Monitor Lift for Adjustment of Computer Display
and
Oil Paint Cap Removal Aid

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Outline

- Background
- Goal
- The Designs
- Final products
- Budget
- Acknowledgments
Monitor Lift for Adjustment of Computer Display
Patients with neurological disorders

- Impaired auditory and visual sensory.
- Disruption mental comprehension, physical mobility, speech, other communicating abilities.

Common neurological disorders

- Epilepsy, Aphasia, Alzheimer's Disease, migraines & headaches, Multiple Sclerosis, Parkinson's Disease, stroke, brain tumors, etc.
- Epilepsy - seizure is an electrical discharge of brain cells
- Aphasia – damage to Broca and Wernicke's areas
Raise a heavy computer monitor above the surface of a desk and back down to it.

Will be used to present diagnostic and treatment materials to patients with neurological communication disorders.

Will allow for an eye tracking system which will follow the eye movements of patients being tested to be stored underneath the monitor when it is raised.
The Design: Overview

- Platform
- Guide rails & supports
- Linear Actuator
- Mount Support
- Monitor
Materials

- Platform
  - Aluminum (Al)
  - 18” x 24”

- Linear Actuator
  - Capable of lifting up to 400lbs
  - 18” stroke
Materials (cont.)

- Guide Rails & Supports
  - Aluminum
- Vertical and horizontal plates
- Monitor Mount
Materials (cont.)

Power cord - 120VAC

Switch box
- Momentary DPDT switch
- Up (OFF) Down
Highlights

- Easy operation of device
  - Plug in the power
  - Automatic-Off DPDT Switch

- Wide range of motion
  - Adjustable stopping height

- Smooth and quiet operation
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<th>Cost</th>
<th>Credits</th>
<th>Date Received</th>
<th>Description</th>
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<td>6/4/2007</td>
<td>Compression springs acrylic sheet, HDPE &amp; 1” rod</td>
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The device WORKS!!!
Paint Cap Remover Aid
**Background**

- **Multiple Sclerosis**
  - Degenerative disease of Nervous System
  - Myelin surrounding neurons destructs causing faulty transmission of electric/chemical signals.

- **Symptoms of Interest:**
  - Weakened Muscles
  - Loss of Coordination/Dexterity

[Image from (www.msu.edu/myelin.jpg)]
Goal

Enable a former physician to continue his new career as a successful painter

Because complications due to MS and needs a device to help him open tubes of paint with little strength and hand grip

Our primary goal is to build a device to remove the cap from a specific type of oil paint. (Grumbacher brand 1.25 oz tubes) that will not require the user to use more than one hand or any significant effort.

This will allow the individual to regain his independence and continue his artwork.
The Design: Overview

- Lever
- Clamp
- Paint Tube's Holder
- Motor
- Motor plate
- Back Wall
- Motor Encasement
- Platform
Materials

- Platform
  - 7.25” x 7.75”
  - Aluminum

- Vertical Supporting back wall
Materials (cont.)

- Gear head motor
- Motor’s parallel plates
- Electronic components
- Switch
- Clamp
Materials (cont.)
Highlights

- Easy to operate
  - Plug in the power
  - Push-to-make button

- Force amplifying device

- Durable, non-corrosive materials

- Standard device
  - Universal nuts and bolts
  - Multiple-typed paint tubes
<table>
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and here it is...
Acknowledgements

- Dr. Enderle
- Dr. Hallowel
- Bill Prueschner
- Dave Price
- Serge and Rich
- Lisa Ephraim
- Jennifer Desrosiers
- Individuals who volunteered their time and tested our design projects.