



Monster M4SK Antenna Eyes

Created by Ruiz Brothers



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Overview

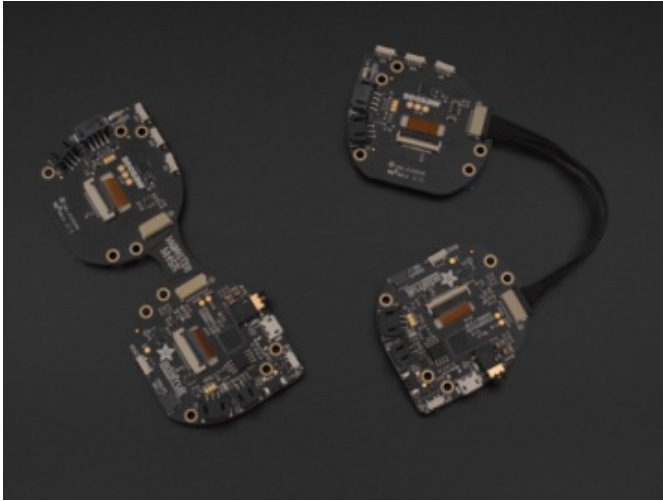


In this project we'll build a set of Antenna Eyes!

The Monster M4sk features a pair of realistic animated eyes on two LCD screens.

We can separate the two eyes and mount them on a headband to create these alien inspired antenna eyes!

The eyes are enclosed in a 3D Printed case and attach to springs on a headband. The springs allow them to sway, giving them a bit on movement to add a bit of life to the antennae!



Splittable

The Monster M4sk features a splittable design! This allows you to cut along the perforations on the PCB to separate the two eyes. The Two boards are then connected via a JST SH 9-Pin cable.

We can even create a longer wire to increase the distance even further like we did with the longer antenna eyes!





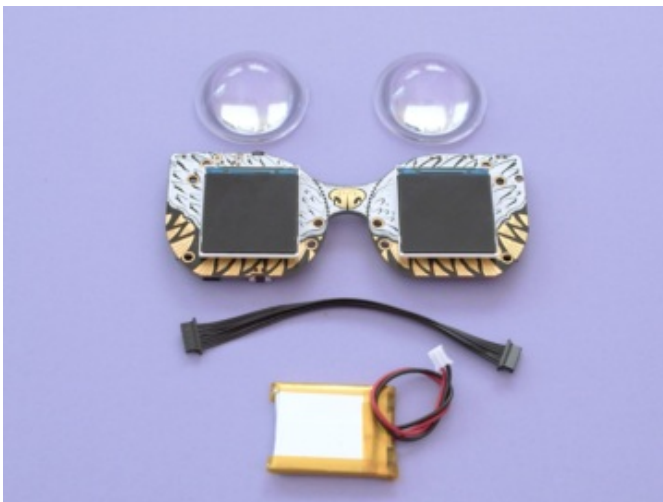
Adafruit Monster M4SK

The Adafruit monster Mask packs a ton of awesome stuff into one single board. It's running a cortex M4, it's got 8 megabytes of flash storage, USB charging and 2x IPS TFT displays. It also has buttons, light sensor, expansion ports and accelerometer.

Be sure to check out the [quick start guide \(https://adafru.it/FFT\)](https://adafru.it/FFT) for the full run down on code and graphics setup.

<https://adafru.it/FFT>

<https://adafru.it/FFT>



Copy and paste this friendly list of products.

- [Monster M4sk \(https://adafru.it/FLO\)](https://adafru.it/FLO)
- [9-Pin cable \(https://adafru.it/FAZ\)](https://adafru.it/FAZ)
- [420mAh battery \(https://adafru.it/FPL\)](https://adafru.it/FPL)
- [Convex lens \(https://adafru.it/FB4\)](https://adafru.it/FB4)
- [JST Extension \(https://adafru.it/doS\)](https://adafru.it/doS)
- [Ninjabflex \(https://adafru.it/dtm\)](https://adafru.it/dtm)
- Headband
- [9.52x19.05" Compression springs \(https://adafru.it/FPM\)](https://adafru.it/FPM)

Your browser does not support the video tag.

[Adafruit MONSTER M4SK - DIY Electronic Eyes Mask](#)

OUT OF STOCK

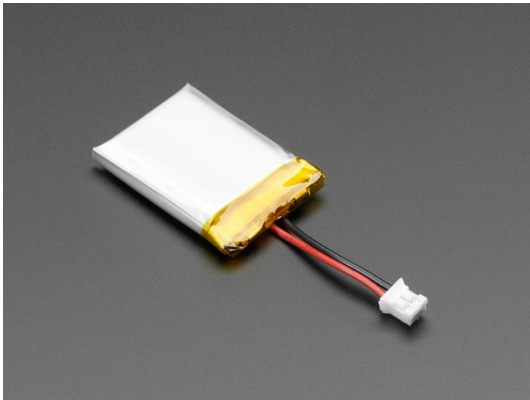
Out Of Stock



Convex Plastic Lens with Edge

\$3.95
IN STOCK

Add To Cart



Lithium Ion Polymer Battery with Short Cable - 3.7V 420mAh

OUT OF STOCK

Out Of Stock



JST-PH Battery Extension Cable - 500mm

\$1.95
IN STOCK

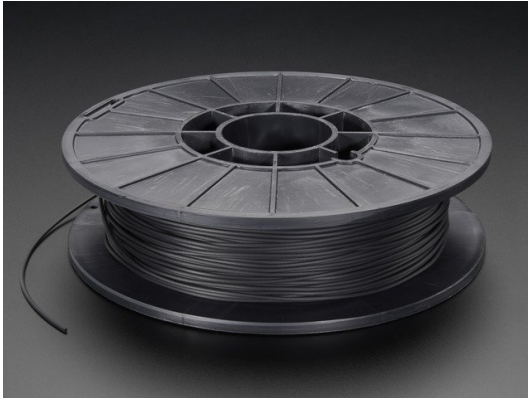
Add To Cart



Silicone Cover Stranded-Core Ribbon Cable - 10 Wire 1 Meter Long

OUT OF STOCK

Out Of Stock



NinjaFlex - 1.75mm Diameter - Midnight Black - 0.5Kg

\$29.95
IN STOCK

Add To Cart



3D Printing



The parts in this kit are designed to be 3D printed with FDM based machines. STL files are oriented to print "as is". Parts require tight tolerances that might need adjustment of slice settings. Reference the suggested settings below.

CAD Files

The parts can further be separated into small pieces for fitting on printers with smaller build volumes. Note: a STEP file is included for other 3D surface modeling programs such as Onshape, Solidworks and Rhino.

Share, Make, Remix

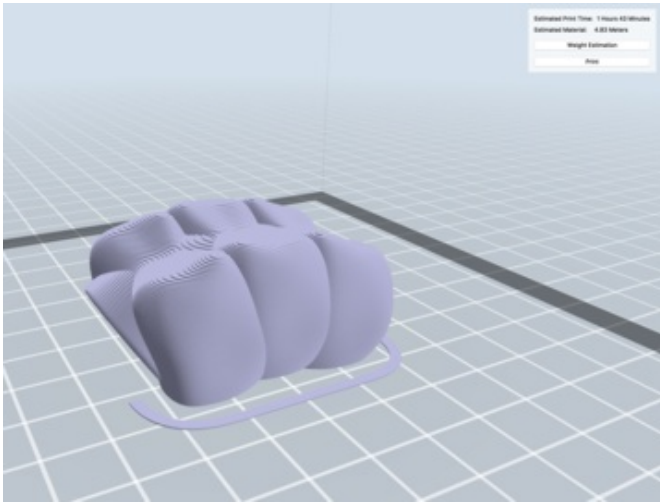
These parts have been modified to fit all of the electronics and available to download!

<https://adafru.it/FPN>

<https://adafru.it/FPN>

<https://adafru.it/FQ0>

<https://adafru.it/FQ0>



Settings

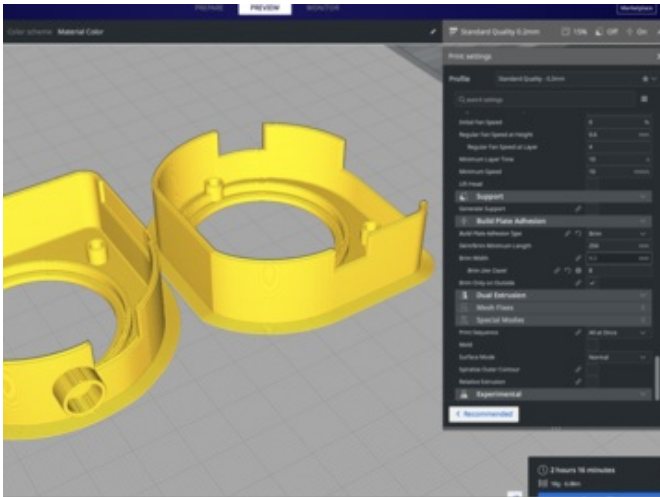
Use these settings as reference. Values listed were used in Cura slicing software.

0.2mm Layer Height / 0.4mm nozzle
0.38mm Line Width (inner & outer widths)
60mm/s printing speed
10% infill
Supports: No
Brim: 7mm

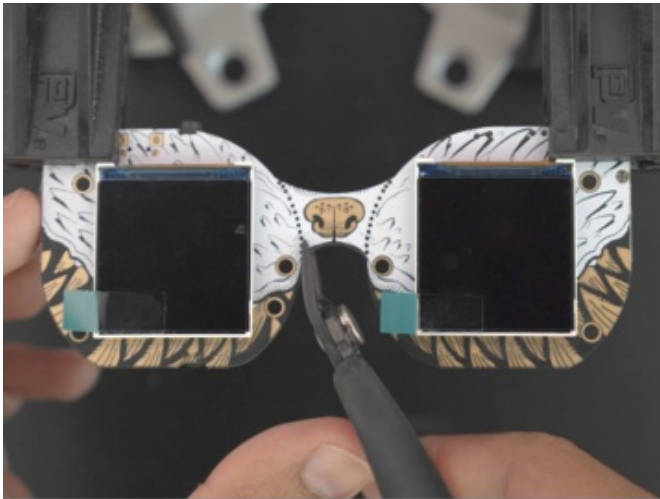
NinjaFlex Setting

0.2mm Layer Height / 0.4mm nozzle

Retraction: 0
30mm/s printing speed
0% infill
Supports: No
Brim: None



Assemble



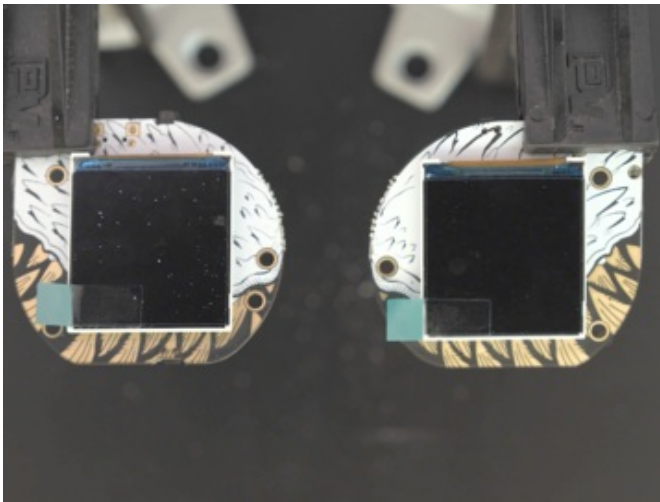
Split Mask

Make sure to split the Monster M4sk in a well ventilated area.

I used a set of panavises to hold the board and then aligned a pair of flush cutters along the perforations on the board near the nose bridge.

Start by cutting the four ends of the perforation and then go back to finish cutting remaining edges.

Again, you'll want to do this in a well ventilated area to avoid breathing in any dust and debris.





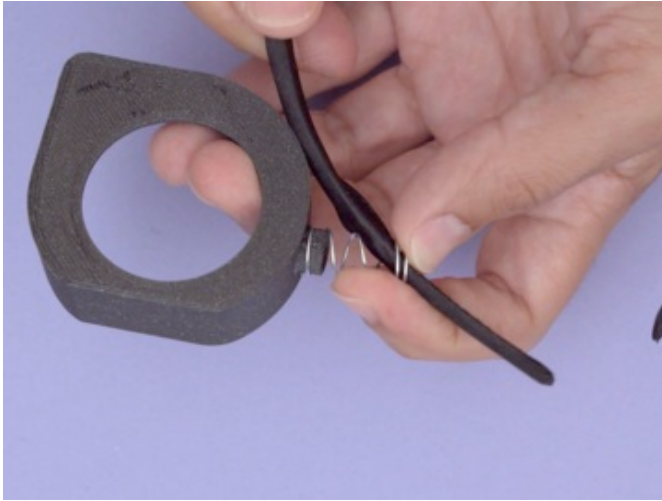
Attach springs

A compression spring is press fitted onto the 3d printed enclosure. You'll want to tightly wrap the coil around the posts. You can optionally hot glue them in place.

Attach wire cover

Slide the Ninjaflex cover onto the headband – We'll use this to cover up the wires and battery.





Attach springs to headband

With both sets made they can be added to the headband by either slipping them on or wrapping the spring around the frame. Be careful, especially if your headband has padding or fabric.



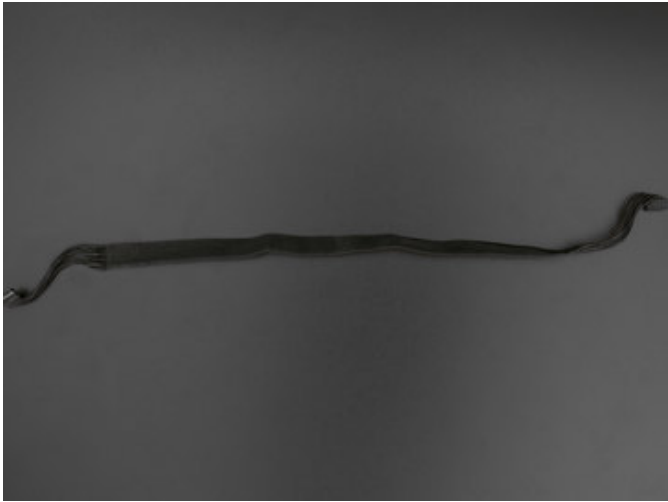
Option Two: Longer Wires

We designed two variants, a short and a longer build, but still uses the same code!

I used the [10 wire silicone ribbon cable \(https://adafru.it/CJj\)](https://adafru.it/CJj) to extend the 9-Pin cable.

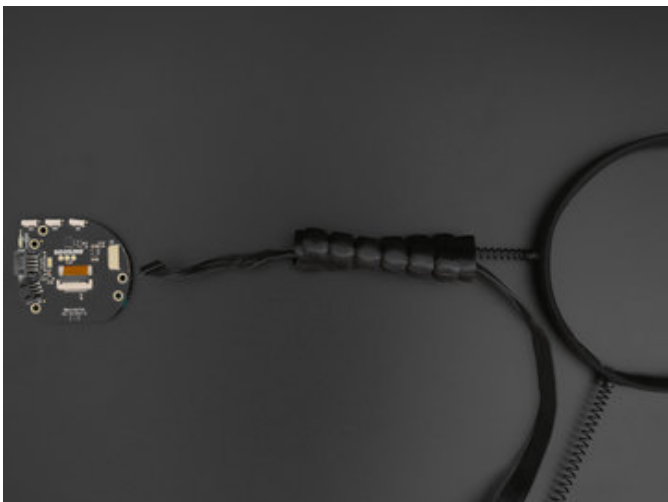
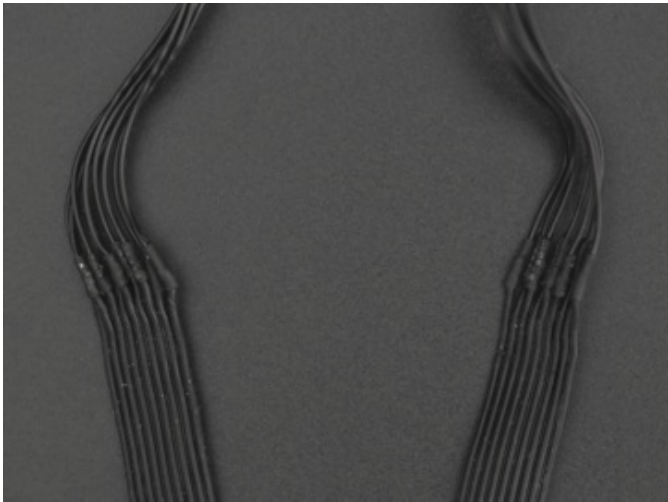
We measured and cut a 240mm long piece of ribbon cable to fit the longer antenna.

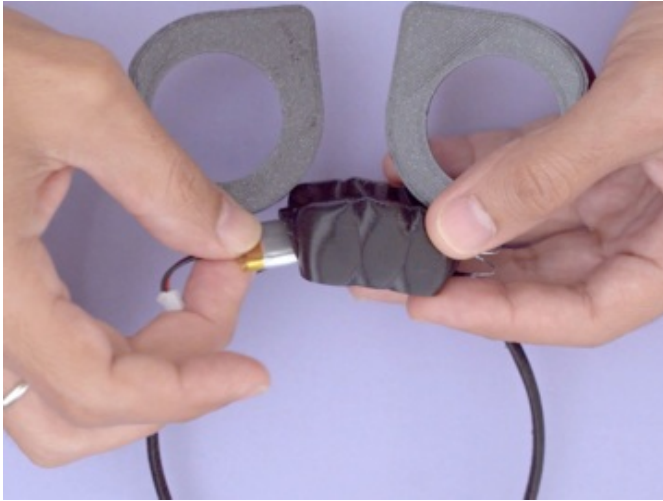
Carefully cut the 9-Pin cable in the center. Strip and tin the wires and **add heat heat shrink before soldering**



each wire.

I printed the longer spring "guts" covers and threaded the wires to reach the connectors on the two Monster M4sk boards.





Mount Battery

The cover should have enough room for housing a 420mah lipo battery. Position the battery so the wire faces the PCB with the JST connector.

Thread wires

Then we can install the monster mask cable by threading it through the covering.



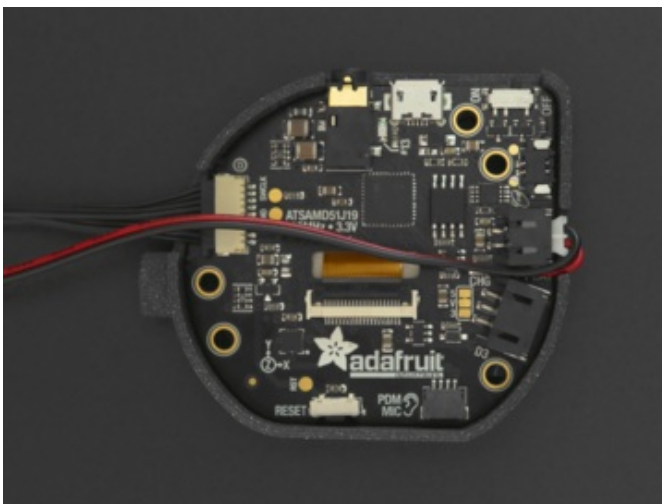


Mount Lens

These lenses will create a nice effect that makes the displays look like actual eye balls.

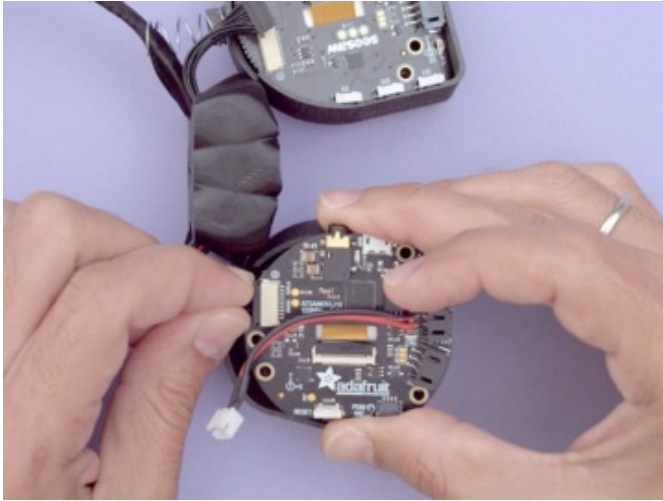
Mount boards

Place the PCBs over the lenses making sure they're lined up with the enclosure.



To reach the battery port, we wired up a JST extension cable.

The cutout on the case allows the JST wire to fit flush with the walls on the enclosure. Carefully shape the wire to fit between the JST and STEMMA connector.



Plug in cables

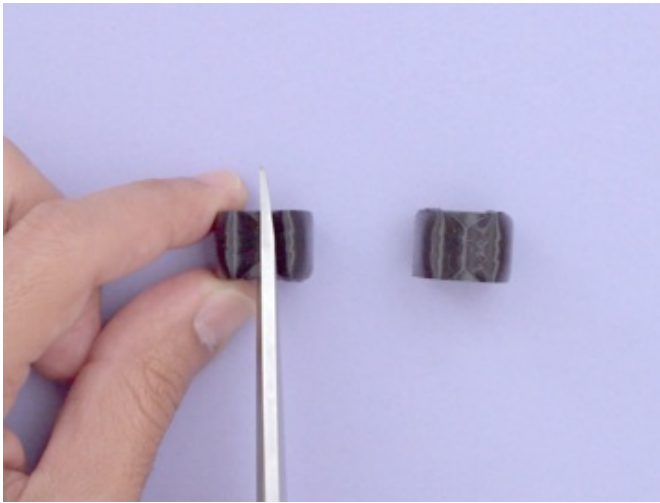
Now we can plug in the monster mask cable.

Each PCB has a connector for plugging in the cable.

The battery can then be connected.

And with that in place we can install the covers by press fitting on.





NinjaFlex covers

We printed these little couplers in ninjaflex filament.

This way we could cut them open and cover up the compression springs.

This helps sell the effect and can match the color of your headband or costume.

Complete

And there you have it! That's how you can build your own pair of antenna eyes.

You could also splice a longer cable to create a taller set of antennas.





