

CprE 492 3D Metal Printer

Progress report 6

4/6/18 to 4/20/18

Client: Dr. Bigelow

Faculty Advisor: Dr. Bigelow

Team Members:

Ben Pieper - Control Software

Caleb Toney - Sensor System

Jett Ptacek - Control Software

Kevin Oran - Mechanical Design

Rachel Shannon - Sensor System

Accomplishments during reporting period

- Completed cube g-code generation algorithms
- Placed orders for all materials necessary to do box wiring
- Frame and bracket parts are done. Drawings are nearly ready for shops.
- Completed arduino sensor data acquisition code
- Feedthroughs wired and soldered
- Connectors attached to feed throughs
- Software updated to include step by step motor control
- Gcode Parser Window is complete

Pending Issues

- Waiting for Nitrogen cylinder to be installed in room, EHS has cleared the room but cylinder still not installed
- Waiting on parts to come in.
- Need to document software components and Printer Hardware
- Need to configure printer to work with vacuum chamber upside-down.

Individual Contributions

Team Member	Contribution	Hours	Total Hours
Ben Pieper	Fixed several bugs with gCode cube generator. Wired feedthroughs, placed several parts orders	18	75
Caleb Toney	Worked on report, some sensor integration,	6	40
Jett Ptacek	Wired feedthroughs, cleaned up gcode to velmex software,added serial communication to gcode parser window, Velmex commands edited for user interaction	14	56
Kevin Oran	Parts into boyd lab for frame, Hardware list completed, issues found with missing .1 in from waterjet, fixes modeled and re-drawn for boyd, drawings and meetings for Rob and Chem shop.	17	79
Rachel Shannon	Completed the design and layout of poster, wired feedthroughs and connectors	17	49
	Total Hours	72	299

Plans for next work period

- Sensor System
 - Integration with rest of system during assembly
- Assembly
- Mechanical
 - Assemble chamber, frame and slides.
 - Seal Vacuum Chamber
 - Still need valve order, connector mounts, oxygen mounts redesigned.
- Software/motor control

Summary of Advisor Meeting

Dr. Bigelow discussed a few pending issues with the project and the timeline for finishing it out. This entailed specific details about the assembly as well as the best things to include when presenting. We also talked about the expectations and procedures for handing off to the group that will be working on it next year. We were only tasked with part of the project. Other groups are going to continue where we left off.