



Overwatch Prop Gun: Lucio's Blaster Pt. 3

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<https://learn.adafruit.com/overwatch-prop-gun-lucios-blaster-pt-3>

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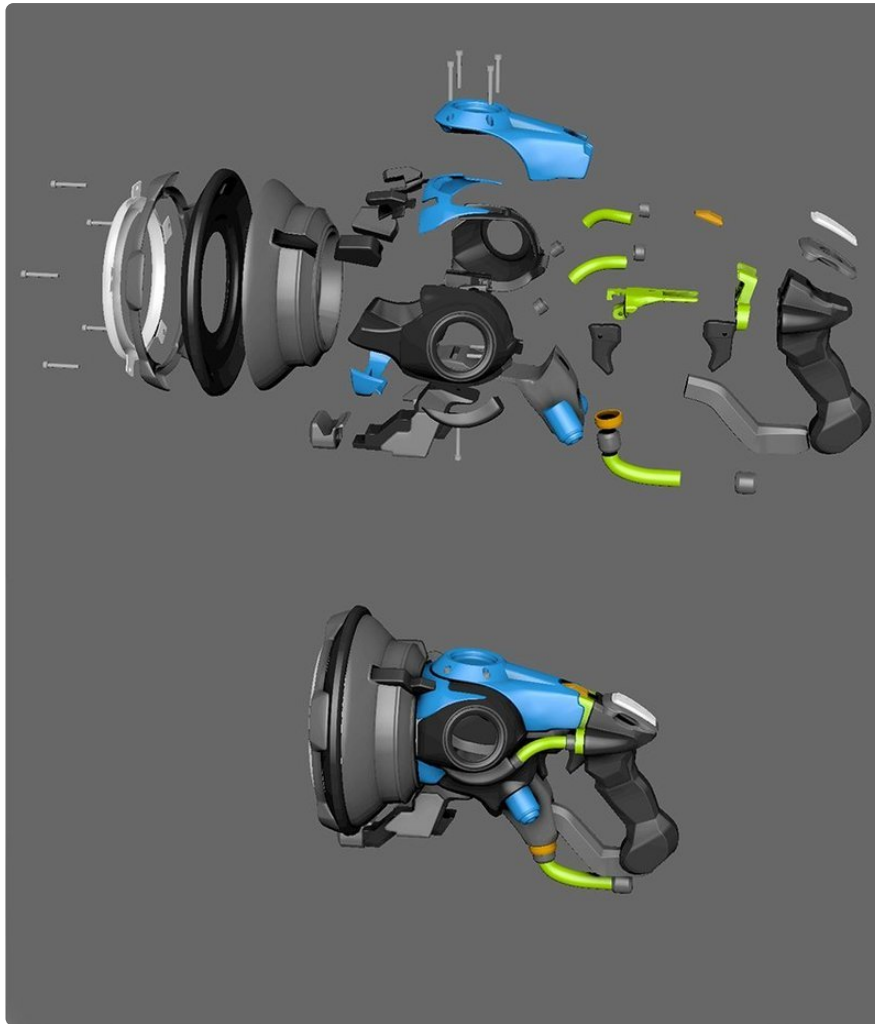
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3D Printing



This guide is a work in progress. Advanced users can use the files and diagrams as a blueprint for building. Step-by-step instructions will be added over time.

This guide is a work in progress for printing and assembling the Overwatch Lucio blaster as well as connecting the electronics. [Part 1 \(https://adafru.it/t9B\)](https://adafru.it/t9B) and [Part 2 \(https://adafru.it/tFw\)](https://adafru.it/tFw) of this series show how the circuits are created.



Get ready to go into 3D printing production -- there are 42 parts to print for Lucio's blaster! Download the model files [here](https://adafru.it/tFx) (<https://adafru.it/tFx>).

You can choose to print in a single color and then prime and paint your parts, or use colored filaments as seen here. The frontDiffuser part should be printed in a translucent natural filament in order to allow the LEDs to glow through with some diffusion.

These are the filament colors I used, printing on a combination of an Ultimaker 2+ and a Printrbot Metal Simple:

- Ultimate Blue PLA by Ultimaker
- Light Green PLA/PHA by Meltink3D
- Black PLA/PHA by Melktink 3D
- Orange PLA/PHA by Meltink 3D
- Dark Gray CPE by Ultimaker
- [Natrual Translucent PLA/PHA](http://adafru.it/2451) (<http://adafru.it/2451>)
- [Silver PLA/PHA](http://adafru.it/2063) (<http://adafru.it/2063>)

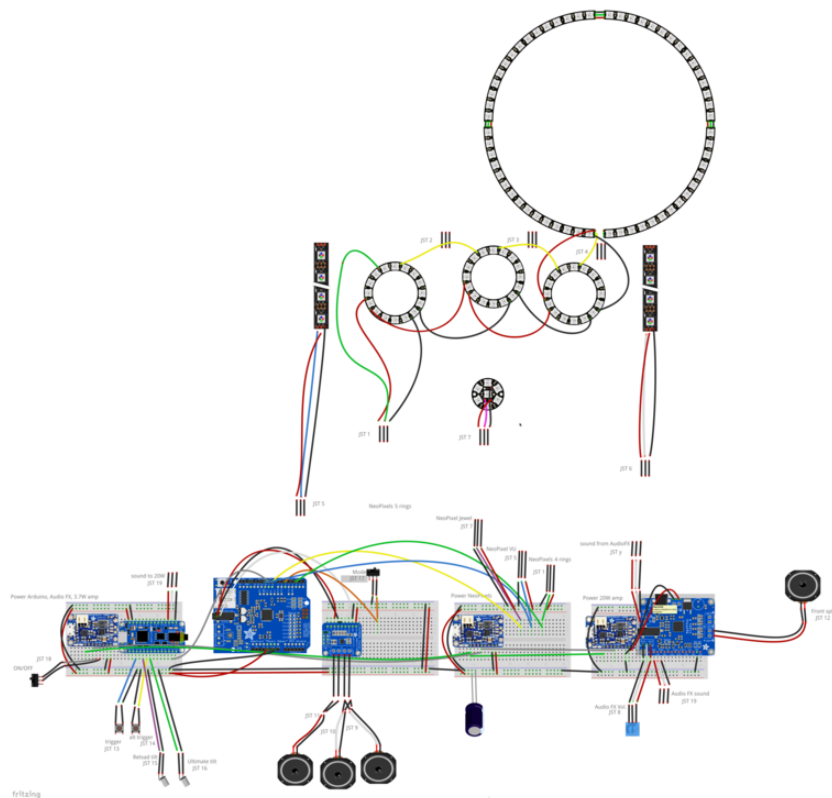
The three largest parts were printed on a BCN3D Sigma printer in gray and black PLA/PHA.

All of the parts can be printed on a typical 3D printer's approximately 8"x8"x8" bed with the exceptions of the frontFace, frontBase, and frontCrown parts, which are quite large, so you may need to slice these into sections for re-assembly later



After printing the parts and cleaning up the supports, you can dry fit them to make sure everything will go together smoothly.

Circuit Building



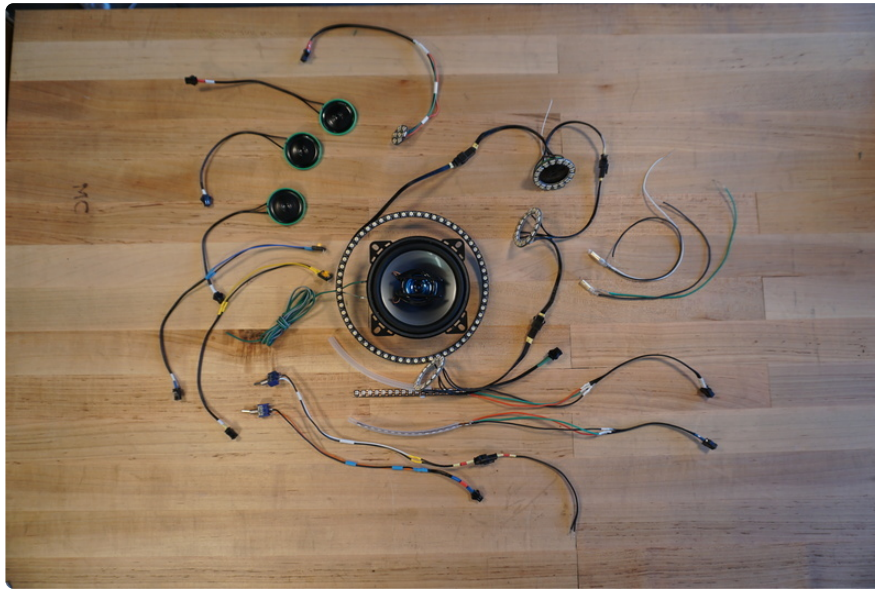
This guide is a work in progress. Advanced users can use the files and diagrams as a blueprint for building. Step-by-step instructions will be added over time.

The music, sound, and lights circuits follow the blueprint [set out in part 2 \(https://adafruit.it/tFw\)](https://adafruit.it/tFw) of this series, but now we're transferring things to PermaProto boards.

You can continue to use the Metro and Music Maker MP3 shield, as seen in the circuit diagram above, or move to the smaller Feather M0 Basic Proto with MusicMaker FeatherWing. Be aware, however, that the Feather is a 3.3V board and will need a level shifter to communicate properly with the NeoPixels.

In the diagram you'll see various parts labeled "JST" -- these are connections that can be made using multiple conductor JST connectors (or other interconnects of your choosing) in order to assist with assembly. It can be tricky to insert things such as speakers, lights, and buttons for triggers while they're connected to the circuit, so these will allow you to plug them in as you go.

Assembly



This guide is a work in progress. Advanced users can use the files and diagrams as a blueprint for building. Step-by-step instructions will be added over time.



For assembly, I used [M4 x 30mm socket-head screws \(https://adafruit.it/shd\)](https://adafruit.it/shd), [M4 x 14mm socket-head screws \(https://adafruit.it/shd\)](https://adafruit.it/shd), [M4 hex nuts \(https://adafruit.it/shd\)](https://adafruit.it/shd), and [M4 x 0.7mm thread \(https://adafruit.it/tNb\)](https://adafruit.it/tNb) brass heat-set inserts (<https://adafruit.it/tNb>) on the top and front sections.

All other parts were glued with A6000 adhesive.

To assemble the blaster, these are the basic steps (naming conventions follows that of the .stl files in the model download):



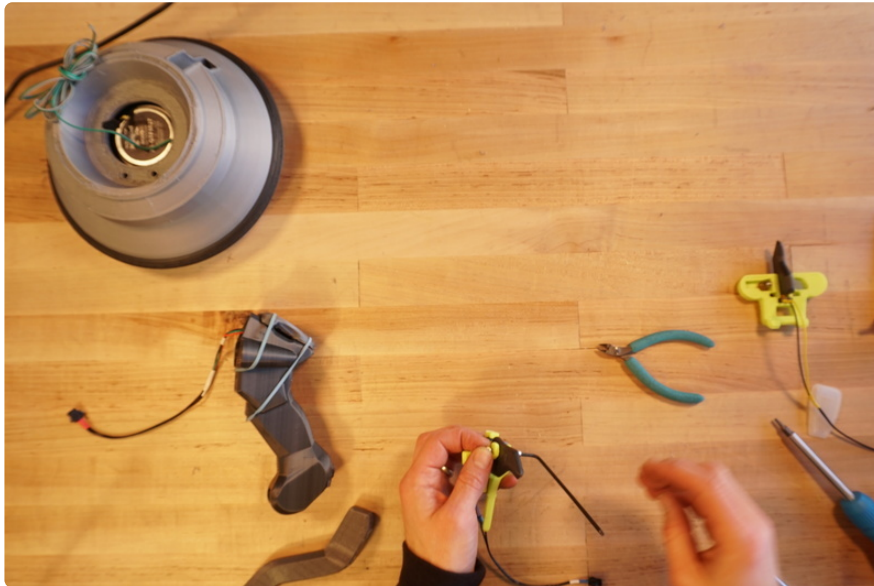
Front Assembly

1. fit large NeoPixel 60 ring inside the **frontDiffuser** facing outward
2. fit **frontDiffuser** over **frontCrown**
3. run NeoPixel 60 wiring through **frontFace**
4. fit 20W speaker into **frontBase** and screw it in place
5. screw down **frontDiffuser**, **frontCrown**, **frontFace**, and **frontBase**
6. glue and insert the **slot_lft** and **slot_rgt** pieces into the **frontBase** cutouts



Rear Assembly

1. fit the NeoPixel Jewel into the **modeHolder**, running the wiring through the hole
2. fit and glue the **modeLens** onto the modeHolder
3. run the Jewel wiring through the **grip**, then fit and glue **modeHolder/ modeLens** assembly onto the **grip**



Trigger Assembly

1. fit the wired primary trigger tactile switch into its space in the **triggerReceiver**, button facing downward
2. fit the **triggerA** into place in the **triggerReceiver** and secure it in place with an M4 x 14mm screw and nut
3. repeat this procedure for the secondary trigger, fitting the button, and **triggerB** into the **triggerMount** and securing the trigger with another M4 x 14mm screw and nut.
4. fit and glue the **triggerReceiver** into the **grip**
5. Insert the **triggerMount** into the holes in the **triggerReceiver** and **grip**, pushing in until it is secured. Make sure both triggers still work, and adjust fit as needed



Grip Guard & Lower

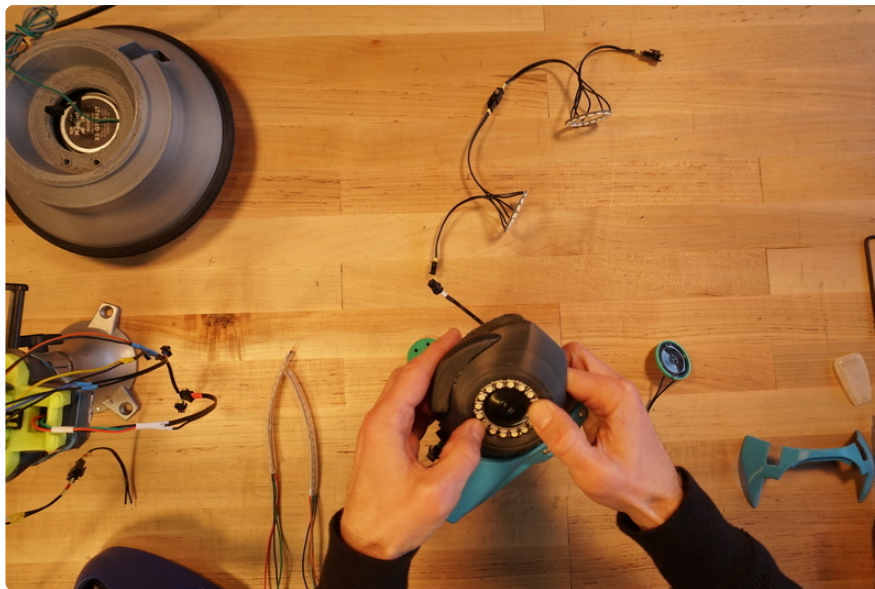
1. fit and glue the **gripGuard** into the **grip**
2. fit and glue the **gripGuard** into the **inner** again, being sure the secondary trigger isn't impeded
3. fit the two toggle switches into the **lower**, secure them with the included hex nuts
4. fit and glue the **lower** onto the **inner** and **triggerMount**
5. fit the tab on the **body_btm** into the slot on the **inner**



Speakers

1. place and heat-set the four brass threaded inserts into the **speakerMnt_lft** and **speakerMnt_rgt** parts
2. Screw the **body_top** to the **speakerMnt_lft** and **speakerMnt_rgt**
3. insert the left, center, and right speakers into their respective NeoPixel 16 rings
4. run the wiring through and fit the speaker/NeoPixel 16 ring pairs into the **speakerMnt_lft**, **speakerMnt_rgt**, and **lid**
5. fit and glue the two strips of NeoPixels for the VU meters to the **speakerMnt_lft** and **speakerMnt_rgt**
6. fit and glue the **body_top** to the **speakerMnt_lft** and **speakerMnt_rgt**

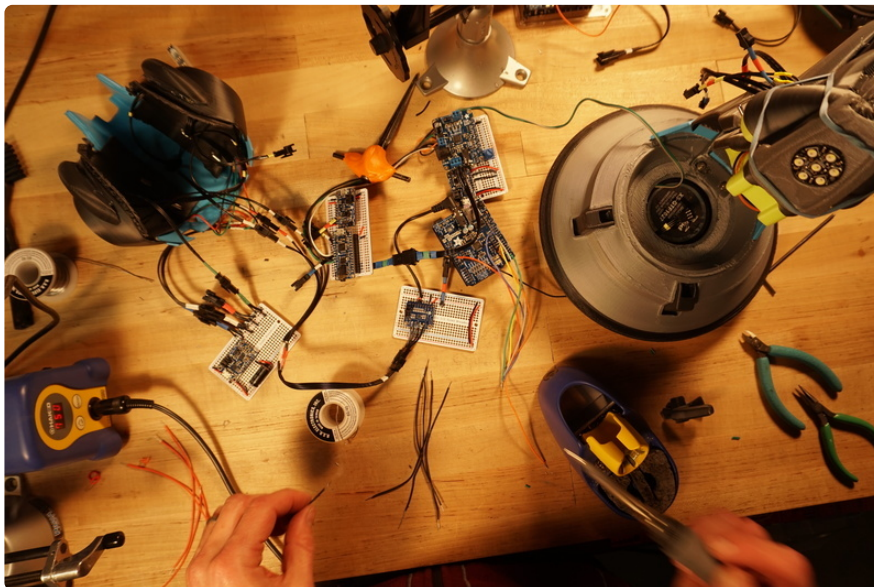




Joining sections

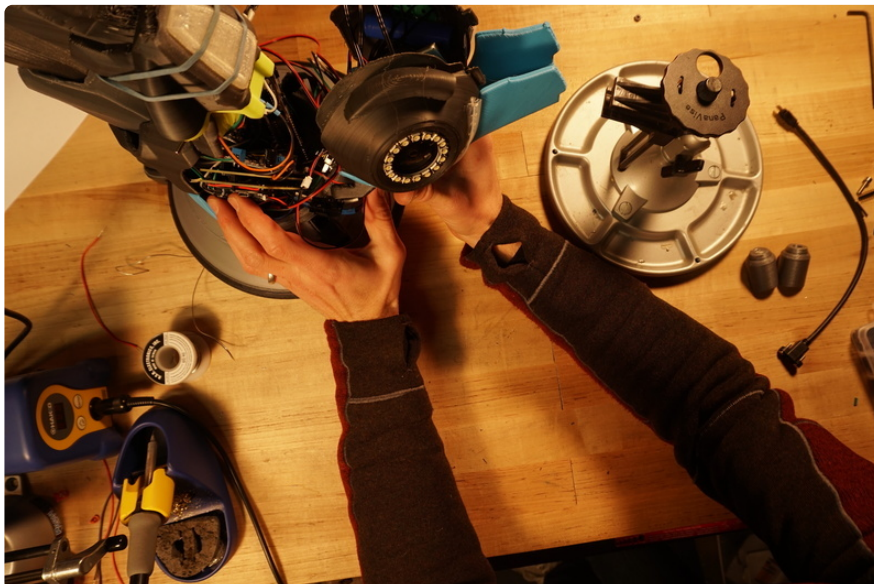
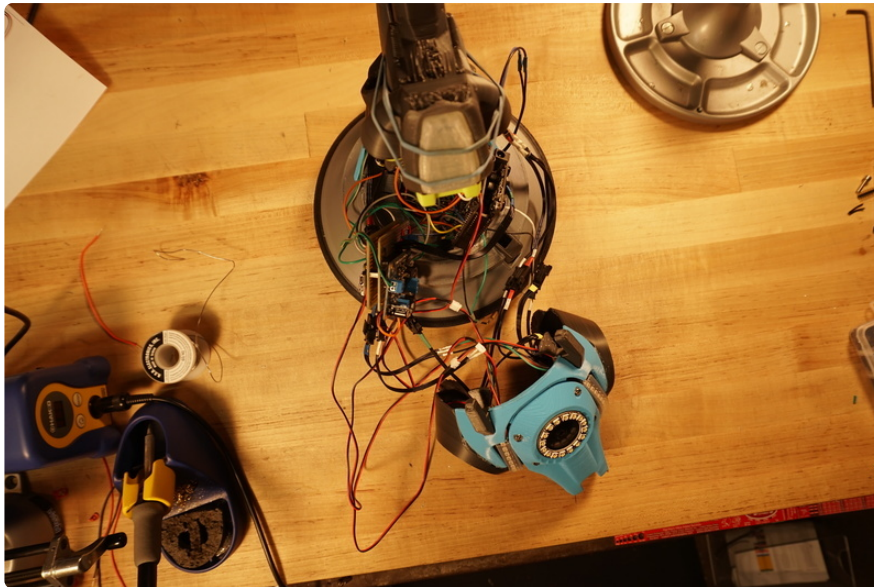
The rear, inner frame, and front sections can be joined now, leaving the main body cavity open (speakers and top unit) for insertion of the electronics and batteries

1. place and heat-set the two brass threaded inserts into the **frontBase**
2. screw the **inner** to the **frontBase**
3. Screw the **support** to the **inner**
4. fit and glue the **support_lft/support_rgt**, and **supportCap** to the **support**



Connections

1. connect the individual elements to their corresponding JST connectors on the PermaProto boards, such as triggers, speakers, and NeoPixels
2. connect the batteries to the PowerBoost boards
3. wrap and fit all wiring and electronics into the main compartment and fit the batteries into the space in the **speakerMnt** parts



Closure

1. connect the panel mount USB cable to the primary PowerBoos, then run the female end through the **lower** hole on the left side of the gun, this is for battery charging later
2. run the two tilt switches through this same hole so they may be adjusted for tile later, then affixed to the side of the gun and covered with the **plug_lft**
3. close up the gun by pressing the top/speakerMnt assembly down the rest of the way
4. fit and glue the **tab_lft** and **tab_rgt** into the **body_top** and then into the **slot_lft** and **slot_rgt** receiving slots respectively
5. test out the gun to make sure everything works!



Detailing

1. fit and glue into place the external parts: `hose_lft/hose_rgt`, `hoseMntD_lft/hoseMntD_rgt`, `hoseMntE_lft/hoseMntE_rgt`, `plug_lft/plug_rgt`, `hose`, `hoseMntA`, `hoseMntB`, `hoseMntC`
2. clean up and stray glue, and you're ready to go into action!

