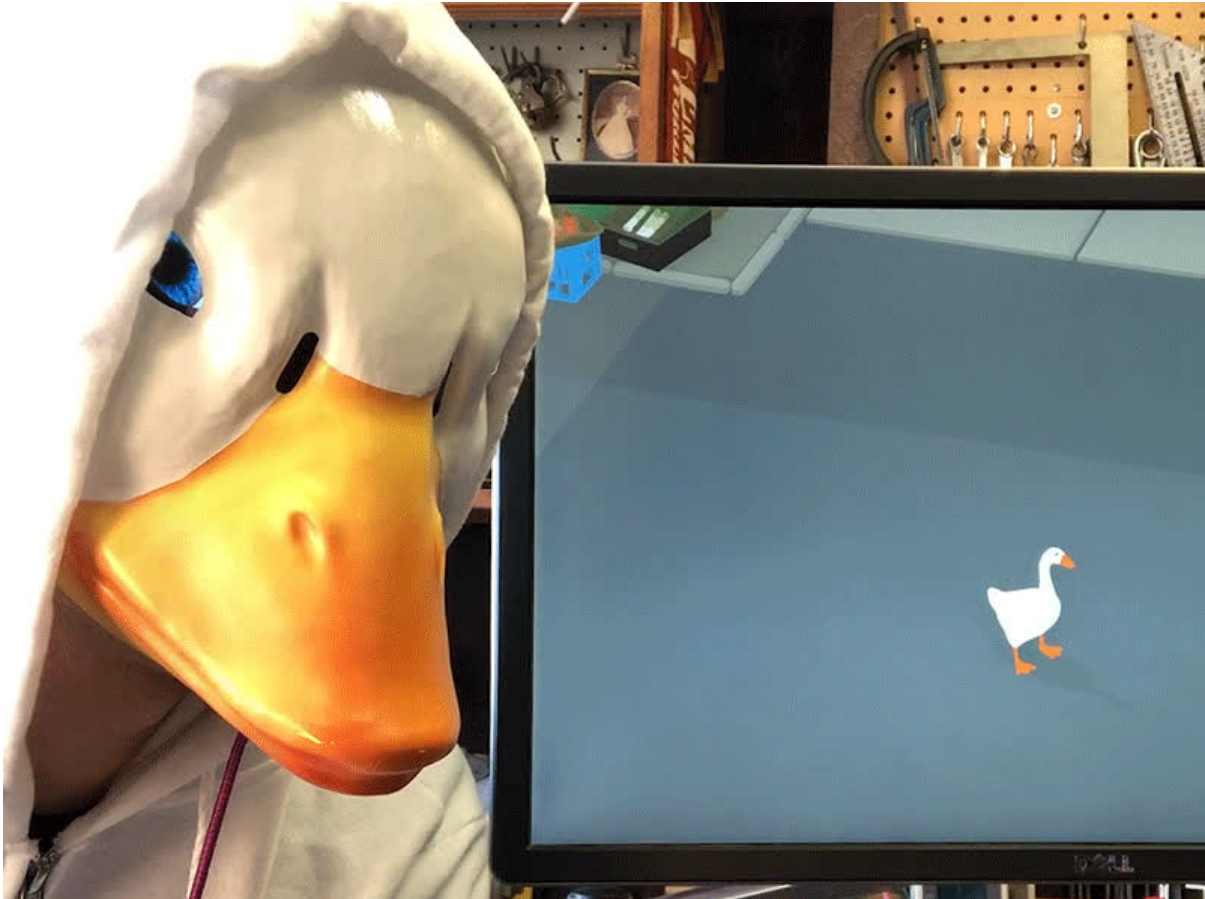




# Goose Game M4SK Controller

Created by John Park



<https://learn.adafruit.com/goose-game-m4sk-controller>

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# Table of Contents

Overview	3
<hr/>	
<ul style="list-style-type: none"><li>• Parts</li><li>• Materials &amp; Tools</li><li>• Optional Costume Parts</li></ul>	
Make the Horrible Goose Mask	5
<hr/>	
<ul style="list-style-type: none"><li>• Eye Removal</li><li>• Paint Prep</li><li>• Paint It</li><li>• Remove Masking, Clear Coat It</li></ul>	
Separate and Prepare the MONSTER M4SK	11
<hr/>	
<ul style="list-style-type: none"><li>• Quickstart</li><li>• Cut the Bridge</li><li>• Plug it In</li><li>• Battery Power</li><li>• Goose Eye / Mic Control Code</li></ul>	
Add Eyes to the Goose Mask	18
<hr/>	
<ul style="list-style-type: none"><li>• Embed the Eyes</li><li>• USB and PDM Mic</li><li>• Play!</li></ul>	

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# Overview

Honk! You're a horrible goose. Have fun terrorizing the village with a voice-activated Untitled Goose Game costume controller.

Have your goose honk in game by honking into your goose mask! The MONSTER M4SK can act as a USB game controller, with a PDM microphone triggering it. This will send a "spacebar" signal to your computer so you can get satisfying HONK! HONK! action!

Build the M4SK into a goose mask, with bonus points for costume flippers and wings!

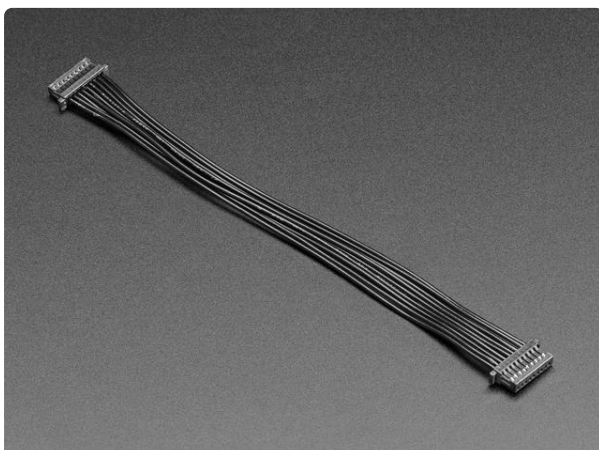
This project was [inspired by Twitch streamer Rudeism \(https://adafru.it/Gfs\)](https://adafru.it/Gfs)

## Parts



### [Adafruit MONSTER M4SK - DIY Electronic Eyes Mask](https://www.adafruit.com/product/4343)

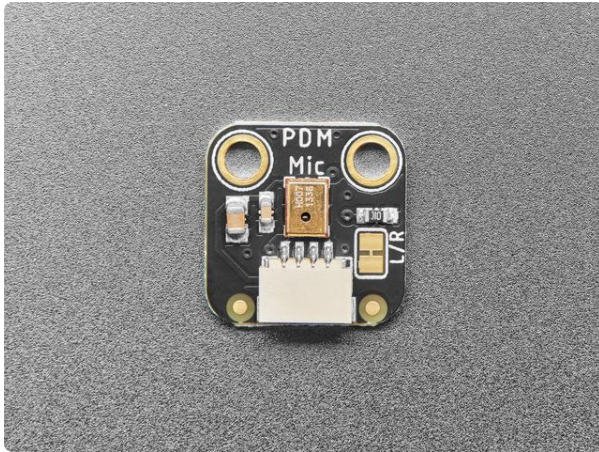
Peep dis! Have you always wanted to have another pair of eyes on the back of your head? Or outfit your costume with big beautiful orbs? The MONSTER M4SK <https://www.adafruit.com/product/4343>



### [JST SH 9-Pin Cable - 100mm long](https://www.adafruit.com/product/4350)

This 9-pin cable is just about 100mm / 4" long and fitted with JST-SH female connectors on both ends. Compared with chunkier JST-PH these are 1mm pitch instead of 2mm,...

<https://www.adafruit.com/product/4350>



### Adafruit PDM Microphone Breakout with JST SH Connector

An exotic new microphone has arrived in the Adafruit shop, a PDM MEMS Microphone! PDM is the 'third' kind of microphone you can integrate with electronics,...

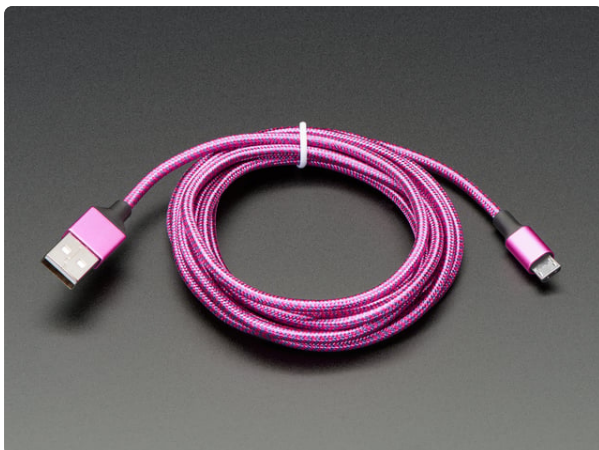
<https://www.adafruit.com/product/4346>



### STEMMA QT / Qwiic JST SH 4-pin Cable - 100mm Long

This 4-wire cable is a little over 100mm / 4" long and fitted with JST-SH female 4-pin connectors on both ends. Compared with the chunkier JST-PH these are 1mm pitch instead of...

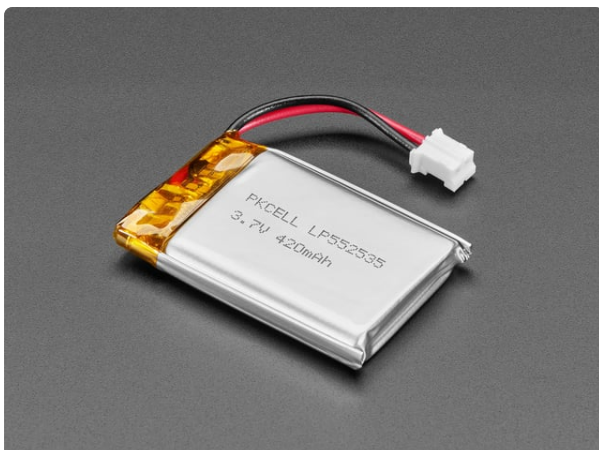
<https://www.adafruit.com/product/4210>



### Pink and Purple Braided USB A to Micro B Cable - 2 meter long

This cable is super-fashionable with a woven pink and purple Blinka-like pattern! First let's talk about the cover and over-molding. We got these in custom colors,...

<https://www.adafruit.com/product/4148>



### 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>



## Materials & Tools

- Vacuform plastic duck/goose mask [such as this one](https://adafru.it/Gak) (<https://adafru.it/Gak>)
- Hobby knife
- White spray paint or Plasti Dip spray
- Masking tape
- Foam double-stick tape
- Small zip tie or wire twist

## Optional Costume Parts

- White hooded sweatshirt
- White jeans
- Yellow knee socks
- Yellow swim fins
- White costume feather wings

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## Make the Horrible Goose Mask



It's surprisingly difficult to find a proper goose mask, so we'll use paint to transform a more common duck mask.





## Eye Removal

The eyes on this mask are purely decorative -- you see through the nostril slits when wearing it -- so we can remove them and replace them with the MONSTER M4SK eyes.

Use a hobby knife to carefully trim away the plastic eyes.



Please be careful with sharp tools. eye protection should be worn and other precautions taken to be safe.



## Paint Prep

Clean off any dust or oil from the entire mask using a cloth and some water, then dry it.



Using masking tape, mask off the bill, leaving the rest of the face to be painted.





## Paint It

In a well ventilated area, with protection for overspray (such as a large cardboard box), hang the mask from some wire.

Read the directions on the spray paint can and follow them. Light coats are best to avoid drips and clumps!

Shake the paint well and then spray it in light, overlapping strokes. Allow plenty of time for each coat to dry before applying the next coat.

I went with four coats, and then after that dried applied a couple of coats of clear coat for protection.





## Remove Masking, Clear Coat It

Carefully remove the masking tape. That's so satisfying!

Once I removed all the tape, I re-hung it and applied a couple of coats of clear coat for protection.



Next, we'll prepare the MONSTER M4SK.

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## Separate and Prepare the MONSTER M4SK

### Quickstart

You should be familiar with the basic setup of the M4 Eyes project based on the most excellent [Adafruit MONSTER M4SK guide Quickstart \(https://adafru.it/FDD\)](https://adafru.it/FDD). Before you proceed with making your own eye pattern texture maps, be sure you've got the [M4Eyes.UF2 \(https://adafru.it/FDD\)](https://adafru.it/FDD) working properly using the default [Hazel eyes graphics \(https://adafru.it/FDD\)](https://adafru.it/FDD).





As terrifying as this may seem, the first thing we're going to do is **BREAK** the MONSTER M4SK! It's going to be OK, though -- It was designed to be broken! That's what those little perforations on either side of the bridge are there for. We promise!

The MONSTER M4SK will not boot up just one half of the board, so be sure to plug them together with the 9-pin cable! Want a single eye board? Check out the [HalloWing M0](#) or [HalloWing M4](#).





Note, you'll lose the capacitive touch nose booper capability in the process. But, other than that, by reconnecting the two halves of the board with the 9-pin JST-SH cable, everything else will work exactly the same as before.

Wear eye protection when cutting the PCB, as sharp piece can fly off at high velocity.

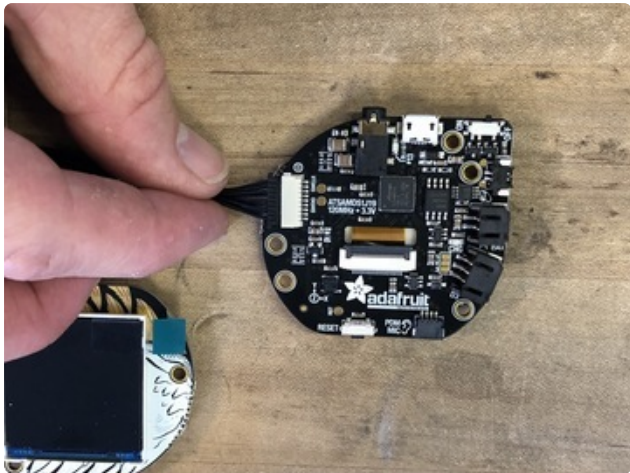
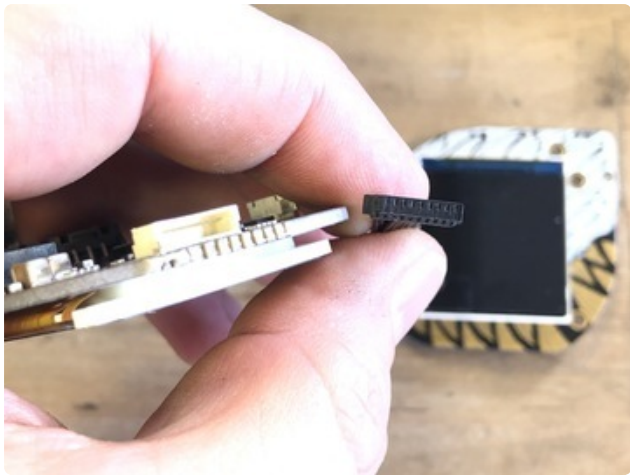


## Cut the Bridge

Using diagonal cutters, snip the perforation starting at one end, then flip the board around and finish the cut.

Then, trim the bridge from the other side as well, using the same procedure.



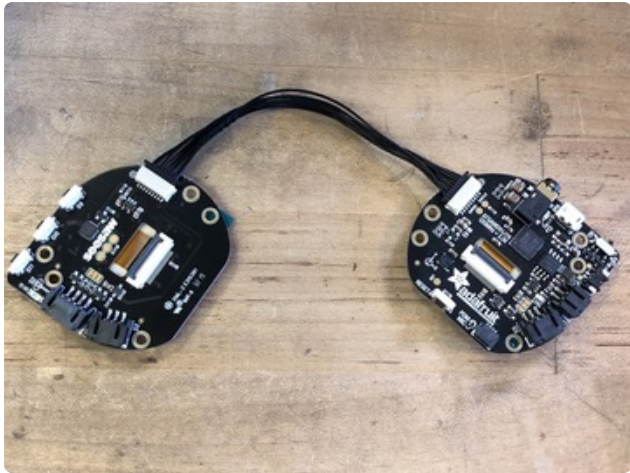


## Plug it In

Next, use the 9-pin JST-SH cable to reconnect the boards.

Note, while each end of the cable is identical, the plugs have polarity and can only be plugged in one way to the board connectors. Don't force them in if they aren't plugging in easily, just flip them around and try again.

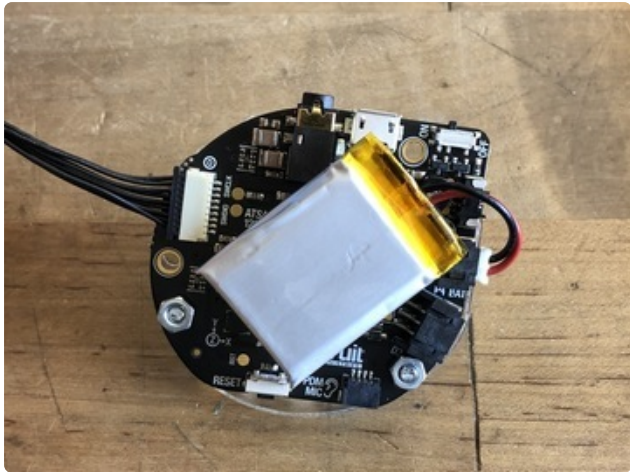




Try powering the M4SK and turning it on now and you should see it running just as normal! Here, I've got diagnostic code running, but you should see the eyes that ship on the M4SK.







## Battery Power

Using double-stick foam tape, secure the LiPoly battery to the back of the MONSTER M4SK's right eye board and plug it in.



For the goose mask, we'll go about it a bit differently, so no need for the lens holders.

## Goose Eye / Mic Control Code

The goose eye code is similar to our typical M4SK eye code, but has a couple of small additions to allow for the microphone to trigger the spacebar over USB HID keyboard emulation.

Follow the [main guide quickstart instructions \(https://adafru.it/FYV\)](https://adafru.it/FYV) to get the **M4\_Eyes.UF2** running, but instead use the **GOOSEGAME.UF2** file linked below.

The **goose\_eyes.zip** file has the graphics and **config.eye** file you'll need.

**GOOSEGAME.UF2**

<https://adafru.it/Gal>

goose\_eyes.zip

<https://adafru.it/Gam>

The **GOOSEGAME.UF2** file has code in it for using the microphone as a trigger for the USB HID 'spacebar' press, however, we must also enable the microphone with the **"voice" : true** line seen in the **config.ey**e file here.

```
{
  "voice"          : true,
  "eyeRadius"      : 125,
  "eyelidIndex"    : "0x00", // From table: learn.adafruit.com/assets/61921
  "pupilColor"     : [ 0, 0, 0 ],
  "backColor"      : [ 20, 10, 10 ],
  "irisRadius"     : 110,
  "irisTexture"    : "goose/iris.bmp",
  "scleraTexture"  : "goose/sclera.bmp",
  "upperEyelid"    : "goose/upper.bmp",
  "lowerEyelid"    : "goose/lower.bmp",
  "left" : {
  },
  "right" : {
  }
}
```

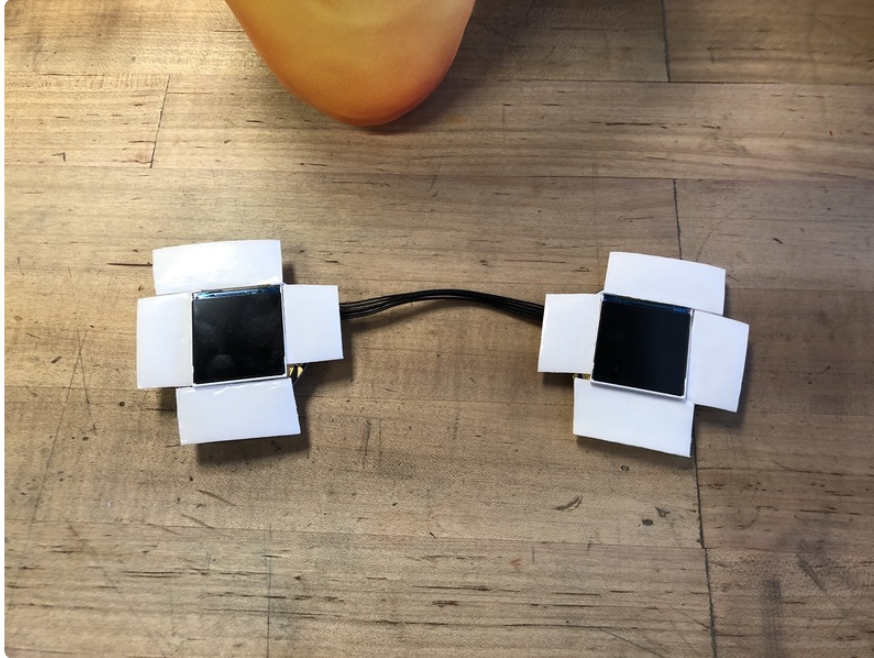
Next, we'll embed the MONSTER M4SK and microphone in the goose mask and play!

## Add Eyes to the Goose Mask



## Embed the Eyes

Cut short strips of double-stick foam tape to surround the screens of the MONSTER M4SK.



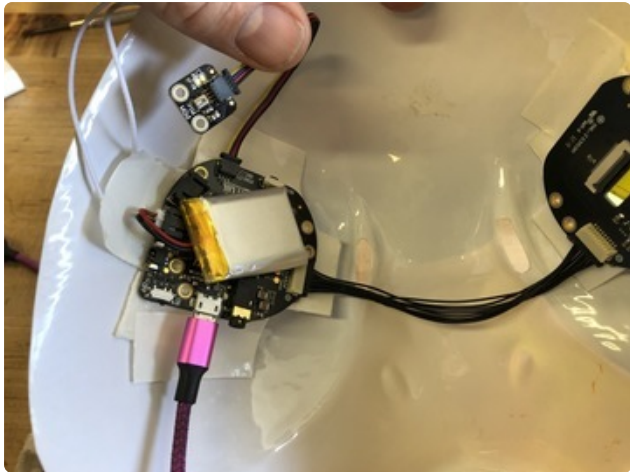
Press these into the mask, note that we'll orient the M4SK upside down, which provides access to the USB port. It also makes the default eyelid motions a bit more menacing!





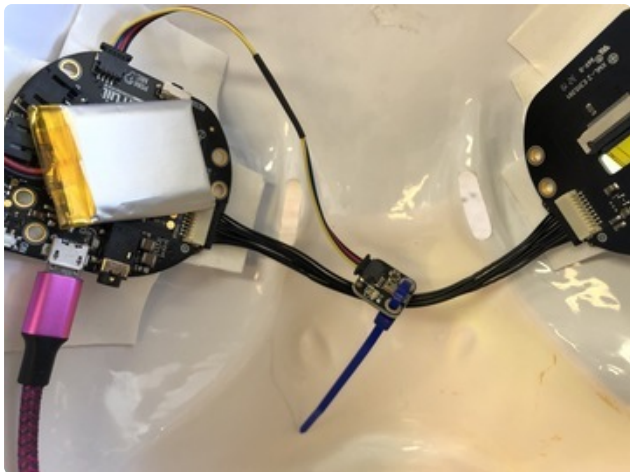






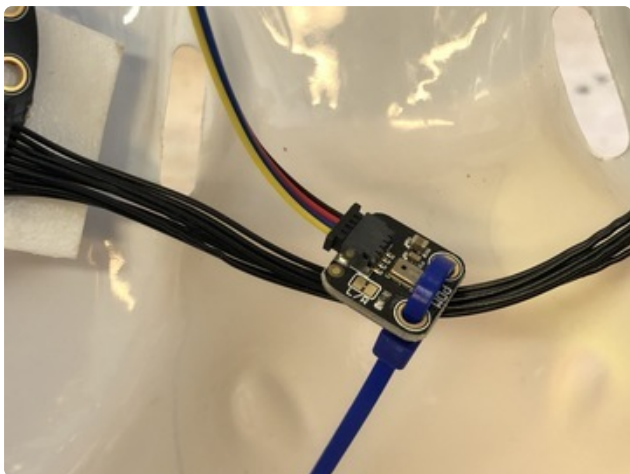
## USB and PDM Mic

Plug in the USB cable next -- use a long one so you don't accidentally tug on it during gameplay!

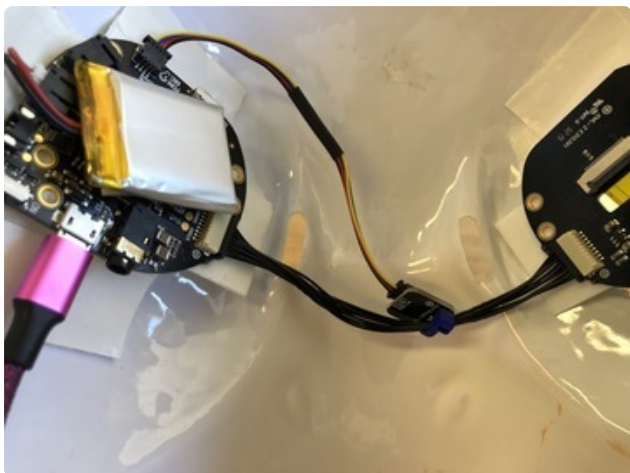


You'll plug in the PDM microphone breakout using the STEMMA QT connector as shown.

I used a small zip tie to secure the mic board to the 9-pin cable as shown. This puts it in a good spot for detecting your voice.



Trim the excess end of the zip tie. You're now ready to wear your mask!





## Play!

Plug it into your computer's USB port and now every time you HONK the mic will detect the loud sound and send the spacebar USB key to the game, which will in turn cause your Untitled Goose Game goose to HONK!