3D Printed Frame for Adaruit IS31FL3741 LED Glasses

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https://learn.adafruit.com/3d-printed-frame-for-led-glasses-is31fl3741

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Overview

Wearable Frame
3D print a pair of frames for your Adafruit LED Glasses. Designed to fit any Feather compatible board! Use a STEMMA QT cable to easily connect to an Adafruit Feather.

3D Printed
The parts are secured using hardware screws and nuts. The frames feature built-in nose pads for comfort and a better fit. The arms are attached to the frames built-in hinges using hardware screws and nuts.
LED Glasses Driver nRF52840
This particular arm is designed for the LED Glasses driver board featuring the nRF52840. Use M2 x 8mm long screws and hex nuts to secure to the 3d printed arm.

Feather-Compatible
The left-arm features mounting holes sized for any Feather-compatible board like the Feather RP2040. Use a USB-C cable and a 5V battery pack for portability.

Parts from Adafruit

- LED Glasses IS31FL3741 (https://adafru.it/UVD)
- Adafruit Feather RP2040 (https://adafru.it/REP)
- STEMMA QT Cable - 50mm (https://adafru.it/Tff)
- M2.5 Hardware Kit (https://adafru.it/wsc)
- M3 Hardware Kit (https://adafru.it/NCm)
- USB-C Cable (https://adafru.it/TAO)

Adafruit LED Glasses Front Panel - 116 RGB LEDs with I2C Driver
Have you always wanted to upgrade your ensemble with a creepy-cool creature PCB silkscreen and an eye-blistering arrangement of LEDs? https://www.adafruit.com/product/5210
Adafruit LED Glasses Driver - nRF52840 Sensor Board
This board is designed to be a thin, bluetooth-enabled driver board for our Adafruit LED Glasses RGB LED matrix. That said, it's...
https://www.adafruit.com/product/5217

Adafruit Feather RP2040
A new chip means a new Feather, and the Raspberry Pi RP2040 is no exception. When we saw this chip we thought "this chip is going to be awesome when we give it the Feather..."
https://www.adafruit.com/product/4884

STEMMA QT / Qwiic JST SH 4-Pin Cable
This 4-wire cable is 50mm / 1.9" 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 2mm, but...
https://www.adafruit.com/product/4399

USB Type C Cable with Data/Charge Switch
Perhaps your smart phone, tablet, or even your Raspberry Pi 4, charges off of USB, but can you really trust that charging station at the airport? Now you can control when to allow...
https://www.adafruit.com/product/4696
Black Nylon Machine Screw and Stand-off Set – M3 Thread
Totaling 420 pieces, this M3 Screw Set is a must-have for your workstation. You'll have enough screws, nuts, and hex standoffs to fuel...
https://www.adafruit.com/product/4685

Black Nylon Machine Screw and Stand-off Set – M2.5 Thread
Totaling 380 pieces, this M2.5 Screw Set is a must-have for your workstation. You'll have enough screws, nuts, and hex standoffs to fuel your maker...
https://www.adafruit.com/product/3299
3D Printing

CAD Parts List
STL files for 3D printing are oriented to print "as-is" on FDM style machines. Parts are designed to 3D print without any support material. Original design source may be downloaded using the links below.

- arm-right.stl
- arm-feather.stl
- arm-nRF52840.stl
- LED glasses frame.stl

Download STLs.zip
https://adafru.it/Vdb

Download CAD source
https://adafru.it/Vdc
Slicing Parts
No supports are required. Slice with setting for PLA material.

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

- PLA filament 220c extruder
- 0.2 layer height
- 10% gyroid infill
- 60mm/s print speed
- 60c heated bed

CAD Assembly
The Feather is secured to the arm with M2.5 x 6mm screws and hex nuts. The two arms are secured to the frame with M2.5 x 14mm long machine screws and hex nuts. The frame is secured to the LED glasses PCB with M3 x 6mm long screws and hex nuts. The Feather connects to the LED glasses using a 50mm STEMMA QT cable.

Design Source Files
The project assembly was designed in Fusion 360. This can be downloaded in different formats like STEP, STL and more. Electronic components like Adafruit's board, displays, connectors and more can be downloaded from the Adafruit CAD parts GitHub Repo (https://adafru.it/AW8).