Monitor lift for Adjustment of Computer Display &
Oil Paint Cap Removal Aid

Weekly 5 Report: 10.5.07 – 10.11.07
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Work completed

Monitor Lift:
The reverse polarity switch was wired and connected to the actuator successfully. We tested
the functionality of the switch by connect to the power supply. 12V of voltage was used to
turn on the actuator. The switch does work fine on the actuator.

We did not know which
direction the actuator goes
when we were connecting the
wires to the switch. However,
we were able to figure out from
testing trials. The movement of
the actuator’s shaft can be
stopped when the user release
the switch. This has an
advantage because our client
might want to change the height
of which he/she wants to raise
the computer to.

Image 1 – Switch               Image 2 – Switch with the actuator

Image 3,4 – Movement up and down of the actuator
The material that we decided to use for the motor’s base is HDPE. Compare to the original material we picked for the motor’s base, steal, HDPE is light and very rigid that is suitable for our design. The motor’s base does not have to be large since we will attach it to another bigger platform. The bigger platform is planned to be Aluminum. We use Aluminum because it has to have a very strong and rigid form to prevent the monitor from fall or bending forward. Since the motor’s base is made out of HDPE, we will drill four holes in each corner and either bolt it or thread them and insert screws in. The actuator will be inserted onto the motor’s base by drilling a hole in the motor’s base. The end part of the actuator (shown in the drawing 1) has a mounting part with a cylindrical shape that can be inserted into the hole that we are planning to drill on the motor’s base. The image 5 illustrated how the actuator is rested on the motor’s base. The mechanism that stabilizes the actuator is the set screw. The set screw is inserted through the small hole in the mounting part of the actuator. This mechanism will prevent the motor from bending in all direction.

Image 5 – Mounted Actuator

Drawing 1 – The mounting part of the actuator.

Image 6, 7, 8 – The actuator mounted to the motor’s base.
Another design for the monitor life whole system is being drawn in the drawings below. The monitor’s frame is designed so that it is light and safe when it is being raised up or lowered down. The monitor’s frame is attached to the guide rails. The guide rails will be stabilize by the diagonal bars and parallel bars. The monitor’s frame will be attached to the actuator’s shaft which will bring it up and down. This design is safe and light, which is suitable for our system. However, more suggestions and comments are needed.

Paint Cap Remover:
We successfully attached the motor into the tube holder. We also tested the functionality of the motor and the tube holder; it could open the paint tube successfully, see images 9 and 10 below. My partner has completed the drawing of the whole system. We will have the wall which will hold the clamp in place.
**Image 9, 10** – Motor shaft mounted to the tube holder.

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**Project Review**

For the paint cap remover, it was a good experience drilling holes at the machine shop. I had learned that set screw does work for almost all application and it works successfully also.

For the monitor lift, HDPE is a good choice for the motor’s base and we are looking forward to get the good material for the bottom platform. I like the design I made for the monitor lift’s whole system.

**Future Work**

**Monitor Lift:**
- Wait for Dr. Hallowel about the new monitor
- Choose the material for the bottom platform
- Find a right design for the whole system

**Paint Cap Remover:**
- Find the right material for the wall
- Insert the clamp into the wall

**Total work hours: 12 hours**