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Team 3

Progress Report
Week 6 (2/24/09-3/3/09)

With the computer mount complete, most of the time this week was spent on the assistive jumping device. However, the team is still waiting for the release forms in order for the Stenglein family to use the mount. The only thing left to do with the mount is to begin writing the user manual due in several weeks.

The main objective for the week was to find a support system to aid jumping with the chair. Ideas for this included a set of two bungee cords or a spring/rope apparatus. The modified child seat and the bracketing for the vertical trolley have become extremely heavy. There is a concern that with all the added weight, Sean will be unable to jump or at least he will have an extremely hard time with the resistance. After watching Sean learn to jump on the mini trampoline, it is apparent that he can jump well when he is focusing. With the added weight on his back, he may become distracted with the bulkiness of the harness and have difficulty jumping.

After repeatedly contacting several online companies about their bungee cords and their properties, either no response or not a helpful response was received. This put us in a position where we needed to go out into the field and do some hands on research of our own. The team went into Manchester one afternoon in search for bungee cords or at least something that will help solve the support situation.

The first stop was Dicks Sporting Goods. At this store, we looked in the exercise department. They had several workout bungee cords and stretchable jump ropes, none of which seemed to be able to work for the project. The cords did not seem strong enough to be able to support the system.

After that, we went to Lowe’s and The Home Depot. The home improvement stores had similar products with The Home Depot having the best and largest selection. They carried bungee cords with hook clasps, tie downs, rubber bungee cords with clip ends, and a system that allowed for the changing of the bungee cord ends. This system, while seemingly beneficial to us to be able to change the end from hooks to clasps to screw-ins, was not strong enough to hold the weight and the plastic nature of the ends were not durable enough for our purpose. We decided on a rubber strip with clasps at the ends. This seemed to be the most durable option to chose from. We purchased them to test them out on the chair in the lab.

While we were going to test the newly purchased cords on the chair, I received a call from our chair upholster that she was having difficulty removing the back bracket from the chair. She did not want to break the chair or the bracket. I left
the group to go aid her in the removal of the backing. Since her house was an hour away from the senior design lab, I did not make it back to the lab to help test out the cords.

While I was at her house, I had to unscrew the bolts from the side of the seat. Then, by compacting the sides of the seat together, the bracket could be pried off from the seat. I showed her that the bracket needed to be placed in a certain direction in order to be taken on and off the chair, as well as to fit properly once on the seat.

At her house, I was able to assist her in the reupholster of the chair. I also attempted to work the embroider machine. We may potentially be able to embroider “Sean” onto the seat to personalize the assistive jumping device even further.

Future work towards the assistive jumping device includes the further research of a support system for the chair. After Caitlin and Blaine tested the purchased cords, they found them to be inadequate for use. This brings us back to the drawing board in regards to the support system. We may have to just test the seat out without the support system to see what exactly needs to be added and the amount of help that is needed. Hopefully, we will be able to use a simple bungee cord to aid the chair.

I have emailed Dr. Peterson in regards to using his lab’s crane to test the assistive jumping device. I am awaiting a response in regards to the time and date this can take place. He has already previously agreed to help us use the crane if it possible in his lab. By testing the chair, we will be able to see even further the support that is needed. This will also help us determine where to place the support and if the bracket system has any flaws. Testing may also point out other generalized problems with the assistive jumping device.