

CprE 492 3D Metal Printer

Progress report 4

2/24/18 to 3/9/18

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

- Ordered connectors for external faceplate and internal box connections
- Started high level layout of box parameters to g-code software
- Finished Water Jet Design
- Vacuum Chamber was finished.
- Progress on parts for chemistry machine shop.
- Oxygen Sensor bracket was designed and water-jetted
- Panel Mount bracket was designed and water-jetted
- Arduino received from ETG
- Algorithm made for 2 axis simultaneous motion for non straight lines.

Pending Issues

- Waiting for Velmex delivery

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Ben Pieper	Created and sent connector order for external faceplate and internal box connections, started	4	31

	high level layout of box parameters to g-code		
Caleb Toney	Tested and worked on plan for integration of oxygen sensor data, ordered arduino	5	23
Jett Ptacek	updated how we do serial communication on our program. Figured out algorithm for 2 axis simultaneous motion	6	22
Kevin Oran	Worked on dxf export for water jet, Stock order and part placement for waterjet.	10	44
Rachel Shannon	Tested and worked on integration of oxygen sensor data with Arduino.	6	22
	Total Hours	41	117

Plans for next work period

- Sensor System
 - Continue integration into a more cohesive sensor/safety unit rather than individual sensors
 - Begin work on data transfer program
- Mechanical
 - Hardware order
 - Finish roller bracket and print bed drawings and create work orders for chemistry machine shop.
 - Finish frame drawings and create a work order for Boyd Lab.
- Software/motor control
 - Finish software to generate g-code for cubes of various dimensions and parameters
 - Begin testing software flow and 2 axis movement on assembled slides, assuming all parts come in over spring break

Summary of Advisor Meeting

We updated Dr. Bigelow on the status of the manufacture of the mechanical parts, and discussed orders we needed to place for the sensor system and connectors required for the external and internal I/O interfaces. We also discussed which lab the printer will be assembled in when parts arrive, and Dr. Bigelow ordered a table which will be able to hold the assembled printer.