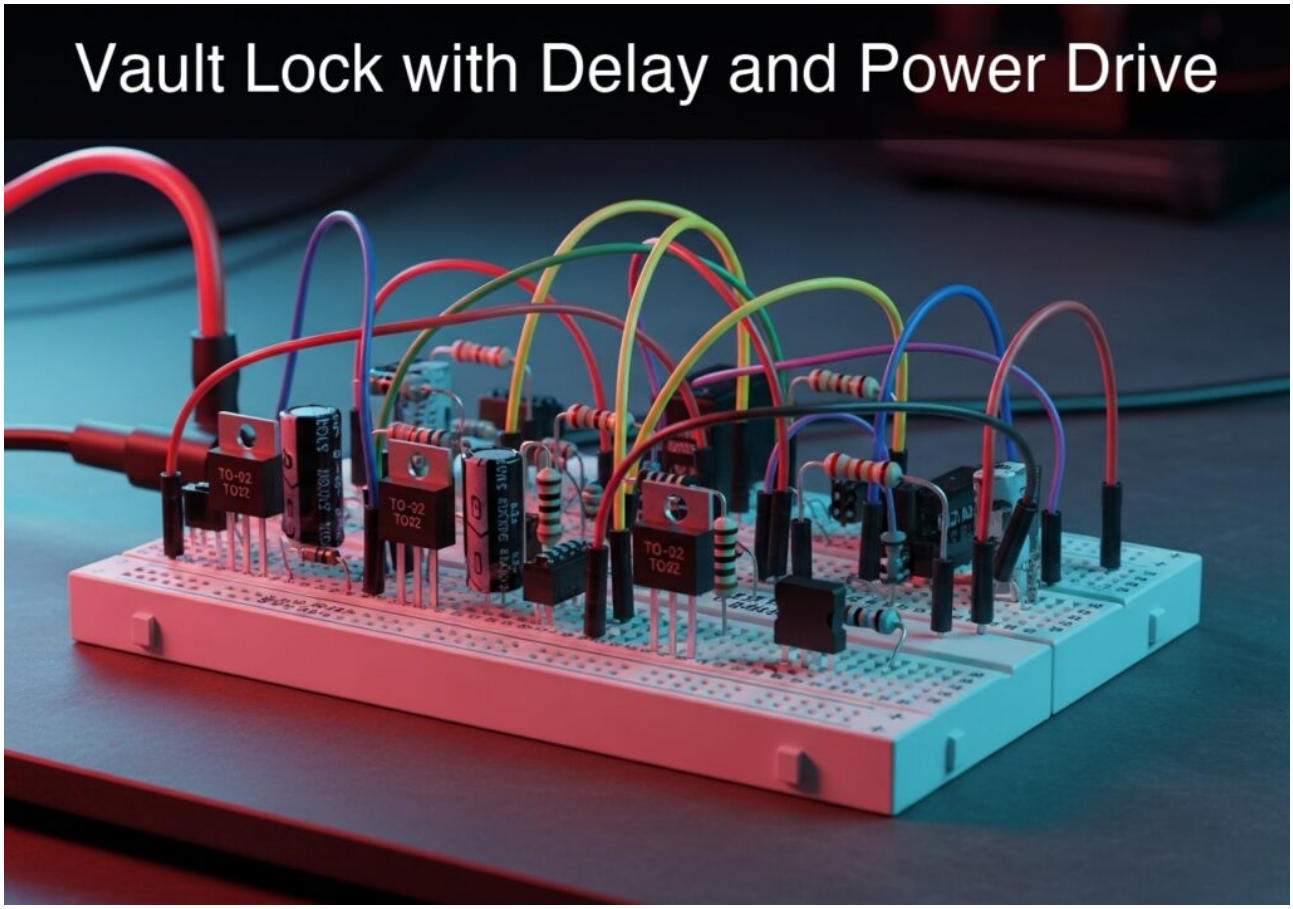
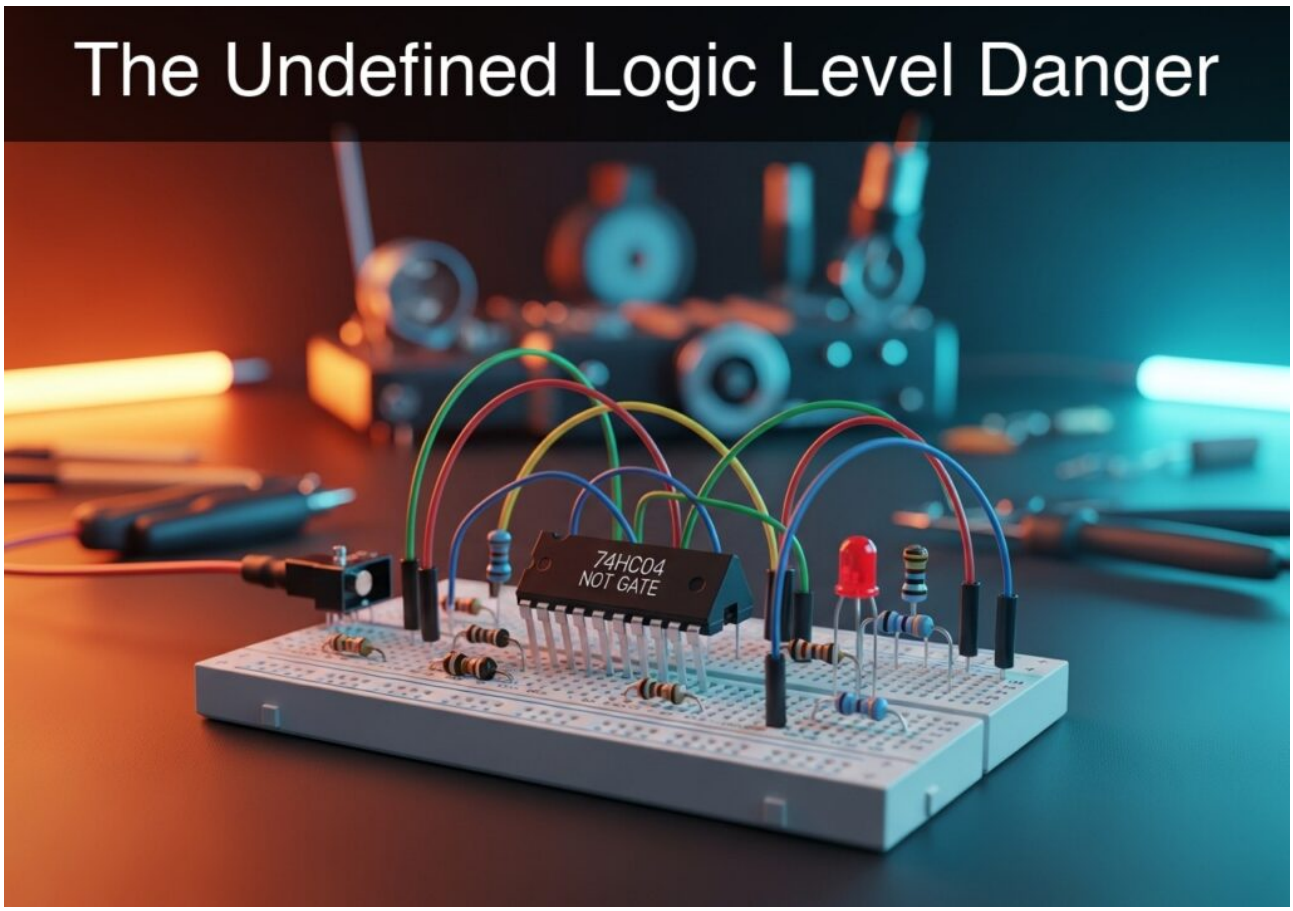
Practical case: Vault Lock with Delay and Power Drive



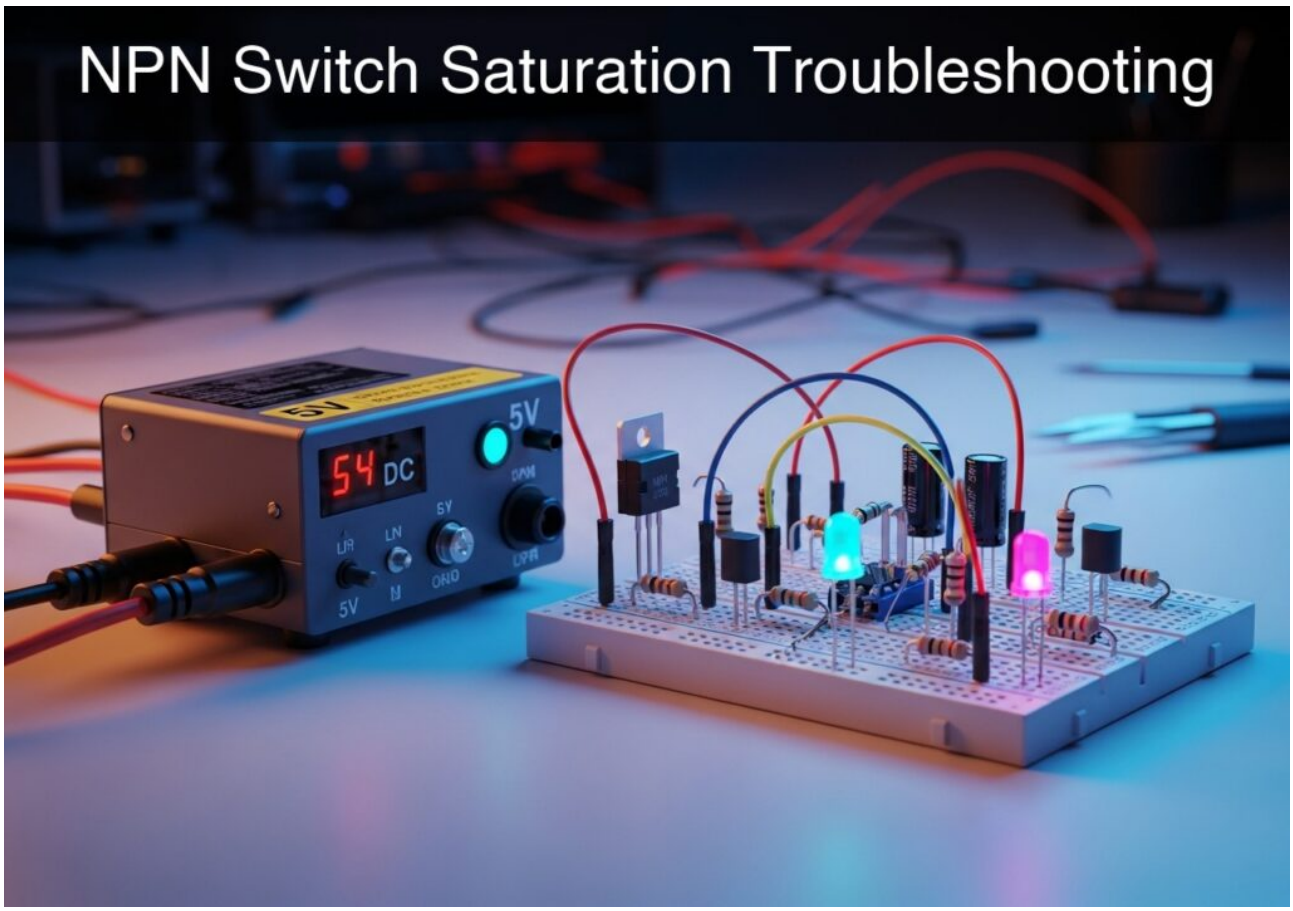
Master Analog Electronics by building a secure lock. Use a Transistor circuit to trigger a solenoid only when two keys turn, holding the signal for 5 seconds.

Practical case: The Undefined Logic Level Danger



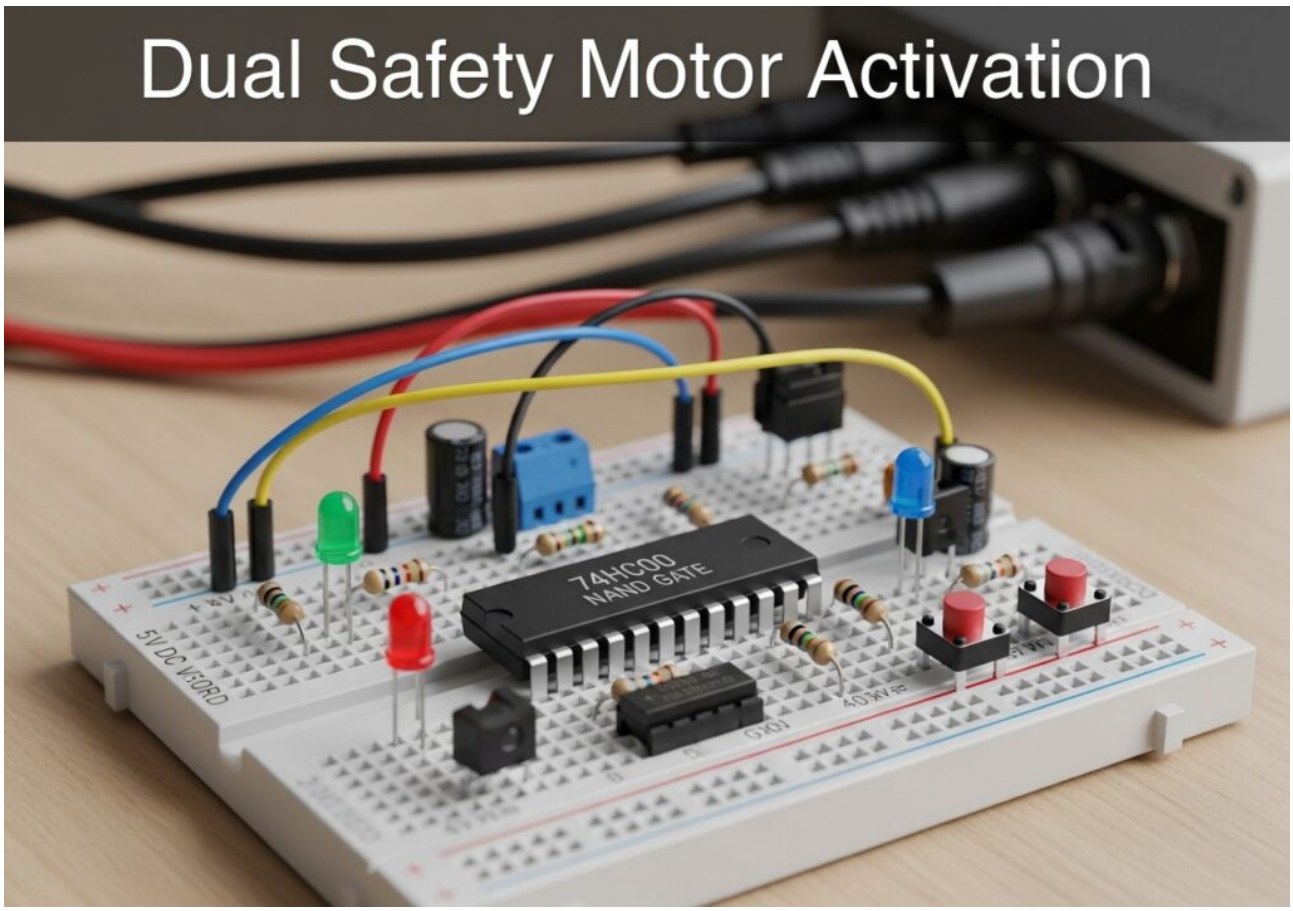
Master Analog Electronics by analyzing unstable logic states. Learn how internal Transistor behavior causes shoot-through current and flickering LED outputs.

Practical case: NPN Switch Saturation Troubleshooting



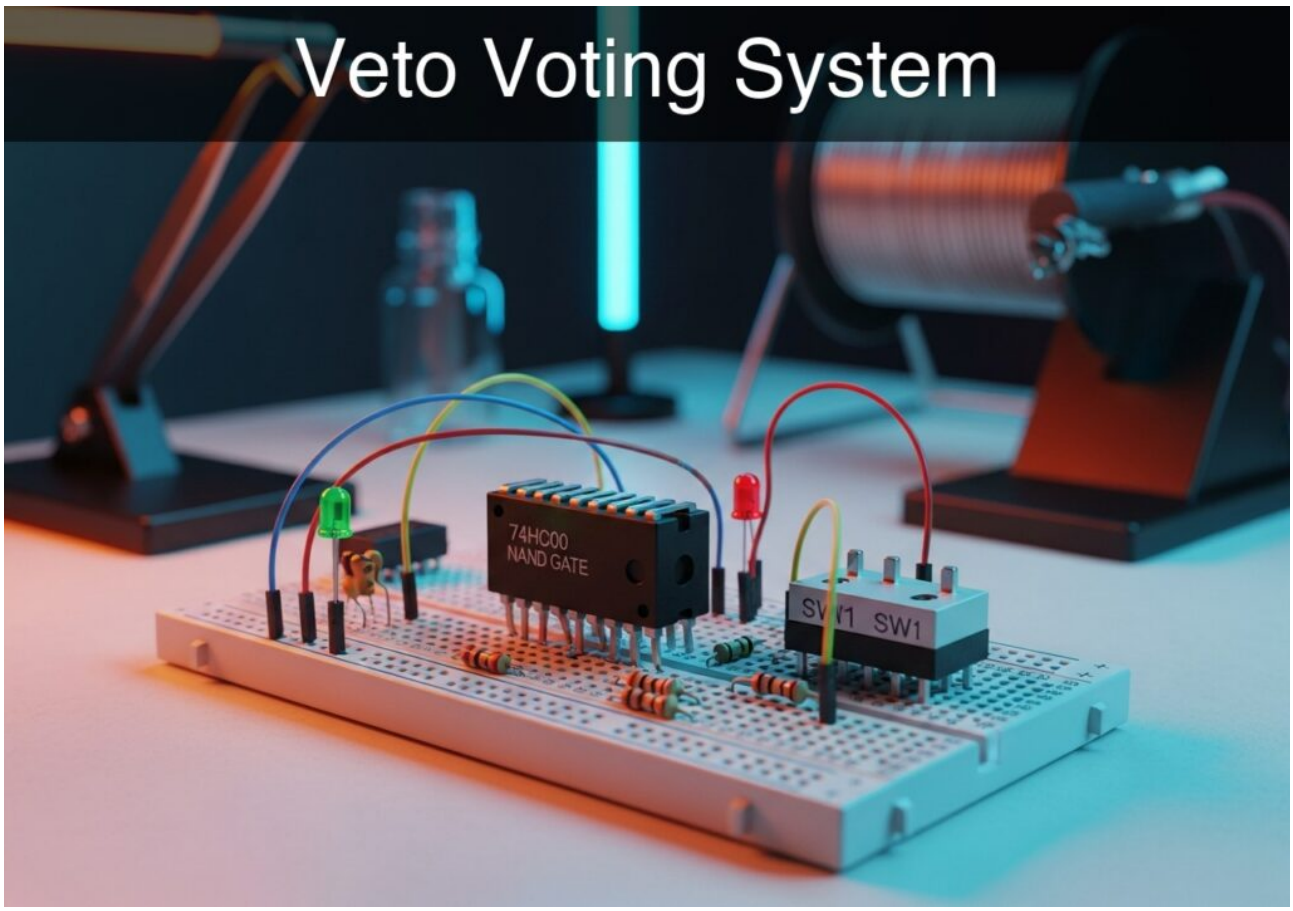
Master Analog Electronics by fixing a flawed NPN Transistor switch. Diagnose dim LEDs and high Vce voltage, then correct bias to achieve full saturation.

Practical case: Dual Safety Motor Activation



Learn Digital Electronics by building a safety circuit with a NAND gate. Create a two-hand motor control system that activates 5V output only on dual press.

Practical case: Veto Voting System



Master Digital Electronics by building a voting system using a single 74HC00 NAND gate IC. Create a safety interlock circuit where LED output signals approval.

Practical case: Water tank level control

Learn Digital Electronics by building a pump safety stop using a NAND gate. Design a circuit that cuts power to 0V only when two sensors detect a full tank.