

## **SE101 Proposal**

**October 11th, 2018**

**Instructor: Professor Lam**

**Group Members:** Marcus Kruger and Robert Nadal

### **Overview:**

Our project will be an arduino version of the “Clapper” home automation system. We hope to integrate a sound sensor which, upon hearing the sound of one or multiple claps, will do various household activities, such as turn on a light or a fan. If time constraints permit, we hope to attune the sound sensor to recognize different patterns or sequences of clapping and vary its actions accordingly.

### **Major Software Components:**

- Create an interface between sound sensor and household appliance(s)
- Differentiate by pitch and period the sound of clapping against other background noise

### **Prototype Plan:**

Our direction will be a vertical and experimental prototyping plan. We hope to start our testing by using simple breadboard LEDs and sound sensors, and once that method has been perfected, to move on to using real lights and appliances, or even hardwiring the arduino into a power bar. We intend to focus on depth rather than breadth, thus we are aiming for a vertical prototyping plan by focusing in on the sound sensors and remote activation aspects of our project.

### **Hardware:**

- Elegoo UNO R3
- Breadboard
- LED(s)
- 5V 1 Channel Level Trigger Optocoupler Relay Module For Arduino
- Sound Sensor Detection Module LM393 Chip Electret Microphone For Arduino

### **Challenges:**

We anticipate difficulty primarily in creating the necessary software to dynamically interface between the sensor and the light. There also might be some problems in distinguishing between clapping sound and background noise as the sensor is an analog sensor.