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|  | **Introduction to Electrical Engineering Design** | **EE1100** |

**Design Challenge I : Fire Alarm Circuit**

**Gerneral instructions:**

Create a circuit that flashes an LED and pulses the sound buzzer when triggered, like a fire alarm. First build the circuit with 2 LEDs then have a TA replace one with a buzzer when you confirm the circuit works as intended.

The LED and sound buzzer must operate at two different frequencies (two 555 timers)

Check out the 555 datasheet for astable mode wiring and frequency equation.

Form groups of 2 and work together **but do the write up individually.**

Things to consider:

* Remember to use a 1k resistor to prevent the LED from burning out.
* Don’t use more than a 5 V supply, as the sound buzzer is rated for no higher than 5 V.

**Writeup:**

Write a roughly 1-page document that contains two parts: the first about your design process and the second exploring the impact of your design, features of the design and design decisions. Specifically include the following:

Part 1: The Design Process

* Describe your product in English. What is it? What is significant about it?
* Make a diagram of your circuit! (LTSpice, along with plenty of online resources will help you with this)
* List and expand on the steps you took to converge to a solution.
* Name difficulties you faced and explain how you overcame them.

Part 2: The Design Impact

* Describe a significant design decision or feature in your design.
* Explain the impact this decision or feature has on people, profits, and/or the planet.
* Name a design decision or feature you would choose to do differently in retrospect and explain why.