Work Completed
Since revisions were made to the previous design of the automatic paintbrush, some time was spent this week writing purchase orders for the parts of the new design. I again contacted Vern, from Excitron Corporation, to go over our order and make sure everything would work out as planned. Based on the design and purpose, Vern said that all the parts we planned to order would serve their purpose.

One question we had during the design phase of our paintbrush dealt with how to provide power to the brush. We had two options. The first option was use an AC/DC power supply. Our second option was to use a 9V battery. As a group, we evaluated the pros and cons of each option, and decided which would work better for our design. A power supply would be ideal; however, the use of a cord or extension cord in the setting in which the paintbrush would be used was not ideal. I asked Vern about the use of a 9V battery with the gear motor was chose, and he explained that it would run for 10-20 minutes continuously at full speed. This seemed to work for the design because with our design, the motor would not be working continuously at full speed; therefore, we would get more time out of the 9V battery.

Another question we had with our design was the attachment process of the lead screw to the gear motor. I asked Vern at Excitron for suggestions on how to attach the lead screw to the gear motor and he told me for an extra $20.00, he would machine the center of the lead screw to fit the gear motor and then it could be attached with a C-clamp. This sounded like a great idea; however, since Dan is machine shop certified, we figured he could machine the center of the lead screw out and we could save $20.00.

After we finally put all the orders together for the automatic paintbrush, our client contacted us explaining that the automatic paintbrush was no longer needed at the Passionworks facility but told us that the support system was still necessary. This caused us to shift focus from the paintbrush to the support system. On Friday, January 27, 2006, two representatives from Air Inc, a retailer of 80/20 extrusions, gave a demonstration of their product to our senior design class. Their demonstration sparked new ideas for our support system.

80/20 considers themselves “The Industrial Erector Set.” They manufacture t-slot extrusions which are easy to connect and disconnect, and they also aid in linear motion. The new design for the support system incorporates 1” x 1” t-slot extrusion attached to the wheelchair. At the end of this extrusion, there will be a brake attached to it, to allow 180-degree horizontal adjustment of the support system. Finally, a double flange linear bearing will be attached. This will provide the mounting surface for the cushioned support, as well as provide even more adjustment for the client.

Future Work
During the next week, we are going to focus all of our attention on the support system. We will start by placing orders for the parts we need for the support system. Once that is done, we plan on working with the wheelchair in the lab, to design an attachment system for the support system. We need to design a way to attach the support system to the wheelchair without physically altering the wheelchair. The system we design will have to be easy to attach and easy to remove, and it can’t get in the way of anything on the wheelchair.

Some time will be set aside this week to discuss what else is needed from us for our client. Although the automatic paintbrush is no longer needed, there are other things, which our client can benefit from. Once we establish something else which our client can benefit from, our time will be spent on the new component of the project, on the design of that component.

Project Review
It seems as though we will take a step forward in the right direction, but we always seem to take a few steps back. As we finally made progress on the design for the automatic paintbrush, we were shot down by our client contact because the automatic paintbrush is no longer needed. This shifted our focus to the support system, where we did make progress. The 80/20 demonstration opened the door for many different options for our support system. Although we do not have any material to work with, we are moving forward in the right direction with the support component of the project. Once we finally agree on another component for our project, we will be able to progress with giant leaps instead of baby steps.

Hours Worked
Hours spent on the project for Week 1: 10.00