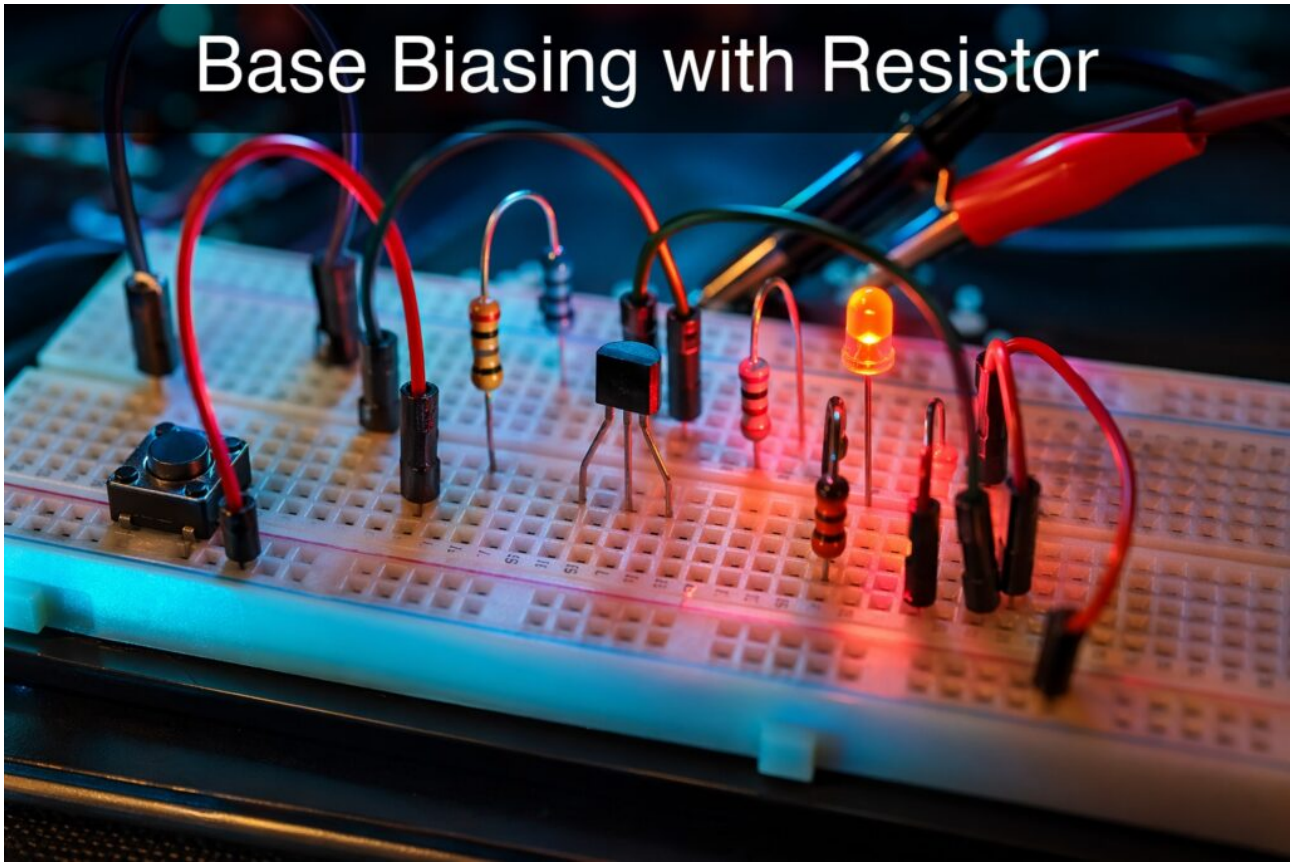
Practical case: Base Biasing with Resistor

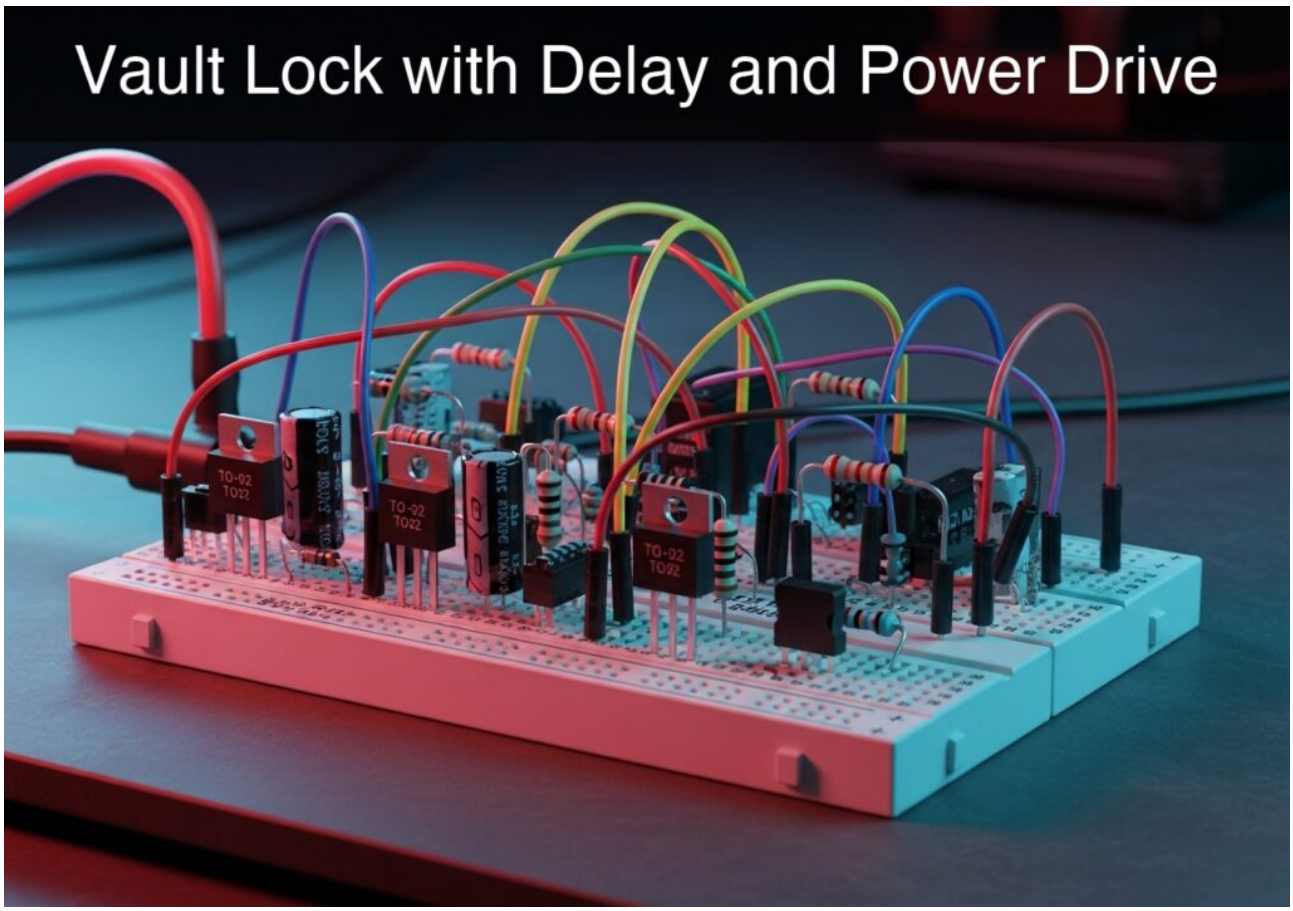


Level: Medium — Calculate and verify a base resistor to switch an NPN transistor safely from a logic output.

Objective and use case

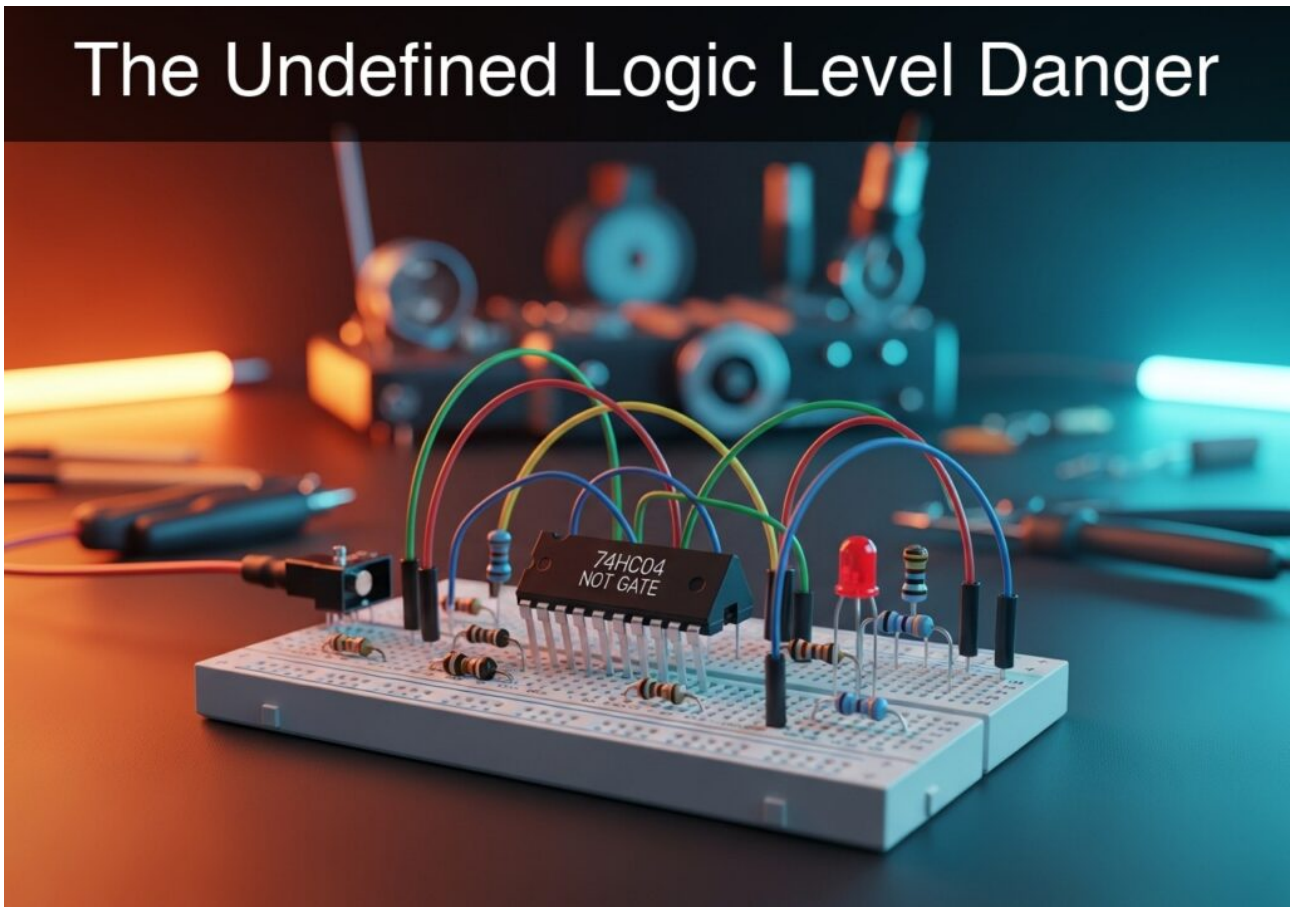
You will build a…

Practical case: Vault Lock with Delay and Power Drive



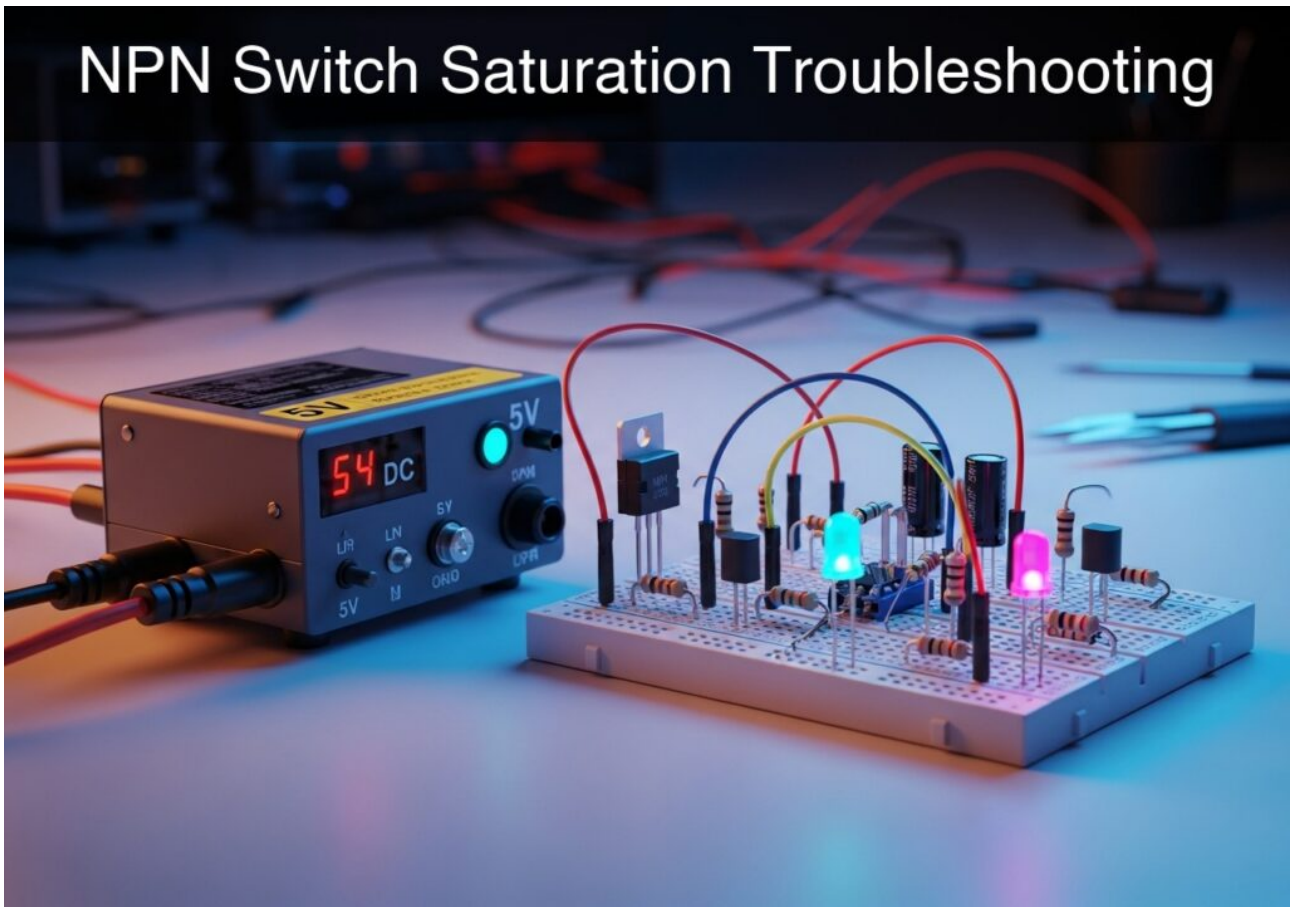
Master Analog Electronics by building a secure lock. Use a Transistor circuit to trigger a solenoid only when two keys turn, holding the signal for 5 seconds.

Practical case: The Undefined Logic Level Danger



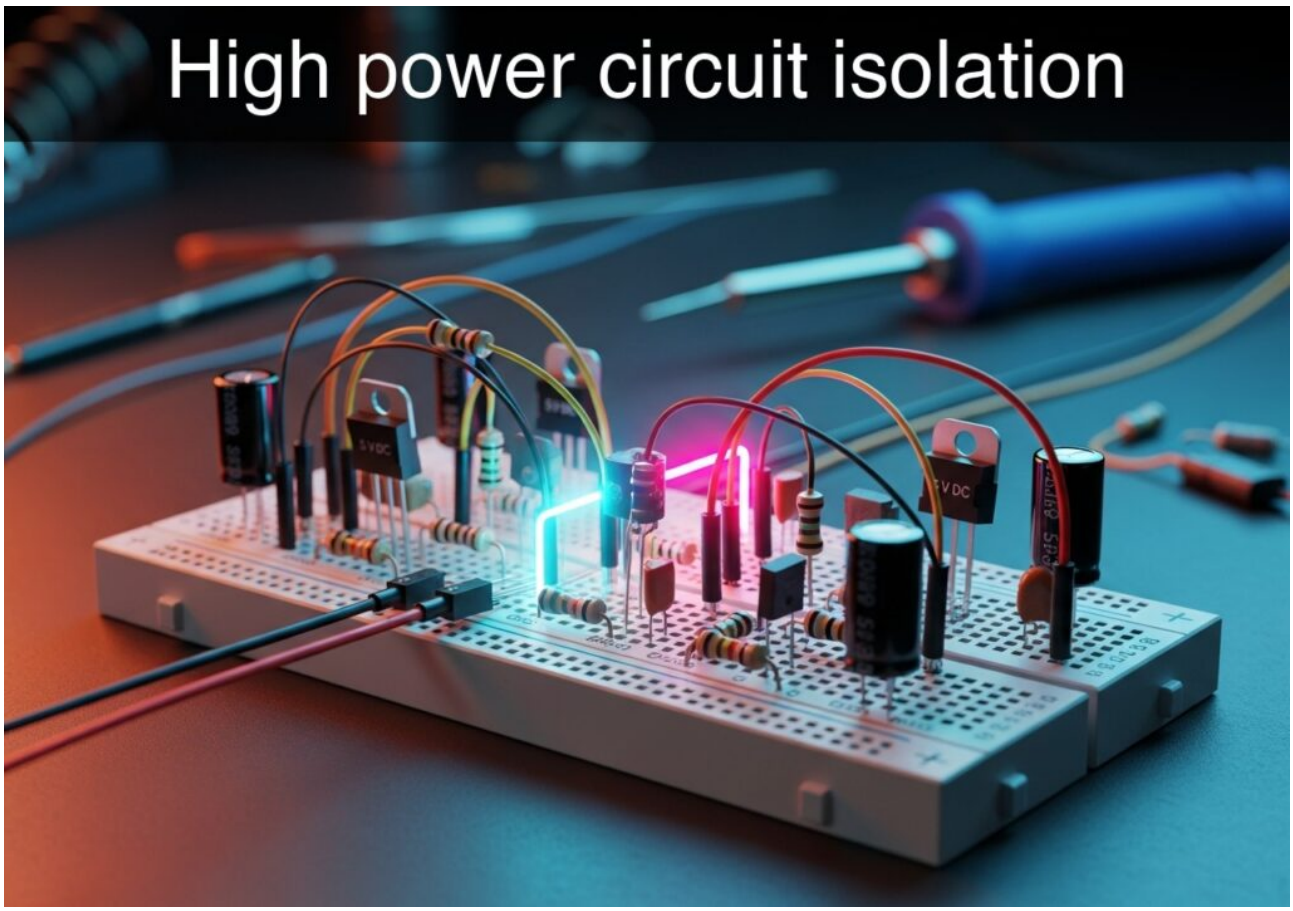
Master Analog Electronics by analyzing unstable logic states. Learn how internal Transistor behavior causes shoot-through current and flickering LED outputs.

Practical case: NPN Switch Saturation Troubleshooting



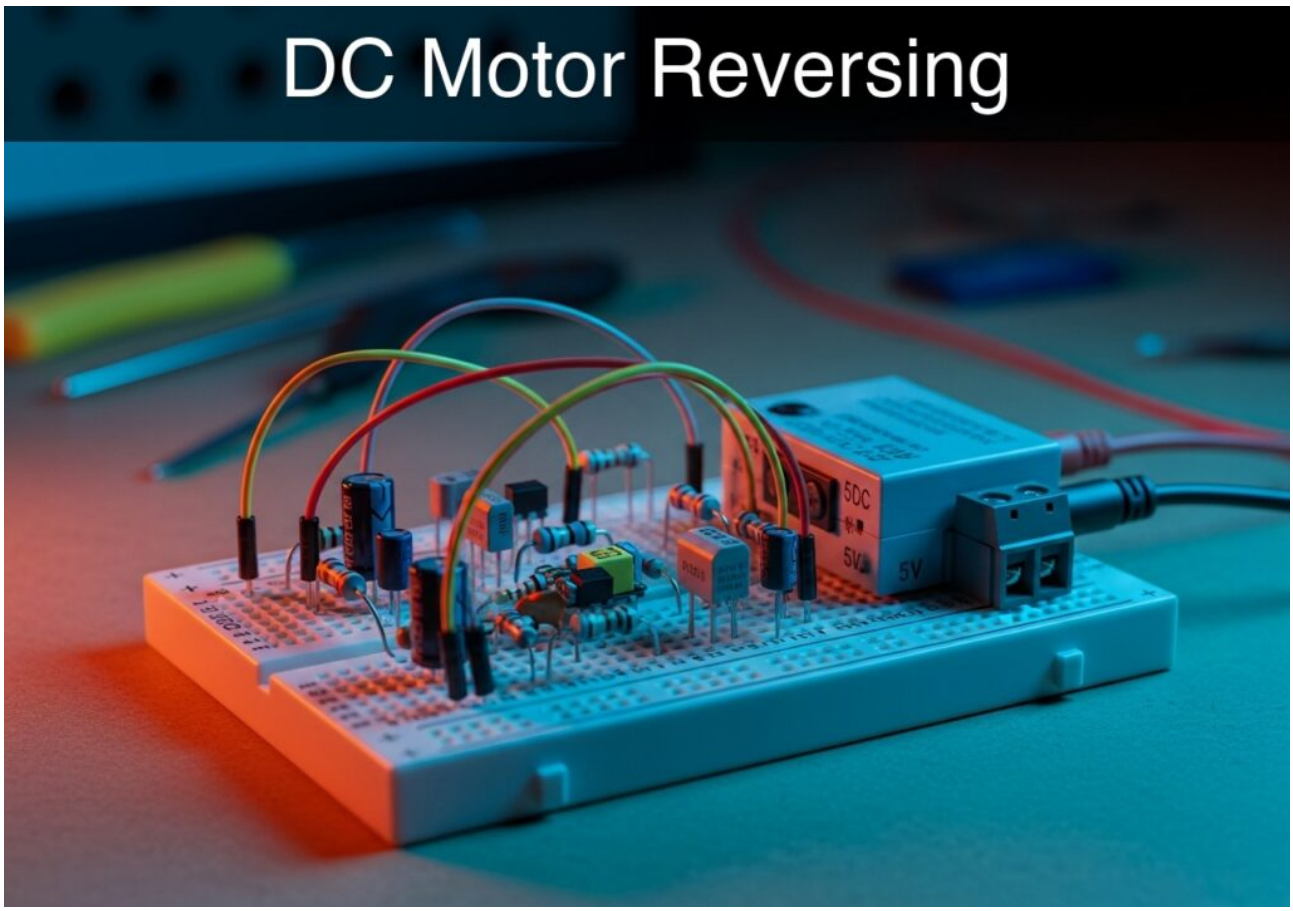
Master Analog Electronics by fixing a flawed NPN Transistor switch. Diagnose dim LEDs and high Vce voltage, then correct bias to achieve full saturation.

Practical case: High power circuit isolation



Master Analog Electronics by building a Relay driver circuit. Learn to safely switch high-power loads with low-voltage signals and verify galvanic isolation.

Practical case: DC Motor Reversing



Master Analog Electronics by building a Relay H-bridge to control DC motor direction. Learn to switch polarity for clockwise spin, reverse motion, and braking.