PACE EE Class Lab Report

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Title: Build a Simple LED Flasher

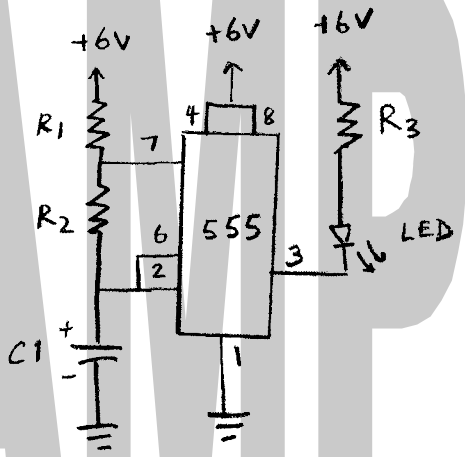
Purpose

Build a circuit that causes an LED to flash periodically.

Parts List

1 555 IC (integrated circuit)
Resistors: R1 – 4.7 kΩ,
R2 – 10 kΩ
R3 – 1 kΩ
Capcitors: C1 – 10 µF
1 LED

Configuration



Procedure

Built the above circuit. When the power is turned on the LED flashes about 3 times a second.

Going further: Replaced C1 with a 100 µF capacitor. The LED in this case flashed about once every 2 seconds (1/2 times per second). The amount of time the LED was on for each flash was also much longer. Then replaced C1 with a 470 µF capacitor. The LED in this case flashed about once every 8 seconds (1/8 times per second).

Added the buzzer to the circuit as illustrated below. The buzzer went off in sync with the LED flash.

Analysis and Conclusion

Learned about electronic circuit elements, how to build them, and how to test them. Observed that the capacitor controls the rate and duration of flashes. A higher capacitance causes longer flashes and a lower flash rate.