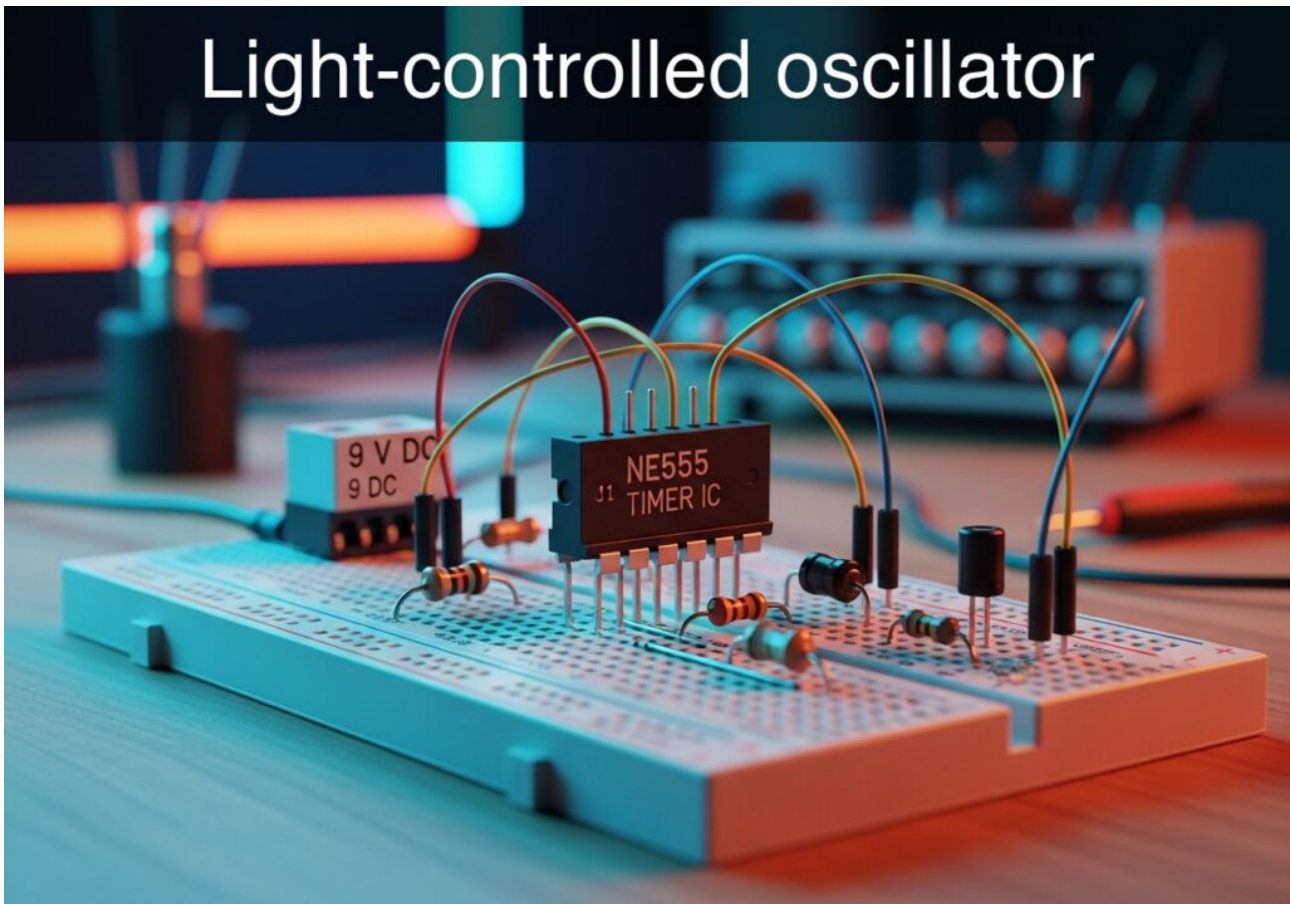


Practical case: Light-controlled oscillator



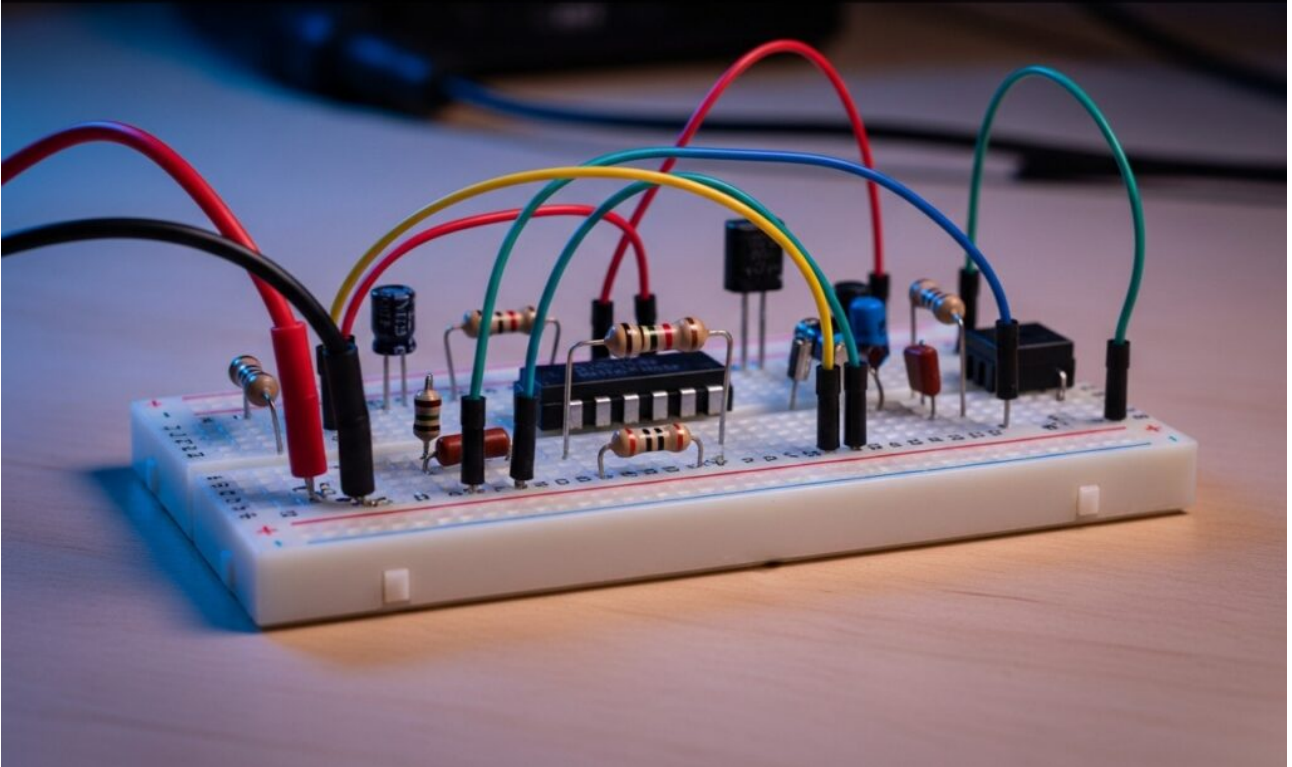
Level: Medium. Design an astable NE555 oscillator where an LDR modulates the output frequency based on ambient light.

Objective and use case

In this...

Practical case: Current measurement with shunt

Current measurement with shunt

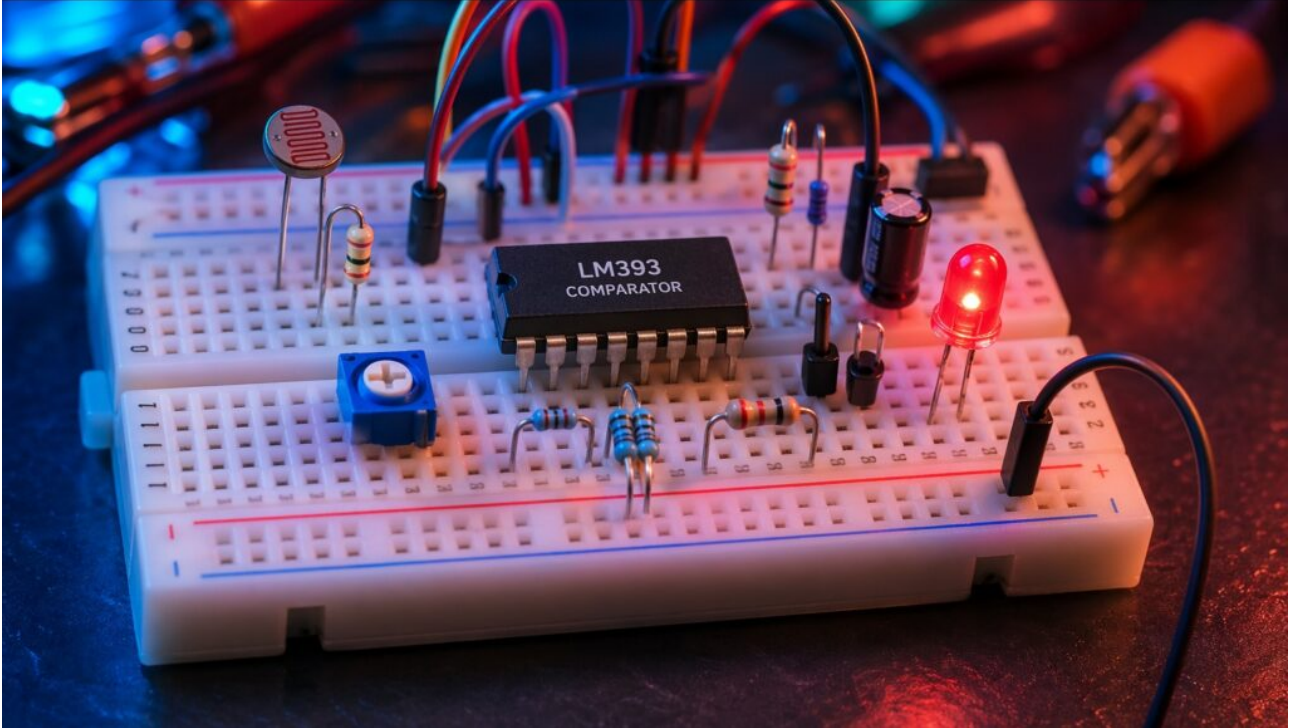


Level: Medium - Use a very low-value resistor to indirectly measure a DC load's current via voltage drop.

Objective and use case
You will build a direct...

Practical case: Shadow detector for visual alert

Shadow detector for visual alert



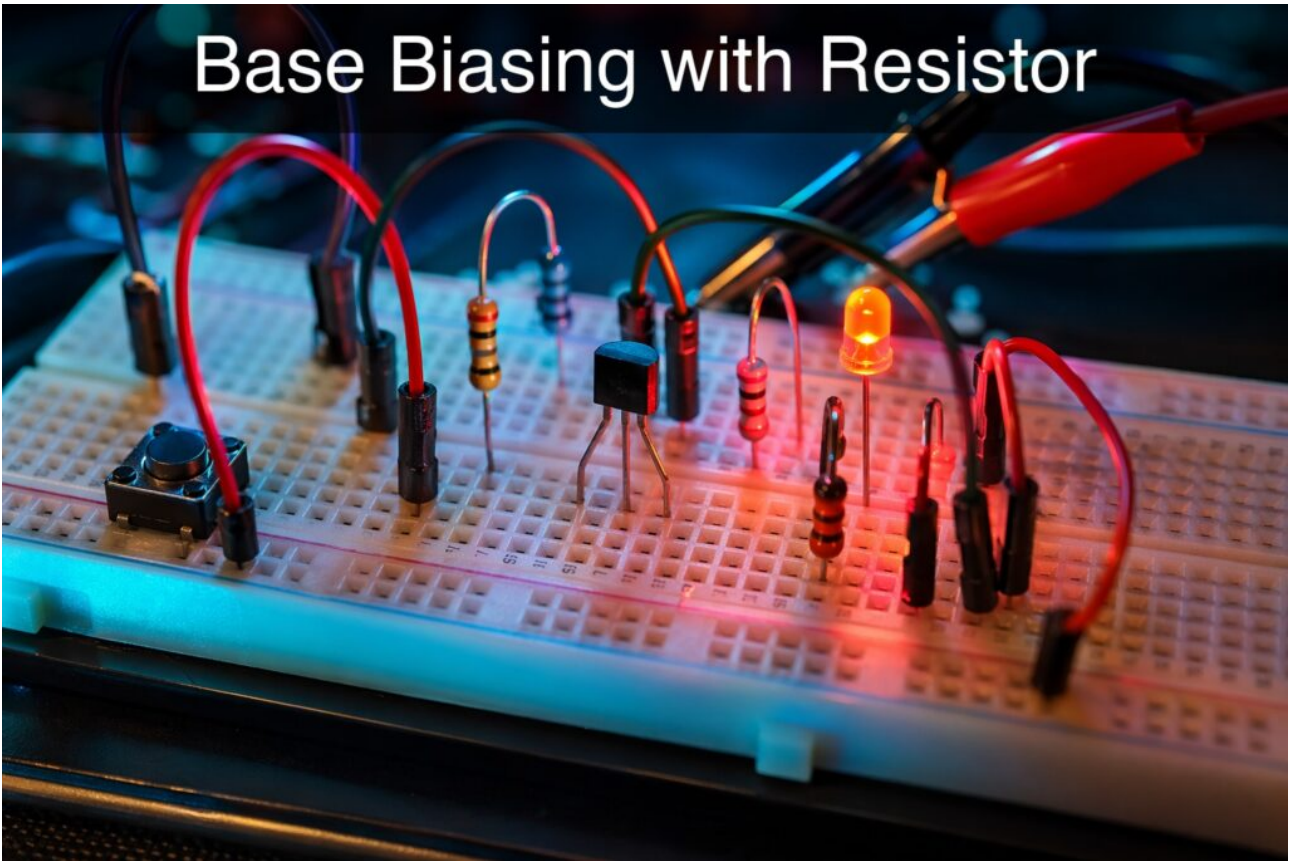
Level: Medium — Build a stable shadow detector with visual indication and low false triggering.

Objective and use case

You will build a...

Practical case: Base Biasing with Resistor

Base Biasing with Resistor



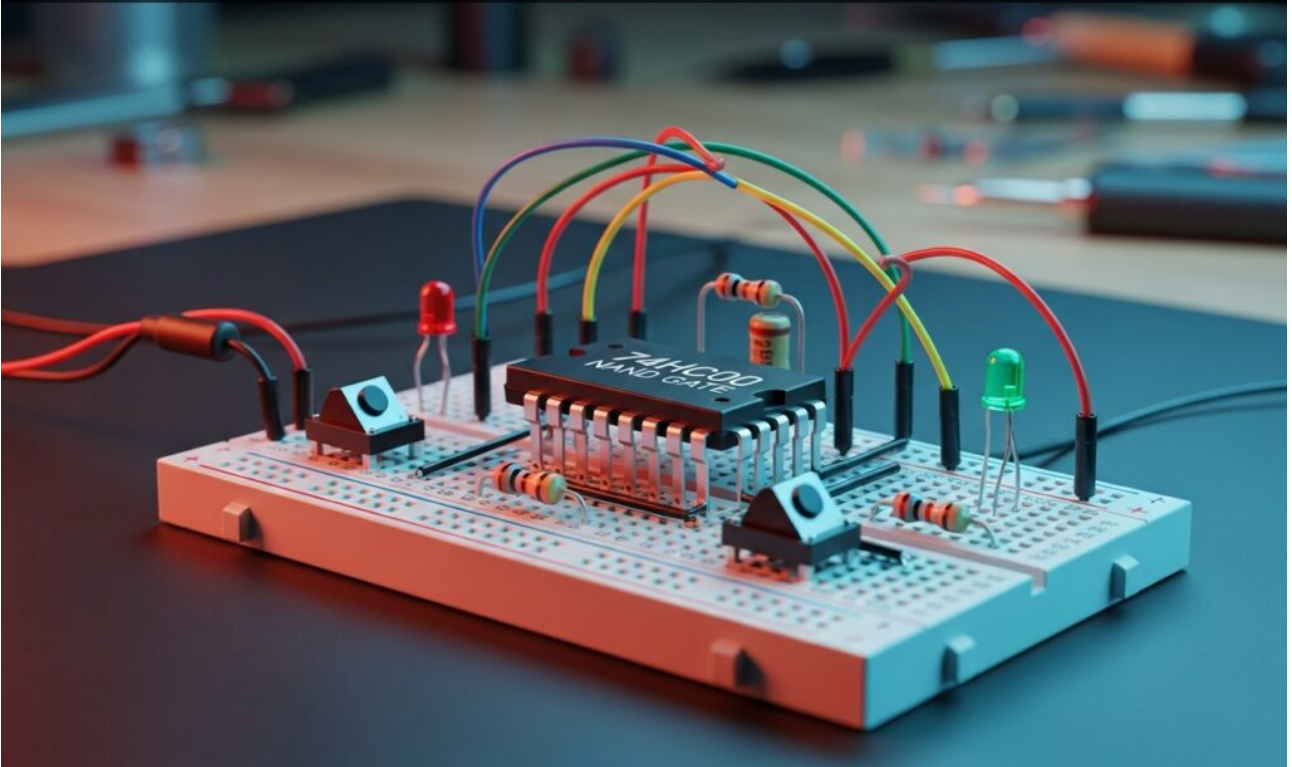
Level: Medium — Calculate and verify a base resistor to switch an NPN transistor safely from a logic output.

Objective and use case

You will build a...

Practical case: Light switching from two points

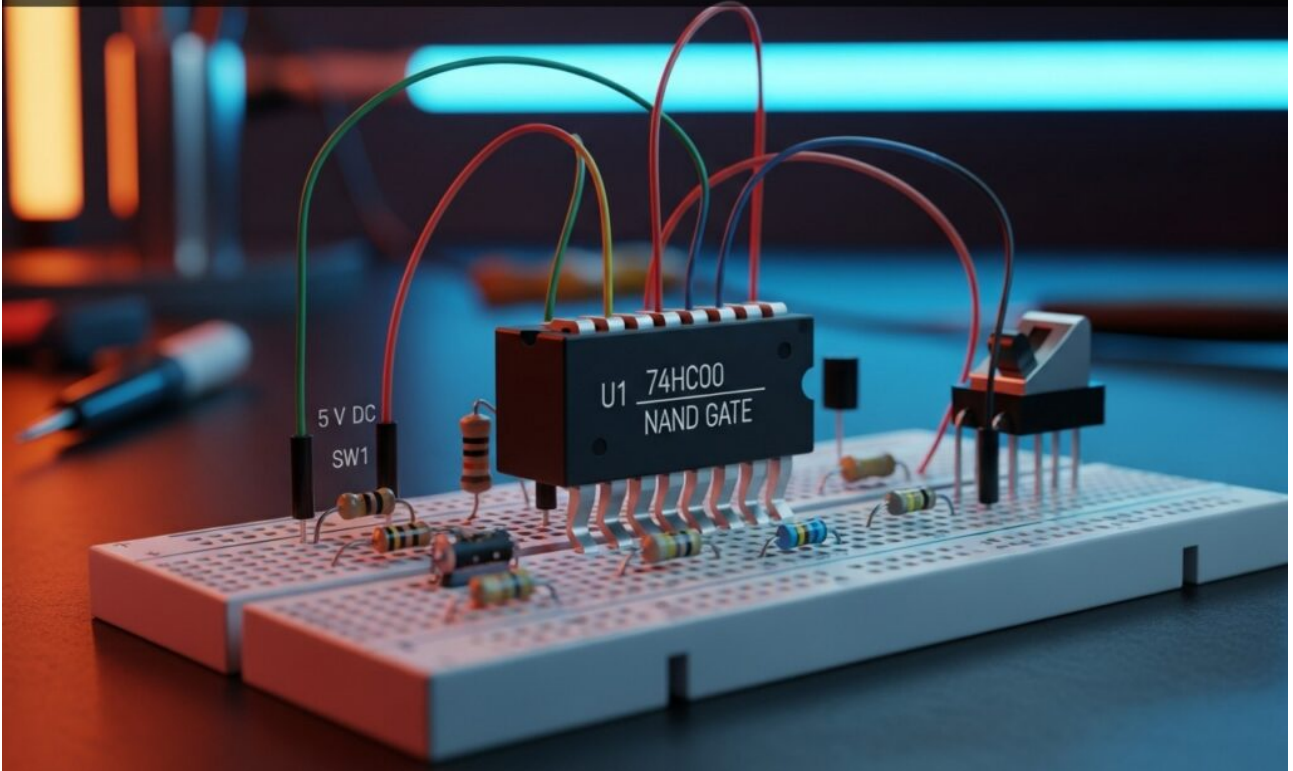
Light switching from two points



Master Digital Electronics by building a 2-way switch using the universal NAND gate. Synthesize XOR logic to toggle LED states based on dual input signals.

Practical case: Debouncing SR Latch with NAND

Debouncing SR Latch with NAND



Master Digital Electronics by building a NAND gate SR latch to eliminate switch noise. Ensure clean signals and verify stable memory states with LEDs.