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

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Monitor Lift for Adjustment of Computer Display
Background

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.
Goal

- 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
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>Order Date</th>
<th>Vendor</th>
<th>Cost</th>
<th>Credits</th>
<th>Date Received</th>
<th>Description</th>
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The device WORKS!!!
Paint Cap Remover Aid
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.

- He suffers from 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
- Motor Encasement
- Platform
- Back Wall
Materials

Platform
- 7.25” x 7.75”
- Aluminum

Vertical Supporting back wall
Materials (cont.)

- Gear heat motor
- Motor’s parallel plates
- Electronic components
- Switch
- Clamp
1. Clamp
2. Clamp Lever
3. Back Plate
4. Tube Holder
5. Motor Plate A
6. Motor Plate B
7. Phillips Screws (2)
8. Flathead Screws (2)
9. Motor Encasement
10. Depression Switch
11. Base Plate
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
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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.