Milestone 1: Project Proposal

Team Name Loading...

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1. Description

Using an Arduino and an addressable LED Strip, our team will program an app for iOS that takes user input and changes the LED's accordingly. We will integrate support for HomeKit and Amazon's Alexa to enable voice commands. The app will have a database of commands and their corresponding code to tell the LED strip what colors to activate, where to activate, and at what time to activate.

By using our app, the user will have easy access to dozens of cool light patterns to fill a room. The light strip and app allow the user to have a more creative environment compared to simple incandescent light bulb lighting. By tying into both HomeKit and Alexa Voice Services, we will attempt to make the app service-agnostic, so that the user has more choice over how they control the strip while also implementing a ubiquitous technology.

2. Vision Statement

We want the user to have a fully functional app that allows them to control an LED light strip from their phone or tablet.

3. Motivation

From experience with Arduino and interest in the development of the Internet of Things, creating a robust app that will control and customize LED lighting environments will merge interests with development seamlessly.

4. Risks

- None of our team members have coded an app before. We will all have to learn Apple's Swift programming language, and become very comfortable with the Arduino development environment.
- We do not currently have all of the required materials to begin testing the LED strip in conjunction with the Arduino.
- Developers can only create iOS apps on macOS computers, and Windows users can not participate natively.
- Luke must contact his employer to get approval to create the app before beginning.

5. Risk Mitigation Plan

- ➢ To mitigate the risk of not knowing the Swift programming language, we will utilize online tutorials from Apple and beyond that teach us how to code an iOS app.
- ➢ We will order the parts required from an online retailer.
- ➢ Our team members will use VirtualBox or similar software to be able to work on the app on their Windows computers.
- ➢ Luke will contact his employer to get approval to develop the app.

7. Development Logistics

Version Control: Git, GitHub (repo: **https://github.com/Sale3054/SwiftRepo3308**)

Development Method: Agile

Collaboration Tool: Slack

Proposed Architecture: For the front-end, we will be using the built-in tools that the iOS development environment supplies to build a UI. For the back-end, we will be using a multitude of technologies, including the Arduino development environment, Amazon Alexa Voice Services, a SQL Database, and other backend technologies.