

# ECE 1895 - ASSIGNMENT 3 REPORT

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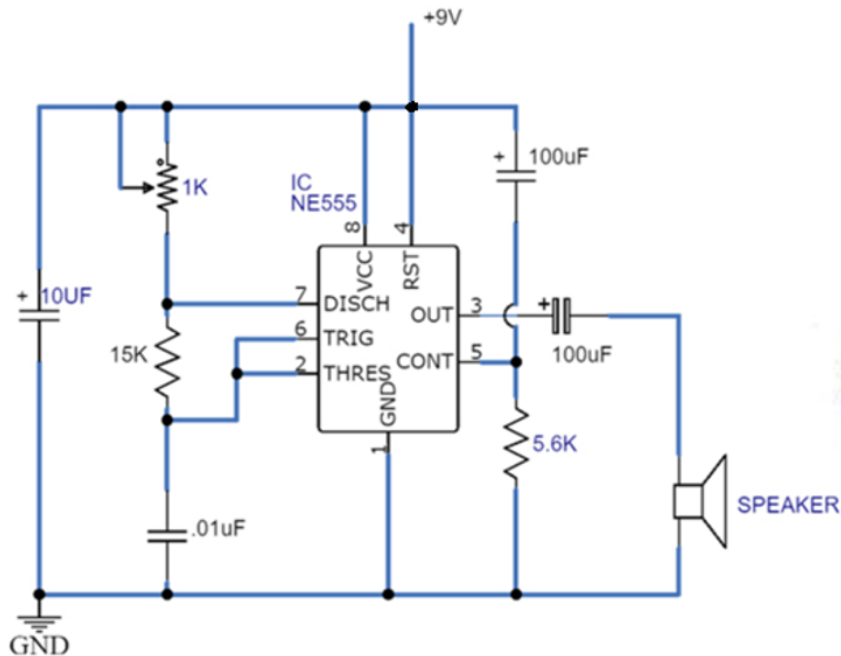
Reference:

<https://www.circuits-diy.com/simple-buzzer-circuit-with-ne555-ic/>

<https://www.samschwartz.com/staff-reflections/2022/3/31/advance-screening-platform-screen-doors-on-the-nyc-subway>

## 1 Original Design

### 1.1 Circuit Schematic



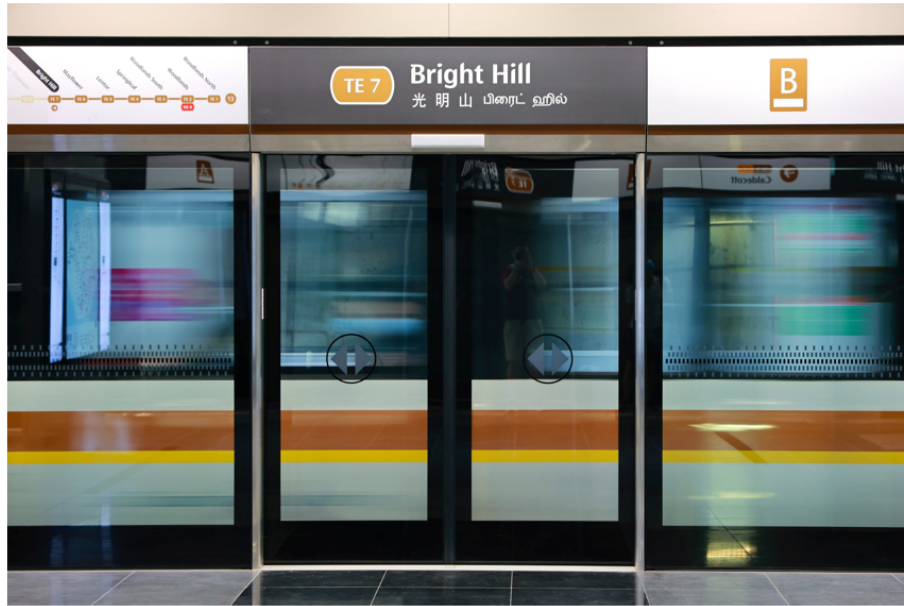
The circuit resembles very much with the assignment 1. Some notable differences are: values of resistors and capacitors, an extra variable resistor and buzzer (speaker). A buzzer is a two-pin component that will act just like a

regular resistor that produces a certain frequency of tone. It will look like this:



## 2 Modified Design

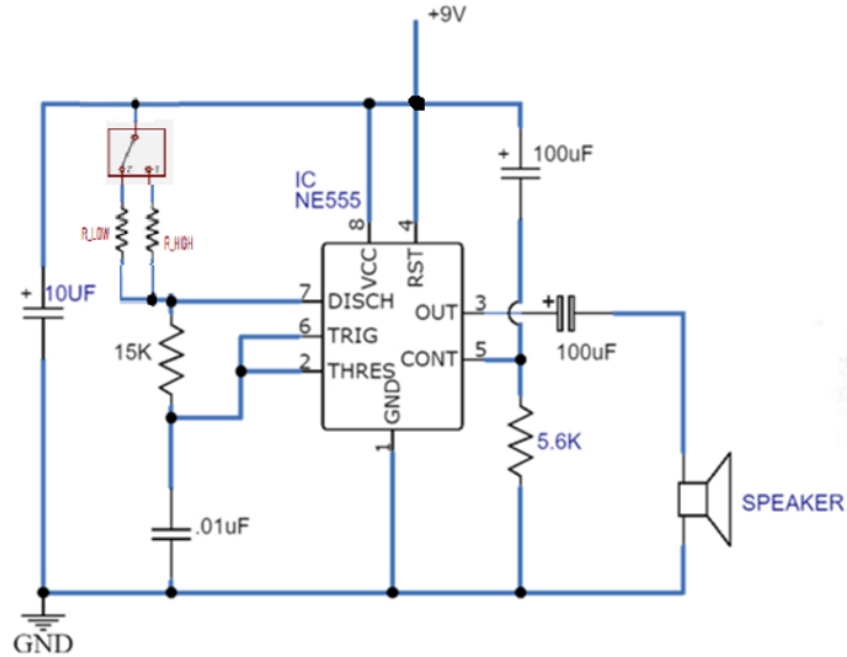
Buzzers are applicable in our real life, and one example would be the door alarm for the subway platform screen door. This is a prevalent design in east Asia, and below is a photo taken at a subway station in Singapore:



When the platform doors open, the buzzer will go off in a low frequency. On contrary, when the platform doors close, the buzzer will go off in a high frequency. Simultaneously, the LED blinks synchronously with the buzzer. To achieve this goal, the following modifications deemed to be requisites:

1. Changing the variable resistor to a pair resistors of constant resistance, since we only need 2 frequencies.
2. Using a switch to determine which resistors to use

## 2.1 Circuit Schematic



I have only drafted the circuit without exact values of the newly added resistors, as they can be arbitrary selected for desired tones. If everything works out well, it should have a buzzer that rings one of the two frequencies of tones. More details can be found from my presentation slides.