Accessible Weight Scale for Seated Users

Week #4

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**Work Completed**

This past week we started as planned welding the four columns 1.5” from each edge. We also cut the front, back and side panels. We hit our first major set back on Wednesday when we met with our supervisor. Our supervisor told us that the load cells we were planning to use did not have a high enough capacity and that we would need to use different load cells. Luckily there were load cells available from a previous project that had a 300 kg capacity.

The second half of last week was spent redesigning the elevated toilet compartment to incorporate the new load cells. The new load cells are considerably smaller and operate differently than the load cells we had planned to use. Below is a diagram of the new design for the load cell mounting.

![Figure 1 – New Load Cell Mounting](image)

The load foot will act as the pin column from our previous load cell mounting design. It will interact with the toilet bowl and transfer the force to the load cells. The Load foot is much wider and taller than the pin columns were. The width will make sure that the toilet bowl will not crack underneath the pressure of the user’s weight. The height of the load foot is more than we originally designed for therefore it is necessary to reduce the height of the columns in order to keep the overall device at 5 inches in height.

This mounting system may have some inaccuracy due to the fact that flexing of the bottom panel will result in a less accurate measurement. Flexing will be reduced by the support plates, which also act to hold the load cell parallel to the bottom panel when there is no force being applied to the load cell.

The fastening columns will be thicker at the top to hold the load cell in place. The smaller diameter portion will pass through the holes in the load cell and holes in the
support plates in order to be screwed into the bottom panel. The supporting columns will support the top plate. Because the load cells are smaller we will no longer have support columns come down from the top panel to help support the weight of the user. These columns will instead be replaced by more welded support columns closer to the inner hole. Last week was spent making this design. Next week will be spent executing this design.

**Future Work**

Future work for next week includes shaving down the welded columns, redrilling and rethreading them. Also the other columns still need to be welded and the side and back panels will need to be welded as well. If it is possible to cut the door for the front panel the front panel will also be welded on.
Project Review

Because of the set backs last week some of the tasks that were supposed to be completed have not yet been completed. These tasks will be completed next week. We will still complete the construction of the elevated toilet compartment well before the due date giving us ample time to test the device. Also we will try to move forward quickly in order to recapture some of the time we lost in redesigning the load cell mounting.
**Hours Worked**

This week approximately 14 hours was spent in the construction of the elevated toilet compartment and the redesigning of the load cell mounting mechanism.