



Executive Summary

Are you looking to keep your holiday lights up throughout the year? Or are you just trying to decorate your room? We now provide the LightHouse Project, a web application where you control the color and pattern of your LED lights. In addition, the web application is responsive which means the web application interface will look good on your smart phone!

Background

Lights are extremely popular in the United States and even more so during the holidays. Most Americans use the lights to light up during the Christmas time. They put up the lights only to take them down after Christmas ends. Our sponsor, Shawn Gieser, wanted a way to make this a permanent way to keep lights and not have to deal with HOA problems or take them down. Our product allows users to keep the lights up all year long; it is not only hassle free for the consumers, but it will also allow them to create designs for other holidays such as Independence Day, Valentine's Day, etc. It is a great business product; users will be using the web application all year long and can create their own projects. Our team is very excited to work on this project. We all enjoy playing with lights colors and design patterns. Our goal is to make the web application user friendly and fun to play with.

Requirements

Here are some of the key requirements which are of the highest priority:

- Ability to run patterns that the user wants
- A controller, web interface, which is mainly what the user will see and here they will be able to run, select, and add patterns
- A designer/programmer portion which is mainly for allowing the user to access and control LEDs
- Ability to create static patterns, single color from hex code or a selection wheel
- Ability to connect to the controller via the web server to create and then push patterns to it

Sub Systems and Data Flow

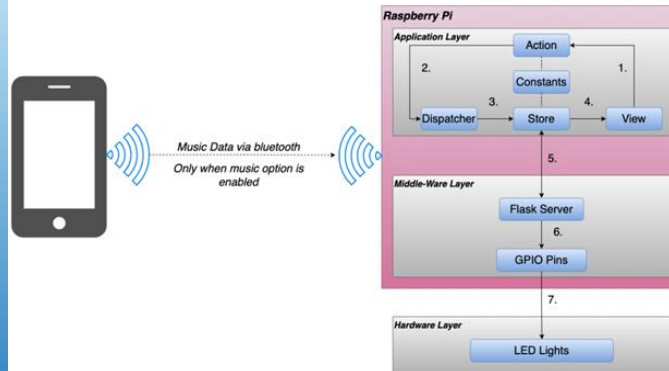
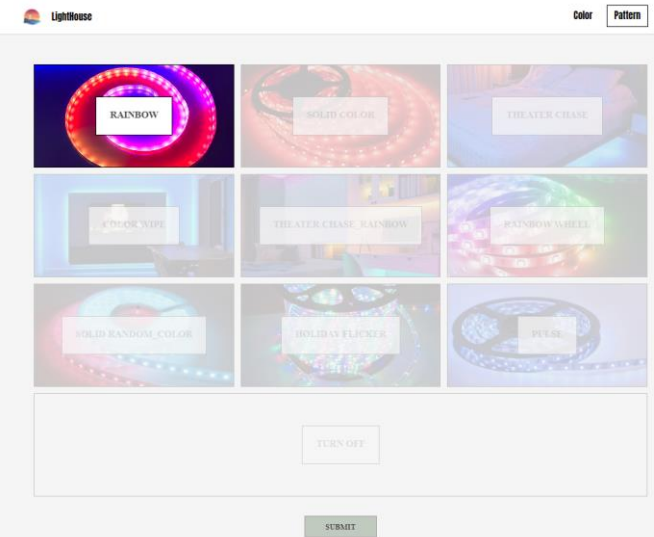


Figure 1: Simple Data Flow Diagram

Graphical User Interface



Conclusions

Vision: To be able to keep holiday lights throughout the year or to decorate your room with LED lights instead of just having boring lights.

Mission: To have a web application running by the end of the year and to fulfil all the features listed in the requirements

Current Status: The LightHouse Project can now change LED colors and patterns

Future Work: To have a over a 100+ patterns for the user to choose. As well as the ability to have users make or design their own patterns to share with other users. Music base patterns is also a desire to have in the future

References

1. Ken Herman. Texas lawmaker wants law defending holiday lights, decor from hoas. <https://www.statesman.com/news/20181221/texas-lawmaker-wants-law-defending-holiday-lights-decor-from-hoas>, 2018.
2. Christmas Lights Etc. Ul standards for Christmas light strings. <https://www.christmaslightsetc.com/pages/UL-Standards-for-Christmas-Light-Strings.htm>, 2020.