MSD 2 Weekly Status Report
Week 5 (4/7-4/14)

Sorry that this email is being sent later than usual. This week the lead screws arrived! They were the one part we were still waiting for, and were pacing the build of the pump subsystem. All the parts for the manipulator have been machined and that subsystem is current going through a test and debugging process. We tested each axis for motion and we achieved basic motion in every direction. The springs arrived and placing them in the pistons seemed to work well. We have some minor changes we are going to make to that subsystem to optimize its performance this week.

The pump subsystem continues to be behind. Some of the parts still need to be machined. That will be completed this week so we can begin assembly of the pumps this week. There were a few minor design changes made to some of the parts this week that added some additional machining operations.

The controls portion is progressing well. Sabine is now working on testing the configuration of computer to manipulator to chip to motor. There are still bugs to be worked out, as the chip is not doing exactly as expected, but good progress is being made. She also understands how to receive signals from the joystick, and just needs to do some calibration to integrate that input to the program.

Overall we are behind, especially in the pump subsystem, but we still can catch back up to the plan. This week will be a busy week, but I anticipate making a lot of progress.

Goals for the current week:

- Complete machining all parts
- Assemble the manipulator.
- Have computer program drive the motors through the microcontroller.
- Begin assembly of the pump system. This is pending arrival of lead screws and completing of machining of these parts.

And here is what we accomplished in relation to these goals:

- Not as much machining as anticipated. This week was a bad week for team members, including interviews and tests. The manipulator subsystem is completed with machining, and the pump parts will be completed this we.
- The manipulator has been fully assembled. There is some fine tuning and debugging that we will be doing at the beginning of this week to increase the performance of the system. We did some basic testing of the system and we get motion but finer tuning will result in smoother motion.
- Sabine has the microcontroller and the PC sending signals to each other now. And the microcontroller is processing the signals and setting the values that the driver chip needs. Now that this is done not much more will need to be done to start driving the motor. And she also has her program interpreting input signals from the joystick.
- Assembly of the pumps have not started yet.

Week 6 Goals:

- Test manipulator subsystem
- Finish machining pump subsystem
- Assemble pump subsystem
- Continue to work towards achieving motor control via the computer.

These goals align closely with our MSD2 Gantt Chart. The pump subsystem is slipping slightly behind, but there is enough extra time cooked into the plan that we should be able to recover at this point.

Budget Update:

We have not placed any more orders since last week so this is the same as before.
Spending charged to ME account: $1476.12
Pending charges to MSD Account: $330.78

Total Expenditures (including pending charges): **$1806.90**
Remaining Budget: **$693.10**

Note: the springs were ordered on a personal card for ~$16 and we will seek reimbursement for in the near future.