School of Computing

CA326 Year 3 Project Proposal Form

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Student 2 Name: Matthew Kenny Student ID: 17470802

Staff Member Consulted: David Sinclair

**Project Description**

In essence, our idea is a mask with a responsive LED light strip that will flicker in a way that will emulate a mouth speaking whenever the wearer is speaking. Within the mask’s layers, it will have an Arduino Kit, accelerometer, microphone module, programmable LED strips and a filter. The mask is a pouch-like design where the electronics will reside so that it can be easily removed and replaced and so that mask can be re-washed and re-used.

**Division of Work:**

Both members will collaborate when coding in C++ so that they can have the opportunity to learn a new language which will be advantageous. Matthew will be responsible for troubleshooting the values. Jude will be responsible for making the circuit schematic and wiring all of the components together. Matthew is assigned to sewing the masks. Jude will be responsible for drawing mock designs on where to position the parts within the layers of the mask and the filter in order to prevent condensation reaching and damaging the electronics.

**Programming Languages:**

The main language that will be used is C++ as it is the required language for Arduino.

**Learning Challenges:**

The Challenges that we will be facing includes learning the language and the syntax of C++ as it is not taught in our course, precisely calibrating values concerning the microphone so that it will not pick up 3rd party noise instead of the sound generated by the wearer, calibrating the values for the accelerometer to identify when the wearer is smiling or frowning so that it can be replicated in the LEDs, learning the basics of electronics and how they function in order to efficiently wire all of the parts together without the risk of breaking any of them. Designing the circuit schematic. Picking out suitable parts by checking the datasheet. Learning how to handle, compile and run code connected to the Arduino with its IDE.

**Hardware/Software Platform:**

Laptop, Linux, Arduino, Windows, Arduino IDE

**Special Hardware/Software Requirements:**

Breadboard, accelerometer, microphone module, multimeter.