sdmay19-03: 3D Metal Printer - Phase II

EE/CprE/SE 491 Weekly Report 6

October 29 - November 5

Client/Advisor: Dr. Bigelow

Team Members

Thomas Waters   — *Team Lead, Computer Engineer*

Ariel Rizshky-Yakobson — *Computer Engineer*

Alvin Rymash — *Electrical Engineer*

Jacob Gosse — *Electrical Engineer*

Armand Hernandez — *Software Engineer*

Carter Cahill — *Software Engineer*

Summary of Progress this Report

During this report, we continued to make additions to our project plan and design document. This took a lot of our time as we created solutions to some of the problems with had. The electrical engineers were able to get a list of cameras that could potentially work under low pressure and high temperature environment. We had a discussion with Dr.Bigelow on which camera might work best and we have decided to order one as shown below. We decided to go with a security camera. We thought that this was a good choice because of the metal compartment the camera is stored in and the ability for us to drill a hole to help equalize the pressure. The computer engineers and software engineers are still continuing to work on the print beds and roller with the mechanical engineers.

Pending Issues

There are a few issues we see ourselves having in the upcoming reporting period. The issues we have include disassembling the camera to see where we can drill a hole to help equalize the pressure. Other pending issues we have are making sure we have all the cables required for the sensors to connect to the computer.

Alvin Rymash and Jacob Gosse: The only pending issue we have here is to wait for the camera to arrive and hopefully disassemble it and decide a place where we can drill a hole on it. Another pending issue we have lately is a few cables tend to be missing for the barometer. We need to find a way to connect the barometer to

Thomas Waters and Ariel Rizshky-Yakobson: The pending issue with the mechanical engineers is still ongoing as they have designed the print bed, but they still have to make it. Without this done, there are no improvements they the team could do.

Plans for Upcoming Reporting Period

Our plans for the upcoming reporting period is to talk to ETG or in specific Lee Harker to get the camera ordered as soon as possible. We also plan on testing the sensors we have and making sure that they work. The computer engineers and software engineers will continue to work on the software and work with the mechanical engineers to ensure that the print beds and roller are being made and according to the design specifications.

Computer Engineers
Thomas Waters and Ariel Rizshky-Yakobson: Will continue to work with the mechanical engineers to get the print bed made before the end of the semester as no testing can be accomplished without the print bed made.

Electrical Engineers
Alvin Rymash: Have the specific camera we decided on ordered and start looking at the barometer for the chamber.
Jacob Gosse: Design ways to incorporate the sensors in the vacuum chamber.

Software Engineers
Armand Hernandez and Carter Cahill: Continue to make improvements to the software potentially being able to control the power of the laser, moving the guide laser, etc.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Thomas Waters	Continue to meet with the mechanical engineers to make the print bed and rollers	18	70
Ariel Rizshky-Yakobson	Went alongside Thomas to meet with the mechanical engineers and continue to work with them to go over manuals and documents on the velmex motors.	13	56
Alvin Rymash	Researched on the possible cameras that can be placed in a vacuum environment with high temperature. Discussed with Dr.Bigelow on the camera we decided to go with and got that ordered. Also took a look at the sensors that will be implemented in the chamber.	18	70
Jacob Gosse	Assisted Alvin in getting the cameras ordered. Researched on potential arduino boards we will be using for a barometer	16	72

Armand Hernandez	Made improvements to the software that will be used to control the 3D printer.	16	60
Carter Cahill	Worked with Armand to make improvements to the software and also other potential features that can be added.	15	67