Project Report

9/14/07

Monitor Lift and Paint Cap Remover
Dan Zachs, Pat Keating, Thuy Pham and Katie Zilm
Work Completed
Revising the Monitor Lift

- One of the main components of the original design for the monitor lift was the dashpot-spring system.
- We were advised by Airpot that it might not work.
Work Completed
Revising the Monitor Lift

- Had several group meetings via the internet over the summer to revise the monitor lift
- Decided that the best course of action was to provide a new form of upward and downward movement for the lift
- Came back to school and immediately started researching alternatives
- One great option that stood out was a linear actuator
Work Completed
The Linear Actuator

- We were able to test some of the linear actuators already in the senior design lab
- They provide smooth vertical motion with little sound and have reversible direction by changing polarity
The linear actuators in the lab were a good guide to buying our own.

We called many companies to find out more information about their linear actuators and to work out some of the problems we found with the lab models.

We finally decided to order an 18” stroke linear actuator for $129.99 that can perform 400lbs of force.
Work Completed
The Paint Cap Remover

- The parts arrived on the first day so we got started

- This is the HDPE rod that we ordered to build the paint cap remover head
Work Completed
The Paint Cap Remover

- We started with a full rod of HDPE
- Then we cut it using a vertical saw in the machine shop
- Finally we had 8 .75” pieces and 4 1.5” pieces
Work Completed

The Paint Cap Remover

- We used a drill press to drill holes into the cap head remover pieces.
- The HDPE was very cheap and we had tons of it, we were able to test many size holes to find the right one.
Work Completed
The Paint Cap Remover

- We found a good hole size that fit snugly over the motor spindle
- The cap head remover was squeezed onto the motor
- When we are completely finished we will epoxy the head to the motor to make the bond permanent
Work Completed
Finding a New Motor

- After attaching the cap head-remover we decided that the current motor did not have enough torque.
- We researched many different motors and contacted many companies.
- This motor has a peak torque of 15lbin so we will order it this week.
Future Work

- During the next week we will focus on making the cap head-remover fit over the cap head itself.
- We have several plans for how to attempt this, including a mold made out of an epoxy based plastic or simply filing the existing hole to fit over the exact shape of the cap.
- This will be trial and error, and it will take many attempts to get it to fit.
Future Work

- In future weeks we will start to form the metal parts of the monitor lift.
- We will build the base and monitor platform in the machine shop and weld the support rods and the actuators.
- We will work on our circuit for the monitor lift as well as the paint cap remover.
- We will test our finished products.
Project Review

- The project is going very well to date
- We worked well as a team to deal with early problems of the design and are on track to correcting them
- We’ve already made good headway on the paint cap remover and will continue to work on it this week
- The team work is solid, and so are the hours we’ve been putting in together
Hours Worked

Patrick: 14 hrs
Thuy: 12 hrs
Dan: 10 hrs
Katie: 10 hrs