Easelectric
Week 6
3/3/06
Frank Molnar

Work Completed:

Continuing the fabrication process of the project, the small aluminum brackets designed in the previous weeks that will connect the 80/20 track to the base of the easel were welded. The four aluminum pieces were fit perfectly using a scrap 80/20 track piece as a template. A picture of these pieces can be seen below.

With these pieces, a self tapping screw can be drilled through the front face of the brackets, through the pilot hole that runs through the middle of the track. Other time spent over the last week was spent cleaning much of the welds and aluminum that was fabricated two weeks ago. Using a soft wheel we were able to smooth down most of the welds and eliminate all the splatter marks from the MIG welder. We also began drilling holes through the carriage parts connecting the tilting components of the easel.
With the 80/20 1 inch track length now available, different sized pieces were cut for the different movements as well. Also, ideas and designs of how the actuators will attach have been developed. These include minor tweaks to the initial dimensions of the layout of each movement. Maintaining compactness really limits the way the easel is put together, allowing it to fold nicely upon itself.

Frank fabricated caps for the end of each piece of metal on the easel. We decided previous to him doing this that that would make the aesthetics of the easel much more appealing. The end caps were tack welded and this made them look sloppy. Jackie filed down each tack weld by hand so that they would be easier to shape and look better on the ends of the easel.
It was time the easel’s construction to cut down the tracking that we received from 80/20. Adam and Jackie also cut down 2 18” pieces, and 1 24” piece. This was taken by Frank to the shop for further fabrication of the easel. The group also went over with Chris the power supplies that I have done research on. He gave us some good tips on what exactly we need to be looking for, and what we can ignore.

Jon was able to do a mock setup of the electric circuit for the easel. Using the power supply provided in lab, the two actuators, gear motor, relays, joystick, emergency switch and breakers were integrated together and tested. The analysis went smoothly and fully functional.

Future Work:

During Spring Break, we will be piecing together all the major components of the easel. Using the equipment at the welding shop this task should be much more proficient than working in the lab. Frank will have all the tools and equipment necessary to weld, grind, cut, and perform other metal manipulating tasks not available to us in senior design. Once the actuators have been attached and movements up to the horizontal components are completed, we can begin integrating the circuitry into the easel and begin fabrication on the housing for the circuit components. The easel will also need to be painted and touched up once fabrication is complete. With time to spare, we should have a couple weeks left to test and fix any failed features of the device.
Project Review:

Although it seems our project is coming along nicely, we were hoping to have attached some actuators and tested some movements with the easel by now. Next week’s work will prove to be the most important week thus far. All of the easel’s components have only been theoretically modeled and tested. Integrating the actuators with the linear motion devices and aluminum stock all together may be the most difficult chore of the semester. However, I feel confident in our design and expect the parts to correlate superbly.

Hours Worked:

This week our total time spent working on the project was roughly 40 hours. This included time spent in design, fabrication, and cleaning/touching up the fabricated components. It also included time spent setting up the electric circuit.