LSB 1001 Whiteboard Redesign:
Dry Erase Board With Motorized Conveyor and Automatic Erasure

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Abstract

The current whiteboard used in LSB 1001 (Life Sciences Building) and many other buildings contain multiple writing surfaces on which the user can write on. While the need for large writing surfaces is in demand, many users would prefer a simpler approach to allow them to focus on presenting their lecture. The purpose of our re-design is to eliminate the clumsy operation of multiple moving whiteboards with one single writing surface that meets all the needs of the user.

Benchmark

Prototype
Achieved a single unit design
Implementation of innovative dry erase material
Polycarbonate solution for whiteboard backing
Use of simple stepper motor to control whiteboard on-time and motion direction

Development Process

1. Conducted patent review and market research
2. Developed preliminary Product Design Specifications, hand drafted drawings, and CAD model
3. Verified design through a scaled, proof-of-concept model
4. Fabrication of a scaled, fully functioning prototype

Figure 1. Current LSB whiteboard
Figure 2. Current LSB whiteboard controls
Figure 3. Patent 5607312 “Writing board with an automatic erase device”, Patent 5903252 “Electronic whiteboard apparatus”.
Figure 4. Concept generation and CAD modeling
Figure 5. Proof-of-concept model
Figure 6. Functioning prototype

Key Accomplishments

Design Objectives

• Identify current market designs
• Implementation of a simple and effective design philosophy
• Design the most user friendly large surface whiteboard system
• Implement an auto erase feature

Engineering Challenges

• Acquiring a useable whiteboard material that encapsulates both high tensile strength and pliability
• Implementing a conveyor type assembly within a wall
• Addressing cyclic stresses that affect product life
• Single unit design which allows for easy installation

Acknowledgements / References

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References