Jake Runzer		**Lighting Inc.**
V00797175		**Lumin**
Jan. 8/16		**1.0**

Version	When	Who	What
1.0	Jan. 8/16	Jake Runzer	Initial Drafting

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1.0 Problem description / expression of need

Waking up in the morning should be a pleasant and enjoyable experience. Starting the day refreshed and positive can lead to a happier and healthier life. Nowadays, the main method people use to wake up are radio clock and mobile phone alarms. These devices use abrupt, loud, and annoying sounds to wake you. You then have to scramble around in the dark to find the alarm and often just end up hitting snooze. The small amount of smart alarms and lamps that do exist, require your phone to be on and plugged in throughout the night, decreasing its overall battery life and illuminating your room, decreasing the quality of your sleep.

2.0   Project Objectives

The Lumin is an all in one solution for your bedside table. It is a smart lamp, alarm, and sleep tracking system that connects to your WiFi and will wake you with soothing lights and calming sounds at the appropriate time, so you will never be grumpy in the morning again. The lamp will contain a custom RGB light that can change to any possible combination of colours. Attached via wire to the lamp will be a small accelerometer which will be placed under the bed sheets. This smart device will track your sleeping patterns and will decide on the best time to wake you close to your specified alarm.

To keep the Lumin Lamp looking modern and sleek, there will be minimal controls and buttons on the physical device. All of the configuring will be managed through a mobile application. With the application the user can set highly customizable alarms. Along with choosing the time for an alarm, the alarm sound and lamp lighting pattern can be chosen. All alarms and configurations will be stored on the lamp itself, which means your phone does not need to be turned on throughout the night. In other words, if your phones dies at midnight, your alarms will still go off.

The lamp will also integrate with weather data, so you will immediately know the weather outside when you wake up based on the colour of the lamp. The user may also connect to their digital calendar, and the lamp will automatically set alarms for you.

When the Lumin Lamp in sleep mode, there will be no sources of light coming from the device. This ensures your room is kept dark while you sleep, which has been scientifically proven to have an effect on sleep quality.

3.0 Current System(s)

The Lumin Lamp will be the first product of Lighting Inc.

4.0 Intended users and their interaction with the system

The intended users of the product is anyone who wants to improve their morning experience. Nearly everyone has a mobile phone, which will be the main way to interact and control the Lumin. Users will be able to download and install a free mobile app which will connect to the Lumin and provide full control. With the app the lamp colour and brightness can be changed, alarms set and removed, and sleeping patterns visualized. All configurations will be uploaded to storage on the physical lamp, so it will work even if the app becomes disconnected.

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

- Fetch weather data for the users location from the Weather Network and their public API.
- Connect to users digital calendar using OAuth authentication.

6.0 Known constraints to development

- The project prototype must use components already available to project members or the components need to be shipped quickly. Many online electronic stores are located in China and shipping to Victoria BC might take a whole semester.

7.0 Project Schedule

Basic overview of suggested project schedule based on course calendar

Jan 21 - Start mobile application and building of the lamp
Jan 26 - Lamp RGB leds installed and working
Jan 31 - Connect lamp to wifi network
Feb 2 - Mobile app can control basic lamp functions
Feb 3 - Start building accelerometer to track sleep
Feb 10 - Mobile app lamp colour and brightness UI functional and looking good
Feb 20 - Alarms working and set using the mobile app
Mar 3 - Demo
Mar 15 - Mobile app can see and graph accelerometer data
Mar 25 - Use accelerometer data to alarm at better time
Mar 29-31 - Final Demo

8.0 Project team

- Hardware specialist
  This member will organize and build a the Lumin using off the shelf electronic products

- Embedded programmer
  This member will program on the embedded device. It will need to connect to the Internet and be able to save and retrieve configuration data.

- Mobile programmer
  This member will program the mobile app that will connect to and control the lamp

- Product manager
  This member will have knowledge in all areas and will control and direct the team in the right direction.

9.0 Glossary of terms

Project Proposal Summary (1 page)
Jake Runzer and V00797175

Waking up can be the hardest part of your day. Your phone alarm breaks the night silence with an abrupt loud beeping in a dark room. Before you even get out of bed you know the day is going to be rough. Lighting Incorporated has a solution that will change this. It is called the Lumin, an all-in-on lamp, alarm clock, and sleep tracking system. With the Lumin you will be slowly waken when you are most aware at the peak of your sleep with soothing lights and sounds. In the age of smart devices, your lamp and alarm should be smart too. The Lumin is fully configurable and controllable with a mobile application, but will function normally when no devices are connected.

The market is saturated with smart lamps and alarms that claim to work and revolutionize your day. How is the Lumin different? The RGB light from the Lumin lamp has a dynamic range of brightnesses and colours. Each alarm can control the colour patterns of the lamp used to wake you, or it can automatically decide on the colour based on the outside weather and temperature. After the alarms have been set on the Lumin, they will be remembered and triggered if your phone dies, breaks, or is forgotten at work.

There are many apps that have the ability to track your sleep patterns and trigger an alarm at the best time, but these require your expensive phones to be placed on the mattress and always be turned on. This not only decreases your overall battery life, but can potentially be dangerous for evermore common mobile phones with large thin screens. The Lumin will have a custom sensor attached at the back of the lamp which can be place on the mattress and under the sheets to track your sleep. After being properly positioned once, it does not need to be moved again, unlike sleep trackers for you phone. The data collected from the sensor will be used to trigger an alarm at the most appropriate time, when the user is most awake closest to their set alarm times. The user will be able to see their sleep patterns on a beautifully displayed graph in the mobile application.

It is known that you receive the best quality sleep when you are in a very dark environment. That is why it is not ideal to use third party alarm apps or docking stations which require your phone to be turned on throughout the night. Even if the screen is just black, the phones back light will visibly light up the room. Lighting Inc. is dedicated to making the Lumin produce no visible light when in night mode, giving the user a better quality sleep.

The Lumin replaces your dusty old clock radio and bedside lamp with a smart all-in-one solution. It provides a unique sleep experience and will leave you finally enjoying your mornings.

My Résumé

Jake Runzer and V00797175

Project management experience

    Management, technical architecture, leading small teams

Writing experience

    Presentation, formatting, writing copy for websites

Webmaster experience

    Personal website
    Website development experience
    Website design experience
    JavaScript and multiple web framework experience
    Website backend experience
    Server setup and configuration experience
    Web tools
    User interface design skills
    HTML5, CSS, SVG

Software tool expert

    Tool experience and programming skills, prototyping tools
    UI Design Sketch experience
    Mobile prototyping with animations

Programming skills

    Object-Oriented Programming languages
    Scripting languages
    JavaScript, Python, Swift, Java, Objective C
    XCode and IOS app development experience
    OSX app development experience
    Some Android experience

Design experience

    Web and mobile design experience
    User interface programming & presentation skills
    Application architecture design

Requirements engineering experience

    Testing experience