nOods LED CV Signal Visualizers
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https://learn.adafruit.com/noods-led-synth-cv-visualizers

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Overview

In this project, you'll use the nOOds flexible LED filaments to make light-up visualizers to plug into your CV outputs. CV synths are like musical circuits: you can send waveforms with varying voltages around your setup to create desired bleeps and bloops. Sometimes making a patch can feel like plugging cables into a nebulous void though, especially if you inadvertently create cable spaghetti. As a result, it can be helpful to visualize the signals with LEDs.

The nOOds are soldered up to audio jacks on either end to create a "cable". However, it's important to note that the nOOds do not carry CV signals, they're purely decorative.

The nOOds' anode (positive) is connected to the audio jack's tip and the nOOds' cathode (negative) is connected to the other audio jack's ground. The positive end is plugged into a CV output and then ground can be grabbed from any open jack.

The nOOds only visualize the CV signal. They cannot be used as patch cables on their own.

Voltage Considerations

This setup assumes for a 5V maximum output from your CV synth. If you know that the CV voltage you're using is higher or lower, you'll want to adjust the inline resistor to a different value for best performance.
Prerequisite Guides

Adafruit nOOds Überguide

Parts

nOOds - Flexible LED Filament - 3V
300mm long - Blue
Our favorite food when hacking on code or electronics is a hot bowl of noodles - and around NYC these are often called 'noods'! What we've got here are flexible LED...
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nOOds - Flexible LED Filament - 3V
300mm long - Pink
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https://www.adafruit.com/product/5510

nOOds - Flexible LED Filament - 3V
300mm long - Lime Green
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https://www.adafruit.com/product/2780

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Heat shrink is the duct tape of electronics which I guess makes this heat shrink the colorful and exciting duct tape they sell at craft stores. This heat shrink comes in six...
https://www.adafruit.com/product/1649
Circuit Diagram

Wiring

- Audio jack tip to 220Ω resistor
- 220Ω resistor to nOOd anode (positive)
- Audio jack ground to nOOd cathode (negative)
Assembly

Prepare the Audio Jacks

Open the two audio jacks by unscrewing the knurled jack housing. You'll see a plastic tube over the jack connections. Remove it and save it for later.
The nOOd's anode is soldered to the audio jack's tip. The tip is on the left of a stereo audio jack.

Insert a 220Ω resistor into the hole in the audio jack's tip. Solder it in place.
Identify the nOOd's anode connection. It has a tiny hole in it. Solder it to the resistor.

Apply heat shrink to the soldered connections, completely covering the resistor. Slide the audio jack's plastic tube over the jack's pins and close up the jack by screwing in the knurled housing.
Solder the Cathode

Slide the knurled housing over the cathode end of the nOOd, followed by the jack's plastic tube and a piece of heat shrink.

Solder the nOOd's cathode to the audio jack's ground pin. The ground pin is the longer pin in the middle of the stereo jack.

Apply heat shrink to the soldered connection. Then, slide the audio jack's plastic tube over the jack's pins.

Close up the audio jack's knurled housing and you have an LED "cable"!
Usage

Plug the anode end of the nOOd cable into a CV output. Plug the cathode end of the nOOd cable into any open jack. You'll see the nOOds' brightness be affected by the CV signal voltage and waveform type.

Gate signals, or square waves, will create a blinky effect.
LFO's (low frequency oscillation), sine waves and triangle waves will create a PWM (pulse width modulation) effect.

You can use signal multipliers or piggyback cables to send the CV signals to your nOOds. It's important to note that the nO0ds do not carry CV signals, they're purely decorative.

The nO0ds only visualize the CV signal. They cannot be used as patch cables on their own.