Work Completed

This week I accomplished two big tasks: I finished attachment of the side supports and I made and installed a plate for mounting the bottom of the seat. I also found a bracket to mount one end of the actuator, so I will either purchase this or make something similar.

At the end of last week, I had almost finished attaching the side supports but needed to bend the brackets a bit more so the screws would not pull on the wood. I bent the brackets and attached them to the wood with screws. The end of the brackets that I bent now was flush with the back of the seat. However, the other end of the bracket was not flush with the bottom of the seat. This made me a bit nervous so I took the brackets off, bent them again, drilled holes in a new location (since the old holes no longer matched up with the bracket), and re-attached the brackets. I’m now confident that the side supports are securely attached to the seat. Figure 1 below shows the brackets attaching the side supports to the seat.

![Completed attachment of side supports to the seat.](image)

The other big task I accomplished was the creation and installation of a plate to mount the bottom of the seat. First I designed the plate and made a cardboard cut out so the holes would line up where I wanted them to. I had previously thought that I might weld the plate to the frame itself, but after talking to Serg, we agreed that it would probably be best to bolt it in instead. I designed the plate to be the same size as the bottom of the seat and have eight holes. Four of these holes were for attachment to the kart itself. The holes in the front and rear of the plate were for the two holes in the bottom of the seat, and the two holes on the rear right and rear left were for attachment of the restraint system. The four holes for attachment of the go-kart and the hole in the front of the seat required that I drilled through the actual frame of the kart, but I designed the other holes so that they were over open spaces in the frame.

I worked with Serg and used a ¼” thick piece of aluminum. I first cut the aluminum stock down to the proper size, and then I deburred the edges and sanded the corners. I tapped the desired holes and then drilled them, using a countersink bit to smooth out the edges of the drilled holes. Serg and I worked together to drill the holes in the go-kart frame using the hand drill. I bought some hardware from Serg (nuts, bolts, washers, etc) for installation of the plate, seat and
restraint system. I installed the plate and it fit precisely as I had planned. However, I am going to hold off on actually installing the seat and restraint because the seat is bulky so I want to wait until other parts are installed. Figure 2 below shows the plate that I made mounted into the go-kart with two of the restraint attachments installed.

Finally, this week I found a bracket to mount the fixed end of the braking linear actuator. This bracket is made by Firgelli Automations, the same company we purchased the linear actuator from. However, the design seems relatively simple so I may just make a similar bracket on my own. The bracket is shown in Figure 3 below; the hole in the base of the bracket is used to secure the bracket and then the pin goes through the actuator. As far as mounting the fixed end, I was thinking of using hose clamps, but Dr. Enderle does not want us to use these since he does not think they provide a secure enough connection. Therefore, I will continue looking for a curved bracket to fit over the shaft of the actuator, but if I cannot find one, I do not think it would be too difficult to make.

Future Work
I plan to make and install the mounting for the back of the seat by the end of the week. Next week, I plan to design and make the mounting of the actuator, including the purchasing or making the mounting brackets, and making a platform on which to attach the actuator (the platform will then be secured to the frame of the go-kart).
In the subsequent two weeks, I will spend a lot of time working to modify the brake cables. This involves cutting the cables to a desired length, connecting the two cables together, running them over a pulley, and attaching the pulley to the moving end of the actuator. I will also install the mounting for the actuator, having finished this mounting in the next week. I also plan to install the actuator, integrating it with the control box and the brake cables.

In the next two weeks, I will manufacture the joystick mount and attach it to the frame of the go-kart. I will also install the joystick and an enclosure for the joystick’s wires. Finally, I will install the seat and restraint.

**Project Review**

The project is still progressing well. This past week the group made a list of tasks we still need to accomplish and divided the list up among the group members. If all goes according to plan, we should finish the project right on time. At this point, we have approximately $500.00 remaining.

**Hours Worked**

Time spent on the project 2/27/2008 – 3/5/2008: 15 hours