Work Completed:

This week was a very successful week because we finally received all of our 80/20 material. In the previous week while waiting for the 80/20 material to come in we did a lot of preliminary work and planning, and all of this preliminary work paid off; for when we finally received the 80/20 we are able to get right to work building it. Before Friday’s lab period Christen finished cutting all of the bases for the arm stabilizers. On Thursday I went into the machine shop with Bhavin and helped and took pictures of him drilling and tapping holes into the bases for the leg stabilizer. The following are digital images of Bhavin and I at the machine shop:

Figure 1: Bhavin using the drill press on the leg stabilizer base
In lab on Friday we were all busy assembling the 80/20 material and attaching them to their respected arm and leg stabilizer bases. In order to assemble the 80/20 material we used the stainless steel bolts which Christen and Ashley had previously purchased from Mansfield Supply Co. The following are digital images of one of the leg stabilizer bases and one of the arm stabilizer bases:
Also this week I ordered Velcro that we will use to secure the foam pad to the transfer board. I ordered 6 sets of industrial strength Velcro, as well as waterproof Velcro adhesive. Also this week I spent a lot more time looking up various handles to use to carry the patient on the board. In talking with Christen about the forces involved, I’ve decided to attach handles directly to the top of the board. I emailed two companies about rectangular aluminum handles. I plan on ordering six rectangular handles, and fixing three on each side of the transfer board. Once I receive word from the companies I will make a decision on whether to order the handles from one of those companies or from MSC, the decision will be based upon price as well as the height of the handle.

Future Work:

One of the most important tasks for this next week is to order the hardware that we are going to use to permanently assemble the 80/20 material and attached them to the stabilizer bases with. This past week Ashley marked the PVC for the arm stabilizer supports, and this next week Christen is going to cut them in the machine shop. Also this week Bhavin is going to cut the HDPE for the leg stabilizer in the machine shop.

On Monday the grip sample came in, so also this next week I have to figure out a way to slip it on over the handbar and then Ashley and I will assemble the handbar.

Project Review:

This past week was a very good week because our project became a lot more appealing. Before lab everyone did small preliminary things and then on lab on Friday we spent the
whole time piecing parts together. Altering our design to utilize the 80/20 material was a good decision because in assembling them on Friday we found that the pieces slide very easily. Now that we have most of our material in the project is going together very smoothly and quickly, and I do not foresee any future hang-ups.

Hours Worked:

In Lab – 1 Hour Wednesday
   2 Hours Thursday
   4 Hours Friday
   1 Hour Monday
Out of Lab – 2 Hours
Total – 10 Hours
We were able to get a lot done this week. We received our 80/20 order which allowed us to start working on major parts of our design, the arm and leg stabilizers. We also received our parts from modern plastics and MSCdirect to add to the transfer board in order to prevent flexing.

I was able to take the bases of the leg stabilizer to the machine shop and tap holes for the 2 hole inside bracket that secures the extrusion attachment for the leg bar. The holes are made in order to fit a .25” screw through them. Figure 1 shows me threading a hole in the base, and figure 2 shows the finished base for the leg stabilizer.

**Figure 1:** Threading Base of Leg Stabilizer
Figure 2: Leg Stabilizer Base

With the holes ready we were able to attach the base to the board, but when trying to attach the extrusion we were faced with a problem. The head of the hex bolt interfered with the nut that would secure the elevator bolt to the extrusion and the bracket. There wasn’t enough clearance for the nut. In order to fix this we decided to extend the hole of the 2 hole inside bracket that the elevator bolt goes through. This will raise the bolt making enough room for the nut to pass through and be able to secure the bolt.

Figure 3: Leg Stabilizer Set up.
Figure 3 shows how the leg stabilizer will look once we make the necessary alterations to the brackets. We used an extrusion in order to balance the two extrusions that will be attached to the base.

Future Work:

We still have quite a bit to go, but are progressing smoothly. The leg bar will be my next step for the positioning aid. I will take the polyethylene to the machine shop and cut it into the correct dimensions. We also submitted a 80/20 order because somehow we only ordered 2 linear bearings for the leg bars when we need 4. Once they arrive we will be able to finish the leg stabilizer bases completely.

Project Review:

We are on track and meeting all of our goals. Our timeline needs to be corrected but we still have more than enough time to finish our project with time for testing. There is no need for last minute action.

Hours Completed:

BME lab: 6 hours
Machine Shop: 4 hours
Outside lab: 1 hour
Total: 11 hours