Work Completed

Week 5 brought about a flurry of touch-up work and some design work. First off, the slide and screw drive system that was salvaged from the back room needed to loose a few pounds and was far too heavy duty for our application. We decided to use a linear bearing and extrusion track system from 80/20 in place of the heavy duty re-circulating ball bearings and stainless steel rods used in the other setup. The use of aluminum extrusion over the steel rods resulted in a much lighter setup and one that is far more applicable to our device. Considerable touch-up work on the components to the easel was also completed by me and Frank Friday afternoon in the lab. Edges were rounded and plasma cuts were cleaned up. Frank and I also worked on designing end-caps to hold the 80/20 tracking in place on the easel for fear that welding it directly to the other aluminum would result in a warping of the track due to the heat. Later on in the week, I disassembled the old track system to separate out the parts that would be useable in our easel from the ones that we are putting back to save for another senior design group. From the old track we are keeping the screw drive, the pillow bearings on the ends, the plastic guide that is attached to the slide, and the two aluminum blocks that will be attached to the 80/20 bearing.
Figure 1. Old bearings from track

Figure 2. Threaded rod & connecting end
**Future Work**

Unlike last week when we thought the 80/20 track had arrived, it is actually in this week. We will be cutting the track to length and discussing how to attach the carriage’s bearings to the tracking on the base. Once that is complete, the slides can be placed on the tracking and Frank can weld the end caps to the base, securing the track. Then the bracket can be fastened to the slides and attached to the carriage. Once this is complete, the two major moving pieces of the easel will be joined together.

**Project Review**

The project is still running very much on time, and in fact the sight of things being welded, the track finally arriving, and the actuators working I am beginning to feel very confident that the design will work well right off the bat and we will have few bugs to work out.

**Hours Worked**

Out-of-lab Design: 3 hours
Out-of-lab Work: 2 hour
In-lab Design: 4 hours
Paperwork: 2 hours

*Total Work: 11 hrs.*