

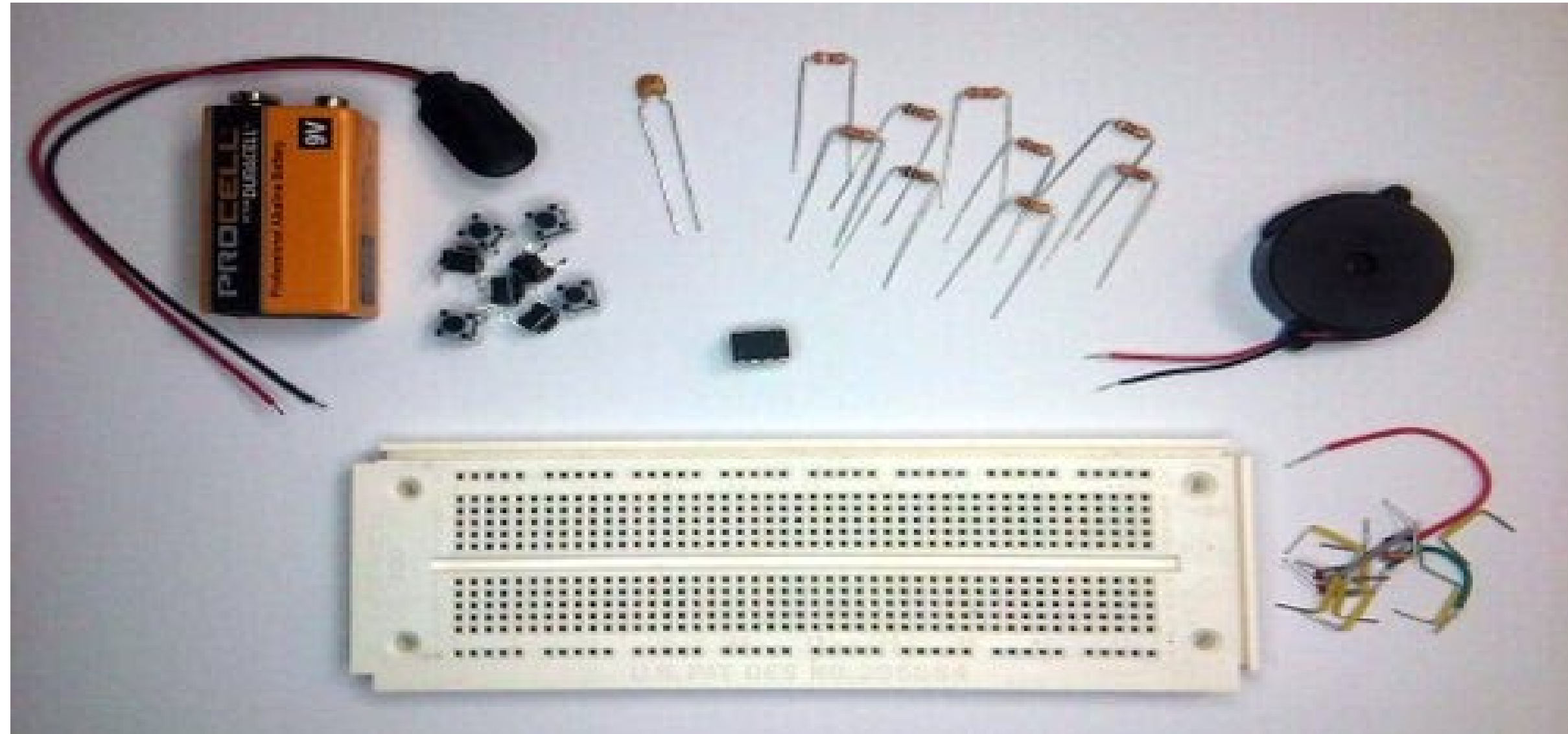


ELECTRONIC PIANO

ELECTRONICS AND COMMUNICATION ENGINEERING

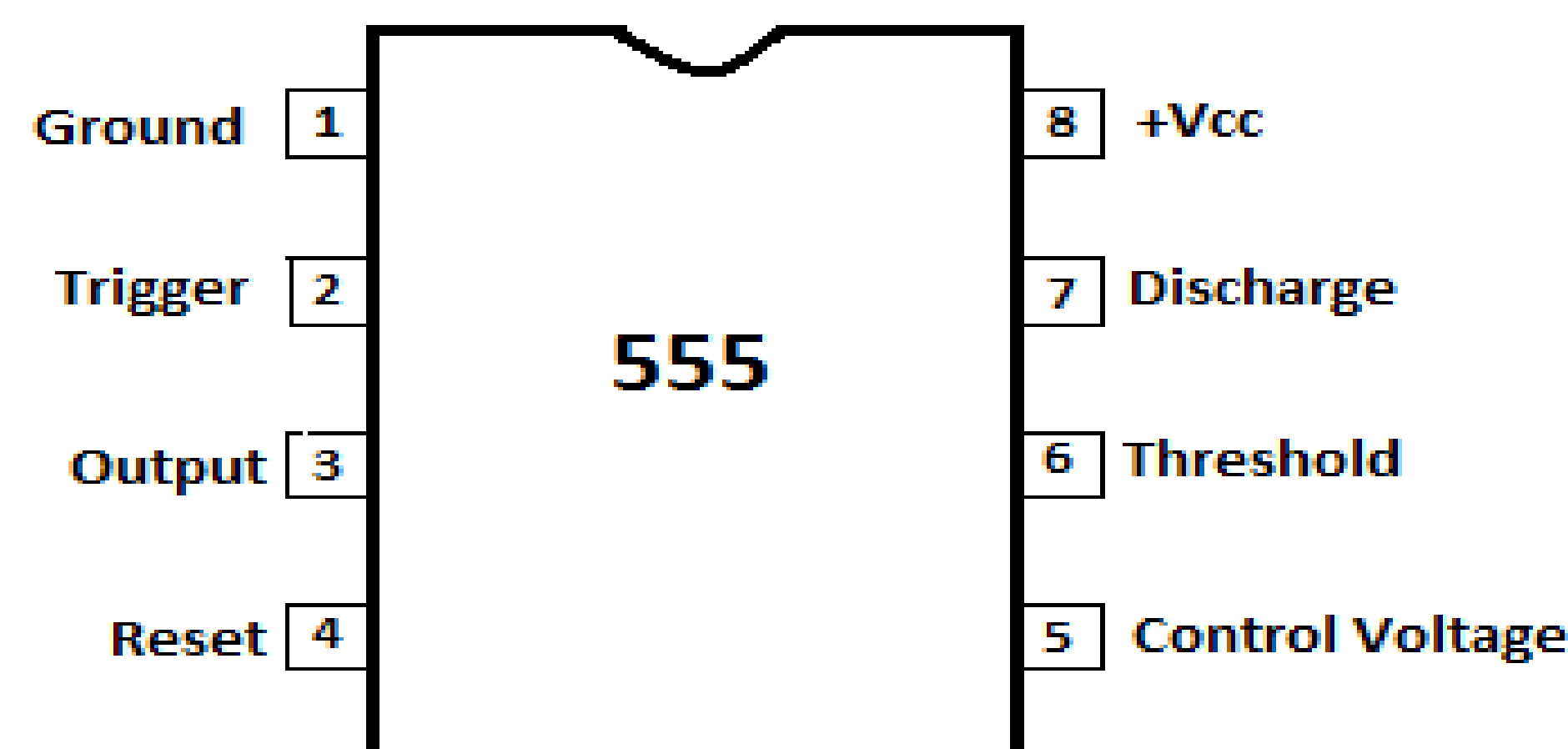
Indian Institute of Information Technology Nagpur

APPARATUS REQUIRED



1. 555 IC
2. 9V Battery
3. Capacitors: 100nF, 10uF
4. Breadboard
5. Resistors: 6 x 1K, 4.7K
6. Momentary Push Button Switches x 6
7. 8 Ohm Speaker
8. Connecting Wires

IC 555

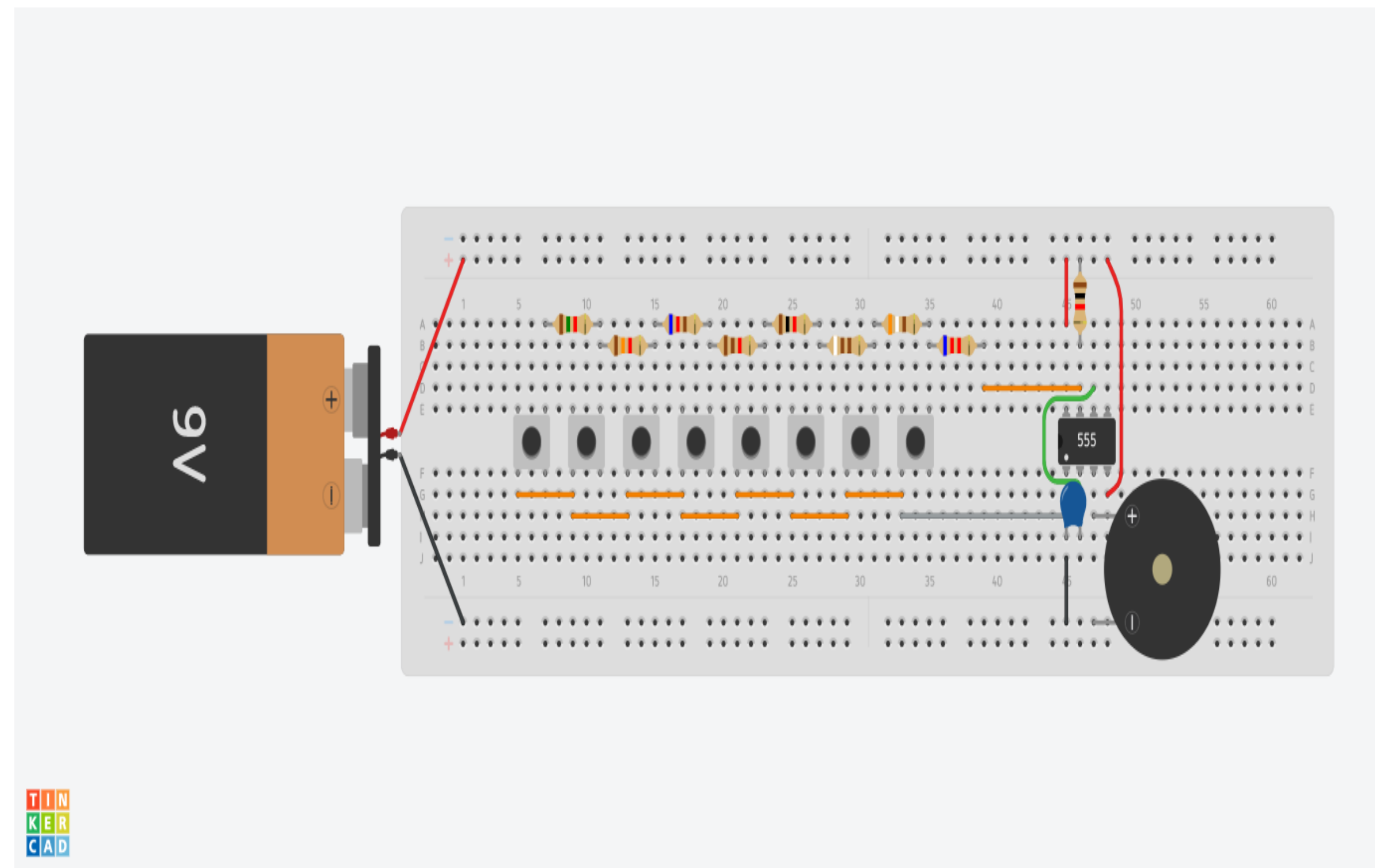


1. It has 8 pins
2. It is used in producing delays, vibrations, oscillations, etc.
3. The standard 555 timer package includes 25 transistors, 2 diodes and 15 resistors on a silicon chip installed

A highlighted block

1. 555 timer IC works from a wide range of power supplies ranging from +5V to +18V.
2. The timer's duty cycle is adjustable.
3. This IC generally works in three different modes that are- Astable, Bistable, and Monostable.

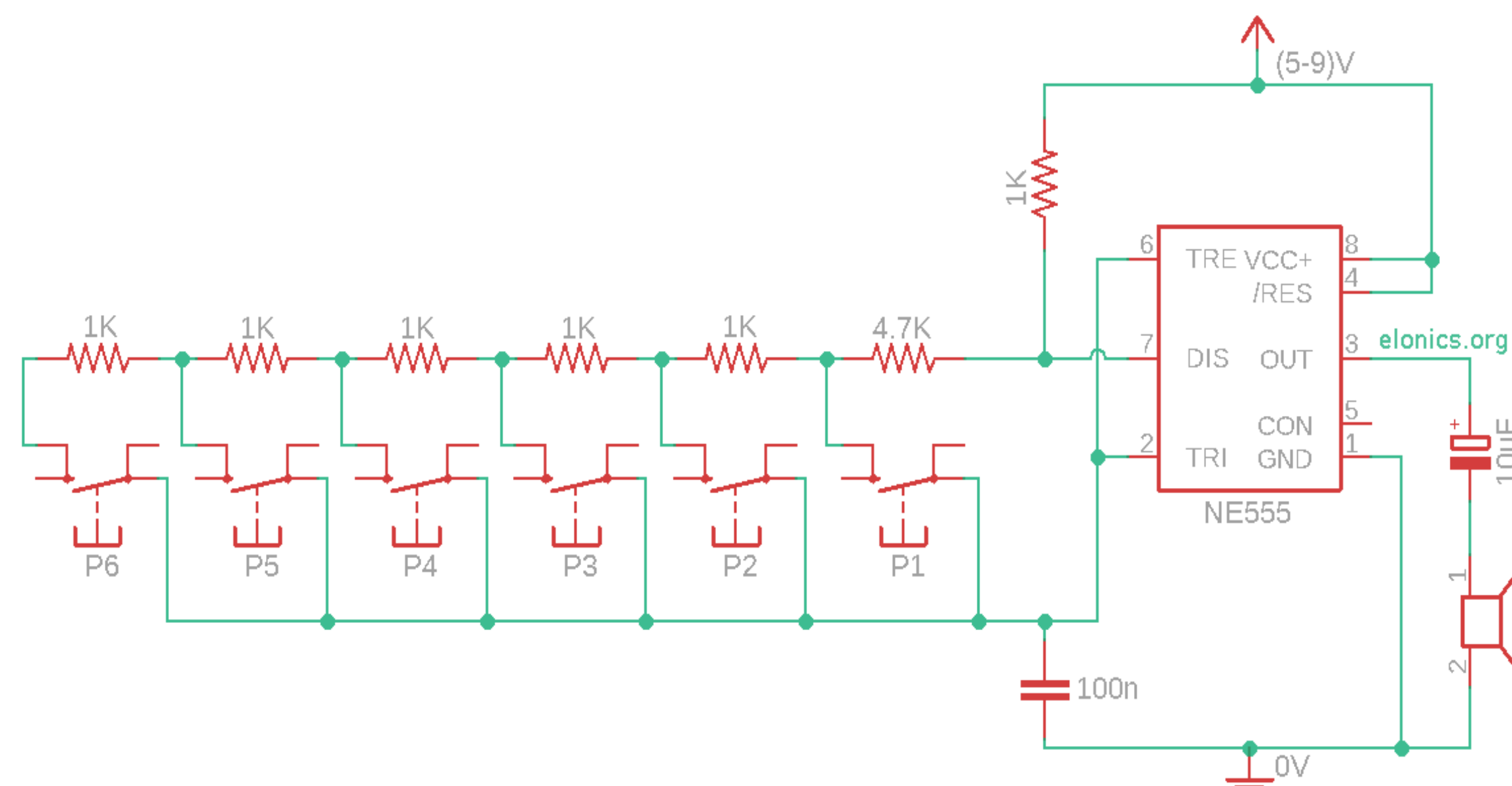
Circuit Diagram



Frequency Modulation

Output frequency of astable using 555 is given by, $F = 1.44 / ((R_a + 2R_b) * C)$. Where R_a and C are fixed values, 1K Ω and 0.1 μ F respectively but the value of R_b is determined by the switch which is pressed as given below.

1. P6 - $R_b1 + R_b2 + R_b3 + R_b4 + R_b5 + R_b6 + R_b7$
2. P5 - $R_b1 + R_b2 + R_b3 + R_b4 + R_b5 + R_b6$
3. P4 - $R_b1 + R_b2 + R_b3 + R_b4 + R_b5$
4. P3 - $R_b1 + R_b2 + R_b3 + R_b4$
5. P2 - $R_b1 + R_b2 + R_b3$
6. P1 - $R_b1 + R_b2$

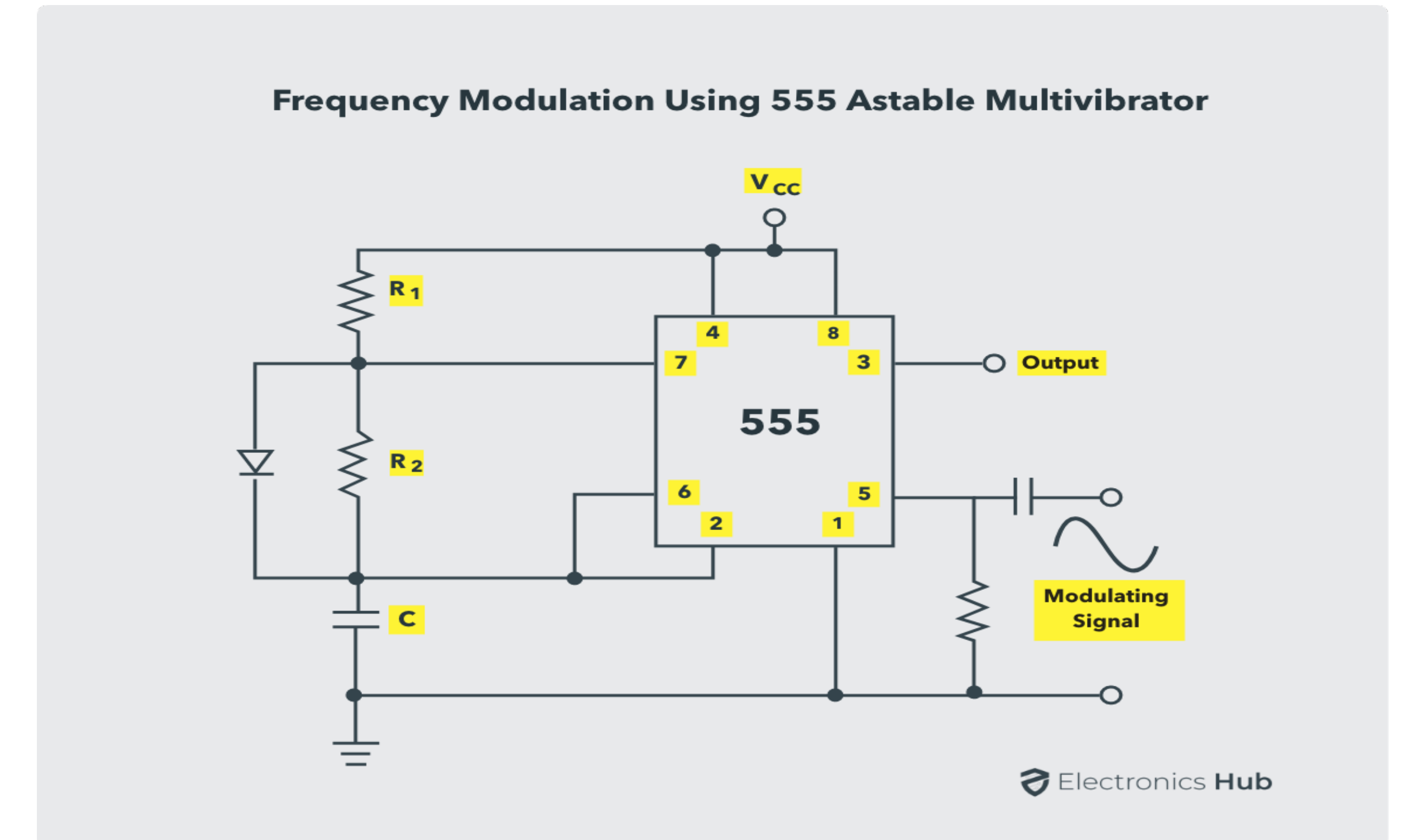


ELECTRIC PIANO CIRCUIT

Applications of Toy Organ Circuit:

- It is used to produce different types of tones and sounds by changing the resistor values.
- We can use it as a best birthday gift for the kids.
- We can also use this circuit as a Machine gun by changing the resistor and capacitor values.

Astable Mode of Timer IC



Applications of Astable Multivibrator

- Square Wave Generation
- Pulse Position Modulation
- Frequency Modulation using Astable Multivibrator

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References And Bibliography

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- 2) <https://freakengineer.com/piano-circuit-using-555-ic/>
- 3) Ramakant Gayakwad Op-Amps and Linear Integrated Circuits
- 4) Linear Integrated Circuits 4th Ed by D. Roy Choudhury and Shail B. Jain

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