

Re-[Remix] Delta P for MK3S+ with LEDs. Now with USB board camera mount options

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VIEW IN BROWSER

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Summary

Minor changes to position one LED and the connector On 04/10/2022 I added a new 3d model with camera mount



2.00 hrs



1 pcs



0.20 mm



0.40 mm



ASA



11 g



Prusa
MK3/S/S+

[3D Printers](#) > [3D Printers - Upgrades](#)

Tags: [prusa](#) [camera](#) [fan](#) [usb](#) [duct](#)

To build this model you will need to check out the two links below for additional information and download the honeycomb cover:

<https://www.printables.com/model/155387-remix-x2-delta-p-duct-v2r22-for-the-mk3s-new-flow->

<https://www.printables.com/model/155387-remix-x2-delta-p-duct-v2r22-for-the-mk3s-new-flow-/files>

Edited 01/25/2023

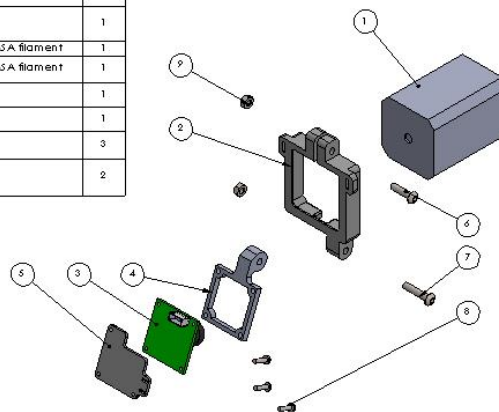
AirMav: new and improved model

Edited 10/18/2022:

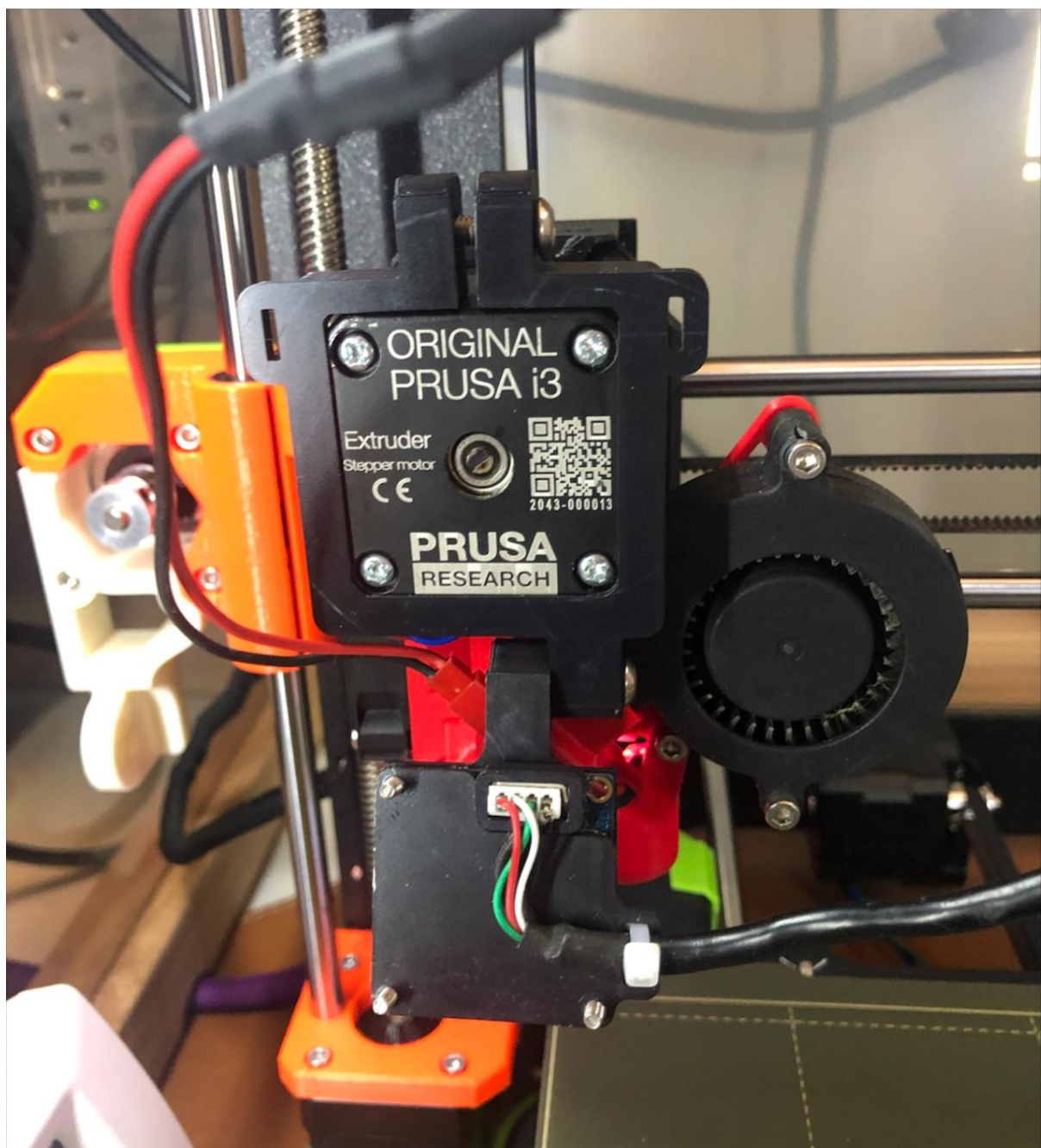
I changed the camera mount option. Instead of being part of the fan duct (weak and difficult to focus), I created a hinged mount that connects to the Prusa X stepper motor. If you decide to use this option you should use it in combination with "Cooling duct with LEDs".

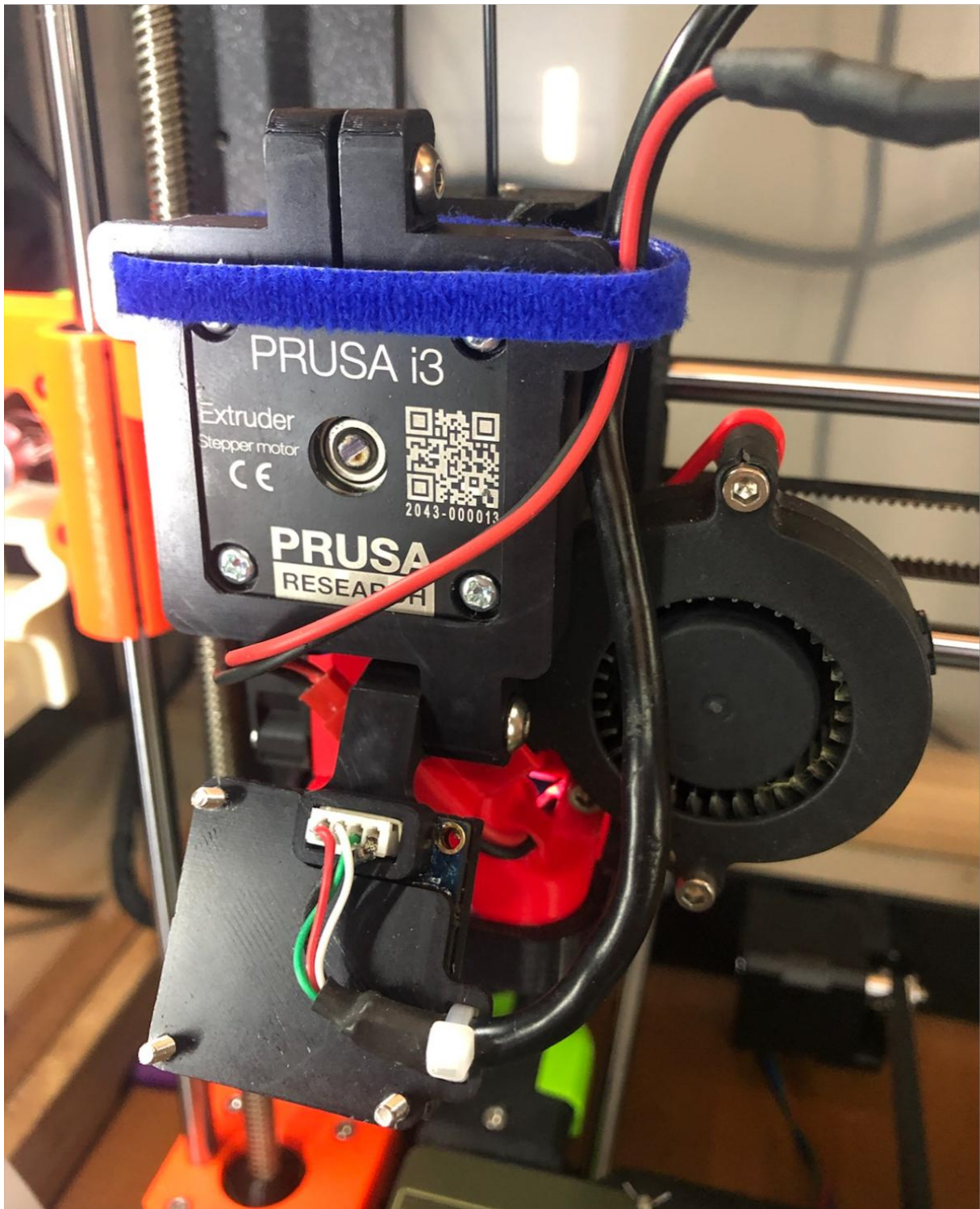


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Stepper motor	Prusa X axis stepper motor	1
2	Stepper motor bracket	printed using ASA material filament	1
3	U3 Board camera with 3.6mm lens		1
4	Camera mount	ASA filament	1
5	Camera back plate	ASA filament	1
6	M3x3.4mm - 4x0.7x16 SHCS --N		1
7	M3x3.4mm - 4x0.7x20 SHCS --N		1
8	pan cross head_sam		3
9	M3x2.4mm - Hex nut, 5mm 1, M4x0.7--D-N		2



<https://youtu.be/fHkNWvYKrdA>



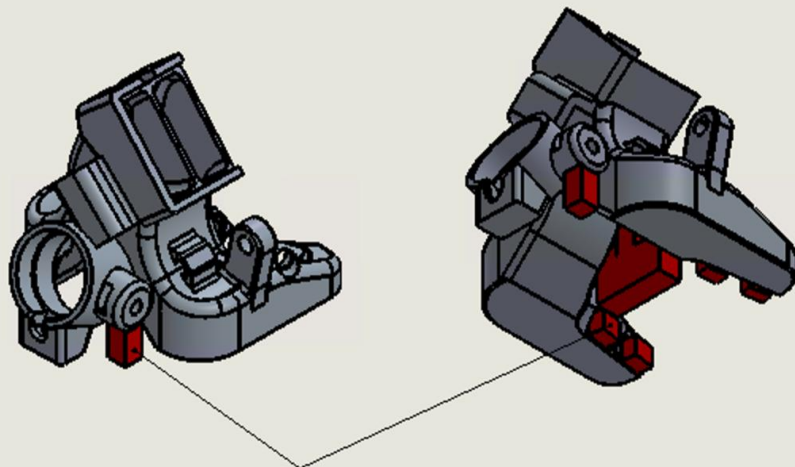


Edited 08/10/2022

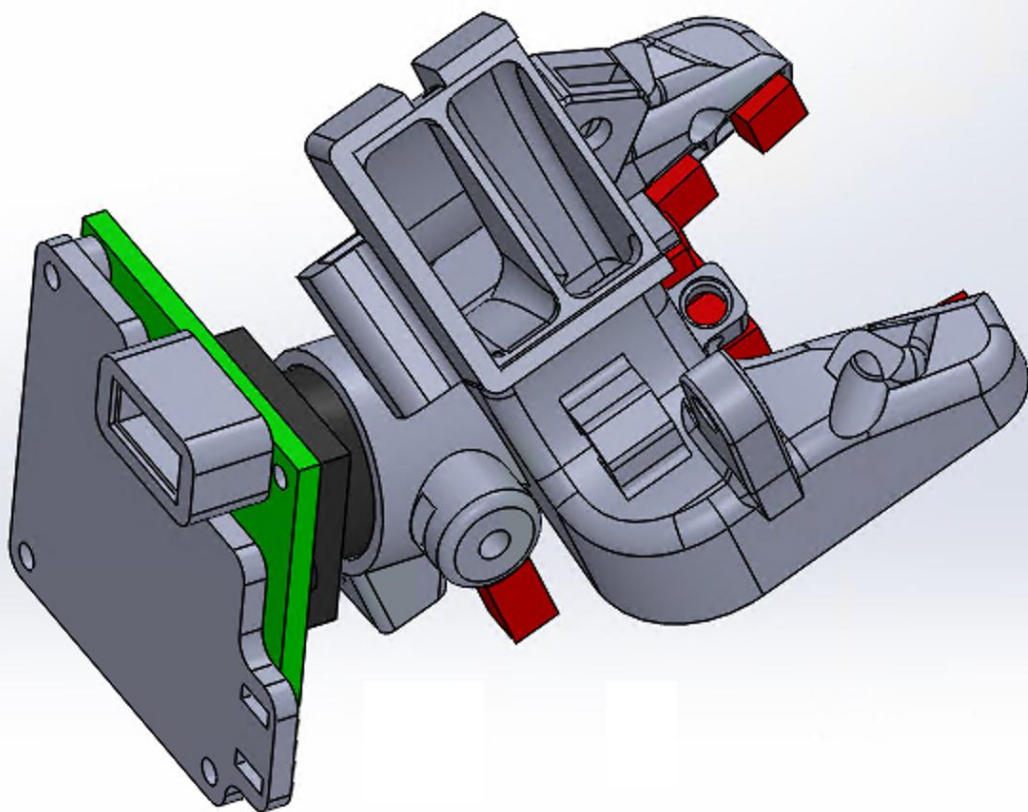
Added "Cooling duct with LEDs and camera 30 degrees-v3". The M2.5 hex nut pocket and the lens tube are slightly larger.

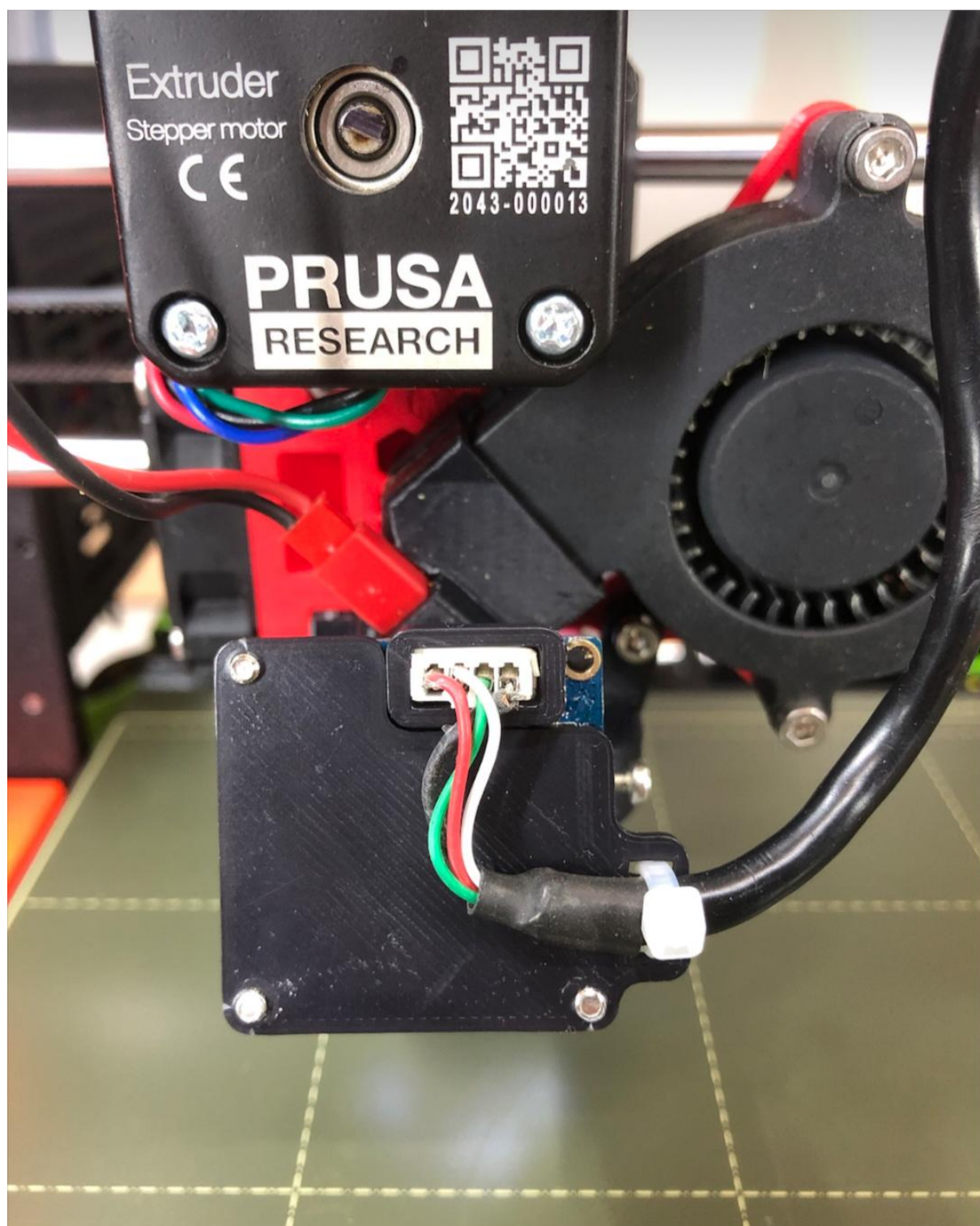
I also built a small plate to hold the USB cable for strain relief shown below.

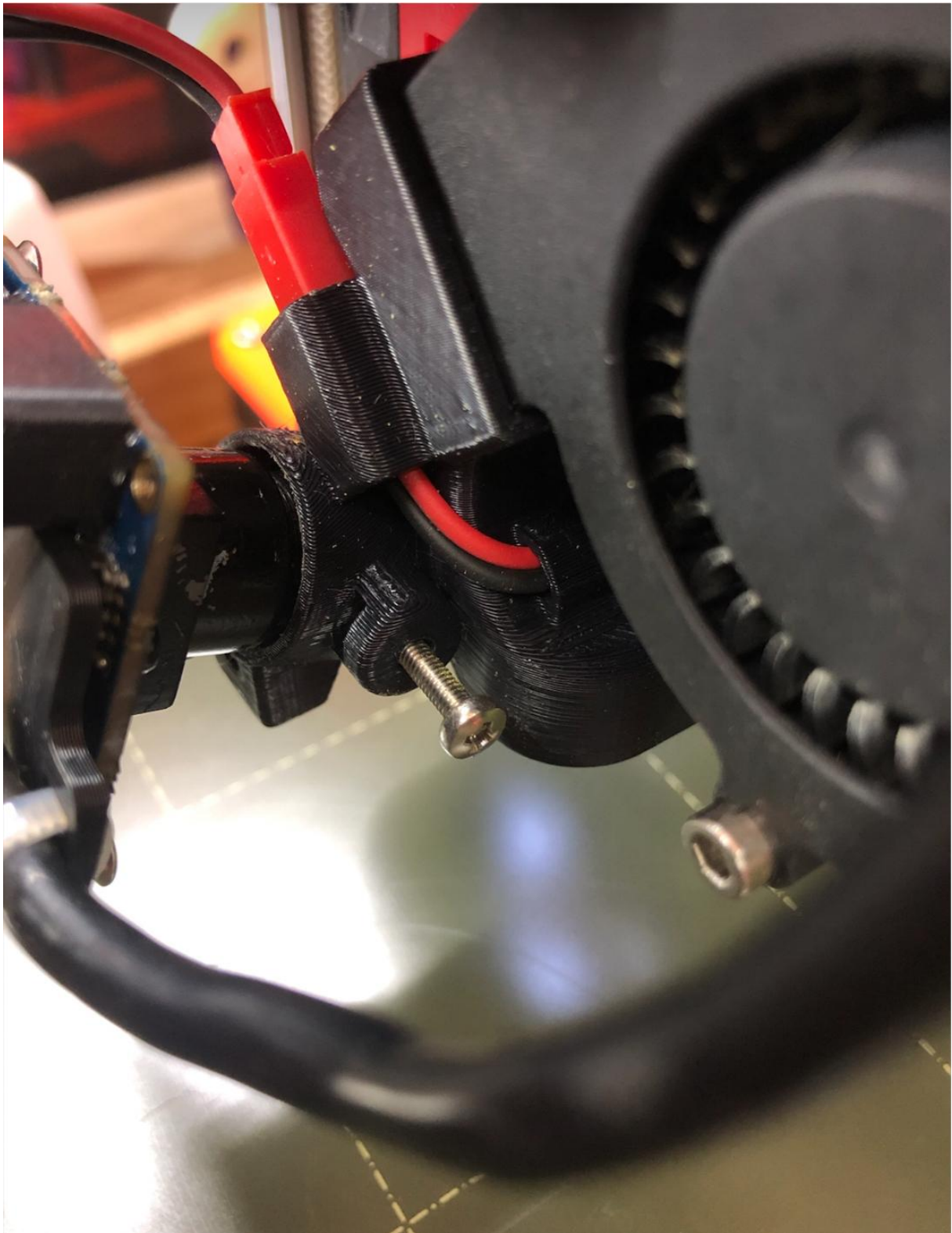
Cooling duct with LEDs and camera 30 degrees-v3



Colored red are the built in supports that need to be removed after printing

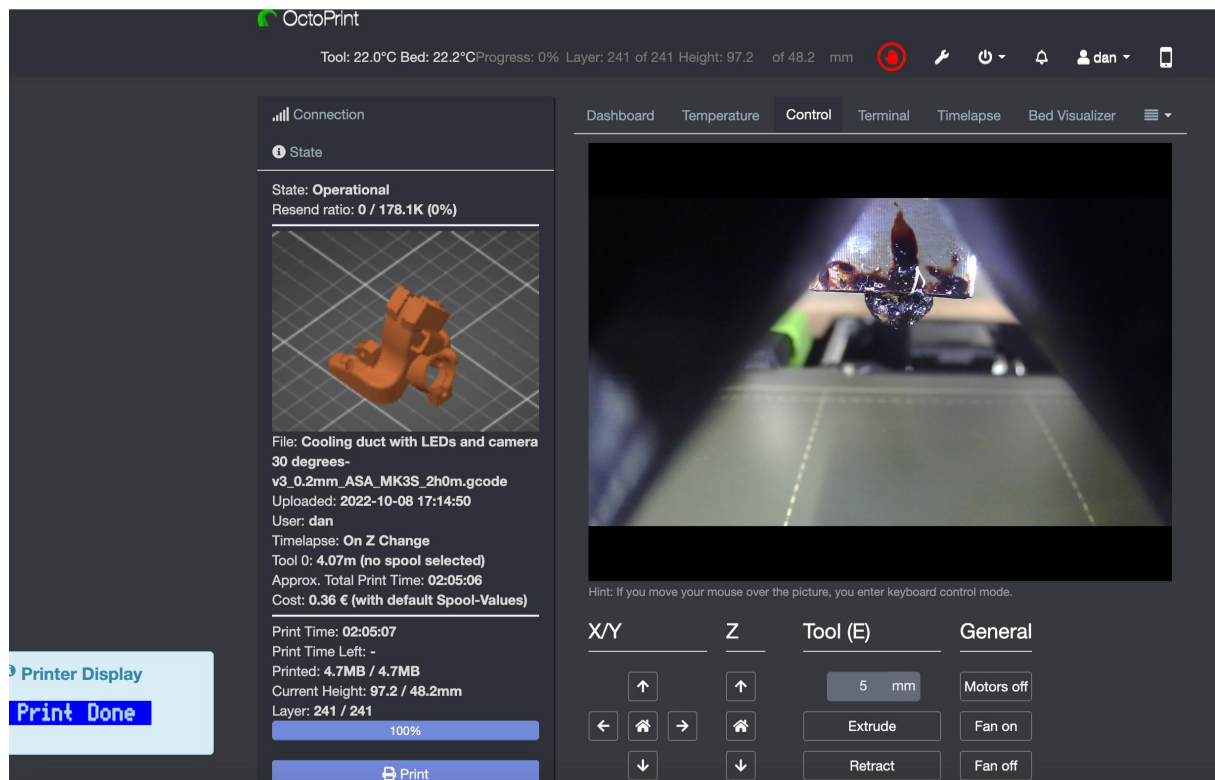






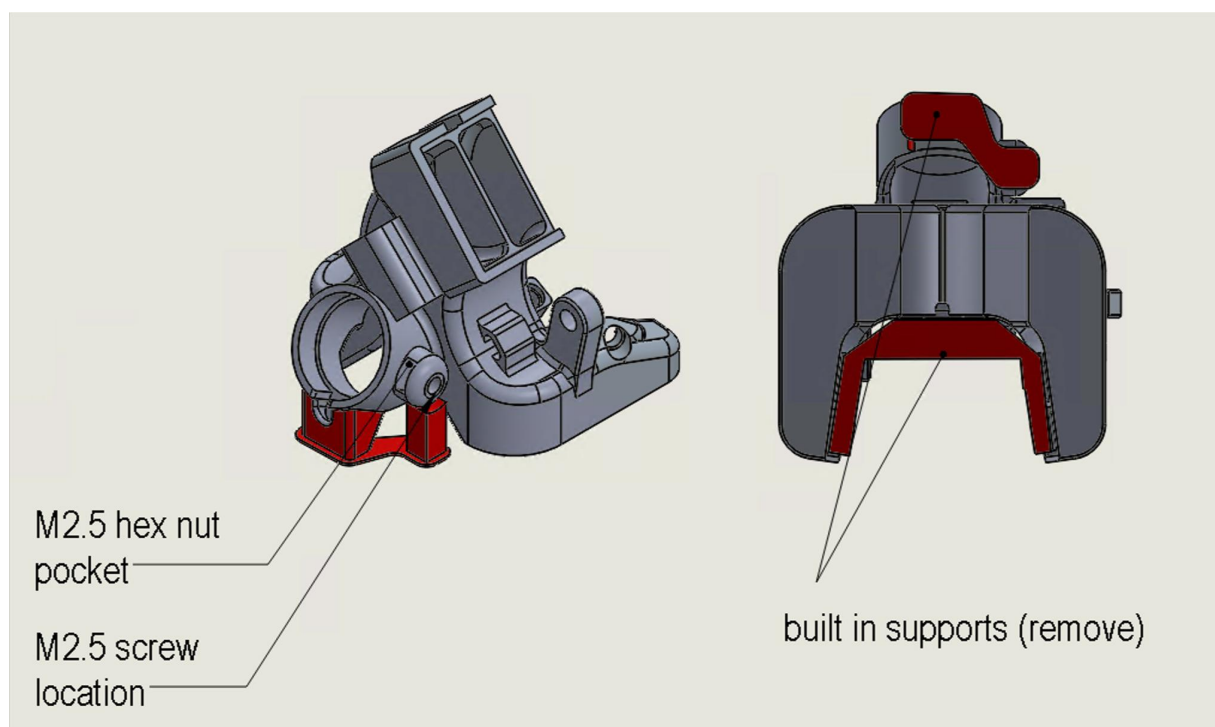
Below is the image of my Octoprint web interface. The image is taken with a f3.6mm lens. I have tried f2.1 and f6 and I decided that f3.6 serves me the best.

I configured the camera for higher resolution as explained in this article <https://iotrانت.com/2020/02/25/properly-configuring-a-camera-in-octoprint/>



Edited: 06/10/2022

I added a new model with the camera positioned at 30 degrees relative to the printing surface. I also provided a way to lock the camera in place. It requires a hex nut and a screw M2.5

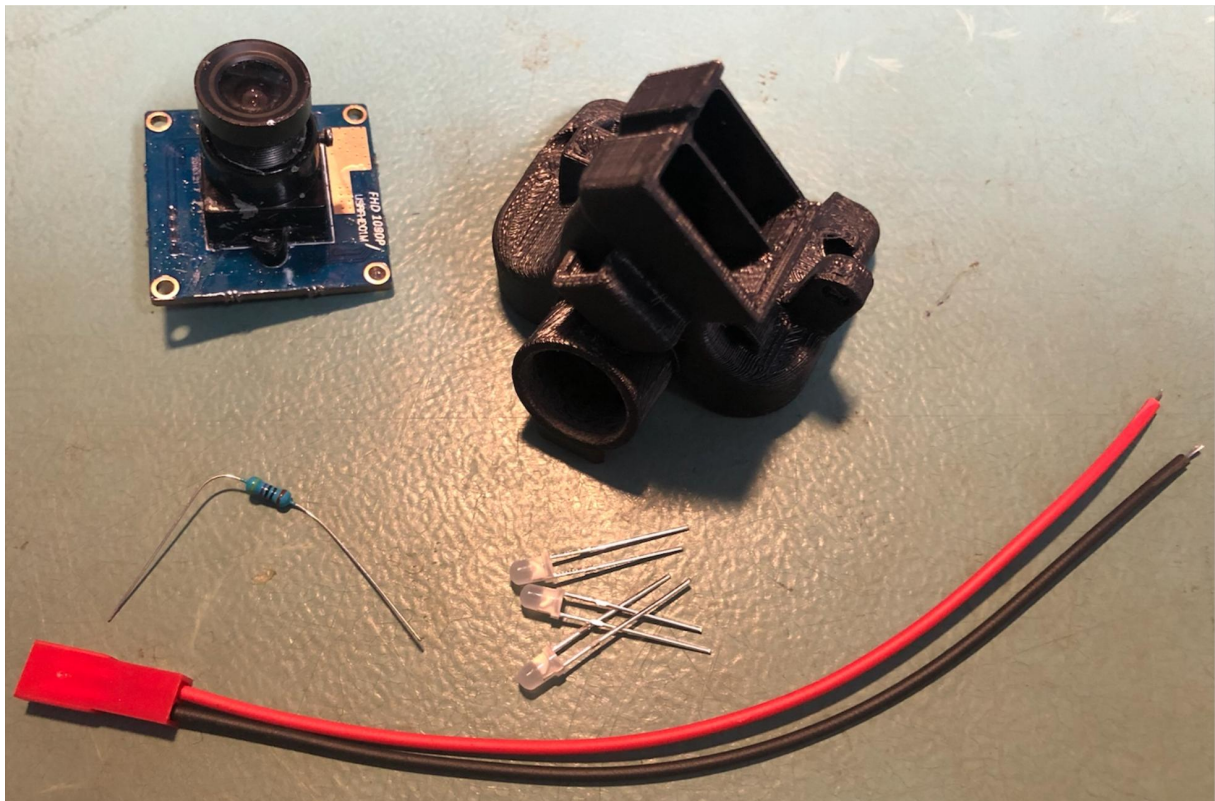


Edited on 04/10/2022:

Delta-P fan duct with LED lights and USB camera.

The replacement of the original extruder with the improved Delta P duct and the addition of the LEDs are very well detailed by the original designers and I highly recommend you to follow their links listed at the end of my notes (@teookie and @BuildX). All the needed components are listed on BuildX page.

If you wish to have a fan duct that can also accept a USB camera, please print one "Cooling duct with LEDs and camera mount". The supports are included in the 3D model so you don't have to add any. I used black ASA filament to print the part you see.



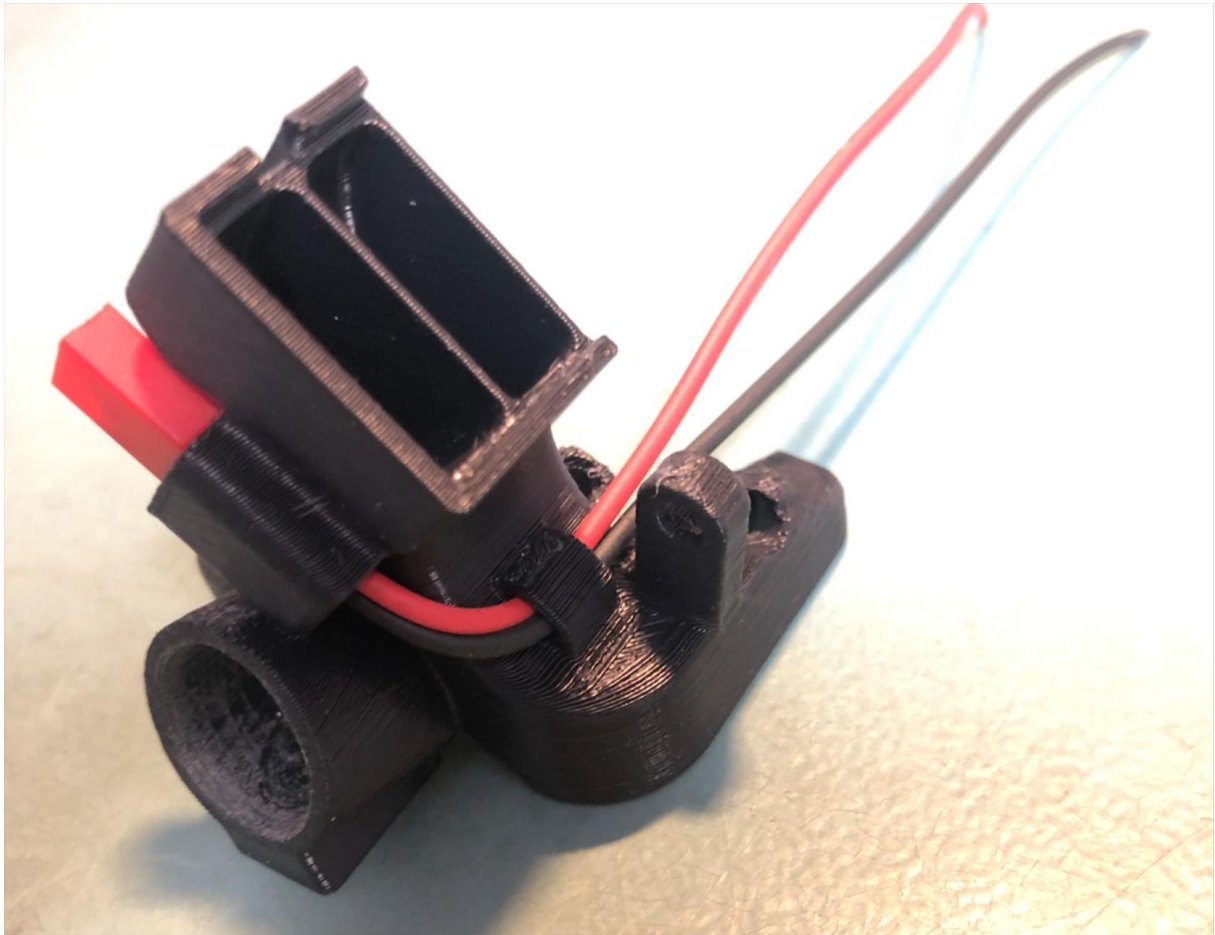
For my prototype I used an ELP board camera with M12 thread f3.6mm lens (link below)

https://www.aliexpress.us/item/2251832602956039.html?spm=a2g0o.productlist.0.0.86935b35W5LTsi&algo_pvid=4db5694b-ebc6-4f9b-9b43-aad7e22568c0&algo_exp_id=4db5694b-ebc6-4f9b-9b43-aad7e22568c0-8&pdp_ext_f=%7B%22sku_id%22%3A%2263577474993%22%7D&pdp_

For assembly you will need small tweezers, wire cutter, soldering iron and some patience. It took me about 15-20 minutes to install and wire the LEDs.

Step 1:

Install the connector and run the wires through their guide as shown. You need to apply pressure to the connector to fit it all the way in the pocket.

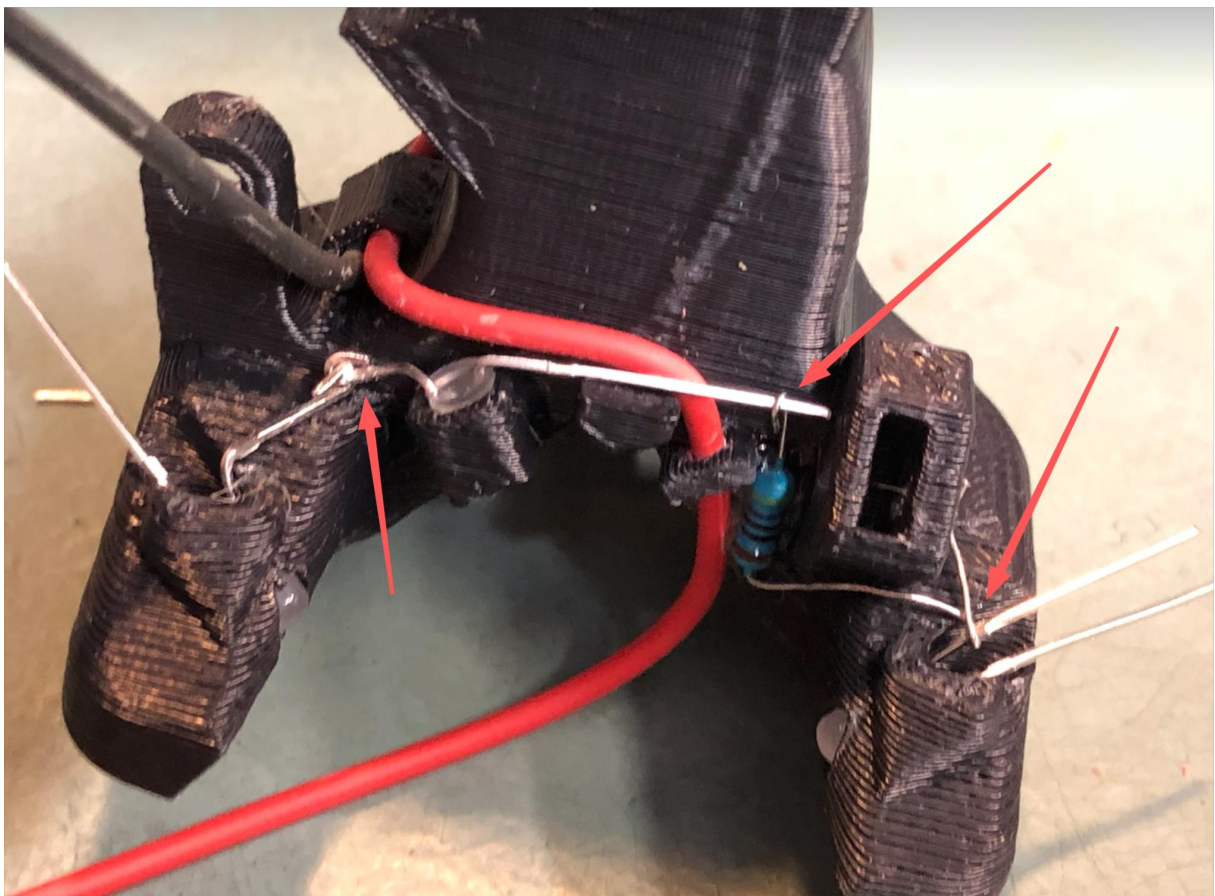
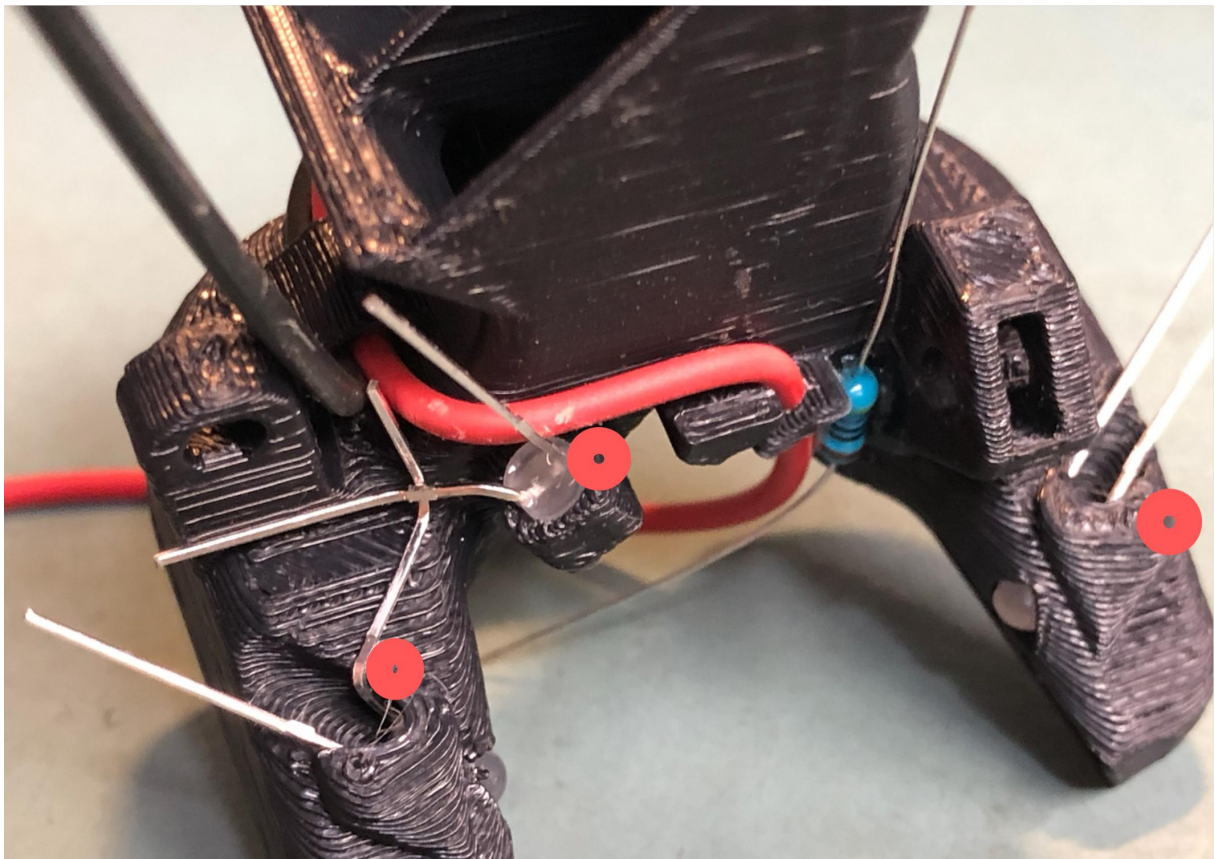


Step 2:

Position the three LEDs in their locations and make sure to follow the correct polarity. I marked with a red dot the anode in the second photo below. Run the red wire through its guide as shown.

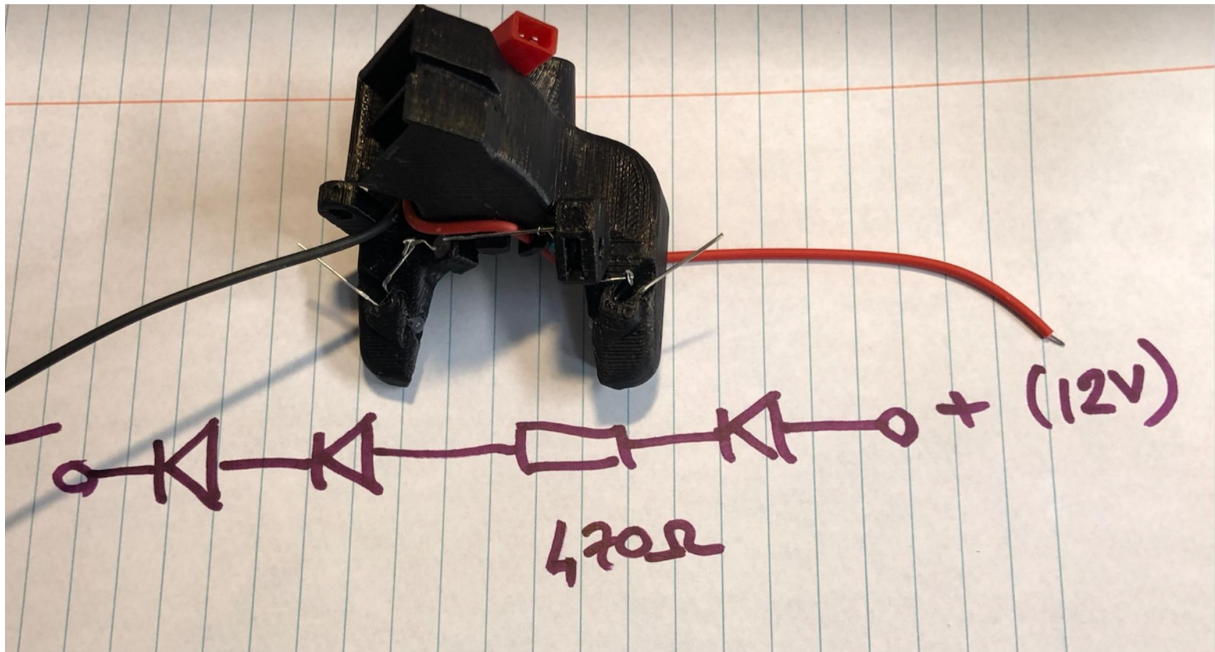
Using the tweezers gently bend the LED leads to provide a mechanical connection before soldering step. One drop of instant adhesive will hold the resistor in place. Because I am using a 12V power supply i chose one 470 Ohm to position in series with the LEDs





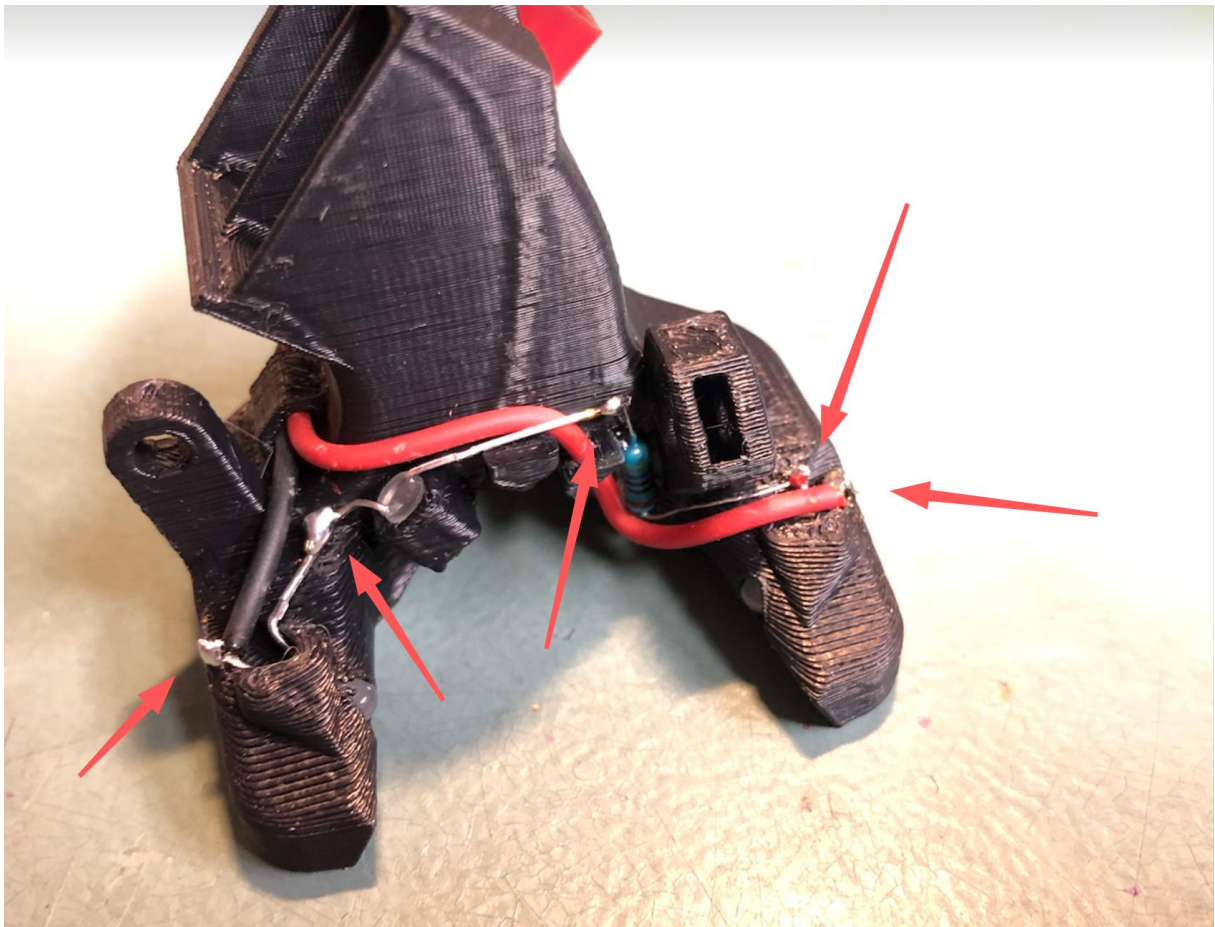
Step 3:

Here is the electric diagram of how the LEDs and resistor are physically arranged.



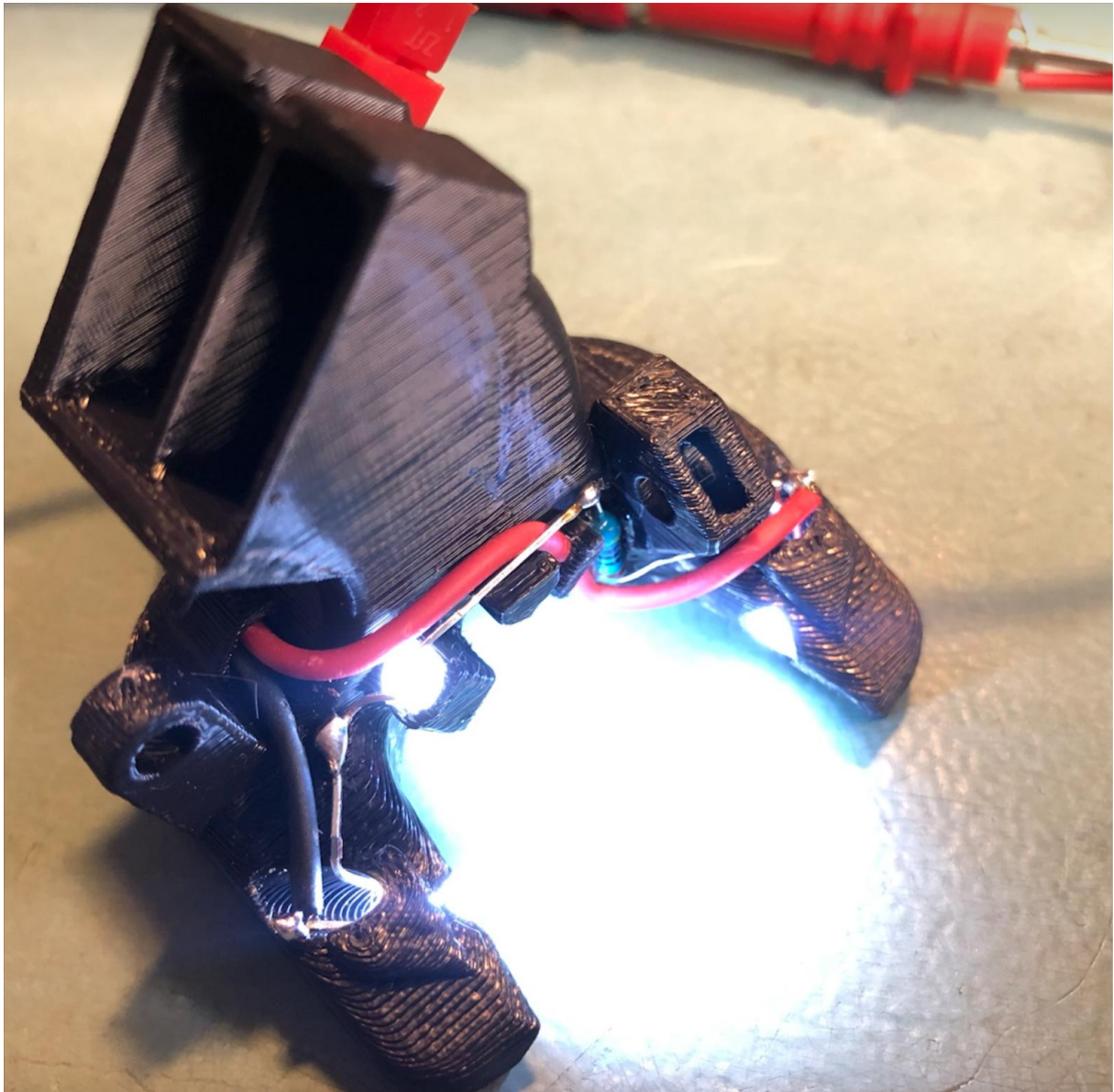
Step 4:

Cut the wires and strip the ends to attach them as shown. Now you can solder all the connections.



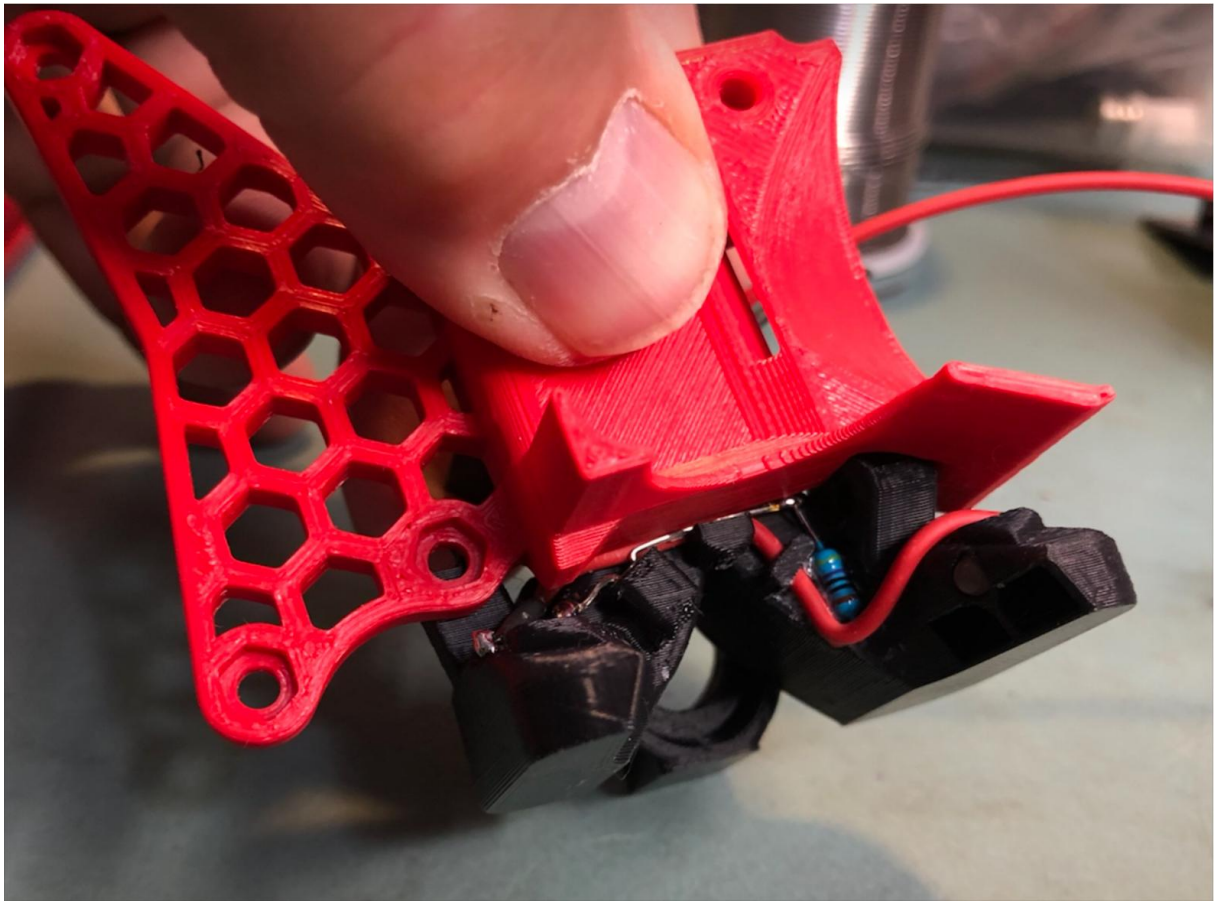
Step 5:

Apply 12V to the circuit to confirm that the LEDs are positioned correctly.



Step 6:

Verify that there is no interference with the Delta-P cover. Arrange the wires or the leads if needed and apply a small amount of instant adhesive where the LED leads are too close to prevent them from shorting.

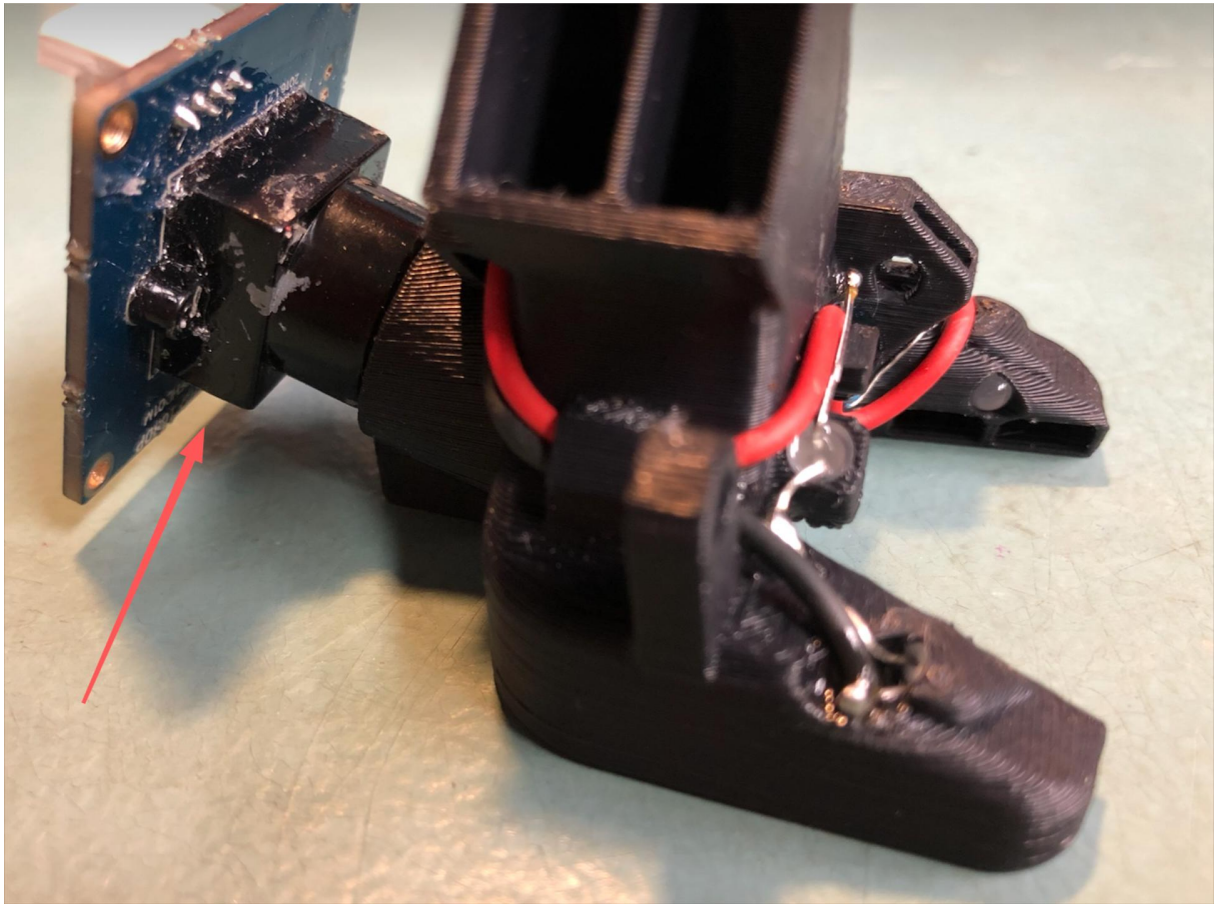


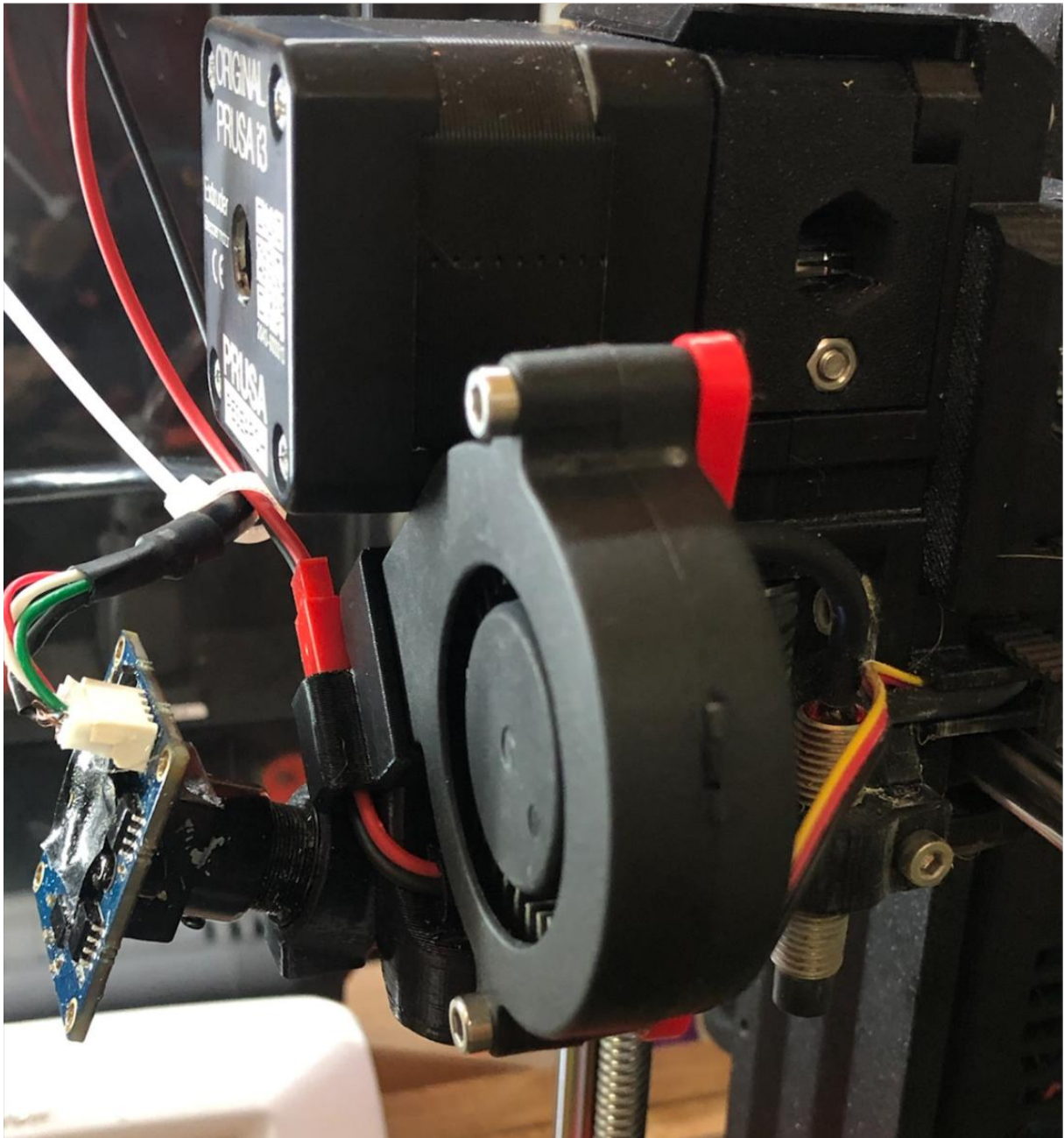
Step 7:

Verify that the lens of the camera slides in the duct as indicated. Use sandpaper for small adjustments.

You will have to connect the camera to a computer and properly focus the lens. After that lock the lens with the included screw.

Make sure you have clearance between the camera board and the surface on which the duct sits on so it will not hit the prints .





Happy printing!

Original posting

I only added a pocket for the connector and repositioned the third LED behind the duct for better visibility just for fun. The LEDs are connected in series together with a resistor dimensioned for the power supply. You could add an LED dimmer similar to this one https://www.amazon.com/RioRand-Motor-Controller-Control-Dimmer%EF%BC%82PCS%EF%BC%89/dp/B07WGT8K82/ref=sr_1_7?crid=19YWU0HVF464X&keywords=pwm+led+driver+24v&qid=1660082107&srefix=%2Caps%2C57&sr=8-7

Many thanks to the designers @teookie and @BuildX !

<https://www.printables.com/model/62523-delta-p-fan-duct-v2-r2-for-mk3s-extruder>

<https://www.printables.com/model/155387-remix-x2-delta-p-duct-v2r22-for-the-mk3s-new-flow->

This remix is based on



Delta-P fan duct V2-R2 for MK3S(+) extruder

by teookie



[Remix] X2 Delta P Duct [V2R2.2] for the MK3S(+) [New Flow Splitter]

by BuildX

Model files



cooling-duct-with-leds.3mf



cooling-duct-with-leds-and-camera-mount.3mf



cooling-duct-with-leds-and-camera-30-degrees-v1.3mf



cooling-duct-with-leds-and-camera-30-degrees-v3.3mf



camera-back-plate.3mf



stepper-motor-bracket.3mf



camera-mount.3mf



hinged-camera-mount-assembled-view-only.3mf

Print files



cooling-duct-with-leds-and-camera-30-degrees-v1_02m... .gcode

ASA 0.40 mm 0.20 mm 2.00 hrs 11 g Prusa MK3/S/S+

[Find source .stl files on Thingiverse.com](#)

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