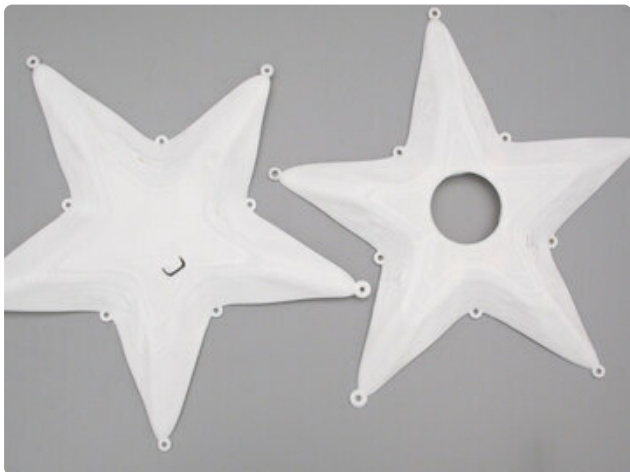
[Flush diagonal cutters](#)

These are the best diagonal cutters, large super-comfortable grip to use and have strong nippers for perfect trimming of wires and leads. I've used my pair every day for years.

<https://www.adafruit.com/product/152>



Printing



Parts List

STL files for 3D printing are oriented to print "as-is" on FDM style machines. Original design source may be downloaded using the links below.

staro-hallowWing

staro-hallowWing-btm

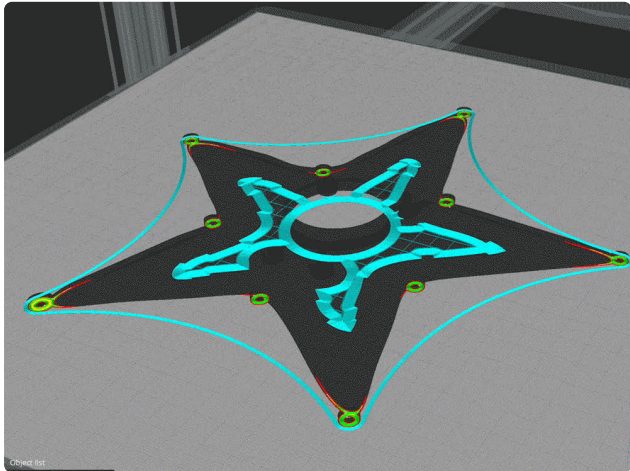
Edit Design

<https://adafru.it/UFU>

Download STLs

<https://adafru.it/UFV>

Slicing Parts

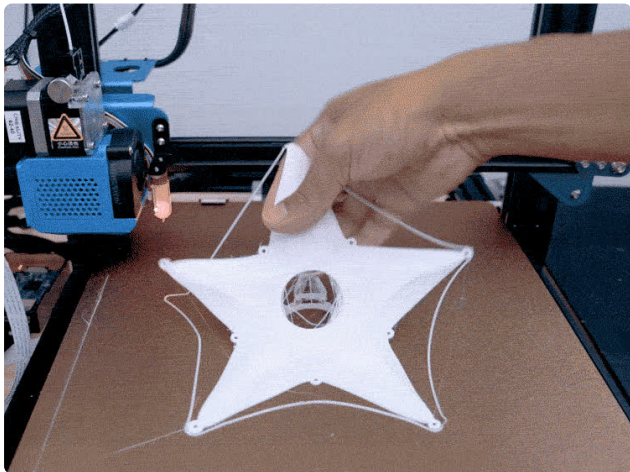


Supports are required. Slice with setting for NinjaFlex 85a material.

The parts were sliced using CURA using the slice settings below.

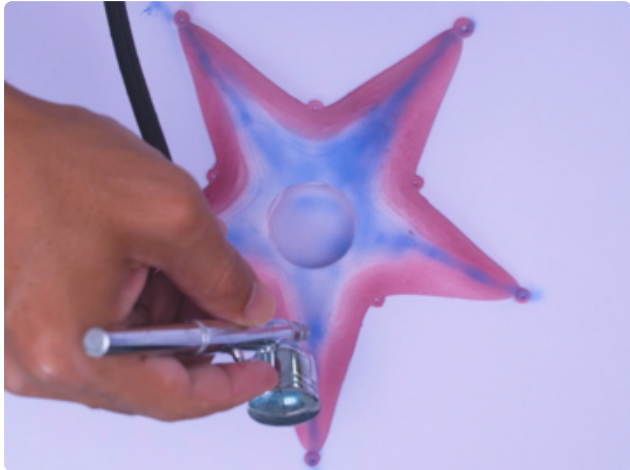
230c extruder
0.3 Initial layer height
.2 layer height
10% gyroid infill
50mm/s print speed
50c heated bed

Supports



Support Extrusion Width: .2
Support Density: 4%
Support Z Height: .21
Interface: On
Support Roof: On
Support Pattern: Zig Zag
Support Roof Pattern: Zig Zag

Assemble



Clean Up

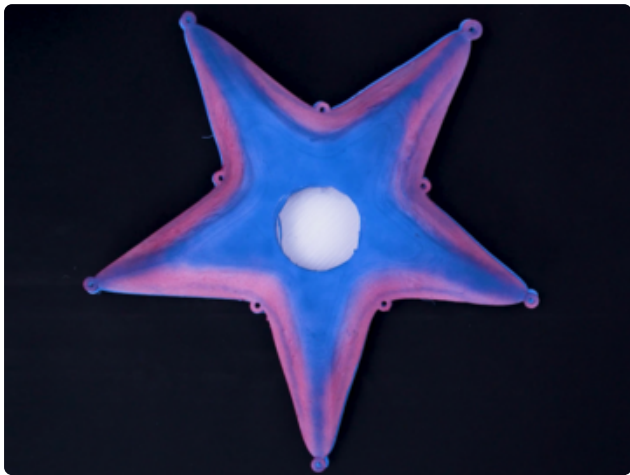
These parts are stringy and need a bit of cleanup which is easy to do with a pair of flush snips.

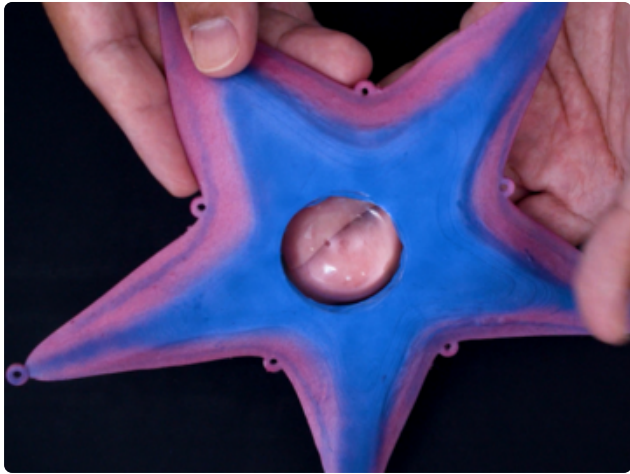
Spray Paint

To color the parts, you can airbrush both sides starting with some shades of purple.

Then you can add some blue and blend them together to make some gradients.

Airbrushing Ninjaflex is better than acrylic paints because it won't crack when flexing.

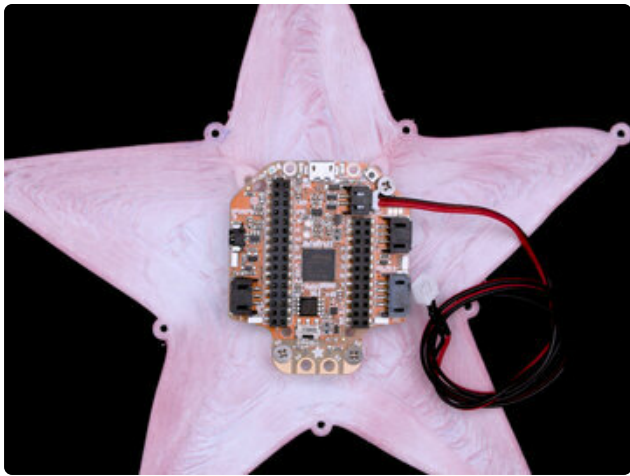




Attach Lens

The lens is added to the center hole cutout and is held in place with the lip along the edge.

The HalloWing board is placed on top with the mounting holes lined up.



Screws

Machine screws can then be fastened to the built-in standoffs for a nice and secured fit.

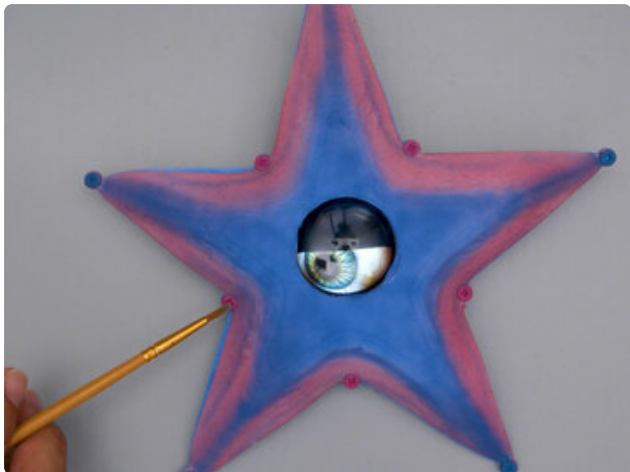
The placement of the board is set up so the display is exactly in the center of the mask.



Align Parts

The back side can then be added with the flap lined up with the built-in switch.

Machine screws are added to each of the mounting tabs with the two sides held together.



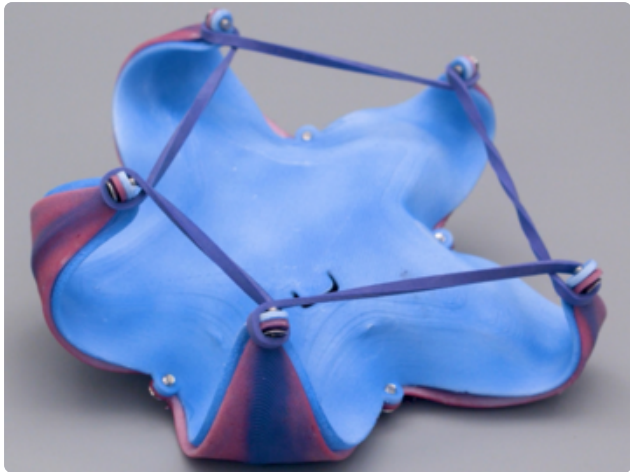
Paint Screws

Use acrylic paint on the screws to help them blend into the body.



JST Extension Cable

You can add an extension cable for a bigger battery and hide it in your pocket so it's not directly over your face.



Mold arms

The tips of the mask are bent and held in place overnight so it'll retain a curved shape.

Head Strap

You can add a strap or a piece of Ninjaflex to act as a string to keep the mask fitted over your face.

We hope this inspires you to try out some Ninjaflex and check out the Adafruit HalloWing for your next project!

