Webcam Cover-Up Lego brick with Adabot Mini Fig

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https://learn.adafruit.com/lego-webcam-cover

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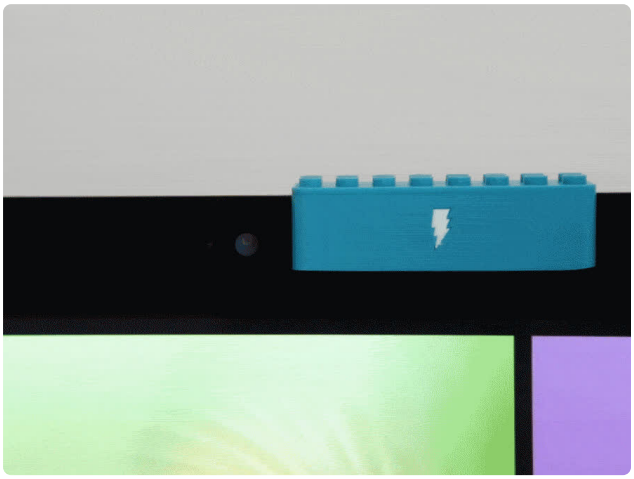
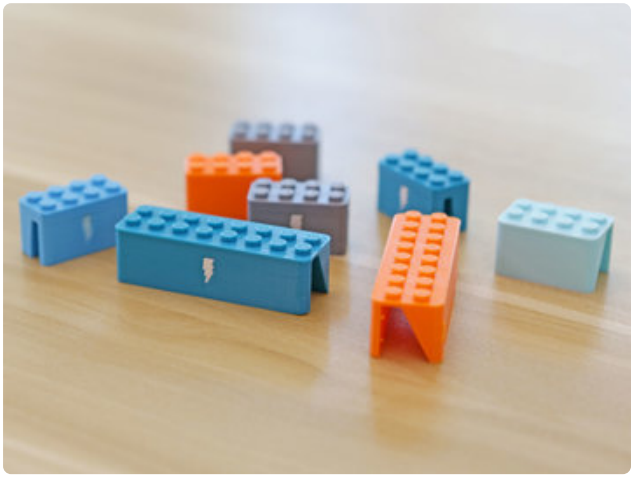
Overview

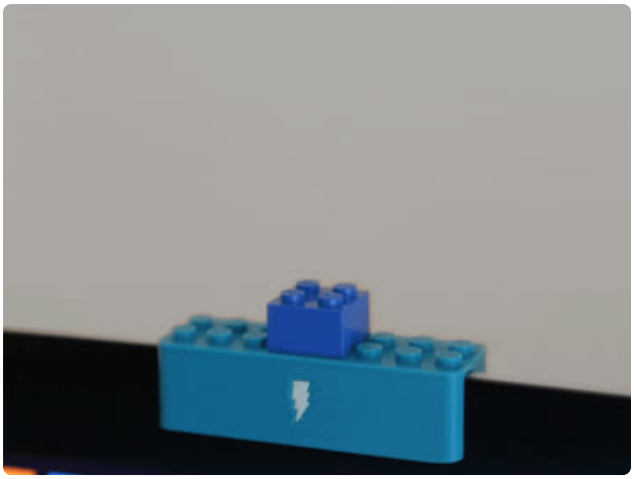




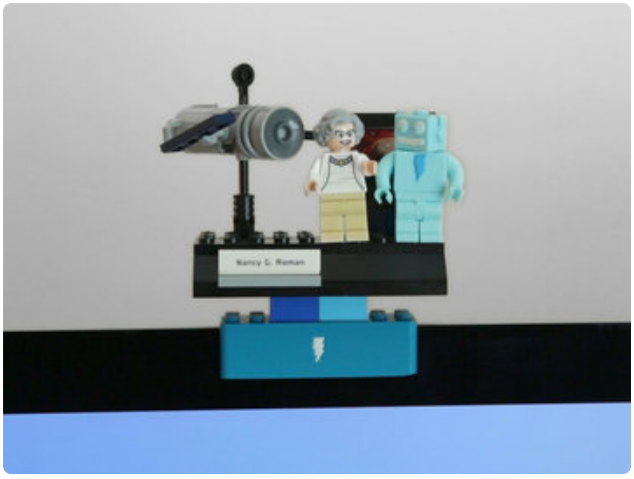
Look, we're not saying anyone's watching you. We're not saying that some secret organization (https://adafru.it/ATR) has taken over your webcam and is recording you, right now, as you read this sentence.

And we're definitely not saying the government's watching you. We're not saying that the FBI (https://adafru.it/ATS) or the NSA (https://adafru.it/ATT) took over your laptop's camera and are making sure you're not using your Onion Pi (http://adafru.it/1410) too much.

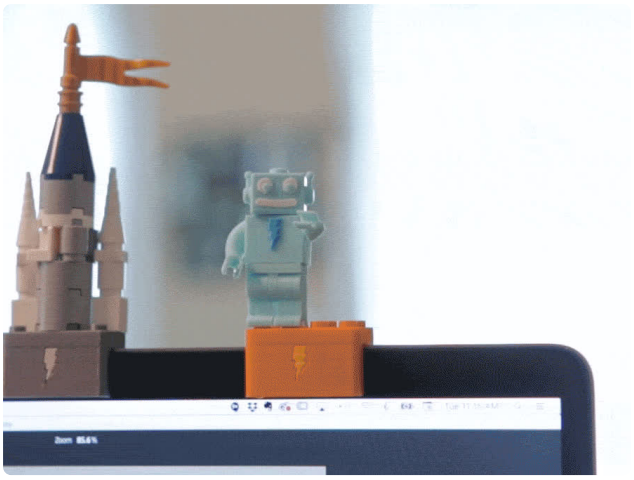
But let's just say, hypothetically, that it wasn't crazy and that someone did want to take over your webcam and watch your every move. And let's just say you didn't want them to.



Then maybe 3D Printing a webcam blocking cover wouldn't seem so ridiculous. They completely block the camera while provide a fun way to customize your computer with Lego blocks or even mini figs!

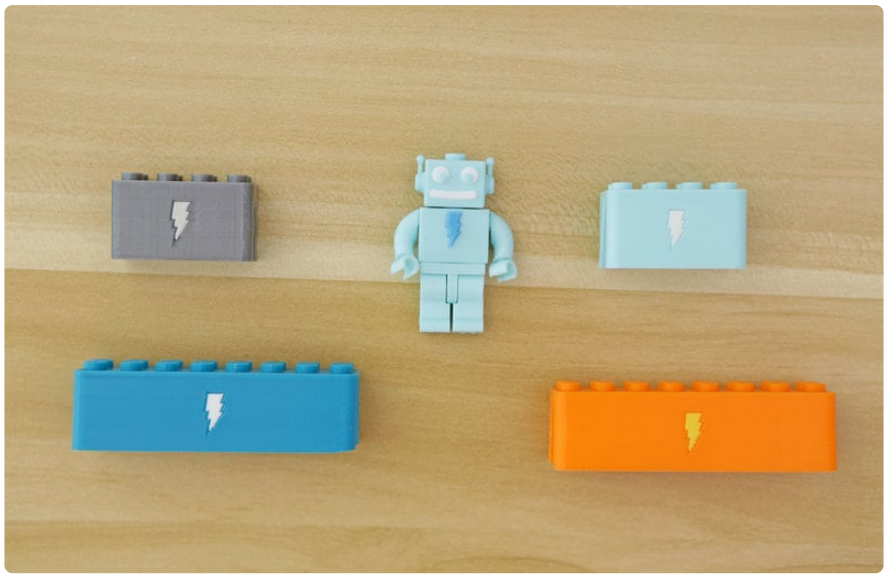


Again, we're not saying anyone's watching you. All we're saying is that they might be - and isn't that good enough?

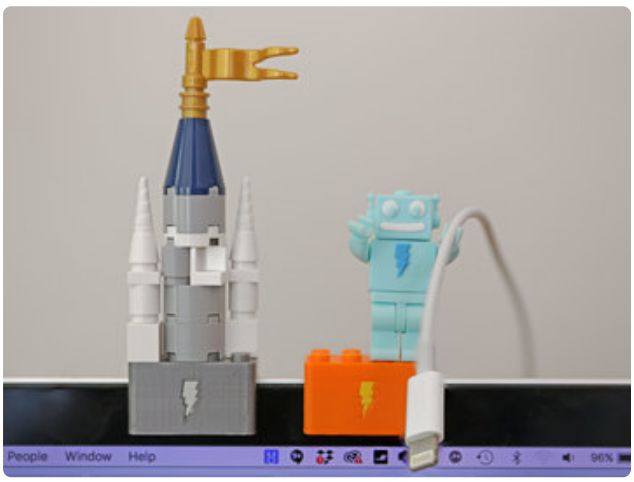


In additional to protecting and customizing your computer beyond plain stickers, you can devise unique solutions for attaching lights or just use a mini figure to help hold your charging cable when not in use!

Mini fig Adabot is fully compatible with all mini figures, so it's easy to completely mix and match parts from other sets!



3D Printing



What If I Don't Have A 3D Printer?

Not to worry! You can use a 3D printing service such as 3DHubs (https://adafru.it/jNb) or MakeXYZ (https://adafru.it/veh) to have a local 3D printer operator 3D print and ship you parts to you. This is a great way to get your parts 3D printed by local makers. You could also try checking out your local Library or search for a Maker Space.

Design Source Files

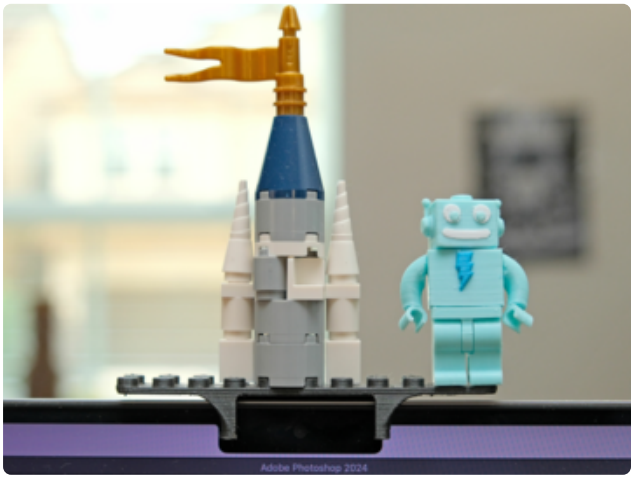
The enclosure assembly was designed in Fusion 360. This can be downloaded in different formats like STEP, SAT and more. Electronic components like the Adafruit Trinket and Micro Switch can be extracted from the Fusion 360 Archive.

Download Edit Brick Cover Source Files

https://adafru.it/1a0M

Download Adafruit Minifig Source Files

https://adafru.it/1a0N



Brick Shelf

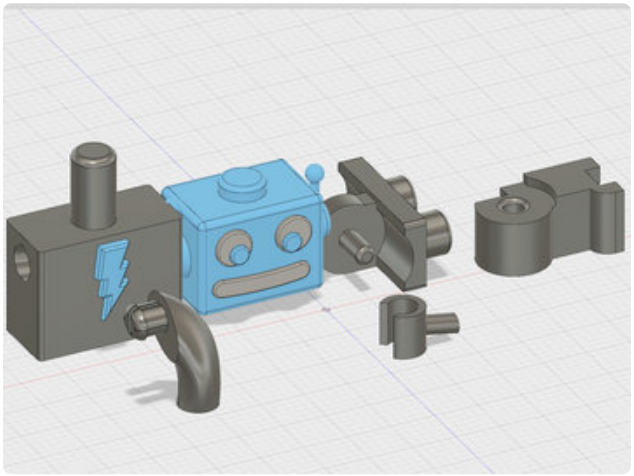
We also added s shelf design to hold brick without covering the camera

3D Printed Parts

All of the parts are 3D printed with FDM type 3D printers using various colored filaments. All of the parts are separated into pieces to make 3D printing easier. Assembly is pretty easy and straight forward. Use the links below to download the STLs files.

Download STLs from Thingiverse

https://adafru.it/ATX

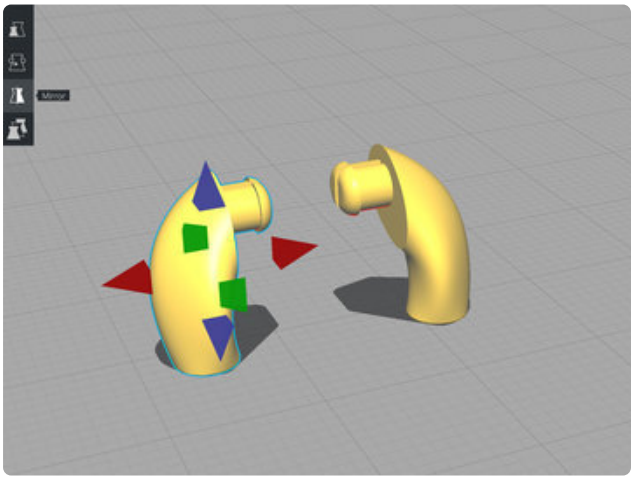


Slice Settings

These parts have been tested and 3D printed on an Ultimaker 2+ and 3 using PLA filament. The parts were sliced using CURA 3.2.1 with the following slice settings.

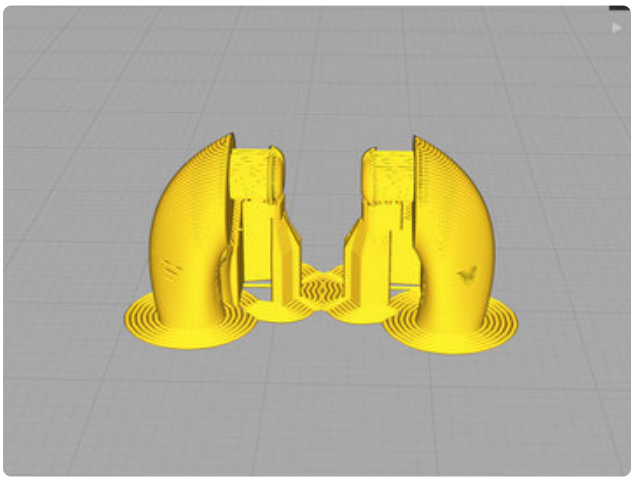
200C extruder temp
65c bed temp
0.1 layer height
0.22 line width
3 Wall Line Count – 0.25mm nozzle
20% infill
30mm/s print speed
20% Supports

Orienting Parts



The arm and leg are ready to print as is. You will need to duplicate and then mirror the copy of both of them to print the left versions.

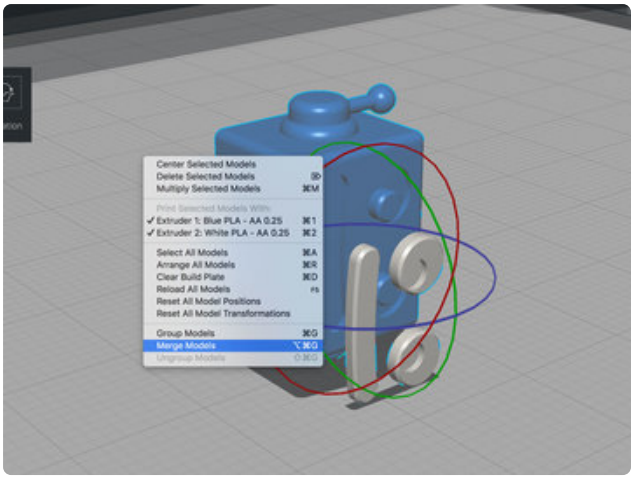
To multiple models, right click on it and select: **Multiply Selected Model.**

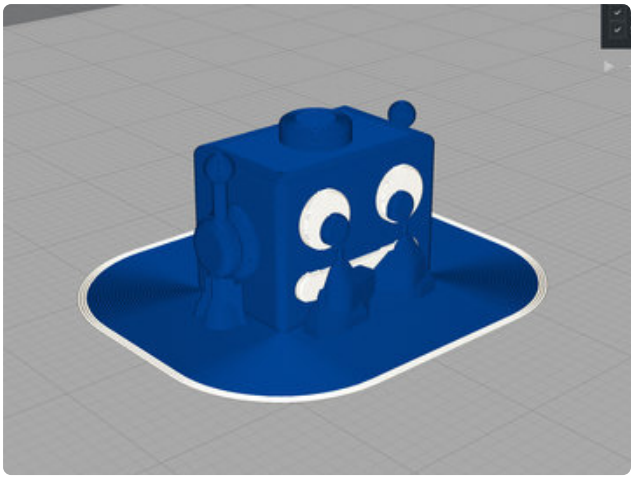


Now we can mirror the copy by clicking on the Mirror icon and then selecting the arrows closest to the model.

Supports

The arms and Head will need supports for the overhangs. Enable supports and set them to **Touching Build Plate.**



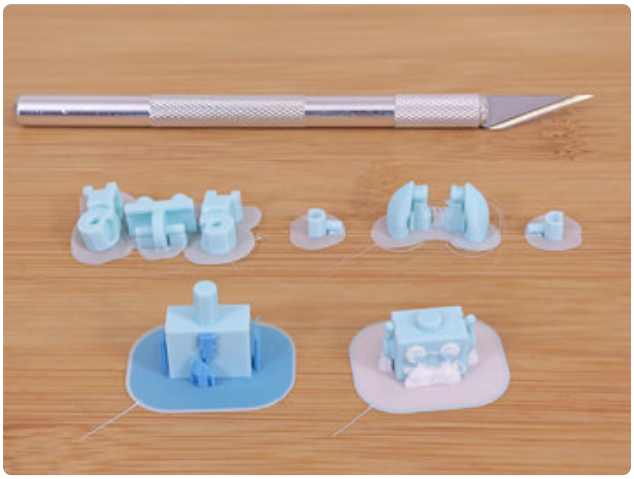


Dual Color

The head and torso can be printed with two colors. Load the model and then select the **ada-headFace** to the second nozzle. Now we can merge the two. Shift select each model and then right click to bring up the **Merge Models** option.

Rotate the head so it sits upright. Make sure to have the supports set to **Touch bed plate**, otherwise the head cavity will generate too much support material.

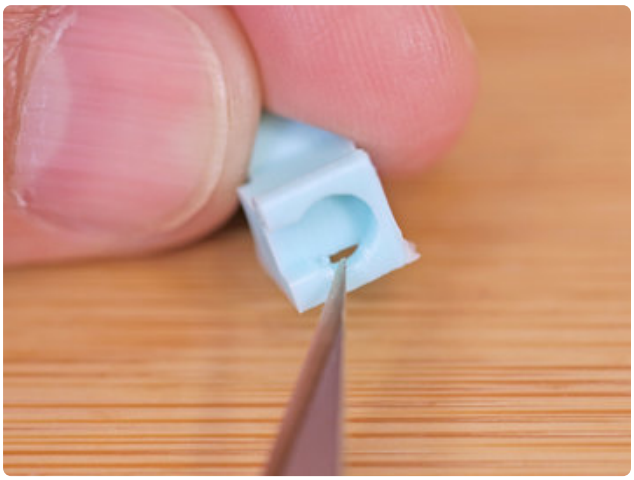
Assemble



Clean Up

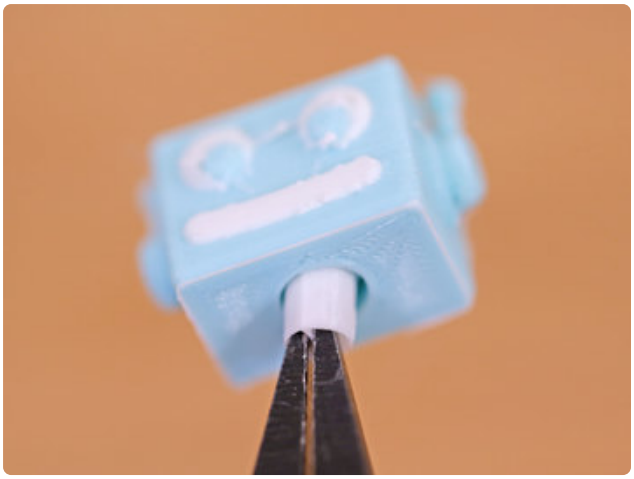
We recommend using a hobby knife with a new blade to help remove the brim around all of the parts.

If the tolerances for the legs seem too tight, check the inside of the connector for where the z seam might be. Use the tip of the hobby knife clean around the hole.

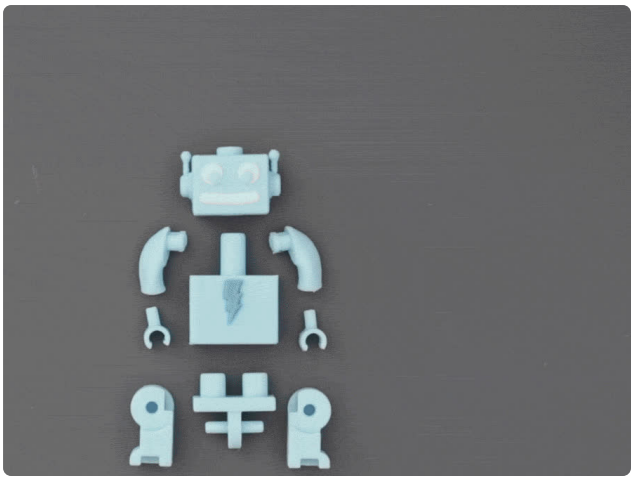


If the foot has trouble connecting to studs, check the inside of the foot to remove any blobs around the connector.

To remove supports around the face and arms, use Precision Flat Pliers to gip and pull away from the parts.



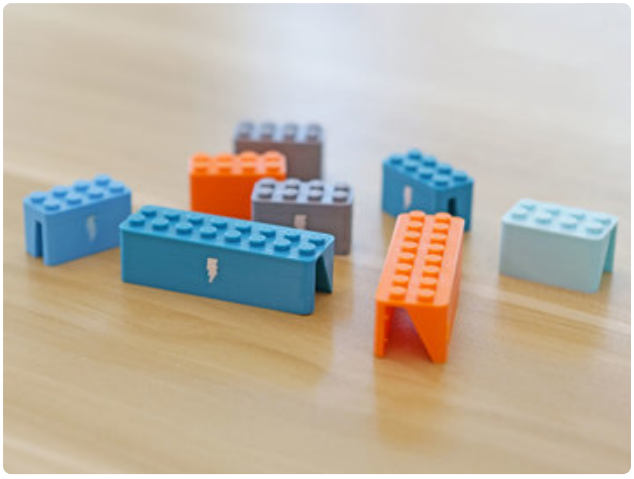
Adabot Assembly



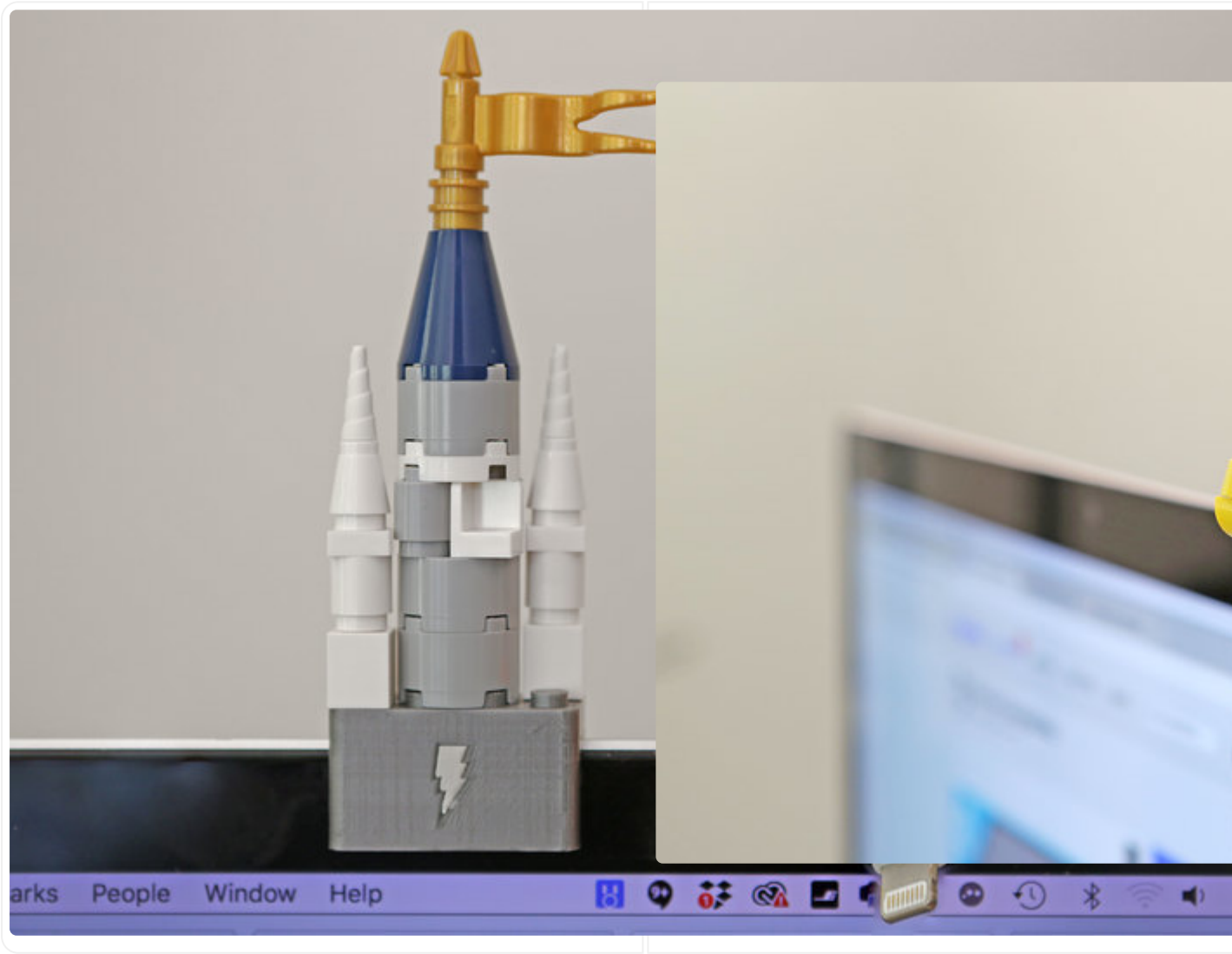
After cleaning all of the parts, we are ready to assemble our Adabot mini fig!

First attach the hands to each arm. If the tolerances are a bit too tight, we recommend removing a removing a tiny amount of material from the wrist section on the hand. Remove a little at a time until it has a tight fit inside the arm.

Brick Cover



The brick covers only need the edges cleaned if you used a brim. If the tolerances seem too tight on regular lego parts, you might need to adjust the parameters for the studs in the design file. The default diameter is 4.8 but depending on your printer and slice setting you may need to increase it to 4.9 to 5.0

Cover and Decorate

That's it! Now just slide the cover over your webcam or get creative and build a miniature scene to inspire you while pushing pixels!