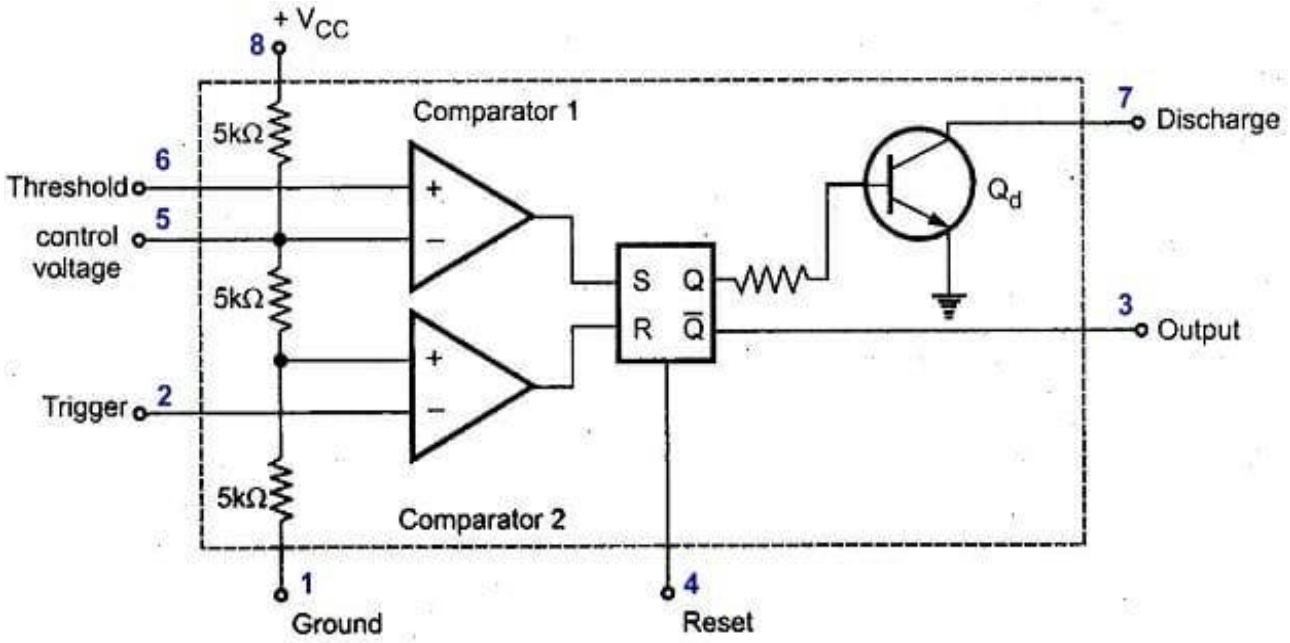
Lab 3

ECN – 252

19114001 | Abhinav Saini

Part 1 : Circuit Diagram of IC NE555 Timer



Part 2 :

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19114001 % 4 = 1. Therefore, **SET 2** of CSE Batch

Running Multi-Vibrator for frequency 2kHz and Duty cycle 50%.

Duty Cycle = t_H / t_H + t_L

Thus, Duty Cycle = 0.5 = R_A / (R_A + R_B)

Hence R_A = R_B

Period = 1 / Freq. = 0.693 * (R_A + R_B) * C where C = 0.15µ

We get R_A = R_B = 2.4k-ohm

Schematic

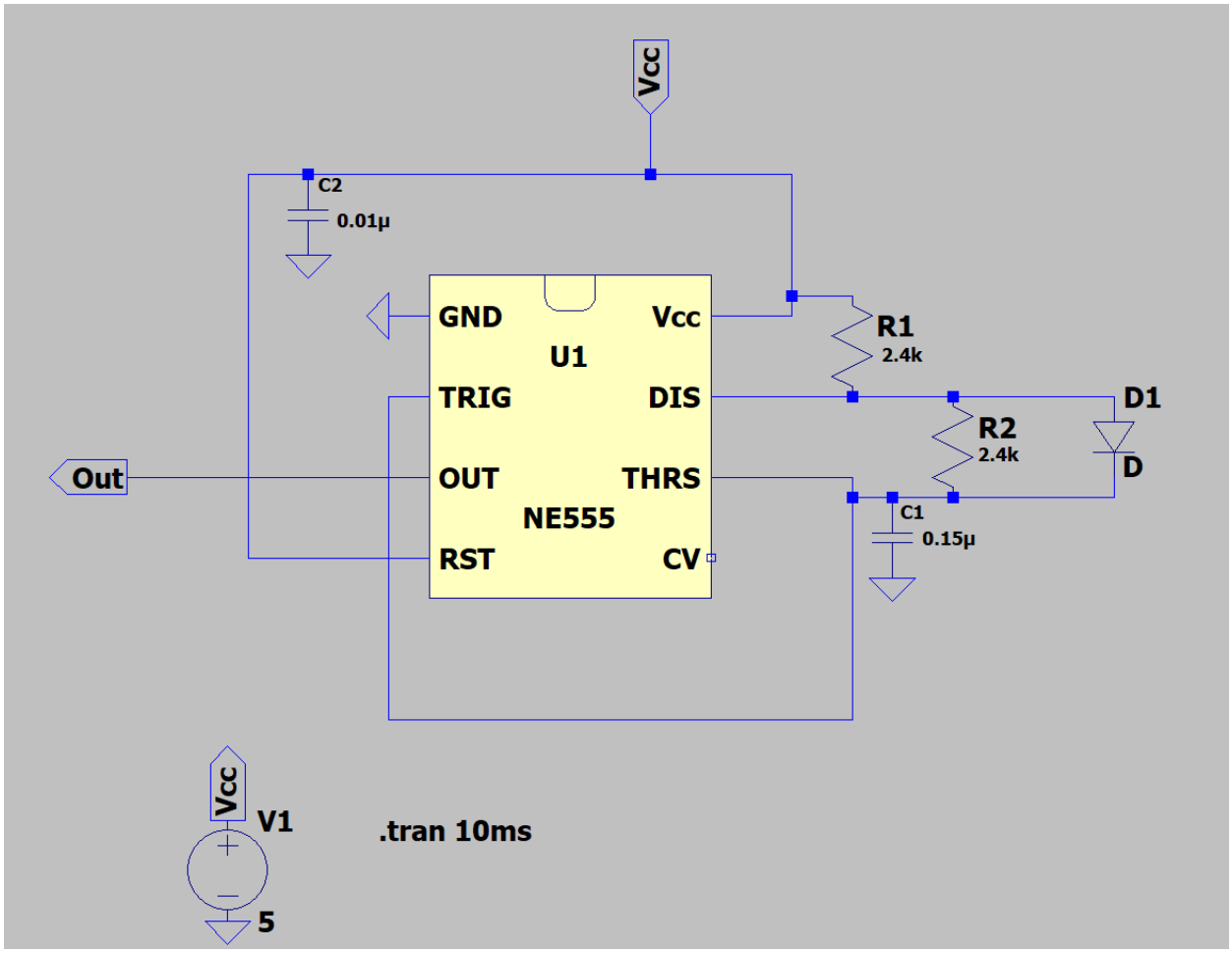

Figure 1 Schematic for Part 2

Simulation

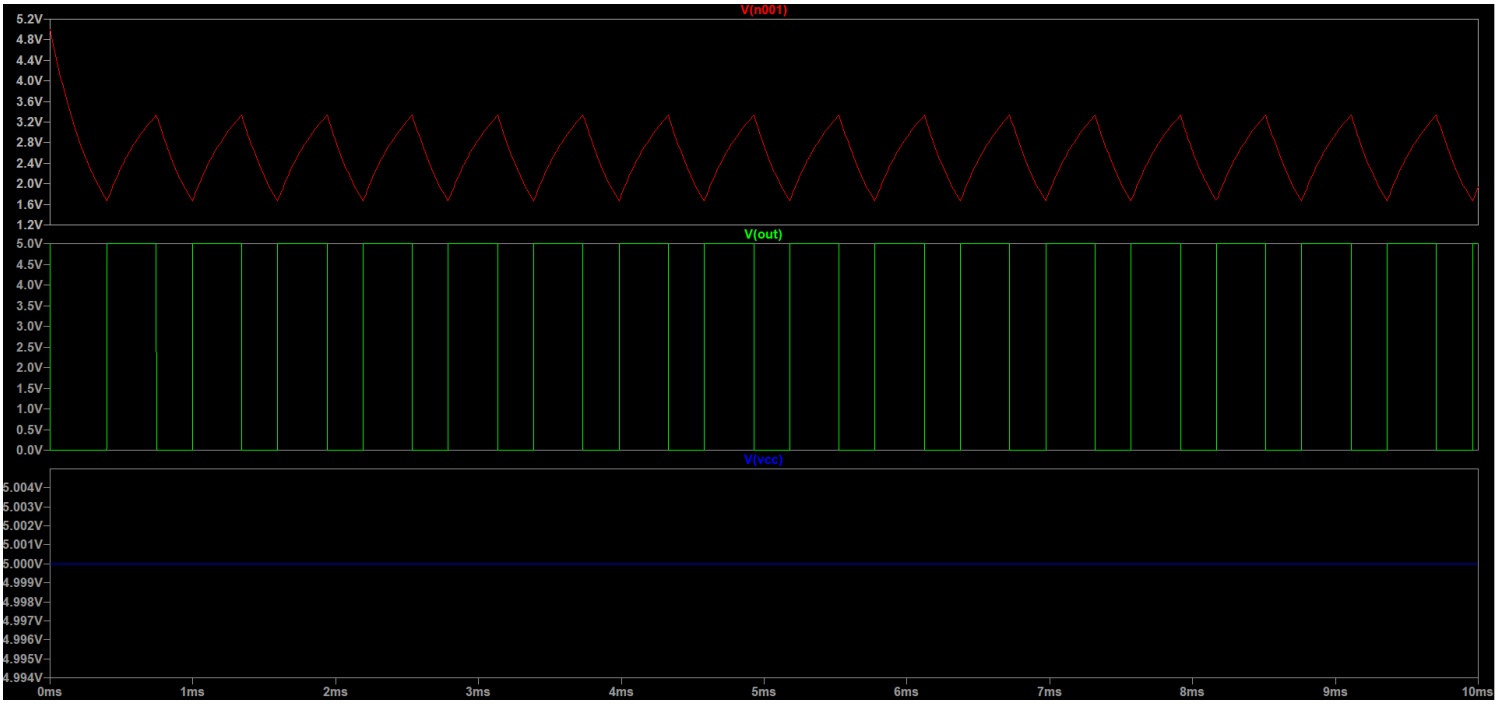

Figure 2 Simulation for Part 2

Frequency = 2kHz

Duty Cycle = 50 %

Therefore, Voltage changes 0.5ms in one time period

Part 3 :

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Running Monostable Multi-Vibrator which is negative edge – triggered and has a pulse of 1ms.

The pulse width duration $T_w = 1.1 (R * C)$, where C = 0.01 µF

R = 9.1 KΩ

Schematic

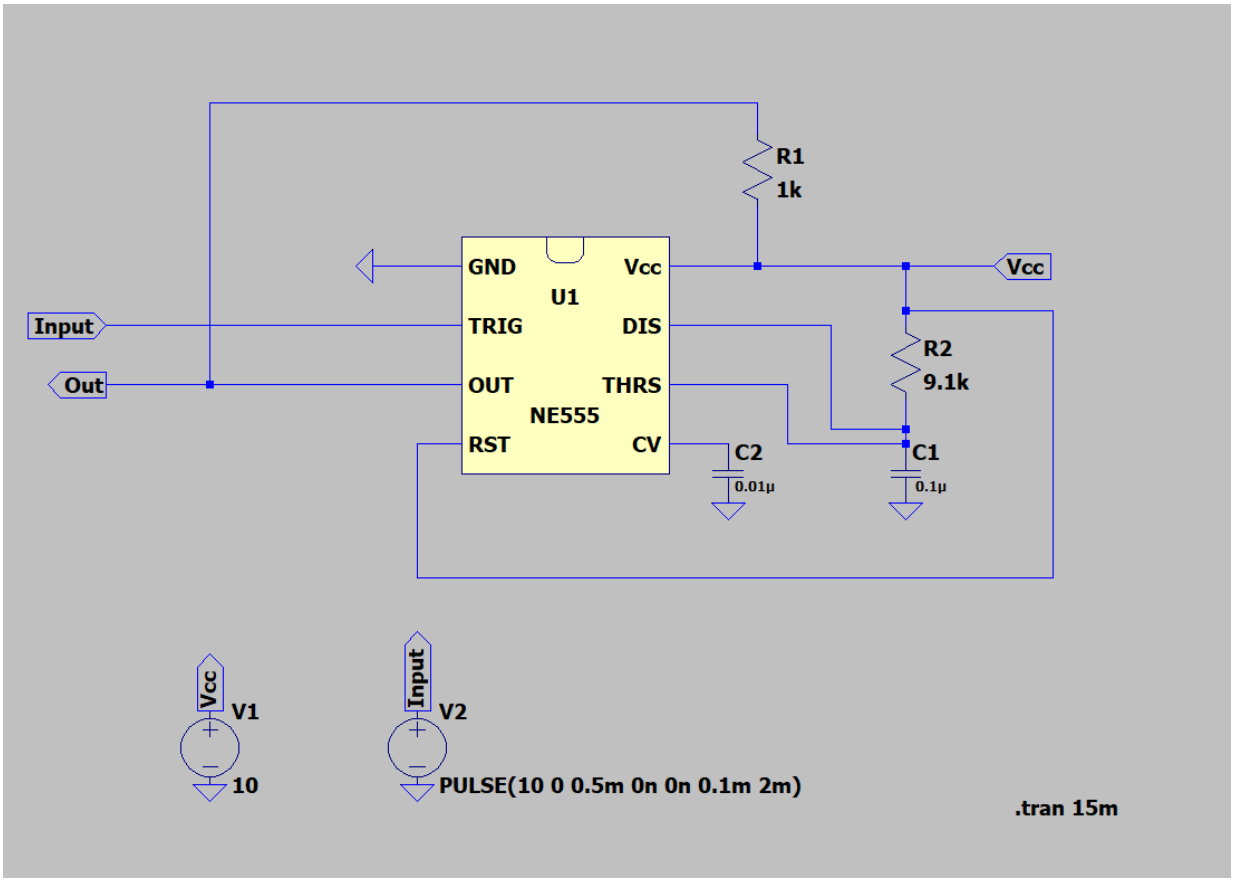

Figure 3 Schematic for Part 3

Simulation

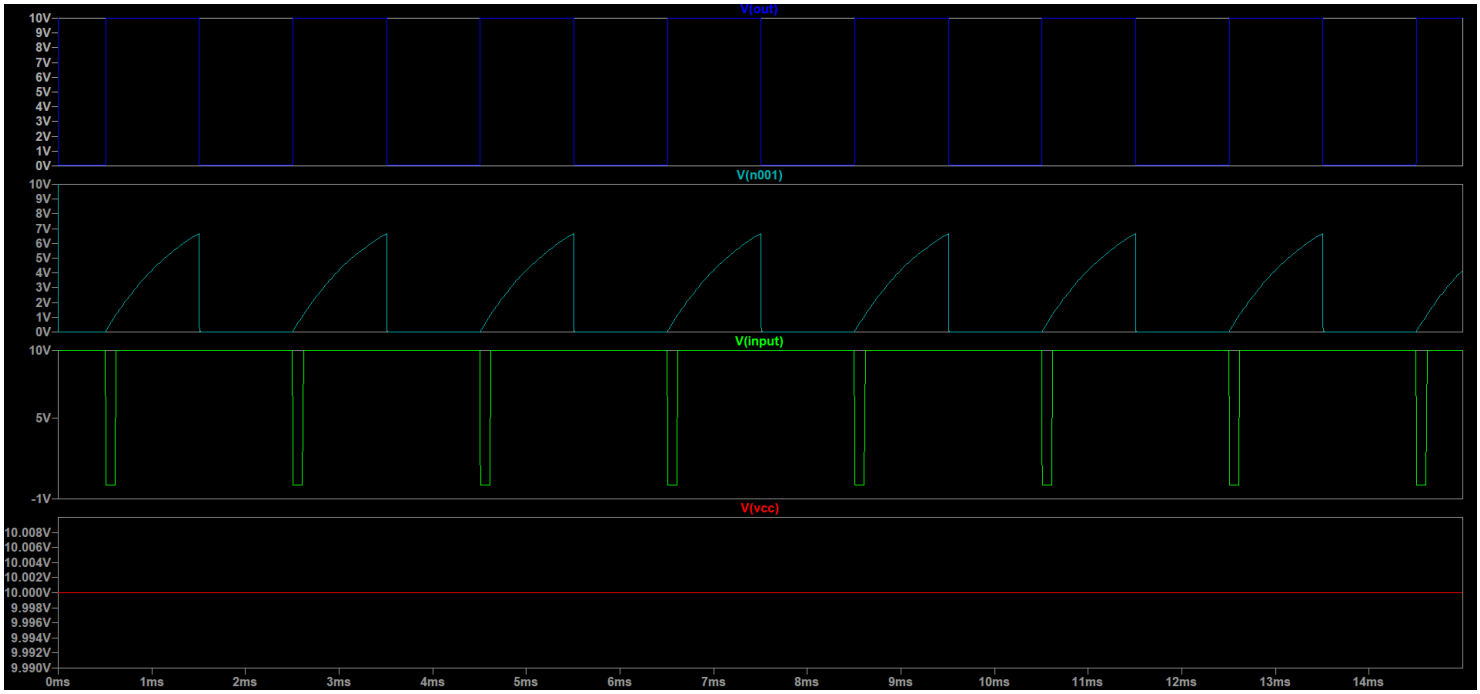

Figure 4 Simulation for Part 3