Team 10 Report  
Week #5

**Budget Allowance**  
$2000.00

- Base for Position Table  $175.00
- Narrow Economy Polyfoam  $99.00
- Foam Headrest  $80.00
- T-foam  $32.00
- PVC 0.75” Rods  $6.20
- HDPE rectangular bars  $54.48
- PVC 1” Rod  $10.70
- PVC 1” sheet  $25.62
- PVC .75” sheet  $19.22
- Palm Grip Aluminum Knobs  $56.28
- 80/20 Materials for Arm/Leg Stabilizer  $235.00
- Aluminum 6061 Aluminum Material  $45.04
- PVC 1” Square Rod  $34.00
- Velcro  $11.00
- 80/20 2- Single Flange Linear Bearings  $72.00

**Tentative Balance as of 1/24/06**  
$1044.46 remaining

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.

On Thursday Drew 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. Bhavin 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.

Before Friday’s lab period Christen finished cutting all of the bases for the arm stabilizers. Christen also was able to drill and tap the holes in the arm stabilizer base which allowed for the 80/20 pivot to be attached. Also Christen cut the 80/20 extrusions needed for the arm stabilizer each one being 12 inches long.

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. Christen cut the carriage bolts for the track and the pivot down so that they were of the correct size. The following are digital images of one of the leg stabilizer bases and one of the arm stabilizer bases.
This week Drew also ordered Velcro that we will use to secure the foam pad to the transfer board. Drew also 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. Drew emailed two companies about rectangular aluminum handles.
This week we also received the aluminum bars for the side of the PVC transfer board to help minimize the flexion in the board and we are hoping to attach it to the board this coming week.

This week Ashley tried finding a smaller polyfoam pad for our table to try and eliminate the downsizing of the current pad and perhaps save some money. Ashley sent an email requesting a quote for a pad 1” X 16” X 70” from http://x-rayme.com/design_pad.htm and hope to receive the quote before Friday so that we may order it if this is in fact a better option.

This week Ashley took on the role of figuring out how we were going to test our device and be sure it is user friendly. We have six patients that with different disabilities that the design must accommodate. Since one of the patients weighs 400 pounds, if we cannot find an actual human at that weight to test the device we will load the board using the average anthropometric weights of the body segments. Also, we are hoping to find a person with mild tremors to be sure our device can stabilize a person with this disorder. The other disabilities involve having limited movement in certain body parts, which we can have a group member mimic.

**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 PVC 1” square rod for the cross member supports, and this next week Christen is going to cut them in the machine shop. Christen will trim the excess material off of the arm stabilizer base and round the edges. Christen will also mill the slots so the stabilizer can be removed without removing the knobs. Christen also plan on making the cap bolt from aluminum needed to attach the pivot hub to the extrusion securely, as it is not securely attached now. Also this week Bhavin is going to cut the HDPE for the leg stabilizer in the machine shop so that Ashley can attach the blue polyfoam underneath both of the leg stabilizer bars. Also once the arm stabilizer supports have been cut, Drew can put the blue polyfoam underneath them for increased patient comfort. We anticipate the arm stabilizer support system to look like the figure below when complete:
On Monday the grip sample came in, so also this next week Drew will have to figure out a way to slip it on over the handbar and then Ashley and I will assemble the handbar using PVC primer and glue.

As far as the handles situation, Drew is planning on ordering six rectangular handles, and fixing three on each side of the transfer board. Once he hears back from the companies he 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.

We are hoping that our two single flange linear bearing from 80/20 arrive before next meeting so that Ashley and Bhavin can finish assembling our leg stabilizer as well.

**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:**
Ashley 10hrs. Drew 10 hrs. Bhavin 11 hrs. Christen 12.5 hrs