This past week we redesigned our whole arm and leg stabilizer setup’s to make them more functional for their application. We have decided to go with the 80/20 idea and have put in the order for the necessary parts. Our group spoke with Quing Zhu on Friday to see if using this 80/20 aluminum would be okay in the MRI and CT scanners. Since her specialty is in medical imaging we felt she would be able to tell us if the aluminum would interfere with the images these machines take of the patients. It should be noted that our design does not incorporate metal in the vicinity of the region being imaged. Therefore, she gave us the okay to go ahead and order the parts as she did not think the aluminum would effect the image quality. Our group met Wednesday to go through the catalog and determine all of the necessary parts for these two components of our design. We will also be responsible for finding aluminum bolts, nuts and carriage...
bolts to assemble the parts since the whole device must be non-ferrous. The arm stabilizer consists of the 10 series extrusions (Part #1010), 2 pivot nubs (Part # 4187), 2 Ninety degree Pivot brackets (Part #4133 and Part# 4137) One of which is left-handed and the other is right-handed. The last components of the arm stabilizers is the Double Flange Linear Bearings (Part #6425), these will allow us to attach the PVC bar to the device in the x-direction. The drawing below was done by Bhavin and shows what the anticipated arm stabilizer will look like:

The following parts were ordered from the 80/20 catalog for the leg stabilizer. We ordered eight 2-hole inside corner brackets (Part # 4119) to secure the two extrusions on each side of the PVC foundation. We also ordered two Single Flange Linear bearings (Part # 6415) to use to attach the HDPE bars to the vertical extrusions on each side of board. The drawing below illustrates the side view of the leg stabilizer attachment:
This past Friday we put in the purchase orders for the PVC needed to make the sidebars of the patient positioning aid. These sidebars will lie flush with the top of the board and be 1”x 1.5”x 6’. The cross members under the board will be made by using 1”x 1”x 22” PVC and the bars will be placed horizontally under the shoulders, the middle of the board and the calf area of the board to prevent the flex of the board when the patient is on the board. This PVC can be ordered from Modern Plastics and is priced at $15.78 a foot for the 2” square rod and $4.00 a foot for the 1” square rod both of which we need six feet in length, but must purchase a ten feet minimum. The second part that we ordered were the Aluminum knobs that we plan on using to adjust the leg stabilizer and arm stabilizer up and down the track system. These 14 knobs can be purchased through the MSC Industrial Steel Company for $56.28.
Lastly, since Bhavin has cut the arm bar into its three components we requested quotes from two companies on hand grips for the arm bar. We are planning on using a 16” long piece of foam that will fit around our 1” rod. The following companies www.interfoam.com and www.grip-tek.com should be contacting us with quotes this coming week and we can choose the cheaper option.

**Upcoming Week:**

This coming week we plan on finding a company that can supply use with 30 aluminum carriage bolts to use in assembling our 80/20 parts. We also will be looking for two aluminum handles that can be used on our leg stabilizer design. Since Bhavin was able to cut the arm bar in the machine shop, Drew and I can now assemble these parts using PVC glue. We can also build the PVC foundations that will slide up and down the track system with the 80/20 leg and arm stabilizer components on them.

**Project Review:**

This past week was very productive; we redesigned our arm and leg stabilizer attachments and ordered the necessary parts. So although we did not spend much time in the machine shop this week, once the parts come in we should be right back on track with the actual building of these components.

**Hours Worked:**
4 labs Lab Friday
3 hours Tuesday
2.5 hours Wednesday
2.5 hours Weekend