Patient Positioning Aid

Week 8
Date: March 21, 2006
Bhavin Patel

Work Completed:

This week we were able to get a lot of the components finished. We were able to get most of the positioning aid in working order; still a few things remain to be done. I disassembled the leg stabilizer since it was attached with all steel bolts. Then I took the 4 extrusions that the leg stabilizer slides up and down on to the machine shop and took 1.5 inches off. This was mainly due to the fact that we might face difficulties if we put the positioning aid into a MRI, or CT since they are circular with the maximum vertical clearance being less on the sides then in the center. Ashley took a look at the MRI and CT equipment and we decided that 1.5” should be enough to allow the position aid to pass through the devices without any problems.

I took the leg stabilizer bars to the machine shop and drilled and tapped them. I first marked them using the linear bearing to make sure the two holes would be made the exact distance needed, since even a little variation could pose to be a problem. Then I took them back to the design lab and Ashley and I attached the linear bearings to the bars. The aluminum bolts were a little longer than the holes and therefore we could not get a tight attachment. The bolts were a little too long for the extrusion attachments to the leg stabilizer base also. I took 24 bolts to the machine shop and cut most of them to the size needed. The bolts left were the ones that attached the extrusion to the L bracket which I cut in lab using a hand saw. Then we all filed down the bolts so the threads would fit.
We also had to file down the heads of the bolts to use instead of an elevator bolt since they haven’t arrived yet. Figure 1 shows me filing a bolt.

![Figure 1: Me Filing a Bolt](image1)

Then after all the bolts were ready we put together the leg stabilizers and tightened all the bolts to make sure nothing is loose. Figure 2 displays the assembly.

![Figure 2: Me Tightening the Bolts](image2)
Then we placed the leg stabilizer bases on the board and attached the leg stabilizer bars on top. Figure 3 displays the total setup which complete, and ready for testing.

**Figure 3: Leg Stabilizer Set Up**

We decided that a new pad that fits the dimensions would be better then the current one. We handed in the order form for it on Friday along with the order forms for handles. We also received our Velcro and glue which we won’t be using until we receive our new pad.

**Future Work:**

We will finish the attachment of the side members PVC cross members to prevent flexion. We will also attach the handbar to the transfer board. After which we will begin our testing. If the handbars come in on time, we will also attach them to the board. We will also start to design a basic concept of how we will store the attachments.
Project Overview:

We have most of our components complete, and will soon finish the rest. We will be able to begin testing and have time to make changes if necessary. At this point we are meeting our set forth goals, and do not need any last minute action in order to complete the project.

Hours Completed:

BME Lab: 7 hours

Machine Shop: 3 hours

Outside Lab: 2 hours

Total: 12 hours