

Blink an LED with a 555 Timer, No Microcontroller

Mokxi · one-page lesson plan

OBJECTIVE

Build a 555 astable that blinks an LED with two resistors and a capacitor, no code at all, and switch its rate live while it runs.

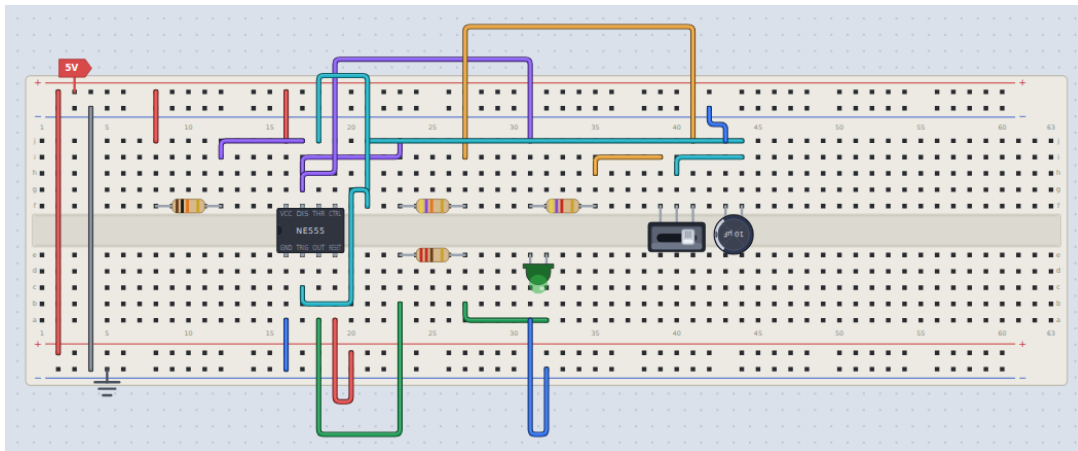
WHAT YOU NEED

Full-size breadboard, Power supply, Ground, Resistor (4), NE555 timer, Slide switch, Capacitor, LED

STEPS

- The parts, and the two resistors doing the timing — R1, 10 kilohms, always sits in the charging path.
- How the astable actually oscillates — The capacitor charges toward the supply through R1 and R2 together.
- The one microcontroller detail worth knowing anyway — RESET, pin 4, is wired straight to the supply here because nothing in this circuit ever needs to stop the osc...
- When to reach for this instead of a microcontroller — A 555 blinker is not a smaller version of an Arduino sketch; it is a genuinely different tool for the same vi...

THE CIRCUIT



ASSESSMENT IDEA

Have the student choose new R and C values for a target blink rate with $f = 1.44 / ((R1 + 2 R2) C)$, build it, and compare the measured rate against the prediction.

<https://mokxi.com/learn/ne555-led-blinker>