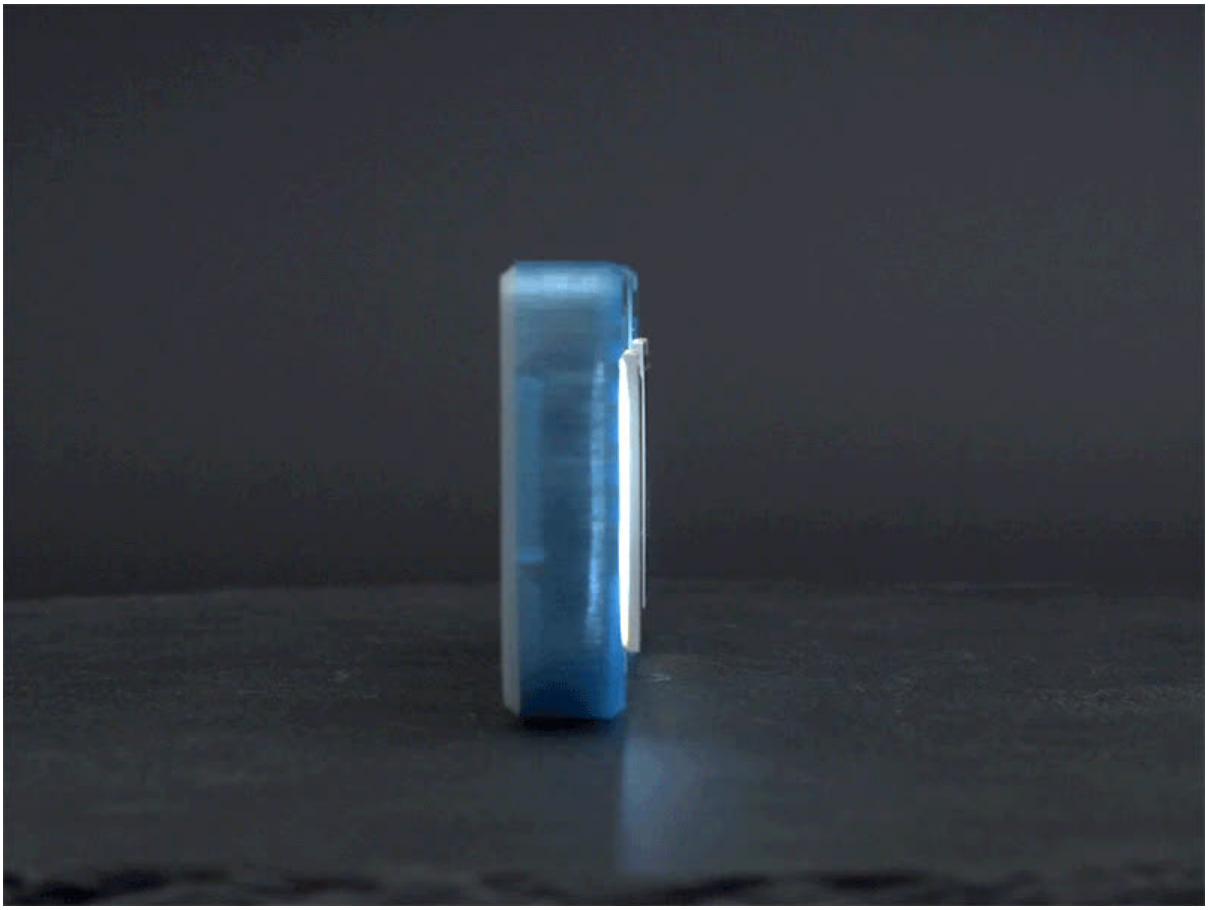
Monster Mask Case

Created by Ruiz Brothers



https://learn.adafruit.com/monster-mask-case

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Overview

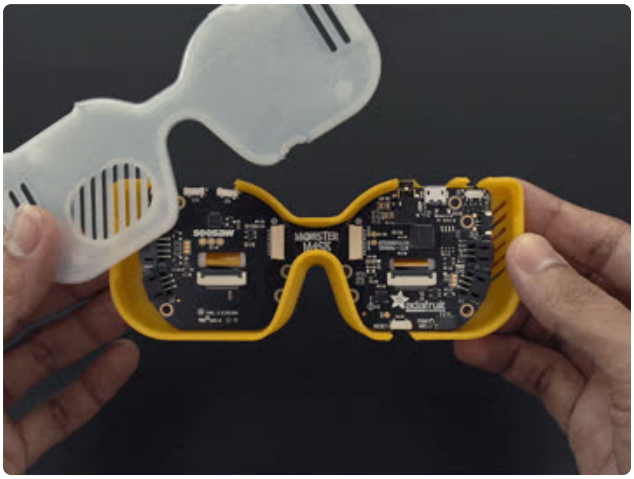
See it in action! The video shows how it looks on your forehead and face!

3D Hangout

In this week's live stream we discuss the case design and assembly in depth. We do some live demos changing up the config file to customize the eye graphics. As well as the usual banter mixed with some gaffs and goofs. Project discussion starts at 6min 20sec (https://adafru.it/FNg).

Wearable Case

Our 3d printed case snap fits together and lets you add a headband so you can wear it. The case has all of electronics so it's nice and portable little package.

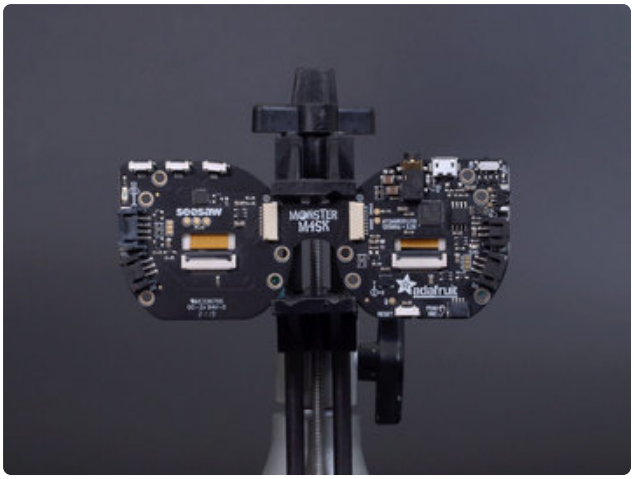


Snap Fit Design

The enclosure secures the Adafruit Monster M4SK PCB without any hardware screws. The two halves snap fit together. Buttons are exposed and accessible along with the micro USB, audio jack, reset and on/off switch.

Print It!

The open frame design shows off the silkscreen so you enjoy the lovely artwork. You can wear it as a pair of goggles or work it into your costume projects. They can be worn over your eyes, just be careful as you won't be able to see very well.



Adafruit Monster M4SK

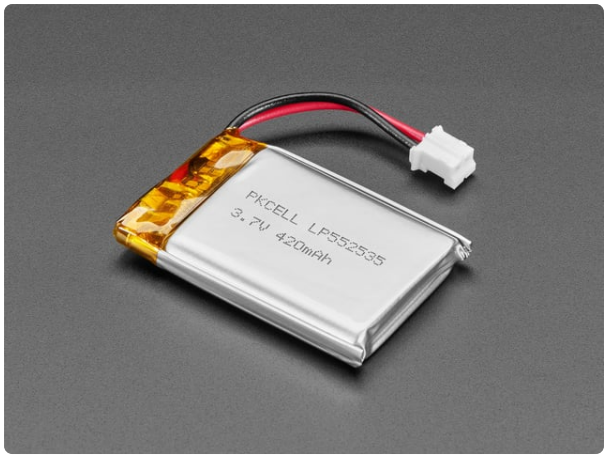
The Adafruit monster Mask packs a ton of awesome stuff into one single board. It's running a cortex M4, it's got 8 megabytes of flash storage, USB charging and 2x IPS TFT displays. It also has buttons, light sensor, expansion ports and accelerometer.

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

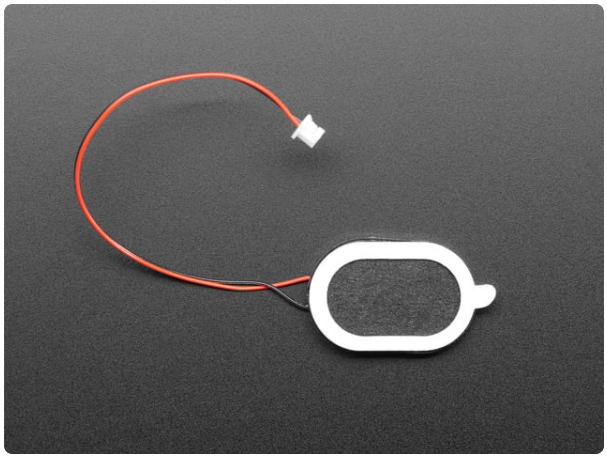
Monster M4SK – Quick Start Guide

https://adafru.it/FFT

[Adafruit MONSTER M4SK - DIY Electronic Eyes Mask]
Peep dis! Have you always wanted to have another pair of eyes on the back of your head? Or outfit your costume with big beautiful orbs? The MONSTER M4SK
https://www.adafruit.com/product/4343



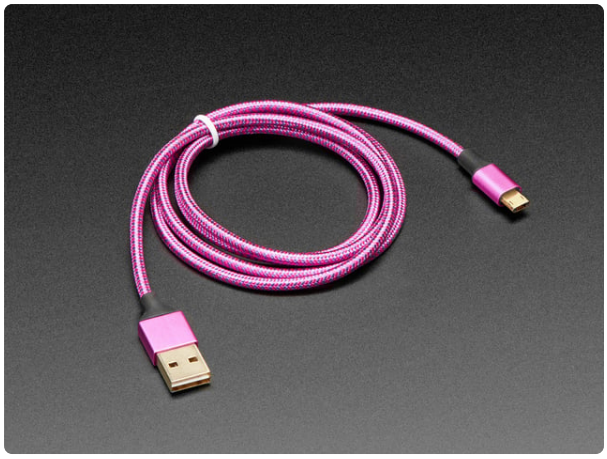
[Lithium Ion Polymer Battery with Short Cable - 3.7V 420mAh]
Lithium-ion polymer (also known as 'lipo' or 'lipoly') batteries are thin, light, and powerful. The output ranges from 4.2V when completely charged to 3.7V. This...
https://www.adafruit.com/product/4236



[Mini Oval Speaker - 8 Ohm 1 Watt]
Hear the good news! This wee speaker is a great addition to any audio project where you need 8 ohm impedance and 1W or less of power. We particularly like...
https://www.adafruit.com/product/3923

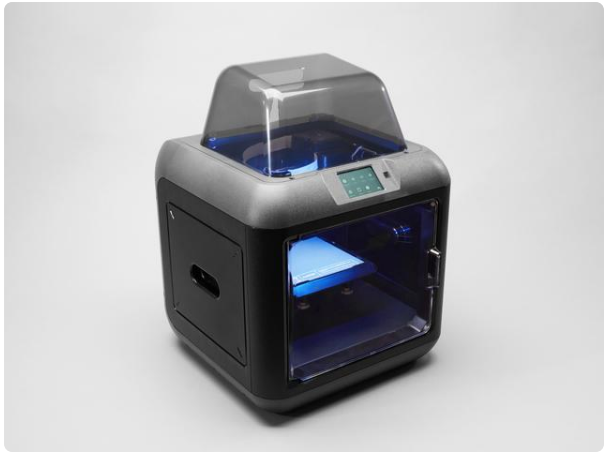
[Convex Plastic Lens with Edge]
The eyes have it! Add this little lens to make a big expression with our Spooky Eyes demo for microcontrollers or Raspberry Pi. These are plastic lenses, with brilliant clarity and a...
https://www.adafruit.com/product/3917

[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



[Fully Reversible Pink/Purple USB A to micro B Cable - 1m long]
This cable is not only super-fashionable, with a woven pink and purple Blinka-like pattern, it's also fully reversible! That's right, you will save seconds a day by...
https://www.adafruit.com/product/4111

[Filament for 3D Printers in Various Colors and Types]
Having a 3D printer without filament is sort of like having a regular printer without paper or ink. And while a lot of printers come with some filament there's a good chance...
https://www.adafruit.com/product/2080



[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

3D Printing

3D Printed Parts

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 setting adjustments. Reference the suggested settings below.

Autodesk Fusion 360 Share Link

https://adafru.it/FMK

Download files Cults 3D

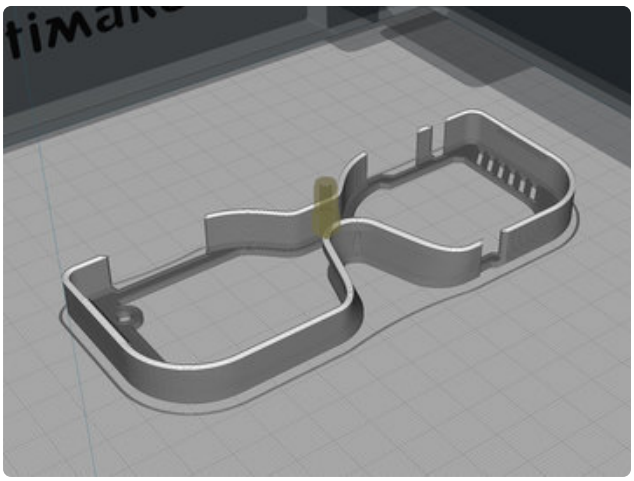
https://adafru.it/FML

Download files Thingiverse

https://adafru.it/FMM

Download files MyMiniFactory

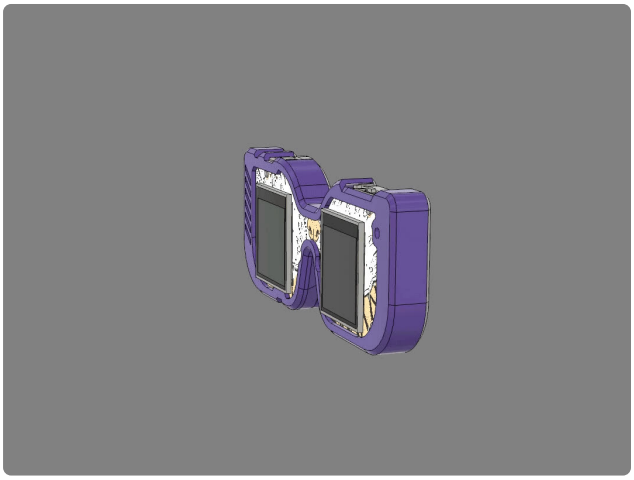
https://adafru.it/FMN



Settings

Use these settings as reference. Values listed were used in Ultimaker's CURA (https://adafru.it/C26) slicing software.

0.2mm Layer Height / 0.4mm nozzle
0.38mm Line Width (inner & outer widths)
40mm/s printing speed
20% infill
Supports: No



CAD Source

The Fusion 360 source file is included and features original sketches and feature timeline along with easily editable user parameters. The parts can further be separated into small pieces for fitting on printers with smaller build volumes. Note: the STEP file is included for other 3D surface modeling programs such as Onshape, Solidworks and Rhino.

Headband & Pad

The bottom cover features slots on both sides for elastic bands. The slots are about 19mm (.75in) x 1.6mm (0.063in).

Use the **head-pad.stl** part as a bumper and glue onto the back of the bottom cover. It features a curve with drafted angles to follow the contour of a person's forehead.

Adjustable Strap

Create an adjustable strap using 0.75in thick elastic band. I got this spool of black elastic banding (https://adafru.it/FMO) from amazon. It's 11 yards long, so you can make a few!

Use 0.75in tri-glide buckles (https://adafru.it/FMP) to adjust the length of the strap. Insert the ends through the loops and slip to adjust.

Adafruit CAD Parts

If you'd like to use our 3D model of the Adafruit MONSTER M4SK, you can download the file from our github repo (https://adafru.it/FN2).

Our github repo hosts tons of adafruit boards and components. Feel free to create a pull request to request new models.

Adafruit CAD Parts Github

https://adafru.it/AW8

Layer by Layer

Interested in CAD tutorials? Check out the playlist on YouTube (https://adafru.it/Ddm) – There's over 100 of them! My personal favorite is the snap fit tutorial for cases and enclosures.

Lens Holder

40mm convex lenses can be used to create a budging eye effect. These can be secured to the Monster M4SK PCB using the **lens-holder.stl** part.

Secured Lens

The lens holder press fits over the flange making a secure fit. This also blocks refracted light from the edge of glass or plastic lenses.

Reflections

Note that the viewing angle of the displays will be reduced. Both plastic and glass will have some reflection and glare but that gives the eyes a more "wet" look.

Metric M2.5 x 12mm

Use four M2.5 x 12mm long screws and hex nuts. Use two screws for each lens holder.

Mounting Holes

The lens holders are mirrored. Reference the photo for correct placement of the mounting holes.