MEMORANDUM
TO: Biodesign Instructors
FROM: Team 3 (Robin Cross, Aimee Lam, Patrick Stevenson, Rachelle Walter)
DATE: March 17, 2016
SUBJECT: Milestone 3

On March 17th Teams 3 and will complete milestone 3 by correcting a modified configuration.h file, uploading the file to our Arduino and powering the 3D bioprinter.

In this milestone the class went through a couple of skill building days, these skills taught us how to build a wiring harness, how to solder wires and how to heat shrink around exposed wire.

This milestone involved creating a CAD part for the Arduino mount, attaching the heat shields and stepper drivers to the Arduino, assembling and installing instops, and wiring the motors and instops to the Arduino. Every member was also required to download all the necessary software for running the bioprinter.

The team faced multiple challenges throughout the milestone. Most members had difficulty downloading the software to their computer, either by not understanding git and vim commands or by not being able to integrate their individual github accounts with the class repository. Some members also had challenges using virtual box. These issues were resolved with the help of the all-knowing Steven Lammers.

During assembly a few mechanical challenges were faced, initially while trying to run the printer the z axis motors were stuck and could not move, we solved this my realigning the axis using a level. Once this was solved the z axis would move down but not back up, we found the problem to be that the motor stepper driver on the Arduino was not powerful enough to drive both motors. We replaced the stepper driver and were able to then move the z axis up and down.

The following class we attempted to run the printer but could not connect to the Arduino through the usb port. We found the problem was that the two remaining stepper drivers that had not been upgraded were not working correctly and were prohibiting the Arduino from running. We replaced these and the issue was resolved and we were able to upload the file and drive the printer.

Sincerely,

Team 3