

IN620 Embedded systems

LED Project



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Otago polytechnic

Forth Street

## Introduction

My project is based around the use of sound detection and how it affects the LED lights. Initially I wanted to have multiple lines of LED’s on the breadboard controlled by a potentiometer. The potentiometer then controls the speed of the blinking LED lights with different sets of blinking patterns. But after doing some research on YouTube and google about LED Arduino projects. I came across a couple with the use of sound which interested me, So I went with that. Majority of the projects however were either too complicated, lack of parts I needed or did not meet certain circuit requirements like the use of resistors (Yikes). It wasn’t until I found a video on a YouTube channel “TechExult” that had a bunch of projects and had exactly what I was looking for. He even had his own website that had the code for it too.

## Design

In terms of Design nothing new was implemented onto the project itself. The only difference being the location of the LED lights and the sound sensor module. The only “big” change I think would be the placement of the sensor module itself. Rather than actually sticking it straight into the breadboard I decided to use jumper wires instead. It still works either way. Only difference being the wires extending the module. I did it this way so I could pick it up and speak into it rather than sticking my face close to the wires and breadboard.

I would have liked to have placed my LED’s a bit better rather than having the negative points connected to the negative rails on the breadboard. The first time I did it didn’t work while I was following the LED task in the SIK guide.

## Hardware Choices

* 5x LED (4 yellow, 1 Green)
* 15x Jumper Wires
* 5x 330-ohm resistors
* 1x Sound Sensor Module

Nothing was added for hardware. Although would have liked to have been powered by a power bank for convenience. Rather than having to plug into the laptop every time to get the project working. I noticed while researching a lot of people used a different source of power. Having it connected to the computer would only be used to test coding. For final result should be a power bank or some sort.

## Problems

Originality for hardware would be my main problem for this project as this was basically done via resource online. As for the coding aspect I’d say at least 20% was my own added code. The rest was from online. Working on the project last minute lead to what I have as a result. In order for the module to pick up the sound it needs to be placed either directly on top or close to it. Adjusting the sound threshold during code made little changes.

During the build also having to carry it around proved an issue as it tends to bump the wirings around causing the project to not work at times. This was minor though as you only needed to connect it back. I found it tedious haha.

## Discoveries/Insights

At the end of the project build I found many ways of how to implement LEDs using the Arduino. I would have liked to expand more on what I did once everything started coming together. Perhaps a better sound module would have proven better or at least adding another one to compensate the sound detection. All in all the result was rather ok but could be better in my honest opinion.

## References

* URL**https://www.techexult.com/project-lessn**
* Website Title: **techexult**
* Article Title: **PROJECTS AND VIDEOS**
* Date Accessed: **March 22, 2019**