Work Completed

This week we were faced with a couple new challenges regarding both our projects. The linear actuator and the guide rails have arrived and appear to be strong enough to support the weight but it was brought to our attention that the lift will have a very large forward moment and could result in the tipping of the whole device forward. We contacted Dr. Halowell and suggested the idea of an LCD screen which could cut the weight down of the monitor as well as negate the need for a housing box which weighed 60 lbs alone. The LCD screen would also be closer to the vertical lift that would also reduce the moment considerably around the front of the device.

With regards to our paint cap remover we ran into trouble when we found out that the paint company that makes the tubes of paint changed their cap head to a different shape. Since our previous semesters work and design relied on the cap head itself, this was a problem. We now had to rethink our ideas for the paintcap remover and as a result came up with the plan to now keep the paintcap head stationary while spinning the tube. This differs from our previous design of spinning the cap off and holding the paint tube stationary. Our new idea is to make an encasement, just as before, for the paint tube in which it cannot spin on itself. This encasement would then be attached to the motor and spun around. The cap head will be held by some sort of vice that will be attached to a frame in which the motor and encasement are also attached.

It should also be noted that this week we received the new motor for our paint cap remover as well as the guide rails and the mounting bracket for the monitor lift. Preliminary tests on the motor reveal that it has a much higher level of torque than the previous motor and should be able to remove the cap with ease. The guide rails are also heavy duty and upon application of a moment did not bind up or cease to move. On the following page is a picture of a potential vice we could mount to our paint cap remover.
This week Dan and I started to fabricate the holding device that will encase the paintcap during spinning. We started out with two pieces of HDPE plastic that will be used as uprights. The original pieces that were to be mounted on the motor seen below, were then grinded down on either side so that attachment of the two uprights could be accomplished.

What Dan and I concluded was that the HDPE would not be able to be glued to itself and thus we could not make the box with sides or attach the box to the circular piece above. We tried various PVC glues as well as epoxies but none worked. We figured the best solution would be to make a small box out of sheet metal that is readily available in the machine shop.
Future Work

Future work for the monitor lift will depend on the final decision as to whether or not Dr. Halowell will get an LCD screen for us to lift or if we will still be lifting the old 80 lbs monitor.

As for the paint cap remover we will begin building the box that will encase the paint tube as well as mount it to the new motor. We will run preliminary tests on the device to make sure the tube remains upright and that it will withstand the torque put on it. We will not begin building of the frame yet until we decide on a vice to get.

Hours Worked

In Lab: 4

Out of Lab: 8

Total Hours Worked: 12