

Team Members

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Faculty Advisor

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Client

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Introduction

Problem: Laser arcades are too far away and difficult to find

Solution: Use this product and follow 3 steps to enjoy laser arcade action anywhere

1. Turn on and place the targets
2. Turn on and pass out blasters
3. Open the app and begin play

Target Audience

College students and homeowners

Requirements

Software

- Locally hosted server able to connect to hardware and the application
- Multi-platform development framework for the application

Hardware

- IR emitting blaster with ammo and color coding
- LED targets with 15 foot range and player hit indicators

Technical Details

Software

- Raspberry Pi
- Python bluetooth listening service
- Frontend Code: React Native
- Backend Code: Java Spring Boot

Hardware

- IR Transmission Protocol
- Bluetooth Communication
- Mosfet Buffers
- Microcontroller Interrupts, interval timers, PWM wave

Testing

Software

- Manually with a hot-reloaded emulator and local server, which changed later to a physical tablet and Raspberry Pi.

Hardware

- Manual testing of hardware to validate hardware before implementing microcontroller
- Implement microcontroller code to hardware to test design final wiring in the final product

Design Approach

