**University of Pittsburgh**

**Department of Electrical and Computer Engineering**

**ECE 1896: Senior Design Project – Spring 2019**

**Milestone Checkoff Form**

**Project Title: Home Position-Based Automated Lighting System (PALS)**

**Overall team goals to be accomplished during the evaluation period**

* Create a data structure that will represent the layout of a room that will include all necessary information about the room that is needed to uniquely identify it and
* Familiarize ourselves with the Smart Hue API and how to send commands to smart devices using it.
* Develop an algorithm to determine the distance between a Wi-Fi access point and a device connected to it.
* Establish a wireless connection between a Raspberry Pi and a computer over Wi-Fi

**Team Member #1**

**Jarod Vickers**

**Deliverable / Demonstration for this checkoff cycle**

* Design data structures that contain the properties of a house and its rooms that will be used to uniquely identify them. The room data structure will also include information required to dynamically build an http request for devices in that room.
* Ensure Data structure is robust and scalable from a creation standpoint, so that the software is flexible for more than one house. This includes methods to add new rooms and edit existing rooms.
* Create unit tests for the basic functions of the data structure
* Demonstrate how rooms can be added and be able to list all saved rooms.

**Team Member #2**

* **Andrew Tran**

**Deliverable / Demonstration for this checkoff cycle**

* Become familiar with the Phillips Hue open API and how to send commands to a smart hub. This includes what information is required to format the http request correctly.
* Write a Python program that will be able to send http commands to a smart hub.
* Demonstrate a smart light bulb turning on/off by sending hardcoded http requests over Wi-Fi.

**Team Member #3**

* **Buka Agbim**

**Deliverable / Demonstration for this checkoff cycle**

* Develop an algorithm to determine the distance between a Wi-Fi router and a device connected to it using characteristics of the Wi-Fi signal, such as signal strength and attenuation, as well as create unit tests for the algorithm.
* Demonstrate that the distance between a single device and a Wi-Fi router can be calculated using the algorithm.
* Begin to work on PCB design using Raspberry Pi
* Purchase initial components that will be needed to demonstrate the functionality prototype (Phillips Hue Smart bulbs/hub, Raspberry Pi Zero)

**Team Member #4**

* **Jiacong(Peter) Liu**

**Deliverable / Demonstration for this checkoff cycle**

* Develop server and client code in C for communications between the Raspberry Pi and a laptop.
* The Raspberry Pi will send hardcoded example data to the laptop, representing its location data. This data will come from the Raspberry Pi’s Wi-Fi module later in the development of the project.
* Demonstrate that data sent from Raspberry Pi can be received wirelessly by a laptop by printing the data on the screen.