Week 5

Project Identity:

Accessible Syringe Dosing Device

February 17, 2005 – February 23, 2005

Robert Mock

Work Completed:

Thursday I started working on a schematic in Express SCH. Most of the components used in our circuit are not in this program and had to be created from scratch. At the same time I made some changes to the original design to ease wiring and make better use of ports. I also made these changes in the actual circuit. I found that the zoom function is very useful in wiring. Also, I made sure to label all pins on every component in order to avoid confusion. During this time I finished about two thirds of the schematic.

The next day in the lab we worked on testing small programs that would run the linear actuator using a Clk signal. There were a few bugs that needed to be worked out in the program. At the same time,
some of the circuit had to be rewired to better accommodate the program that had been written. During this time we also looked at many different power supplies and decided that any battery we bought would be too heavy or too expensive. We found a nice adapter that plugged into the wall to transform 120V AC into 24V DC. This is ideal for our project and was ordered that day. In the last hour I finished the schematic on Express SCH.

The following Monday I did some tests on the voltage regulator and read the schematics to learn its properties. Its max input voltage and current are close to the 24V we will be using and we may need to screw the regulator to the PCB for additional heat sinking. I also read over the help sections and looked over many example PCB designs on the company’s website. I have begun the PCB layout and plan to have it completed before spring break if possible.
Future Work:

This week I plan on rebuilding the entire circuit on one PCB run by a 24V power supply. The linear actuator driver will use the 24V supply while the rest of the circuit, will be fed by this supply run through a 5V voltage regulator. This will be very close to our final circuit. At the same time I will assist in the testing of the microprocessor to hardware interfacing and try and complete the PCB design.

Project Review:

I have a preliminary circuit and PCB layout. There may be changes due to different I/O ports chosen for microprocessor compatibility. The box is very close to completion. We have some of the program done and are now testing them. Everything is going great.

Hours Worked:

Creating Schematic with Express SCH: 4 hours

Finishing Schematic with new pin changes and working on microprocessor to component testing: 5 hours

Working with the voltage regulator and Express PCB: 3 hour

Total: 12 hours