Jeremy Krenbrink	DynoLite Inc.
V00807903	Mobile Lighting Control System
January 8, 2016	Version 1.0

Version	When	Who	What
1.0	January 8, 2016	Jeremy Krenbrink	Initial Drafting

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1.0   Problem description / expression of need

The need for improvement stems from a lack of efficient and convenient lighting control in commercial and residential spaces. Our company would like to propose a more mobile way to operate lighting apart from simple light switches through a mobile application, so that users can change lighting levels in their office or residence without needing to be present to do so. Also, since lights may be left on in buildings, wasting energy, the system can also be set up such that when a user is not using a room, the lights may be automatically turned off to reduce energy use. Similarly, lighting systems may be configured such that lights turn on automatically when one enters a room, providing convenience.

2.0   Project Objectives

The objectives of the project are as follows:

2.1   To implement a device that connects to lighting appliances and can manipulate their state.
2.2   To create a mobile application that can interact with the aforementioned devices.
2.3   Allow the bundling of different lighting fixtures into subsystems which may be manipulated independently by the application (i.e. the different rooms of a building).
2.4   Allow users different levels of privilege for different subsystems, which may also require the implementation of a login system.
2.5   Allow the tracking of users with respect to the subsystems, so that the system may perform actions based on proximity.
2.6   Allow users to store lighting preferences for particular subsystems, and allow subsystems to have lighting presents themselves.

3.0   Current System

Assuming a simple lighting system with mechanical switches for operation.

4.0   Intended users and their interaction with the system

Intended for business owers and employees, as well as home owners and guests to whom permissions are given for the system. Users will interact with the system through a mobile application.

5.0   Known interaction with other systems within or outside the client organization

The system may interact in undefined ways with other lighting systems if they are installed simultaneously. The system may also use an outside GPS for position tracking.

6.0   Known constraints to development

The development and installation of devices that can interact with pre-installed light fixtures may prove to be difficult.

7.0   Project Schedule

For the prototype demo, features should include a basic login system with various user privileges, and the ability to interact with different lighting elements (e.g. turning a light on or off) in a simulation.

For the final project demo, features should include a functional mobile application with a login system and user privileges, the ability to create lighting subsystems and interact with them, and the ability to track users the position of users with respect to the subsystems.

8.0   Project Team

Name: Jeremy Krenbrink   *Email*:   jeremy.krenbrink@gmail.com
Student No.: V00807903   *Role*:   Developer

9.0   Glossary of terms

Subsystem   ::   A grouping of different lighting elements that are connected to the system. For example, the lights in a particular room could be grouped into a subsystem.

User   ::   Someone who has an account in the system.

Privilege   ::   The extent to which a particular user may manipulate certain lights or subsystems.

My Résumé
Jeremy Krenbrink, V00807903

Writing and communication experience

- Some technical writing and presentation experience
- Experience in linguistics

Programming skills

- C, C++, Java, and Python
- ARM Assembly

Software design experience

- Unified Process software development experience
- UML diagramming
- Object-oriented design skills, including various creational patterns (Factory, Builder, Decorator, etc.)

Web design experience

- HTML5

Graphics experience

- OpenGL 3.2 and GLFW
- Direct2D and Direct3D 11