Week 3 Report

BME 291

2/10/2006

Seth Novoson
Work Completed

Meeting with Dave Kaputa

To explore damping options for the movement of the easel arm when the joints are unlocked, Team 3 met with Dave Kaputa and discussed possible solutions. He had several suggestions for the group including the use of nylon washers at the joints to increase friction, and a rolled spring that could be inserted into the joint to cause resistance to instantaneous joint collapse.

Hardware Store Trip

Following our meeting with Dave Kaputa, Team 3 went to the local hardware store to find nylon washers and other parts that could possibly be used to dampen the movement of the easel. Door damping springs were found, and nylon washers were also found and purchased. The door damper was not purchased due to size constraints.

Material Arrival

The materials arrived as expected this week. Unfortunately, the screws and bolts that arrived, were not what the group wanted and needed to be returned. The main length of 25-2525 aluminum extrusion was also bent and since it was ordered at the exact length needed, could not be cut for use in the easel as it was designed to. It was later worked out that the pieces of aluminum extrusion received could be used and did not have to be returned as was initially thought. These factors were delays in the project, as new screws have to be ordered and the design was changed in order to account for the shortened length of material that was usable.

Redesign

After receiving the dimensions of the tray to which the easel will be mounted, the team decided to change the dimensions of the easel base, the easel extension arm, and the canvas
holder. The base width was cut from 24” to 16”, the depth was changed from 6” to 2”, and the length was reduced from 12” to 10”. The extension arm segment lengths were cut from 24” to 12”, and the canvas holder was reduced in width from 24” to 21” and a height of 24”.

**Machine Shop Work**

The stock that was usable was cut into lengths appropriate for the design. The 25-2525, 25-2527, and 25-2550 stock that was delivered was cut into the correct lengths to begin frame construction once the correct end fasteners arrive.

**New Order Generation**

Because the incorrect end fasteners were ordered, a new parts order for AIR Inc. was generated and will be filed Friday.

**Future Work**

Next week’s time will be used to tap out the aluminum extrusion ends at the machine shop and to continue research into light mounting methods and materials. The correct fasteners will hopefully arrive, and the actual construction can start. If there is an excess of 25-2525 extrusion, the group may elect to build another design, or redesign a portion of the current easel. The project budget will also be received from Tracy and will give the group an estimate on where it stands.

**Project Review**

Unfortunately, this week was a mild setback. The end fasteners that the were believed to be the correct parts were not able to be used in the way designed for, as a result a new fastening method needed to be devised. This will not affect the machining time, as all aluminum extrusion stock issues were resolved and the stock pieces are ready, however, the parts needed to assemble
the easel are not available yet and thus the easel could not be put together. Aside from the materials set backs, the project is proceeding along the appropriate path. Design changes were implemented and materials cut. The LED system is progressing as well, with another circuit design change implemented this week by Ali.

Figure 3.1 – Some of the Machined Metal extrusion