



# Laser Image Display



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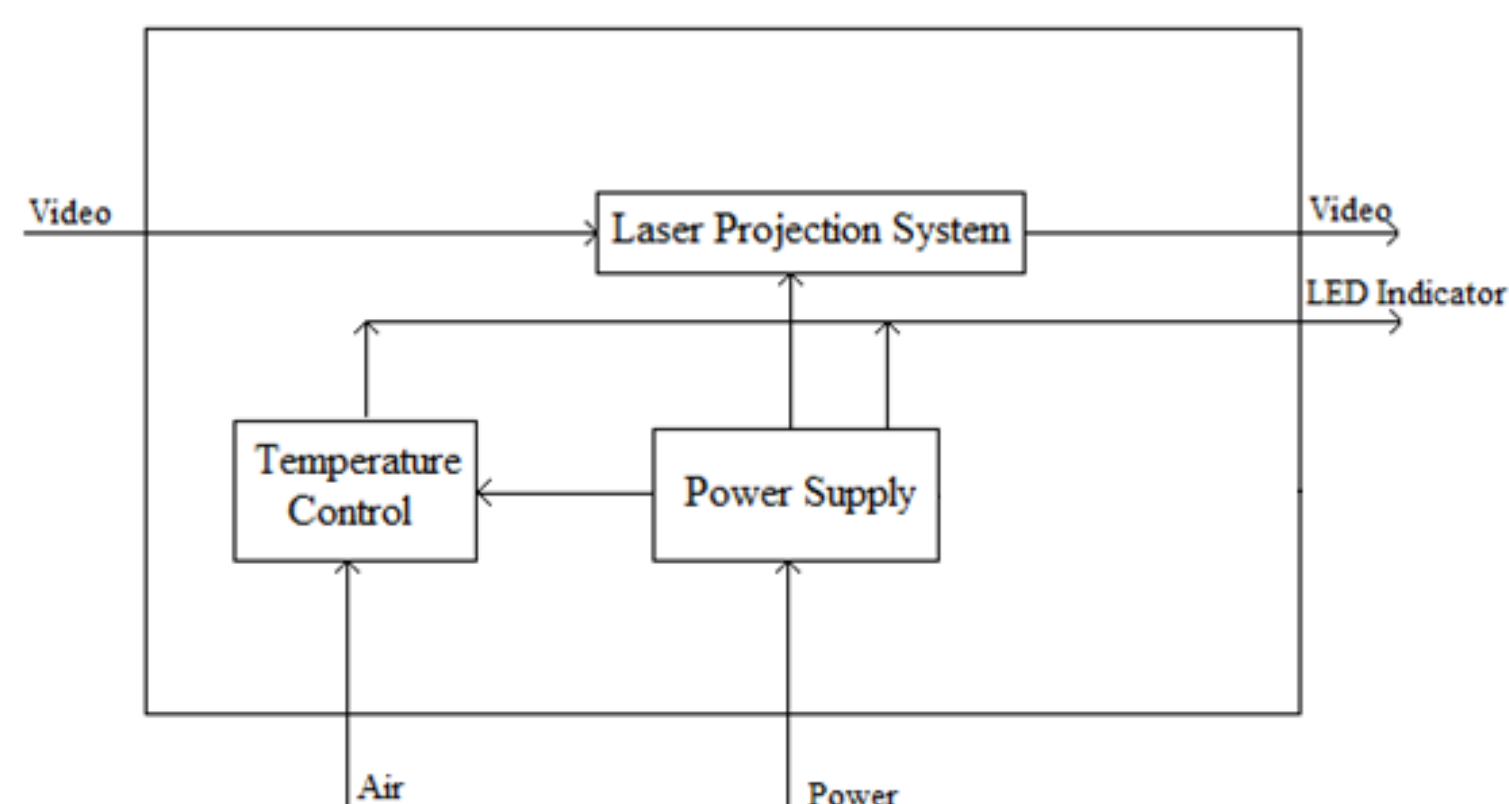
## Objectives

We set out to create a projector that uses diffused lasers instead of a white halogen lamp to project an image onto a screen. The benefits of lasers include much lower power consumption and a wider range of colors than you could attain with a normal projector.

## Design Requirements

- System should be easy to use
- System should have a clear display
- System should be low cost
- System should be easy to install
- System should be safe
- Projector should be compact

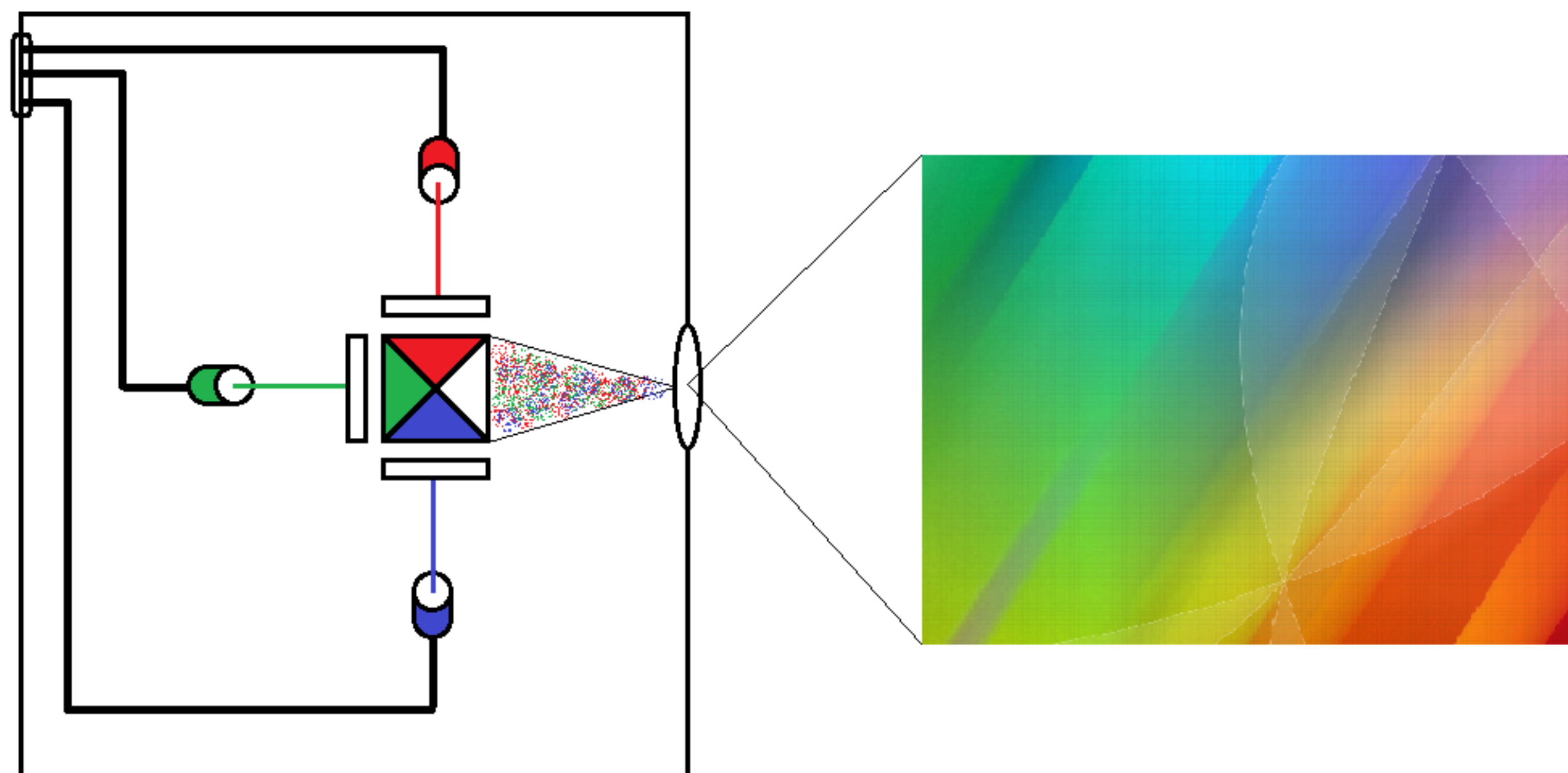
## Functional Decomposition



## Features

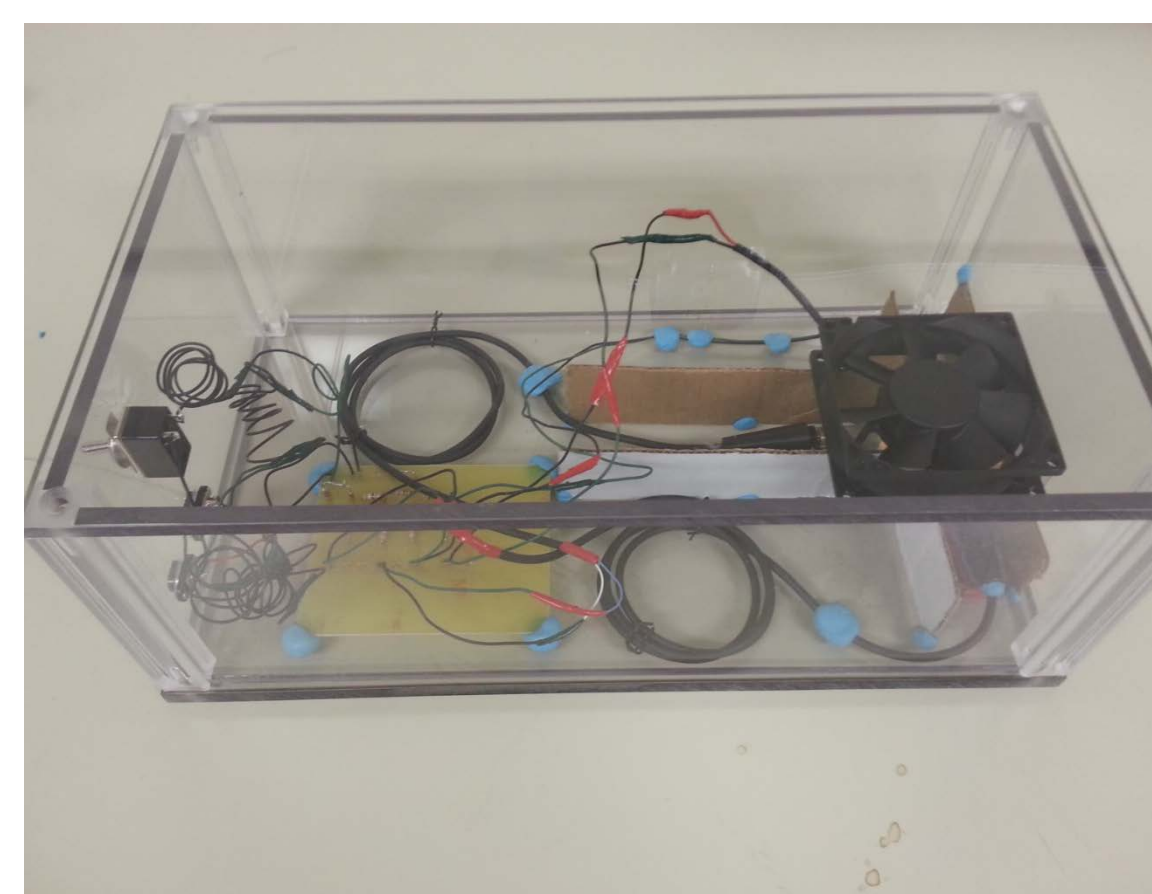
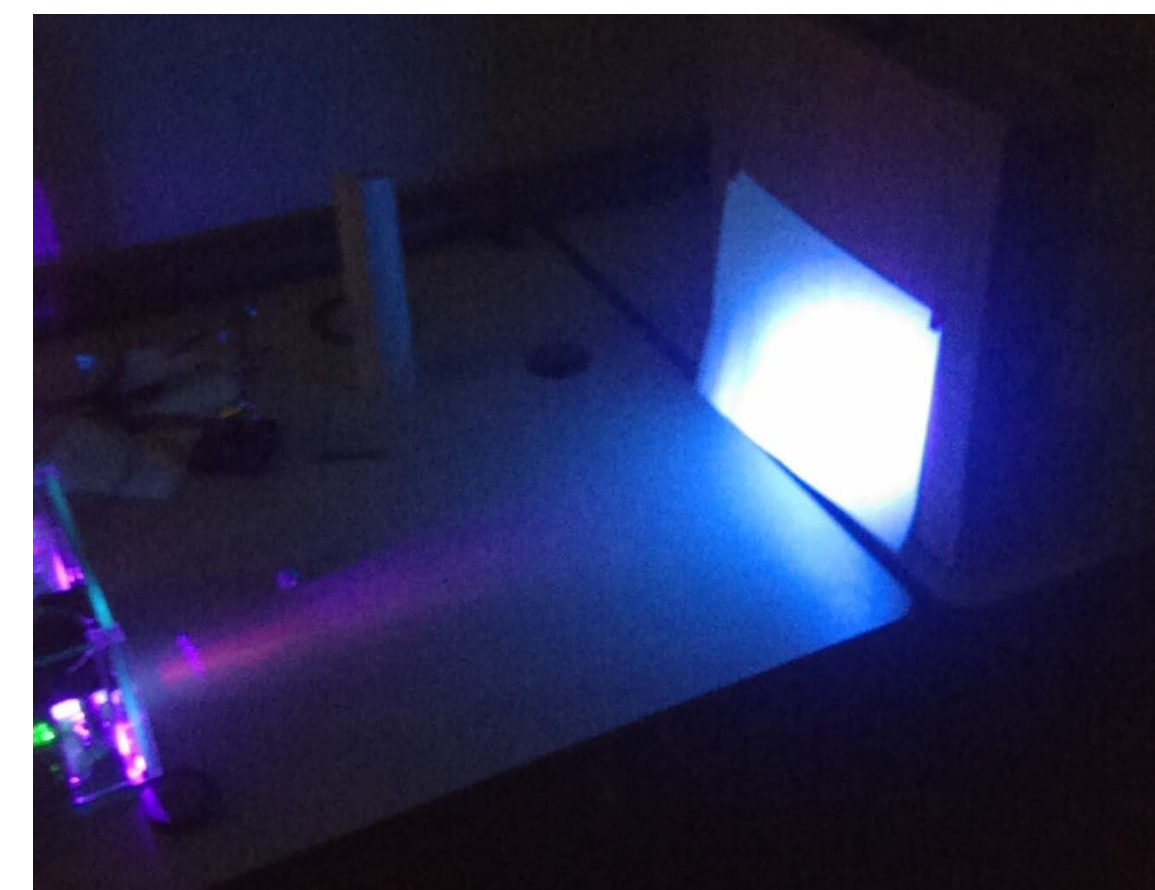
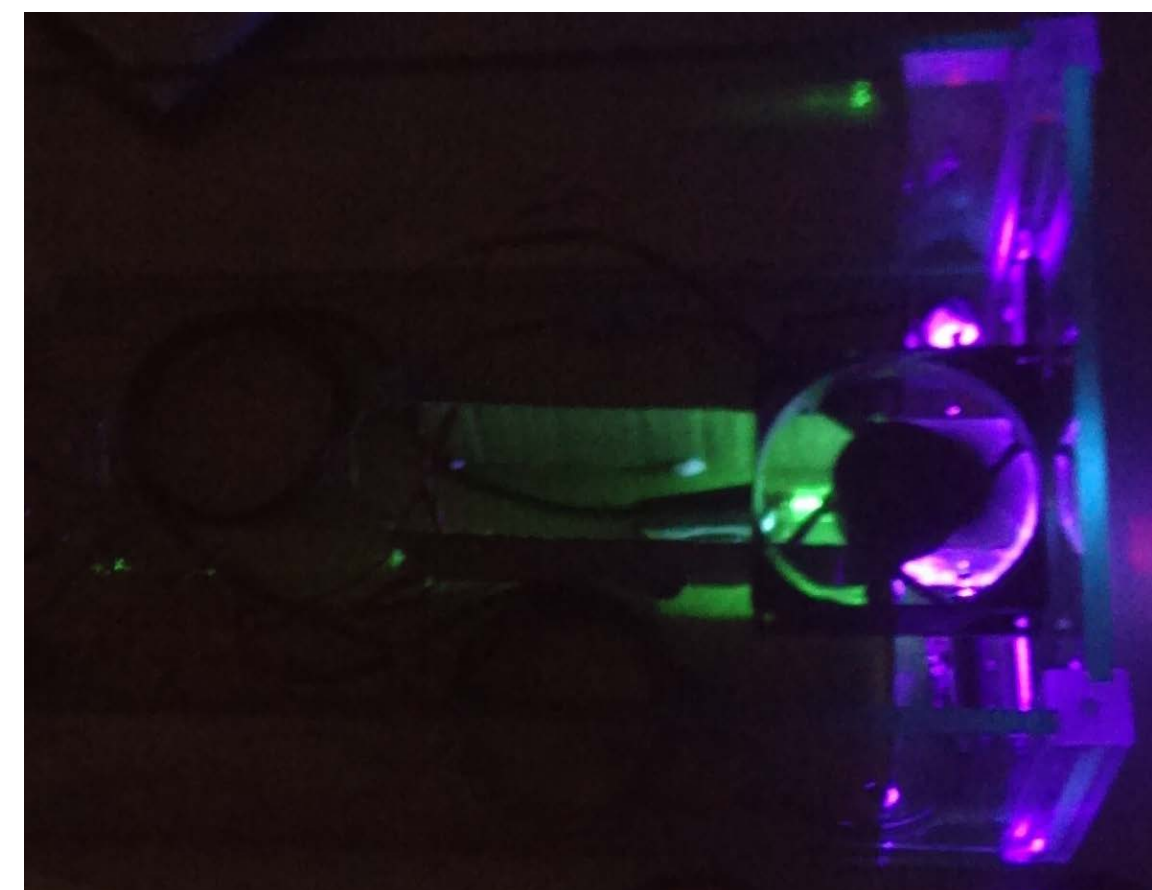
- Uses lasers instead of a white halogen lamp
  - Quick boot-time
  - Low power consumption
- Temperature sensing cooling system
- Portable
  - Can be used with a rechargeable lithium-ion battery

## Design Concept



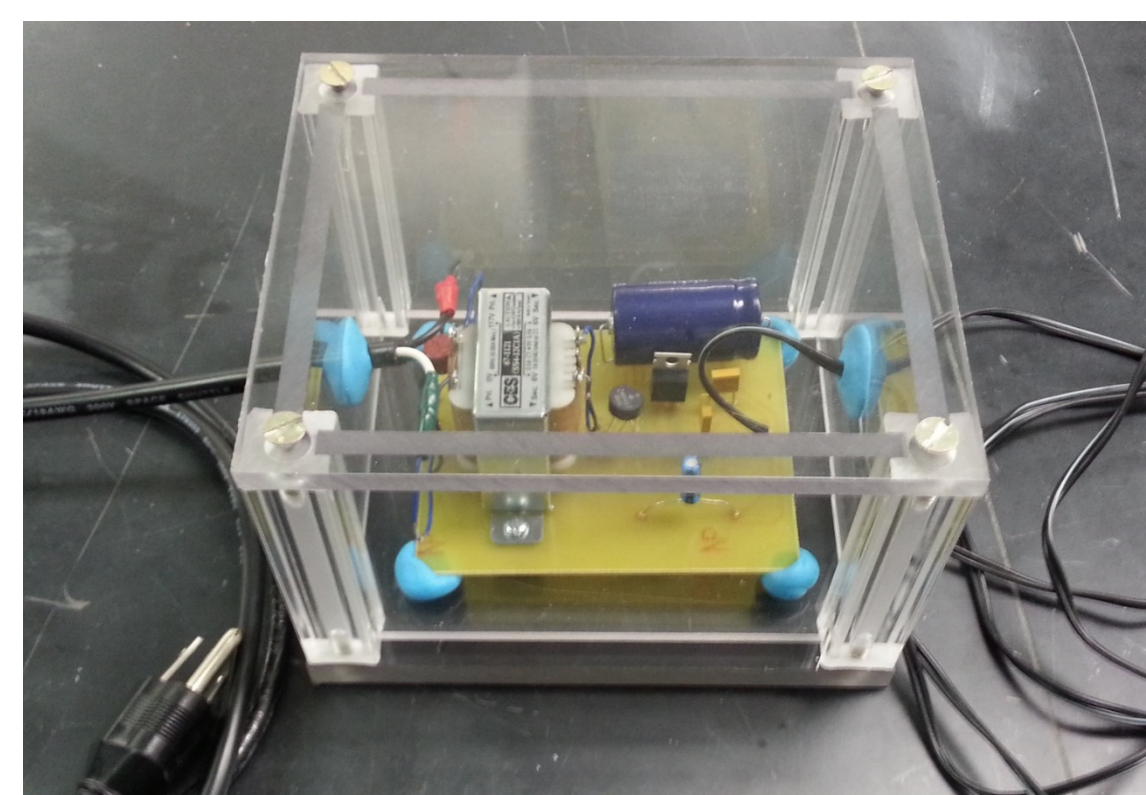
Power → Lasers → TFT Screens → X-Cube → Projection Lens

## Laser Projector



Dimension: 14 x 8 x 5 inches  
Case Material: Lexan

## Power Supply



- 12V Regulated DC Power Supply
- Converts AC wall outlet voltage to positive DC output voltage and provides power to drive all the subsystems

## TFT Screen / Microcontroller

- Each microcontroller connects to a TFT screen
- Each TFT screen holds a component image for either red, green, or blue
- When lasers are combined in the X-Cube, a full RGB image is created

## X-Cube



- Used to combine all three component colors for use in projection

## Results

- System is easy to use
- System does not have a clear display
- System is relatively low cost
- System is safe
- System turns on instantly
- Projector is compact
- Could not get an image to display

## Acknowledgements

- Department of Electrical and Computer Engineering
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