Filamentalist Enclosure Pre-Gate Status LED Holder

I wanted to have pre-gate status indicator LEDs for my ERCF V2 using the Filamentalist Enclosure. There weren't any designs available that I liked so I designed these simple and quick holders that snap into the front 2020 extrusions in front of each Filamentalist inside the enclosure. I also designed a double stack holder with arrows that points to the side of the enclosure for spools mounted outside of the enclosure (for 8+ lane builds).

Shoutouts:

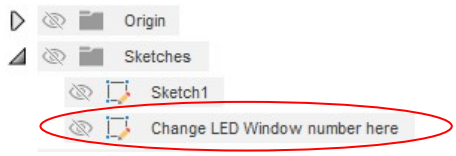
- SkiBikeMake- for his awesome rewinder and enclosure designs
- PrintSomething- for his lens design that I used to make this
- Moggieuk- For the Happy Hare software that controls the LEDs

BOM:

- Filament – I used ABS, however other filaments should work fine since the enclosure isn't heated. You'll need the color you want the holder to be, plus a clear or opaque for the lenses
- Round WS2812 5050 button LEDs – I used the pre-gate LEDs included in my Siboor ERCF V2 kit, but these have also been tested to fit: https://a.aliexpress.com/_mLgbtSN
- Wire – Smaller gage wires work best, I used 28 gage wire I had on hand

Printed parts:

- LED holders – one per channel in the enclosure, double for external rolls
- LED lenses – one per channel in enclosure, double with arrow for external rolls. Number, size, and font can be changed in the f3d file here:



- 2020 Extrusion Cover (Optional) – Used to hold wires inside of the extrusion between led holders. Length determined by the width and spacing of your Filamentalists. I use these: https://www.thingiverse.com/thing:4881812

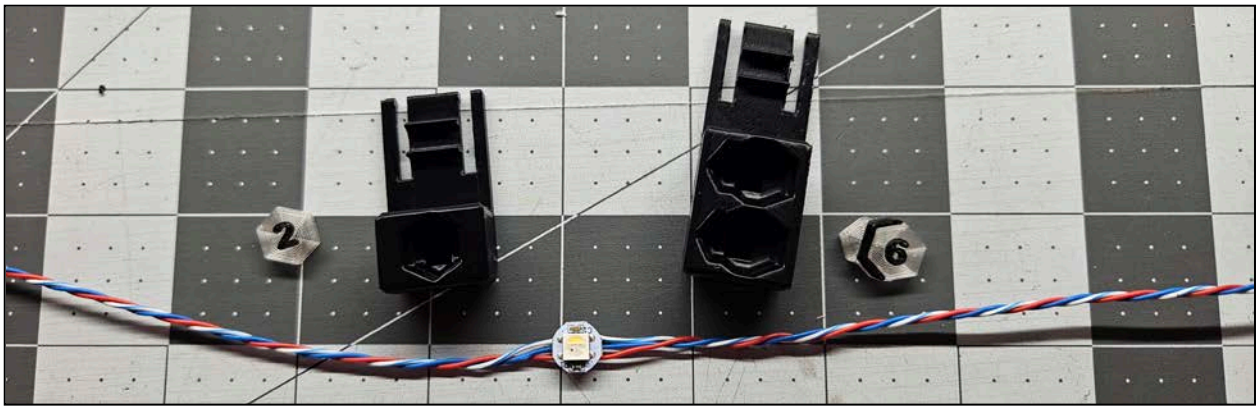
Print settings:

- LED holders are best printed on their side
- LED lenses are printed flat on the bed, and solid infill or max walls. Multi color, or include a filament swap in your slicer of choice. (I swap filament at layer 16)
- Standard Voron settings with supports turned on for the LED holders. I prefer auto tree supports in Orca Slicer which works out very well

Tools:

- Soldering iron and solder – to connect wires to the LEDs
- Side cutters, or razor blade – to remove the built in supports

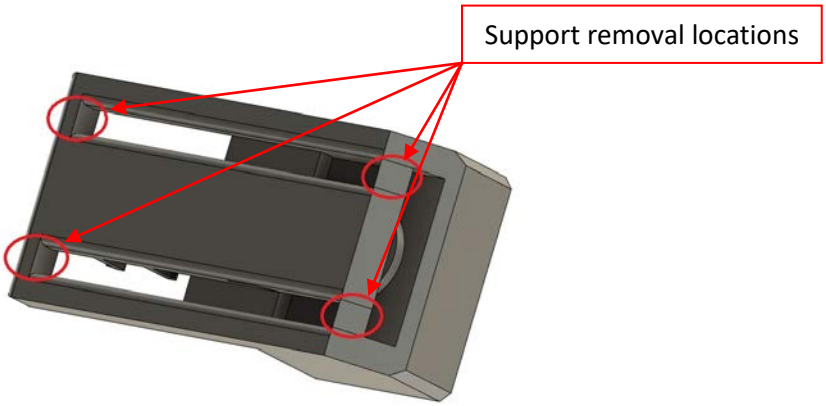
Build:



Note:

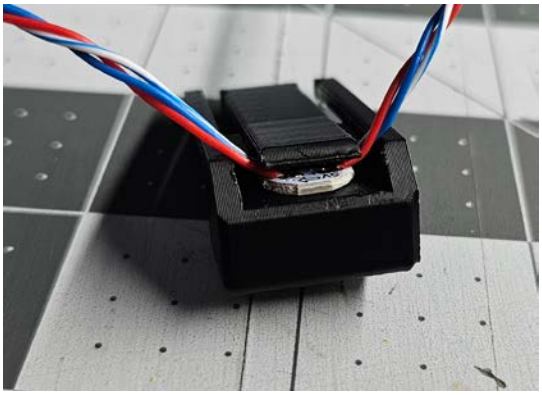
These instructions assume you are familiar with LED wiring and route your 5VDC and LED signal wires to the first LED. You can be as creative with this as you want, I routed mine through the center of the enclosure between channels 2 and 3, then through the extrusion behind LED holders 0,1, and 2 to connect to the input of the channel 0 LED

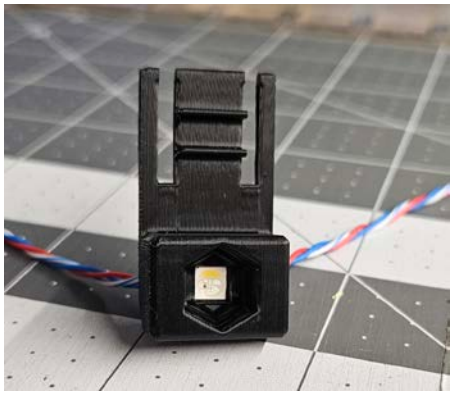
- Determine wire length needed and cut to wires appropriately. 120mm minimum recommended length between standard 78mm width V3 filamentalist units, a little extra is fine, but too much will be difficult to stash in the extrusions
- Solder the wires to the LEDs. Be careful not to use an excess of solder as it may interfere with the fit inside the LED holder assembly. Pay attention to the direction of signal injection when soldering, the arrows need to point in the same direction
- Remove built in supports from the led holders. These can be cut off with a razor knife or side cutters



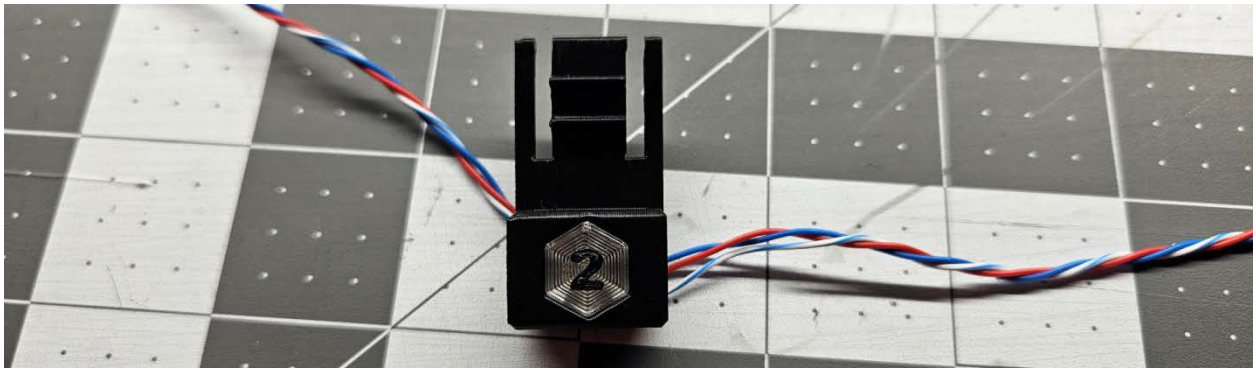
Note:
The top two built in supports do not need to be removed if you feed wires through before soldering to the individual LEDs, but it is much simpler to remove the supports and solder the LEDs before installing

- Insert each individual LED into a holder by lifting the lever tab and sliding the led into place. Ensure the LED is centered in the hole and the PCB is flush against the LED holder body. The lever tab will hold the LED in place. Repeat for each LED holder. Double LED holders are assembled in the same fashion, but two LEDs are installed – these can be a little fiddly to get the LEDs into place, but it is doable with a little patience

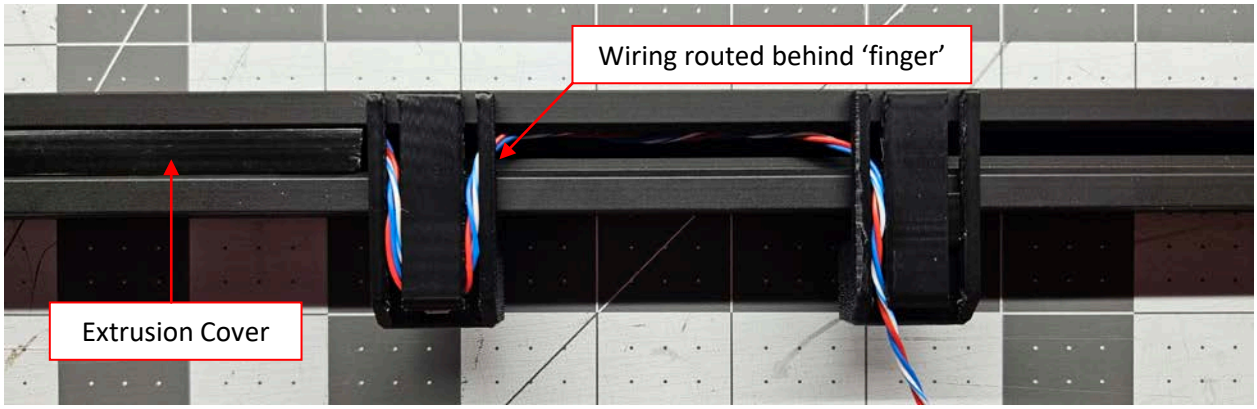




- Install LED windows into the LED holders, they are designed to be a friction fit and should snap into place nicely as long as your printer is tuned to Voron and Filamentalist specifications



- Install the first LED holder into 2020 extrusion in the desired position. They are designed to be a snap fit and can be slid along the extrusion once installed if necessary. Route wires through the channel in the LED holder and into the extrusion under the side 'fingers' that will hold the wires in the channel and guide them into the extrusion. Repeat for each LED holder



- Optionally, install extrusion fillers into the 2020 extrusion between the LED holders to hold the wiring inside of the extrusion
- Configure your LEDs in Happy Hare as desired and enjoy!