



Project 01

Building simple Astable using 555 IC



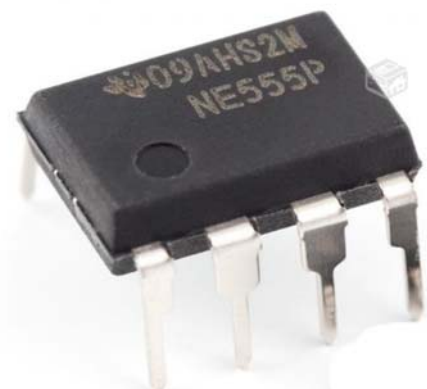
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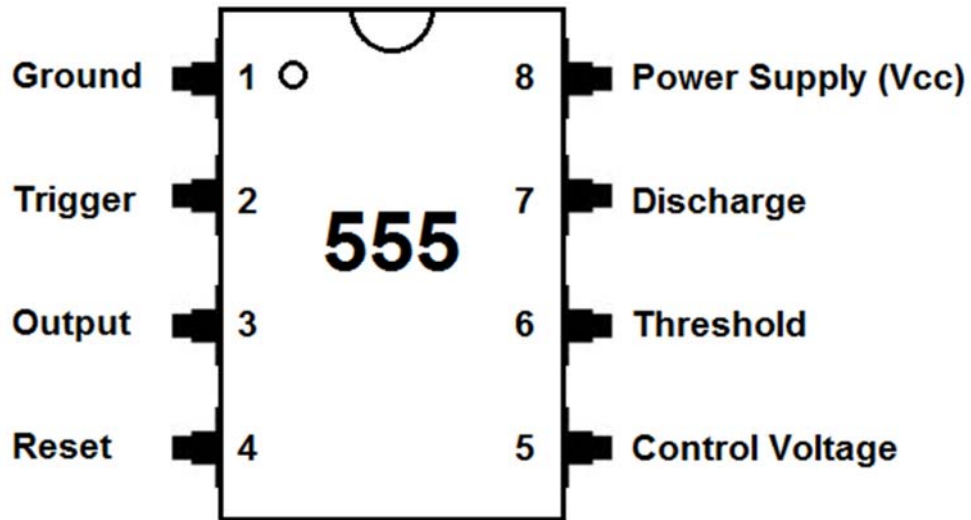
Dr. Ahmed ElShafee

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• Introduction

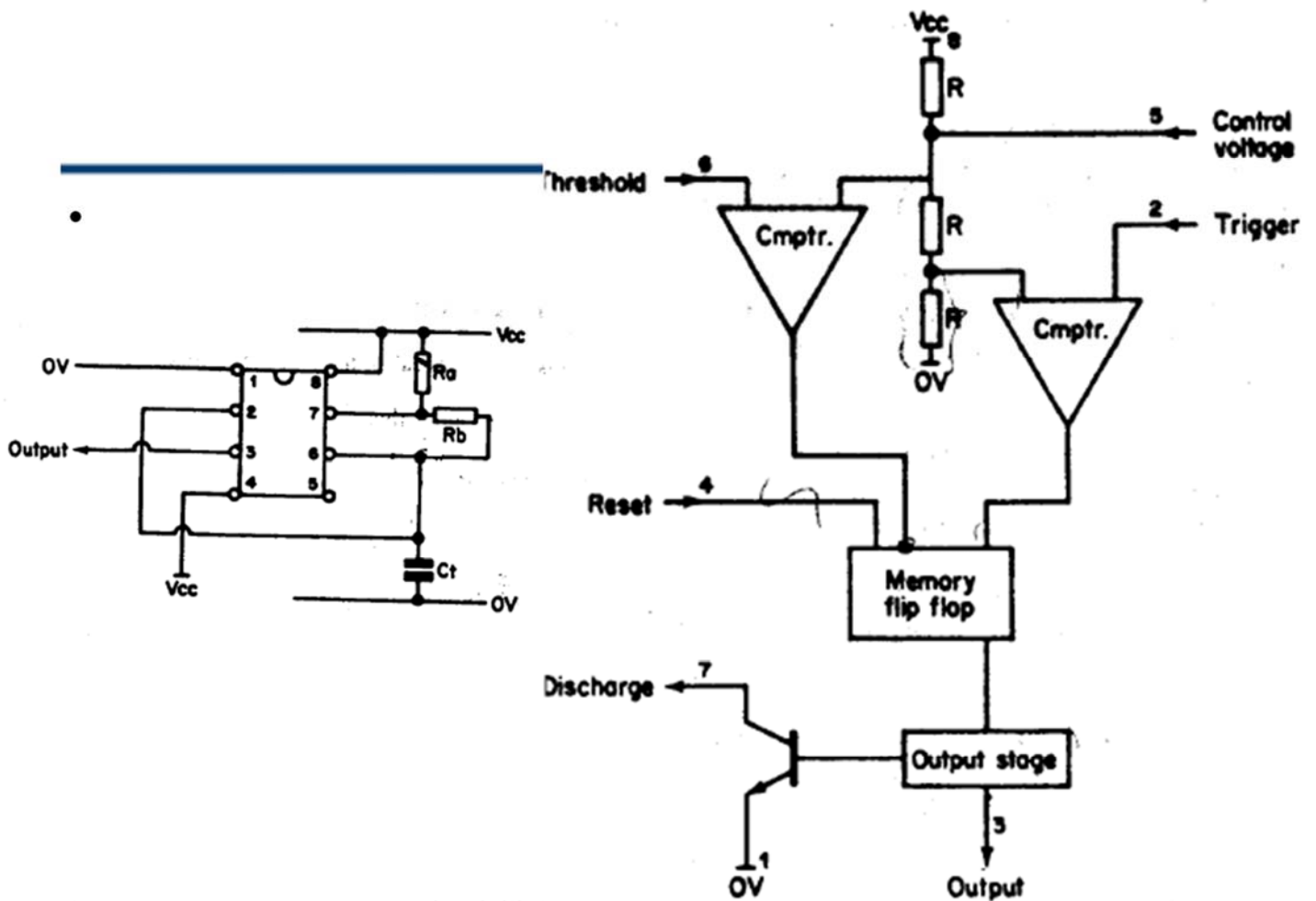
- A 555 Timer is an 8 pin mini dual-in-line package IC.
- The 555 IC is capable of producing accurate time delays and/or oscillations.
- Introduced in 1972 by SigNetics.(Signal Networks Electronics)
- The 555 is still in widespread use, thanks to its ease of use, low price, and good stability.





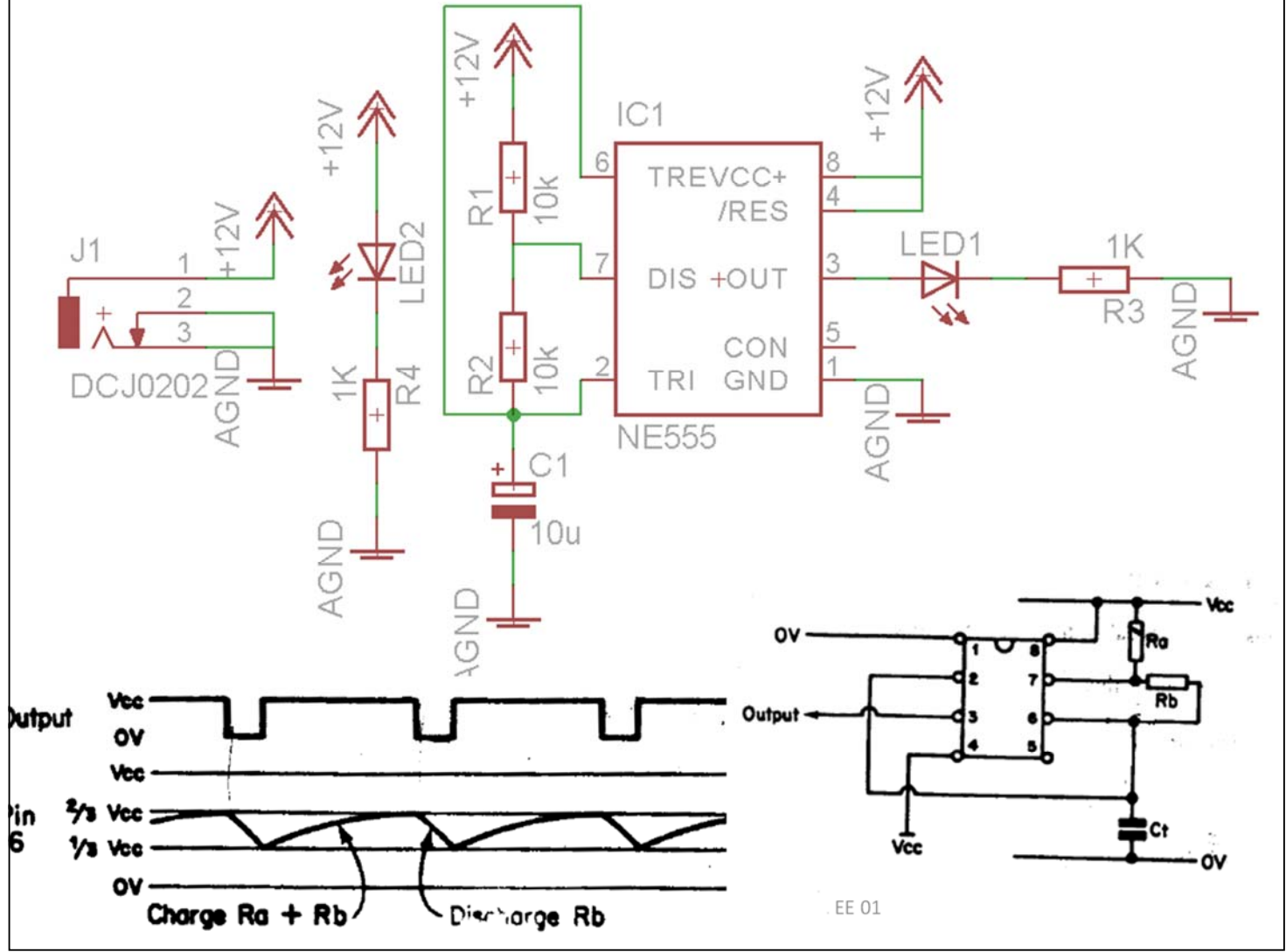
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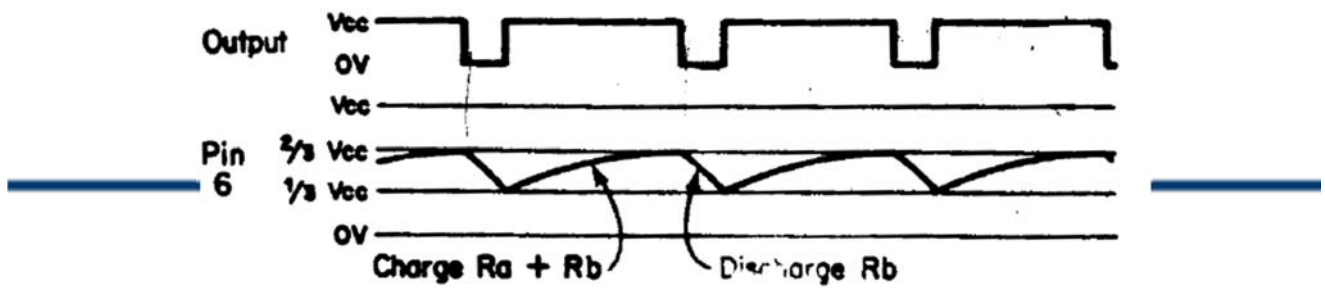
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Dr. Ahmed ElShaf



Astable Operation

- In astable operation, the trigger terminal and the threshold terminal are connected so that a self-trigger is formed, operating as a multivibrator. When the timer output is high, its internal discharging Transistor turns off and the VC1 increases by exponential function with the time constant $(R_A + R_B) \cdot C$. When the threshold voltage, reaches $2V_{cc}/3$, the comparator output on the trigger terminal becomes high, resetting the F/F and causing the timer output to become low.



The high period

$$T_1 = 0.7 (R_1 + R_2) C_t$$

The low period

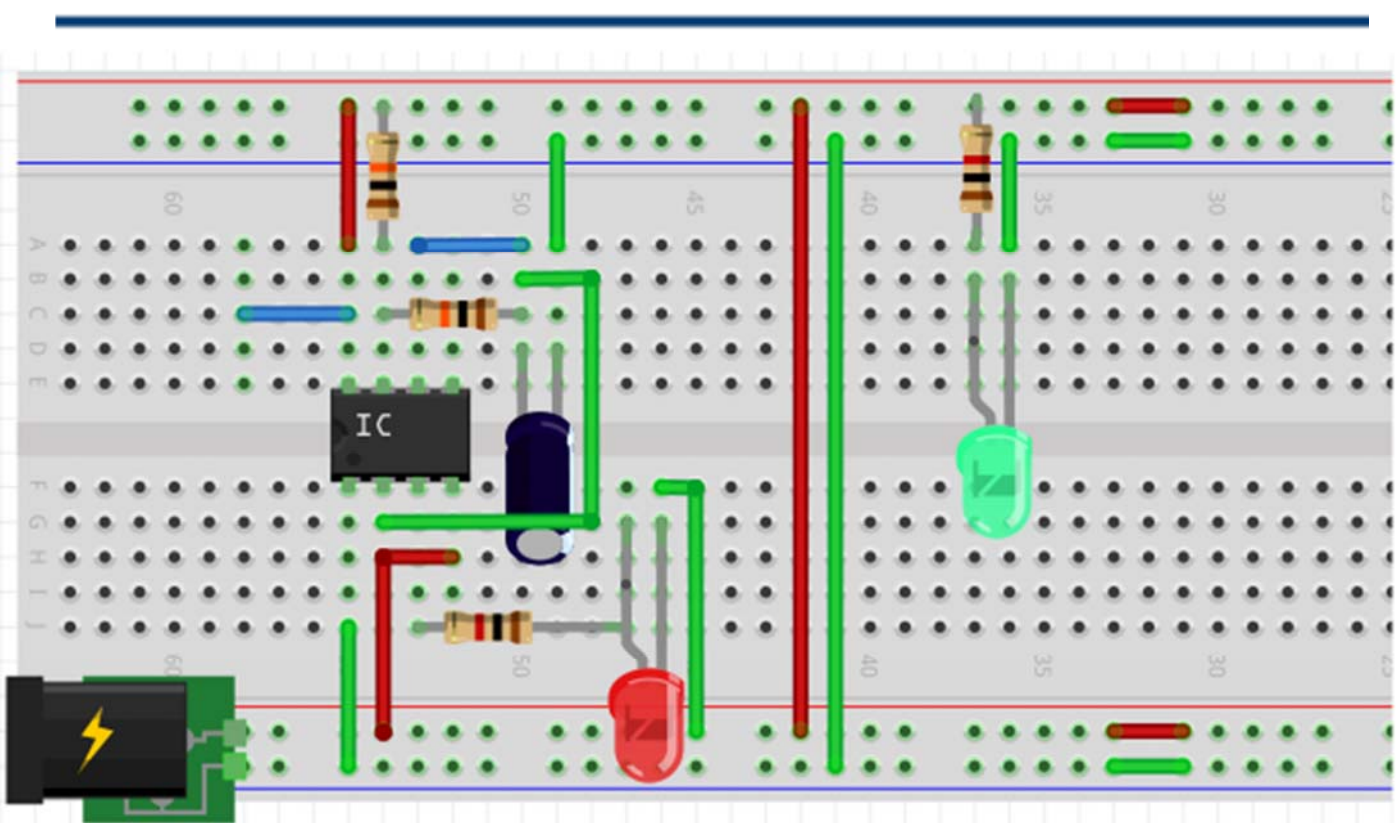
$$T_2 = 0.7 (R_2) C_t$$

The total period is

$$T = 0.7(R_1 + 2 R_2) C_t$$

The frequency is

$$f = \frac{1.45}{(R_1 + 2 R_2) C_t}$$





Thanks,..
See you next week (ISA),...

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