**Work Completed**

Over the last week our team completed work on the model of the easel. We were able to get a good estimate of the actual size of the easel and work out details in the folding mechanism as well as the linear tracks. An important design change that was made involved offsetting the actuator to be used for the tilt motion. By offsetting this actuator the easel is much easier to collapse and fold as originally planned.

As far as the joystick is concerned, a call was placed to PQ-Controls (the manufacturer of the joystick) and we found that it is possible to have a joystick made that uses microswitches capable of carrying up to 3amps of current. This joystick will be configured exactly as the original one with the toggle switch on top, but be digital instead of analog. One option that needs to be decided is whether the joystick will travel 20 degrees or only 10 degrees. This will need to be based off the capabilities of our client. The engineer on the phone also mentioned that it might be possible to donate the joystick to our group since the project is academic based.

Also, the actuators ordered a few weeks ago arrived. Initial testing showed that they are well suited for the job and their speed and strength are ideal for the project.
They are small enough to fit on the easel and should work just as planned. A picture of the actuators being tested with the power supply can be seen below.

![Figure 1: Linear Actuator Tested With 12 Volt Power Supply](image)

Lastly, our group took a trip to Frank’s father’s welding shop over the weekend in order to cut some more material to continue work on the project. A number of aluminum pieces were measured and cut for the vertical frame of the easel that will handle the tilting mechanism. We did not weld any pieces together so as to allow us to readjust anything that did not fit with the base. A picture of us using a high powered shear to cut a piece of aluminum angle can be seen on the following page as well as a picture of the pieces cut and temporarily assembled.
Figure 2: High Powered Shear Used to Cut Aluminum Angle

Figure 3: Easel Temporarily Assembled
**Future Work**

Over the next week, plans are to assemble the easel to enough degree where the actuators can temporarily mounted and fully tested. A few additional notches must be made to the frame to allow it to collapse properly and some additional strengthening of an actuator mount may be necessary. In addition, an email will be sent to the joystick manufacturer with the exact specifications of what we would like and some information will be gathered as far processing time and shipping.

We will also be contacting a representative from Passionworks to gain some additional details about our client. His degree of dexterity and range of arm motion are crucial parts of the overall design, as they will be the basis for positioning of the easel. They will also be necessary to adjust the range of motion of the easel to ensure that it can not cause harm to the client or any other users.

**Project Review**

So far, the project is on schedule with our groups plans. The arrival of the actuators will allow the project to take a step forward as they are the ultimate basis for the design. Their size and range of motion are what the rest of the easel will be based on.

**Hours Worked**

This week at least 12 hours were committed to the project. The trip to the welding shop on Saturday to cut material added a significant amount of time spent. Also, testing of the actuators as well as efforts to correct the web site permissions took at least 2-3 hours.