Laser Arcade Machine

sdmay22-24

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Project Management Style

Scrum Agile approach
- Having a set amount of work to complete each week will make it easier to track progress

Software code tracking
- Gitlab

Progress tracking
- Trello

Overall
- Discord server
- WhenToMeet

Our Tasks

- Design UI/ Playable App
- Database to store information
- Design Shooter PCB
  - IR Emitter
  - Ammo Count
- Design Target PCB
  - IR Reciver
  - Communication method
    - From Pi to Target
    - From target to PI
- Design and Print Shooter and targets
- Wirelessly Power everything without needing to plug them in

Project Schedule

Task Name	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Design backend database schema	██	██					
Design easy-to-use UI	██	██					
Design backend api	██	██					
Prototype backend		██	██				
Prototype frontend		██	██				
Develop Front end application				██	██		
Develop Backend application				██	██		
Connect front and backend						██	
Test application with test data						██	
Connect full application to raspberry pi/ hardware							██
Assorted assignments throughout the semesters	██	██	██	██	██	██	██

Task Name	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Specing Transmission and Receivers	██						
Designing Shooter's circuitry	██	██					
Designing Target's Circuitry	██	██					
3D design of Target				██	██		
3D design of Gun				██	██		
Assemble Gun and Target						██	██
Testing Circuitry			██	██	██	██	
Coding the microcontrollers			██	██	██	██	
Connect to Software						██	██
Presentation Prep							██

Risk Mitigation

- Disconnect between the hardware and software

Software

- Connection Issues
  - Front end & Backend
  - PI
- Security
- Management risks (no real leader established)
- Schedule Risk/Technical Risk(Never worked with some of the things)

Hardware

- Difficulty finding parts or parts running out of stock when we try to order them.
- Possible issues when we connect system to interface with the software and app
- Possible issues when we begin to actually use the laser
- Lithium Batteries exploding