Monitor Lift and Paint Cap Remover

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Weekly Progress Report
10/5-10/12

Work Completed
Paint Cap Remover

We made a lot of progress on our paint cap remover this week. In the previous weeks we built a metal encasement for the paint tube. We then attached the encasement to the motor with the mill press and a set screw.

![Image of paint cap remover](image.jpg)

This is what the encasement looks like after it is attached to the motor. When the motor is on, the encasement spins over the axis of rotation, which is its center.

We also applied foam padding to the encasement. This is very functional. Previously, when the paint tube was spinning and the cap was secured in the clamp, it would put a downward force on the paint tube. This was due to the simple screw thread concept on the cap. As a cap is unscrewed it moves upward. Relative to the cap, the paint tube moves downward. So if the cap is stationary, the tube must move downward while it is being unscrewed. This would cause a huge problem because either the cap would become stripped and not be able to operate. It could also cause the paint tube to become
deformed. The foam allows for a downward motion of the paint tube with no deformation to it or the cap.

Our next step was to produce a frame for the whole paint cap removal system. The frame would hold all parts of the paint cap remover including the motor, the encasement, the switch/circuit and the paint cap clamp.

We used ½” thick aluminum to build the frame. The aluminum is light but sturdy. We had three main pieces to form, and we used the horizontal saw to cut them from the raw metal. The base was square shaped and would support the whole device. The back board was 3.5” wide and so was the motor holder, which is 2 inches deep.

We then had to attach the pieces of metal together. We decided to bolt the back frame and the base together using 3 screws and bolts. We used the mill press to make the different sized holes. The mill press has a digital read out so that we could get the precise locations of the screw holes, ensuring the pieces would hold together properly. Next we have to put threads in the holes. After this is completed the two parts will be attached and hold fast.
Monitor Lift

We also are coming along well with the monitor lift. We attached the linear actuator to the HDPE base using a bolt. Then we drilled 4 holes in the plastic base so we could attach it to the larger aluminum base. We cut the aluminum base from raw metal and it is 2x2’ and 3/8” thick. We chose aluminum because it is light and won’t make the entire device too heavy to transport or lift onto a desk. Now the linear actuator can go upwards or downwards and is supported by a strong sturdy aluminum base.

Project Overview

The project went great this week. We accomplished many physical tasks with both the paint cap remover and the monitor lift. We will continue working on the paint cap remover frame and I think we are on task to finish early.

Future Work

We need to continue making the frame for the paint cap remover according to the prescribed design dimensions we have drawn in Visio.

We need to attach the motor to the frame.

We need to attach the clamp to the frame.

We need to build the monitor frame.

Total Work Hours  14