Work Completed:

As the weeks begin to wind down, a majority of the welding was completed over the past week. Having all the aluminum pieces cut and fit the previous week, I headed down to the welding shop last Saturday and spent the day tacking and welding the carriage together. This was completed by welding together the two frames that connect at the tilting pivot separately. From here the two can be joined by drilling straight holes through the connecting components of each frame. I estimated 6+ feet of weld needed to be done. The TIG welder provided does a good job at making nice, even looking welds without any problematic splatter. However, this process is very tedious and time consuming. Instead, a MIG welder connected to a separate diesel engine for a ground was used. The aluminum MIG has an aluminum wire feed and is much faster than the TIG welder. A picture of the set up is seen below.

Although it may seem welding is a simple process once all the parts are cut to length and prepared for fabrication, however, the process of squaring each part and ensuring an accurate gap for resulting strong penetration takes experience and time. The parts were tacked individually as shown in the next figure.
The table used at the shop is simply a large piece of $\frac{3}{4}''$ steel plate, which serves as a ground to create an arc for the welder. The heat from the arc tends to alter the orientation of the frames positioning, which is close to impossible to prevent. As close to an analytical approach I would have liked to take in order to prevent uneven angles, sometimes it takes brute force to fix problems in this situation. The final product resulted in welds as shown.
Future Work:

Over the next week, the carriage pieces can be cleaned and bolted together. The sharp edges need to be ground down as well as some of the less appealing welds. The 80/20 track length has arrived and can be cut to lengths using the new hack saw blade I brought up from the shop. Ways in which to attach the track to the base have been devised over the past few weeks and these brackets will be fabricated as well.

Circuitry of the project will also begin after receiving our joystick which is being shipped 2/24/06. Relays and a power source are the main components that now stand in our way to the circuit design of the project. Once the main mechanical parts of the device have been finished, we can integrate the electrical components of the design into the project.

Project Review:

Things are certainly picking up on our project now as a majority of the welding and aluminum assembling has been completed. I am very pleased with our progress and the overall look of the device. We are maintaining all of the initial requirements made by the client while keeping the fabrication of the device as professional as possible. The team’s spirits are high and our determination for early completion of the project is strong.

Hours Worked:

This week my total time spent working on the project was roughly 18 hours. This included time spent in design, fabrication, commuting and experimenting with the new welder.