

## **MEMORANDUM**

TO: Biodesign Instructors

FROM: Team 3 (Robin Cross, Aimee Lam, Patrick Stevenson, Rachelle Walter)

DATE: February 26, 2016

SUBJECT: Milestone 2

As of February 24, 2016, Team 3 has completed milestone 2 of the 3D bioprinter. The x-axes and z-axes of the bioprinter has been built and the parts required for this build are listed in the BOM.

The biggest challenge, or rate-limiting step, of the build was having to file down some of the parts. This mostly applied to the holes meant to keep the nuts in place behind the bolts. Our first few parts went onto the printer before we realized they needed filing down, but after that we started looking at the parts before we attached them to the frame to make sure the nuts would fit and file them down if they did not fit and then attach the part after.

A few times, we also ran out of parts (nuts, bolts, washers) that we needed to finish the build, so we simply got those parts from our inventory room. It slowed us down slightly because we had to wait to work on the rest of the printer until we got our missing parts, but we tried to stop at a point that made sense and we would remember where the missing parts needed to go. Not working on the printer for 5 days and trying to go back to it was confusing at times and sometimes was difficult to remember what still needed to be done and it took some time to regroup and get on track.

At the end of the assembly, we realized that the z-axes parts were on the wrong sides when we went to attach the ramp onto the frame. This caused us to have to disassemble part of the printer and try to move the piece as a whole and turn it 180 degrees. It worked, but right when the part was about in place, the beefy coupler broke off. Luckily, there were backup couplers and we got the printer back together shortly after.

Attached are the assembly instructions for building the x-axes and z-axes components and adding them to the frame. We look forward to hearing from you about any suggestions you have for us to implement on future assignments.

Sincerely,  
Team 3 (Green Crew)