Project 3: 555 Piano

Due date: November 18th a 11:59 PM
Link to Slides: Lecture 3: Integrated Circuits

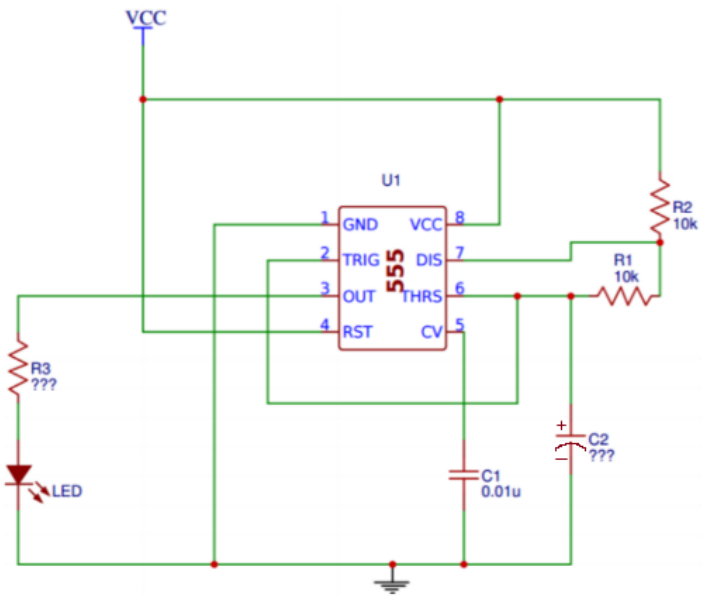
1 | About the Project

We use the idea of a black box, in this case a 555 timer, to simplify the circuit needed to create a blinking LED and piano. The 555 timer alternates between charging and discharging the capacitor at pin 6. The capacitance and resistance then determine the blinking rate of the LED and/or the tone of the piano.

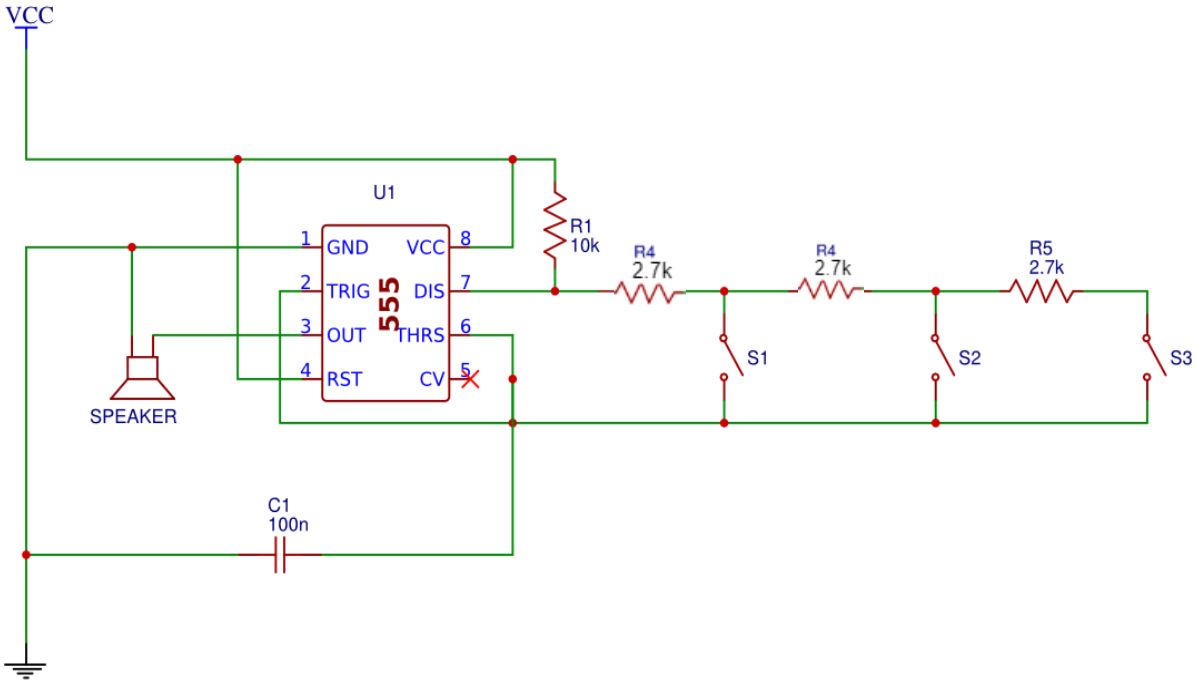
2 | Parts Needed

x1	Breadboard
x2	Perfboard
x1	3.7V Battery
x2	JST Connector
x1	555 Timer
x2	8 Pin Dip Socket
x1	LED
x2	0.1 uF Capacitor
x1	68 uF Capacitor
x1	130 Ohm Resistor
x2	10 kOhm Resistor
x3	2.7 kOhm Resistor
x1	Speaker
x3	Tactile Switch (Push Button)

3 | Schematics



555 LED Blink Schematic



555 Piano Schematic

4 | How to approach

1. Do checkpoint 1 in a breadboard and then solder in a perfboard
    a. **DO NOT** solder the 555 Timer directly onto the perfboard. Use the 8-pin socket.
2. Now, solder 555 Piano circuit into perfboard
    a. Remember to test your 555 Piano in the breadboard before

5 | Checkpoint 1

Use a 555 timer to make an LED blink. Prototype the circuit on a breadboard and then solder it into a perfboard. See schematic above.

6 | Deliverables

Submit videos of both 555 Blinker and 555 Piano or show it to an officer during working hours.