Virtual Augmented Reality Projector: The Future

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Background

What is Augmented Reality (AR)?

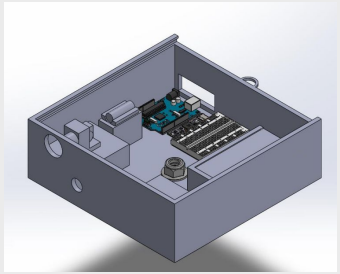
- Uses laser-based technology to project digital information onto real-world applications. The projected information is synchronized with cameras and projectors to understand the position and orientation of the projector, ensuring accurate alignment with the physical environment.

What is an AR Projector?

The goal of this project is to create a device that can use a camera and projector in sync to project images of blueprints or schematics, typically construction, into the real world.

Similar Products/ Product Inspirations

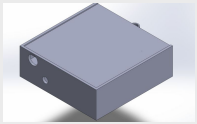
- Pokemon Go - Uses AR in well-known game
- Apple Vision Pro - Popular AR productivity tool

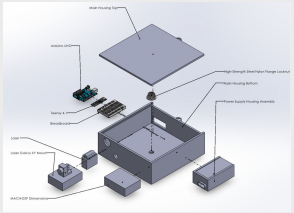


Software Overview

- Camera
  - Reads QR codes
- Microcontroller
  - Intakes QR code information and relates to specific file
- Projector
  - Image projection relating to files
- Galvanometer
  - Laser-based Technology

Housing





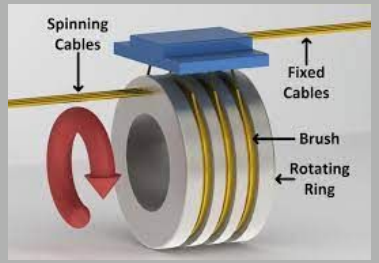
Construction Applications

Whereas other popular AR tools use a screen to augment the world, the AR projector is intended to project images into the real world; not to be viewed through a screen. This provides a more precise understanding of the construction process.

Going Forward

One of the goals provided by this project's advisors, was to have a product that could physically move and still project an image in the same location. This requires the use of a rotating joint. Some options for this are:

- Slip Ring
  - Rotation with wires
  - One rotational plane
- Double Servo System
  - 2 Rotational Axes



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