

Calix Tang

CS 3651

23 October 2023

### Project Proposal - 2D Plotter

I propose making a 2D plotter (functioning like a normal printer) for my project. The basic structure will look something like these: [amazon link 1](#) or [amazon link 2](#). The main build will be an xy gantry with something that can actuate a pen or sharpie (I'm probably using sharpie) vertically. I might optionally include rollers that can detect and take in paper from a feed, but I think that would be extra functionality for the project.

After talking to Peter about my project ideas, the main things about this project to worry about are (1) obtaining a gantry and (2) being able to drive motors. For (1), I can either buy a gantry online (but they're really expensive) or (2) use some from the 3d printers in the back of the class. While I would prefer to keep my project whole after it's done, I'm not sure if I can pay for the gantry out of pocket. For (2), there's this [nice kit on Amazon](#) that I can buy. I would ideally want to play with the printers in the lab to make sure I know how to drive the gantry's motors correctly.

A minimum feature set I should implement (for an 'A'):

- Complete xy control of the pen-holding module on the gantry
- z-axis control of the pen, so it goes up and down
- Putting together the above two will give (theoretically) ability to draw anything
- Finished build, actually prints something on paper, even if it's a hard-coded drawing

Additional features that I want to implement:

- Ability to give plotter something to draw - maybe uploading a pdf file via usb or wifi
- Ability to feed in paper and automatically spit out paper when done (rollers)
  - I will design the overall system with space for rollers in mind
- Ability to tell it to spit out the pen (for example, to switch colors)
- Multicolor drawing??? But this would be if I'm super bored

Mid-project review:

- Do I have a gantry up and running? I think this is the main thing to worry about
- Do I have some pen holder fabricated/created?