Work Completed

This week I finished the base support for the scissor jack. A lot of time was spent in the machine shop leveling out the legs and measuring out the exact location of the scissor jack. Below in Figure 1 shows the base of bed plate layout all built. It consists of a veneered particle board, four legs made of slotted steel, and various nuts and bolts to attach the jack down to the board. This separate ground plate not only stabilizes the jack, but also allows it to be separated from the bed if it needs to be removed or repaired.

Figure 1: Base Plate Layout
Another major accomplishment is that the motor cage has been completely welded (Figure 2) and tested to ensure its stability when running.

Figure 2: Top view of motor cage and complete assembly

On Tuesday morning a lot of time was spent in the machine shop finishing the construction of the bed back frame. The rest of the slotted angle steel was screwed in to support the bed back. Figure 3 below shows the progress made on the bed back and the track for the wheel.

Figure 3. Bed Back Frame Assembly to Date
The jack will lift the load vertically, eliminating all angle changes. Since the jack would no longer tilt with the back of the bed, a wheel will be attached to the top of the jack and ride in the track placed on the back of the bed. As the jack rises, the bed back will rise smoothly along the wheel-in-track system. A simple polyurethane fixed castor wheel will be used. It is rated for 275lbs of force. Its overall height is 2-3/8”; which still gives plenty of clearance under the bed when it is attached to the top of the screw jack. To stabilize the wheel on top the jack a metal or PVC plate will be built with the appropriate holes.

**Future Work**

In the coming week I will finish the small plate I have designed to support the castor wheel on top the jack. I will also upholster the bed by next week. The rest of the group is working to complete the circuit and handle construction. We plan on doubling our efforts in the lab to ensure this device is built in time. Future expenses include labor and cost of small hardware (~$80) and small parts for the circuit (~$35).

**Project Review**

At this point I have constructed the entire bed frame minus the upholstery and hinge for the back. I purchased a bunch of foam and blankets to cover the bed and make it look nice. Various hardware supplies of screws, bolts and washers as well as 2.5 hours of their labor have been used from the machine shop and are waiting to be charged to the account. However, we are still within budget with about $568 remaining. We have currently spent about $1432 of our $2,000 budget.

**Hours Worked**

20 hours