

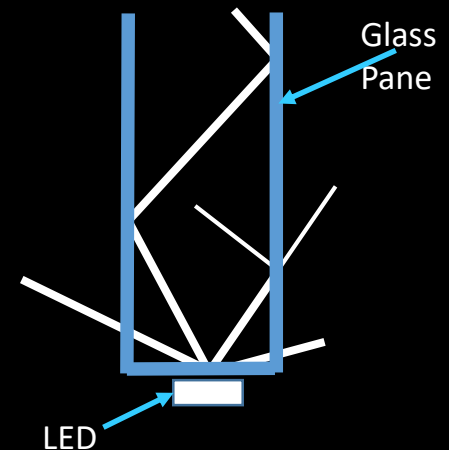
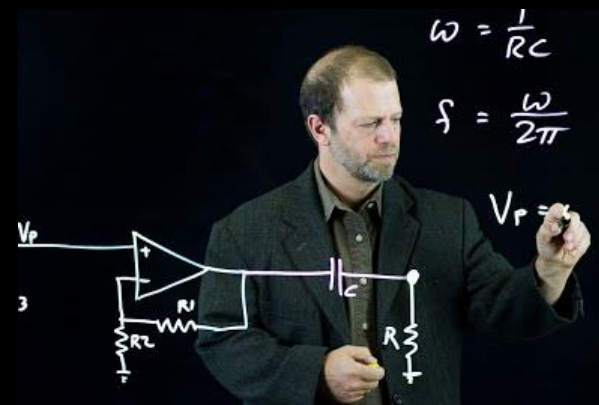
CETL - Lightboard
Capstone Project

Buzz Lightboard

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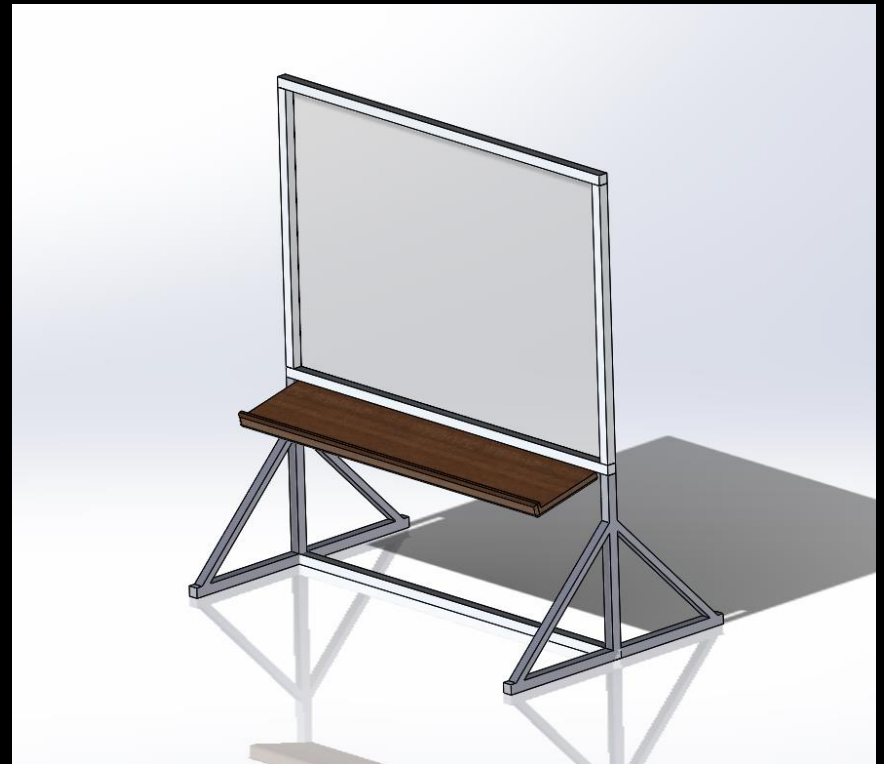
Overview

- What is a lightboard?
 - A see through whiteboard that is an effective online teaching tool
- How does it work?
 - Total internal reflection
 - Frustrated total internal reflection to illuminate the ink in contact with the glass
- Why is it useful?
 - Provides a more engaging and personal experience to the typical online class
 - Stimulates the viewer and engages learning in new ways



Final Design Specs

- Goal: create a financially palatable lightboard that will be specially designed to gain faculty buy-in/interest via portability and user convenience.
- $\frac{1}{4}$ " thick 4' X 6' glass sheet
- Ergonomic for wide range of users
- Capable of fitting through doorways
- Caster wheels for mobility
- Adjustable shelf
- Aesthetically appealing



Glass Options



- Regular Plate Glass

- Window Glass
- Cheaper ($\approx \$4/\text{ft}^2$)
- Poor Light Penetration

- Starphire Glass

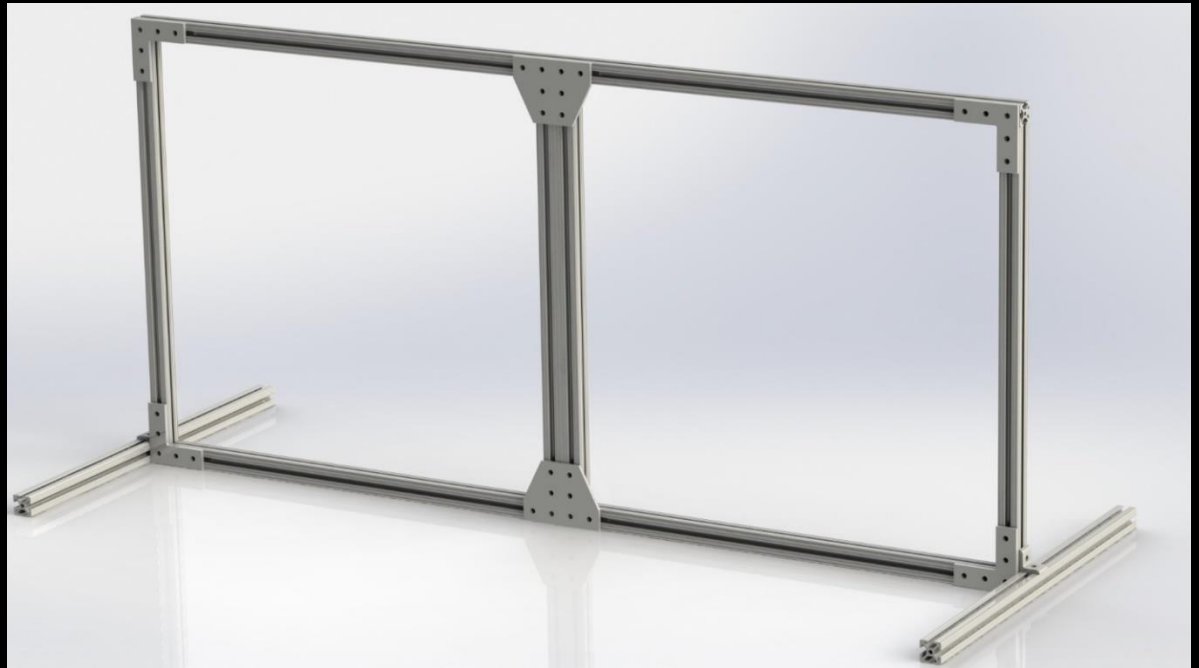
- Low Iron Glass
- Expensive ($\approx \$12/\text{ft}^2$)
- Better Light Penetration

Prototype Design

- A miniature lightboard with two different panes of glass allows simultaneous comparison throughout a range of tests.

Tests:

- Visual Comparison
- Projection Tests
- Lighting Arrangements
- Light Erosion



Goals

Completed

- Prototype
- Glass Visual Comparison
- Purchase LEDs
- Frame Layout Test

Upcoming

- Perform Prototype Tests
 - Projection
 - Lighting Arrangements
- Create Video Comparing Glasses
- Solidify Final Design Concept
- Purchase Full Size Sheet of Glass
- Purchase Framing Material

