Week 1 (1.17.05-1.21.05)

Between January 3, 2005 and January 7, 2005, our team was able to submit parts orders for our project. We ordered a stepper motor, a keypad, an LCD display, and several microprocessors. Chris helped Karen and I straighten out the details of these orders, and also helped us find a vendor for our linear actuator, which we had trouble with following the submission of our final report.

During the following week, Karen and I became Machine Shop certified by taking the week-long class 8:00am-4:00pm. We began to formulate some ideas about what machining would be involved in creating a case for our device. Also during that week, we were able to iron out some glitches in our microprocessor order, and we requested a price quote from Haydon Switches and Instruments, Inc. We decided to order the size 14 hybrid linear actuator, along with its accompanying encoder. We expect this encoder to make the motor-linear actuator interface function much more smoothly. On January 13, we submitted an online request for a price quote for these items, and HSI promised to fax the quote to us within 24 hours. By January 17, we had not received any such fax, so I called their office and left several messages. To date, I have still not received a reply. Given the urgent nature of the order, when we do finally order the actuator, we will pay to have it express-shipped. This delay is a huge setback in the development of our project.

The linear actuator and driver that we wish to purchase are shown below, courtesy of www.hsi-inc.com:
This week, we have been able to update our team website and begin posting our weekly reports. We are still waiting to receive a price quote from HSI for the linear actuator, and if we do not receive such a quote by the end of the week we may need to find an alternate vendor. This problem continues to be a major setback. I have begun a spreadsheet to keep track of our team's expenses, and I have made the necessary updates to my lab notebook, including the things that were accomplished during winter break. On January 18, 2005, we received our keypad and LCD display. We have reviewed our design constraints to be sure that we develop a product that meets those constraints, and we hope to finalize an order for a linear actuator with express shipping by January 21, 2005.

On January 19, our team met with Dr. Enderle and Chris to discuss the problems that we've encountered so far in the design process. We agreed that our final report needs to be revised by February 2, and that all of our documents need to be converted to .pdf or html files for ease of reading online. Chris suggested that we create more detailed diagrams of our device, and that we construct a flow diagram for our microprocessor program. Gabe and Bob have taken on this task, along with the task of following up with the linear actuator order.
On January 20, Karen and I spoke with Serge in the machine shop about what materials we should use to construct our product's case and what machining will be required to complete the case. After some discussion of ideas for the case, we decided to use 1/2” thick plexiglass to build the case. We should be able to mill spaces for the PC board and other components to fit inside the case. This decision is particularly helpful because the machine shop already has most, if not all, of the material we need in stock. Not only will this cut down the cost of our project, but it will also allow us to begin construction as soon as possible.

Next week, we hope to begin making notes for our product's user's manual. We also plan to communicate further with HSI about what we can do to customize their linear actuator for our specific needs, once we receive the product. We hope to continue adding details to our sketches and models of the device's case, so that construction may begin as soon as possible. Finally, we hope to receive our microprocessor and stepper motor so that we may begin programming these items during the following week.