CURL 3D printers

Summary

Our 3D printers are set up with Octoprint on each one. Octoprint provides a web interface for managing prints on each printer so you can upload a print wirelessly, along with control the temperatures of the printer and view the print from a webcam. You can access the printers with the IP addresses below. There is a computer to the left of the printers in the lab that is set up with a slicer and the three printers for easy 3D printing without installing anything on your computer.

Printer access

Octoprint username: **See physical printers**

Octoprint password: **See physical printers**

Printer 1 (Taz 6) – **130.127.199.38**

Printer 2 (Taz Workhorse) - **130.127.199.52**

Printer 3 (Taz dual?) - **130.127.199.142**

Follow these steps to use the lab computer with the printers:

1. Use a flash drive or Google Drive to transfer your STL files to the computer.
2. Open the program “Cura Lulzbot” from the task bar and drag your STL file into the main program window
3. Use the rotate and move tools to orient your object in the best orientation for printing.
4. In the top bar click Settings, Printers, and select the 3D printer you plan to use.
5. Pick the correct filament on the right side – I recommend using PLA Verbatim if you’re printing in PLA
6. Pick the Profile on the right side – I recommend “PLA Generic JT” for PLA.
7. Click the view type dropdown and change it from Solid View to Layer View, preview the layers and make sure your print looks right and that supports are present if you want them.
8. When you’re ready to send it to the printer, click “Print with Octoprint” in the bottom right corner.
9. Open the Octoprint instance in Chrome of the printer you’re going to use, select the file you sent, and press Print. (Optional – we could go into each printer and select the option “Start print automatically after sending to Octoprint” so we don’t have to do this step. Disabling for now.)

You can check the progress of the print by opening those IP addresses from any computer on the school network. If you’re at your apartment, simply VPN into the campus network and then you’ll be able to access them. If you see a print failing you can cancel it from Octoprint remotely.

Setting up slicer on personal computer

The lab computer is a bit (lot) slow, so follow these loose steps to set up the slicer on your own computer.

1. Install Cura Lulzbot Edition - https://www.lulzbot.com/cura
2. Set up the lab printers via Settings, Add Printer
    a. Printer 1 - Taz 6 Aerostruder, 0.5mm nozzle
    b. Printer 2 – Taz Workhorse | HE | 0.50mm
    c. Printer 3 – Taz dual? TBD
3. Set up Octoprint for each printer. Go to the Octoprint IP address, click the wrench in the top right to open the settings, then go to API. Copy the Global API Key, or make an application specific API key for yourself. Under each printer in Cura Lulzbot click *Connect Octoprint* and fill in the IP and API for its Octoprint instance.
4. (optional) I had issues with the initial profiles with the temperatures being too low for modern PLA, so go into the Material settings and increase all the temperatures by about 20°C. I set the following:
    a. Printing Temperature: 225
    b. Probe Temperature: 205
    c. Soften Temperature: 200
    d. Wipe Temperature: 195
5. (optional) – Reduce the “elephant foot” squish effect of the first layer. Click the gear on the Shell setting and enable the *Initial Layer Horizontal Expansion* option, and set it to *-0.1mm*.

SSH Access

If you need to VPN into the raspberry pi for some reason

Username: pi

Password: octoprint