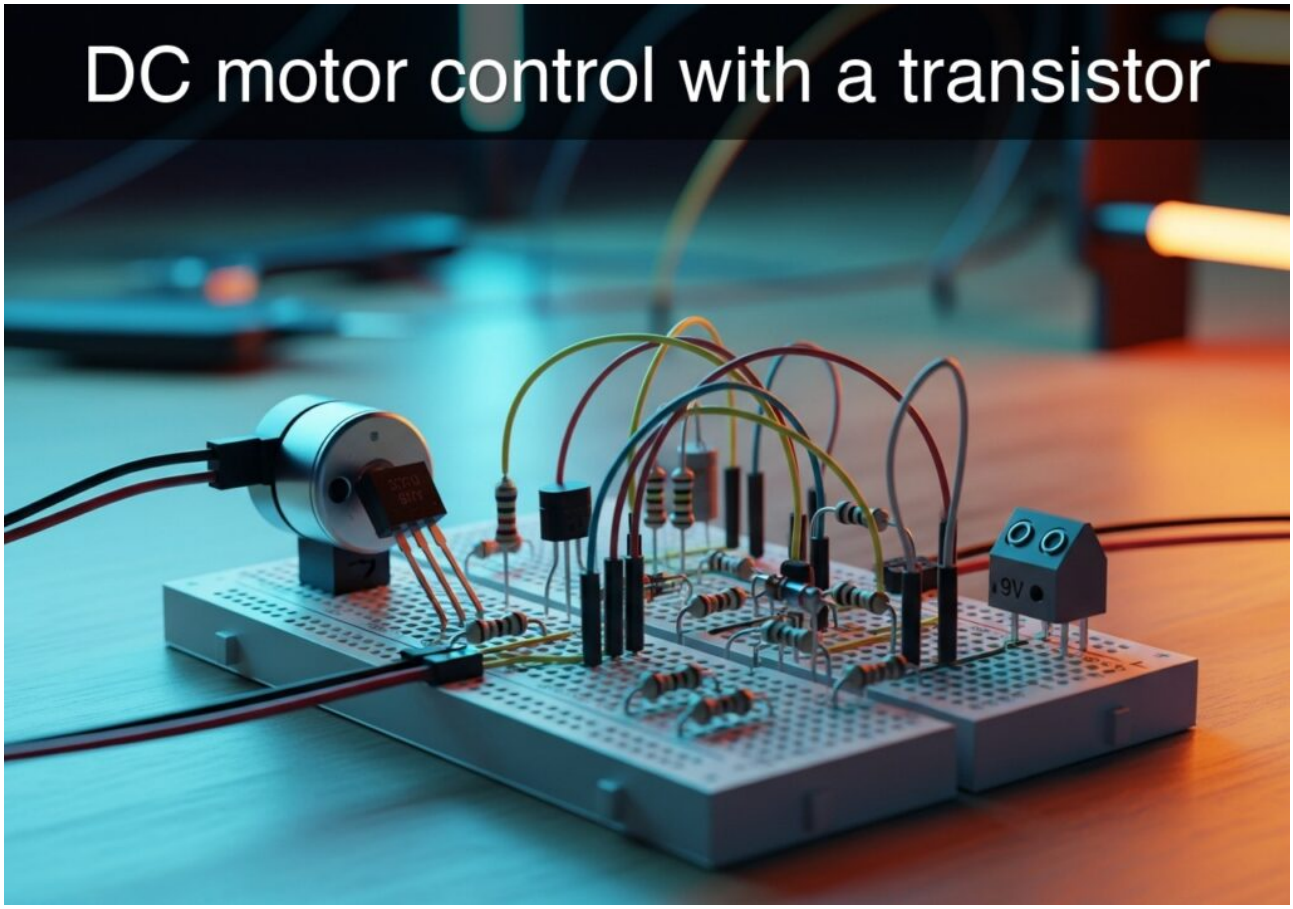
Practical case: DC motor control with a transistor

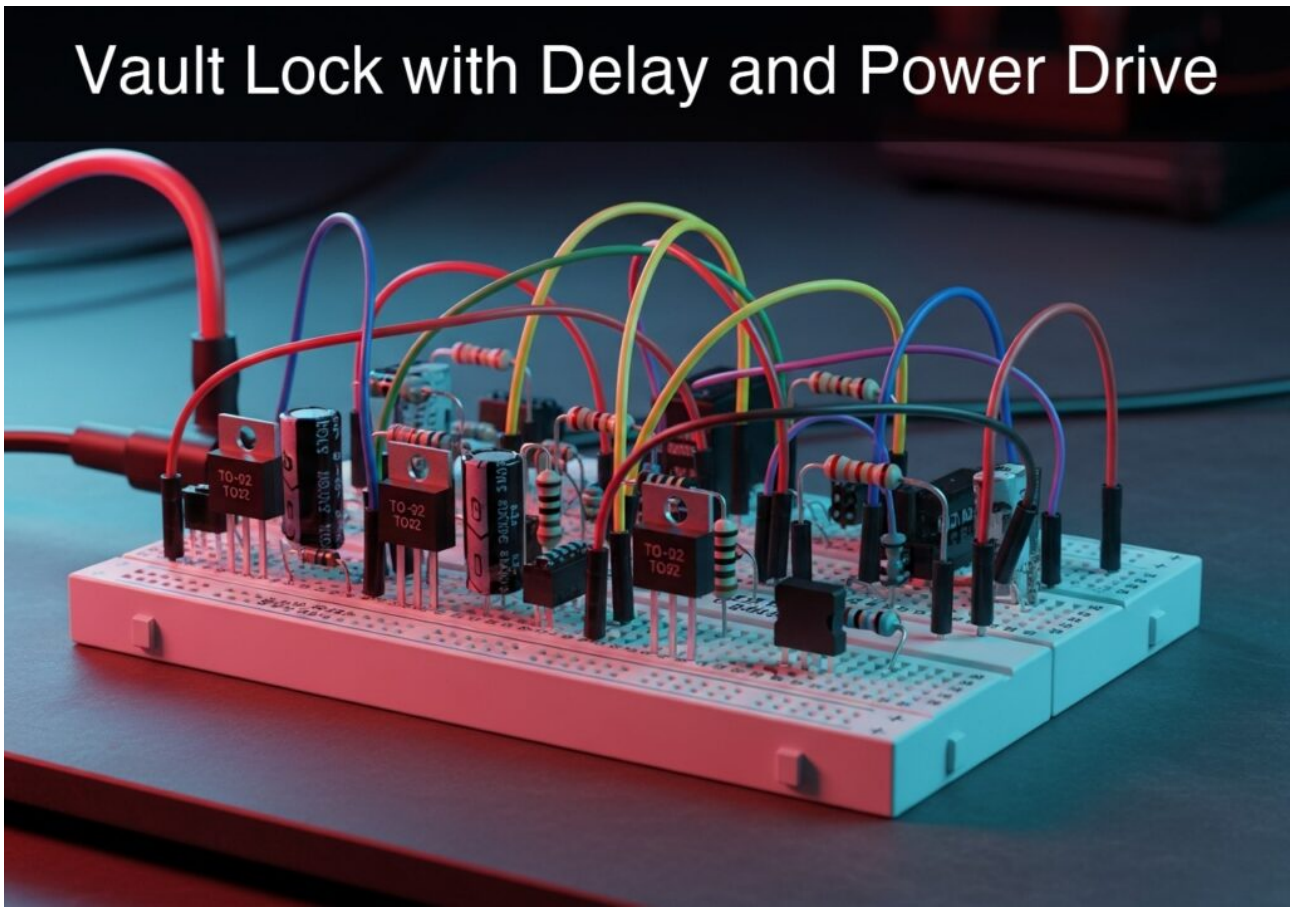


Level: Basic – Learn to use an NPN transistor as a switch to drive a DC motor, including the use of a flyback diode.

Objective and use case

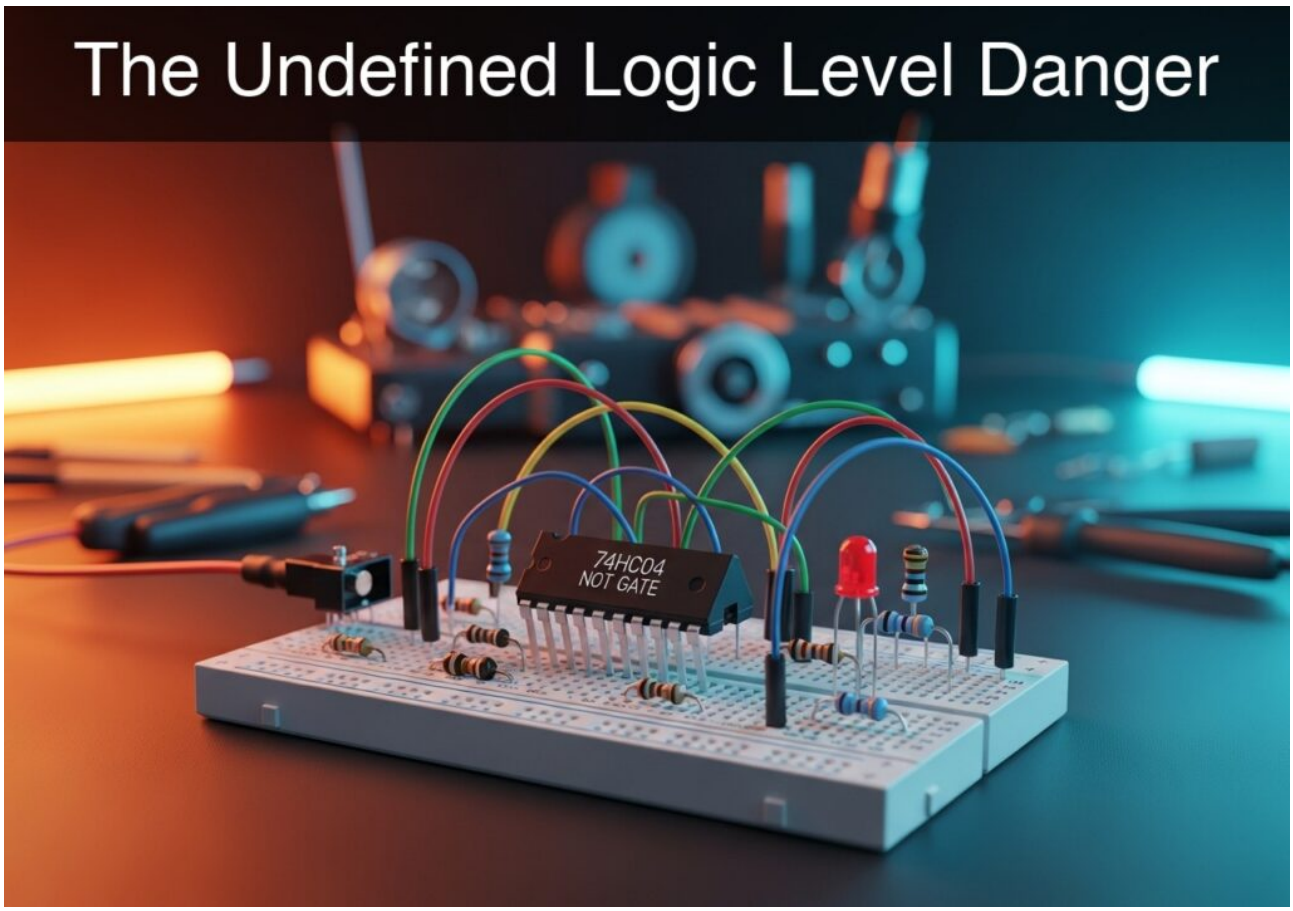
In this…

Practical case: Vault Lock with Delay and Power Drive



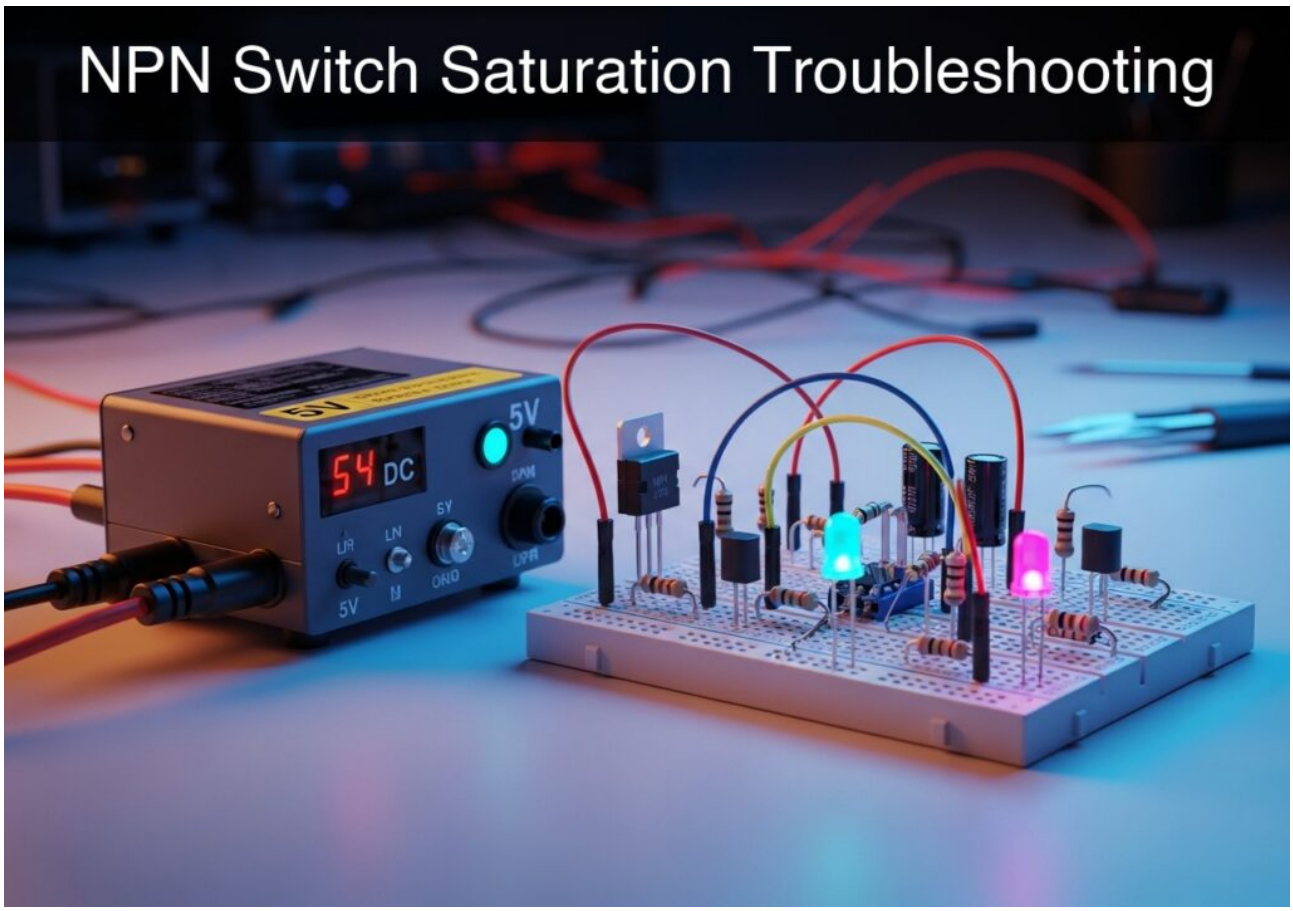
Master Analog Electronics by building a secure lock. Use a Transistor circuit to trigger a solenoid only when two keys turn, holding the signal for 5 seconds.

Practical case: The Undefined Logic Level Danger



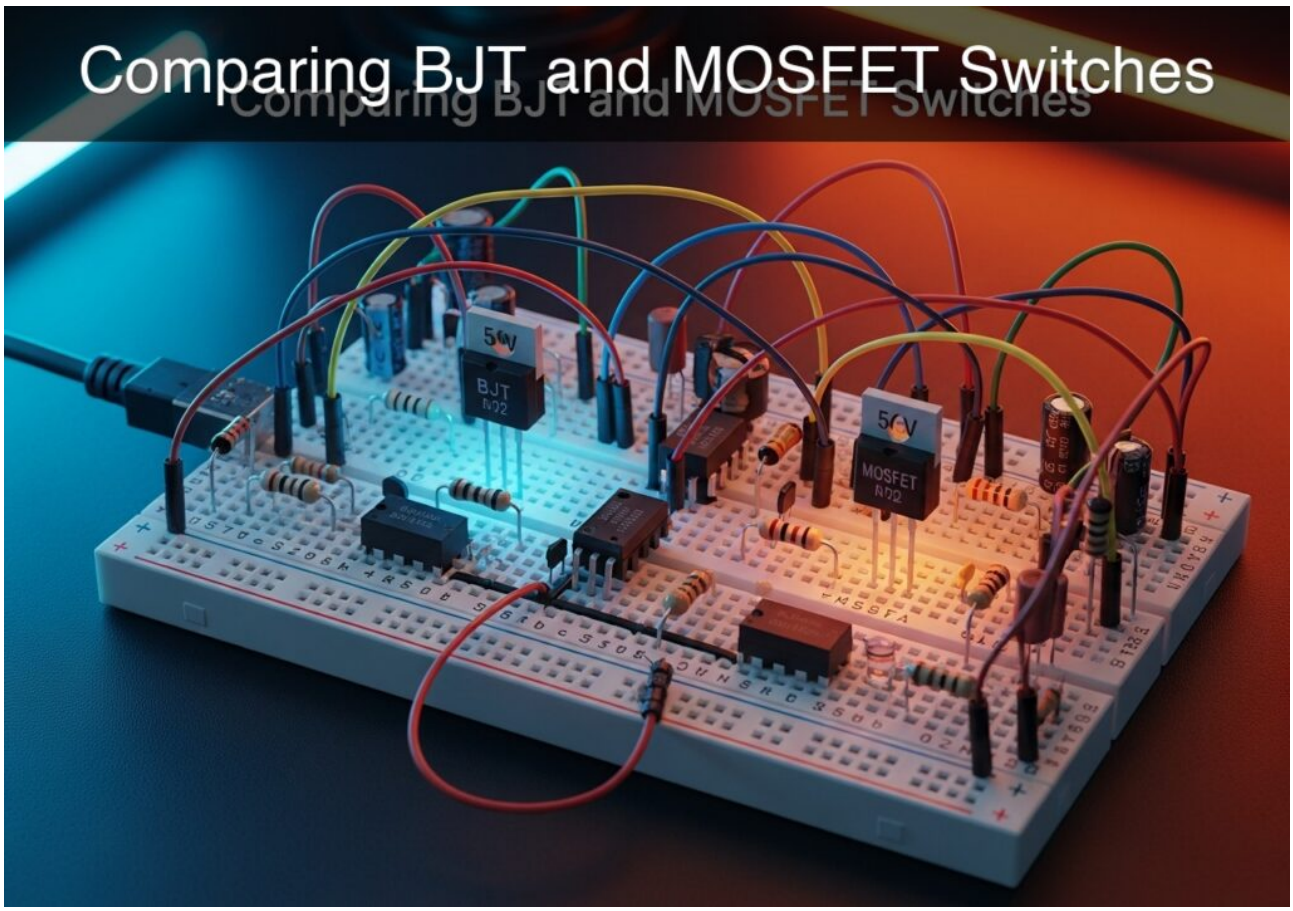
Master Analog Electronics by analyzing unstable logic states. Learn how internal Transistor behavior causes shoot-through current and flickering LED outputs.

Practical case: NPN Switch Saturation Troubleshooting



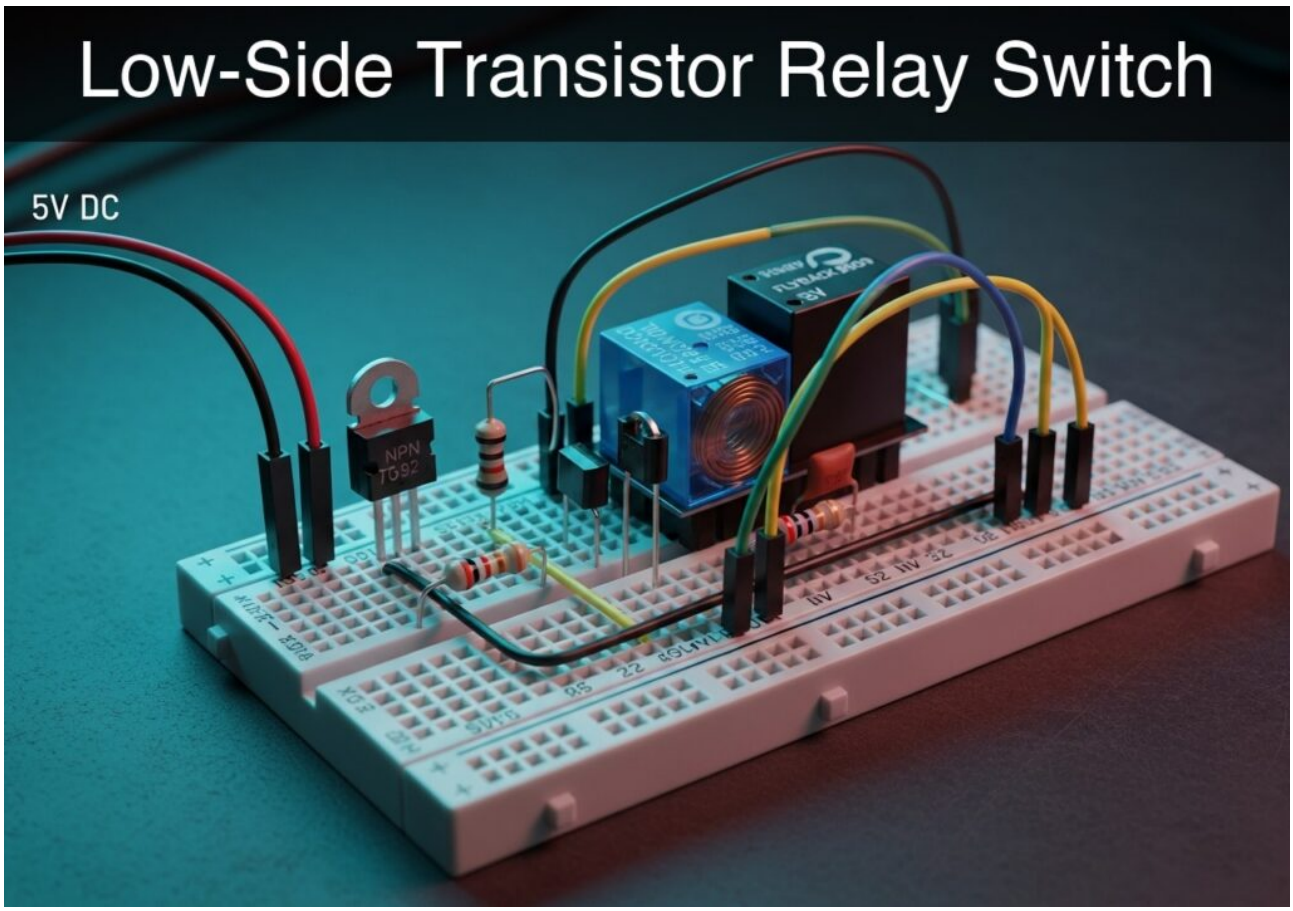
Master Analog Electronics by fixing a flawed NPN Transistor switch. Diagnose dim LEDs and high Vce voltage, then correct bias to achieve full saturation.

Practical case: Comparing BJT and MOSFET Switches



Master Analog Electronics by building two Transistor switching circuits. Compare BJT and MOSFET efficiency by measuring real input currents and voltage drops.

Practical case: Low-Side Transistor Relay Switch



Master Analog Electronics by building a relay driver circuit. Use an NPN Transistor to safely switch high-voltage loads and protect logic chips from spikes.