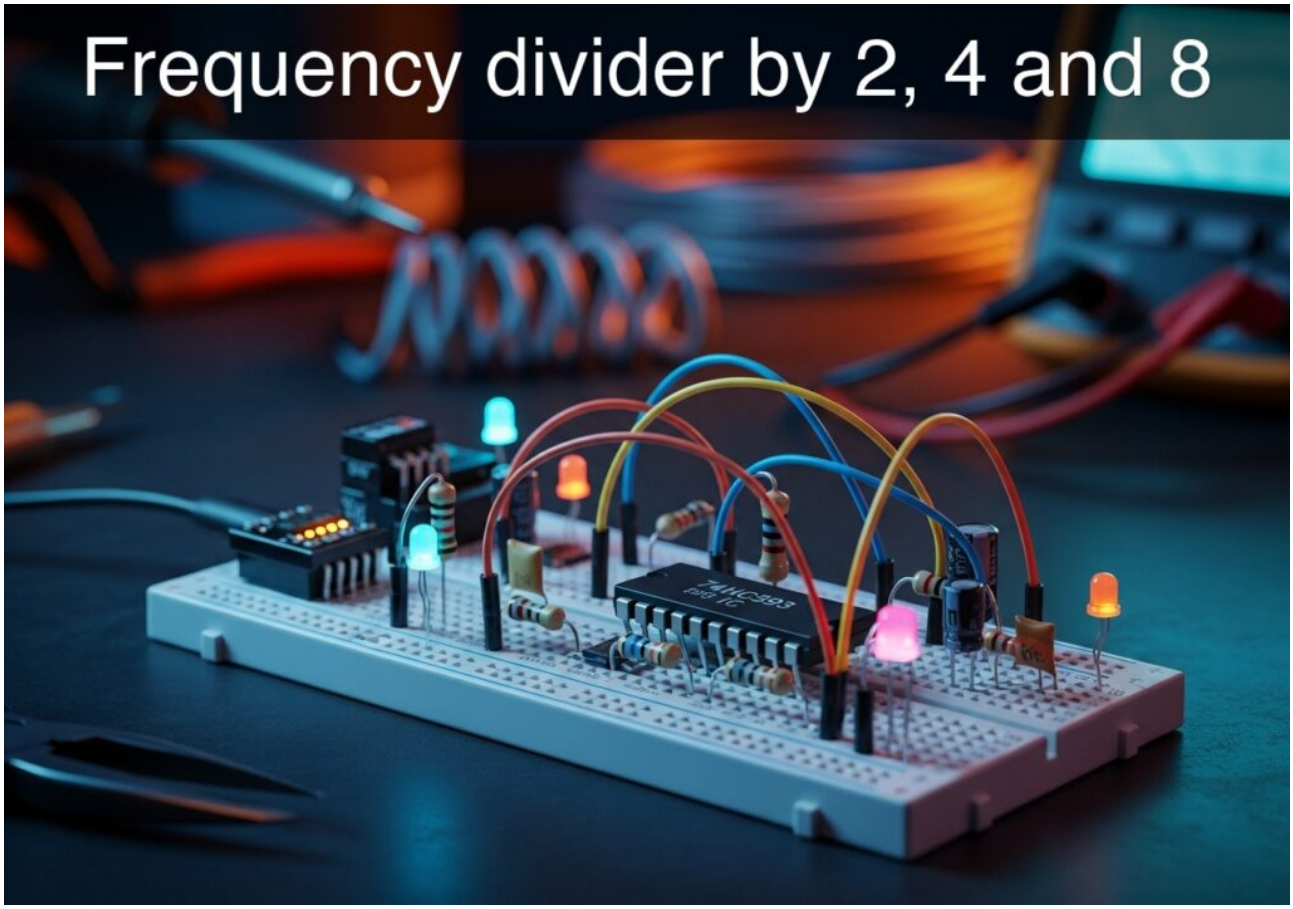
## Practical case: Frequency divider by 2, 4 and 8




In this Digital Electronics lab, use a Binary counter to build a frequency divider. Verify square wave outputs at f/2, f/4, and f/8 relative to the clock.

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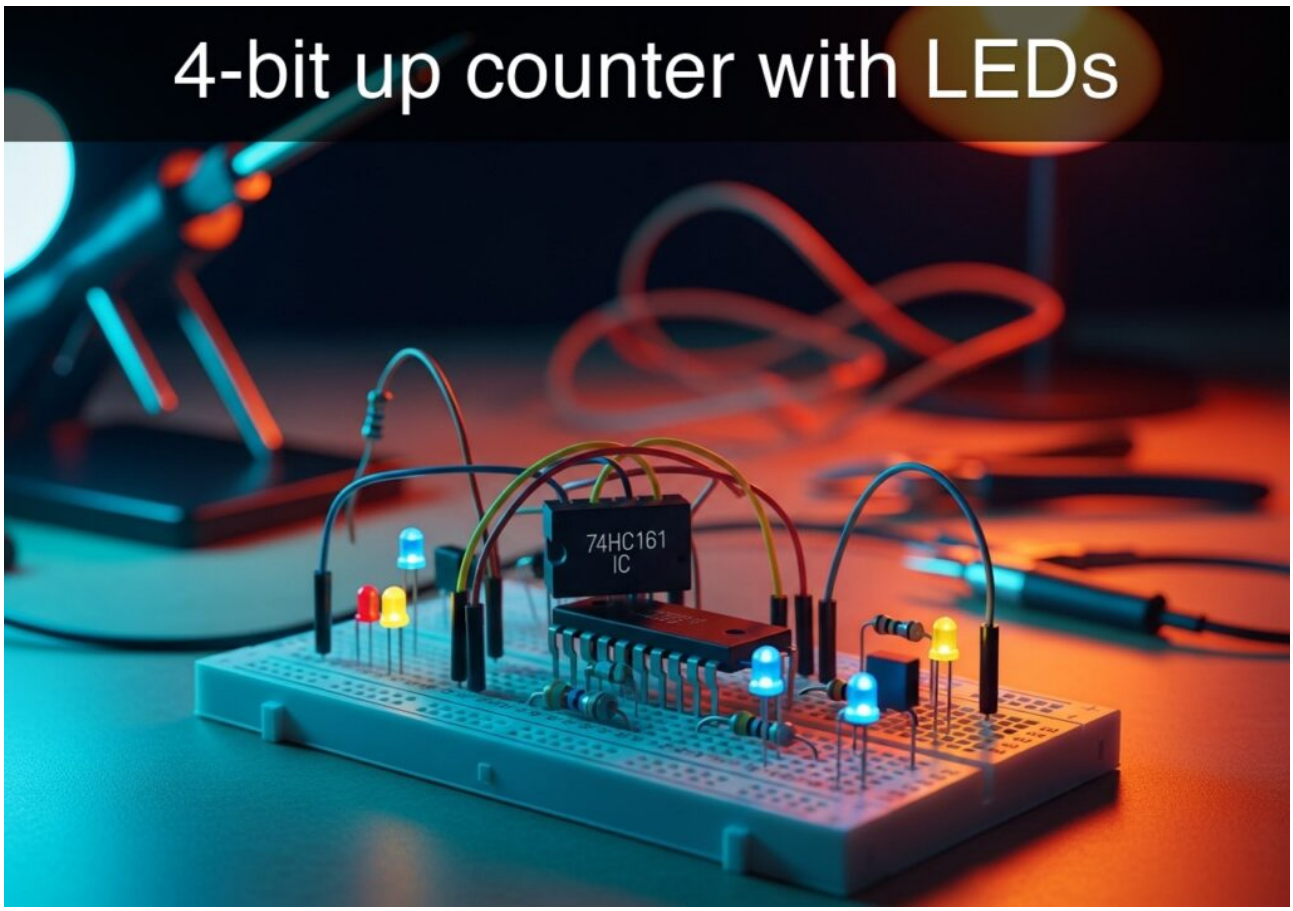
## Practical case: 4-bit up counter with LEDs




Build a practical Digital Electronics circuit with a Binary counter. Visualize the 0 to 15 sequence on LEDs and verify synchronous clock signals.

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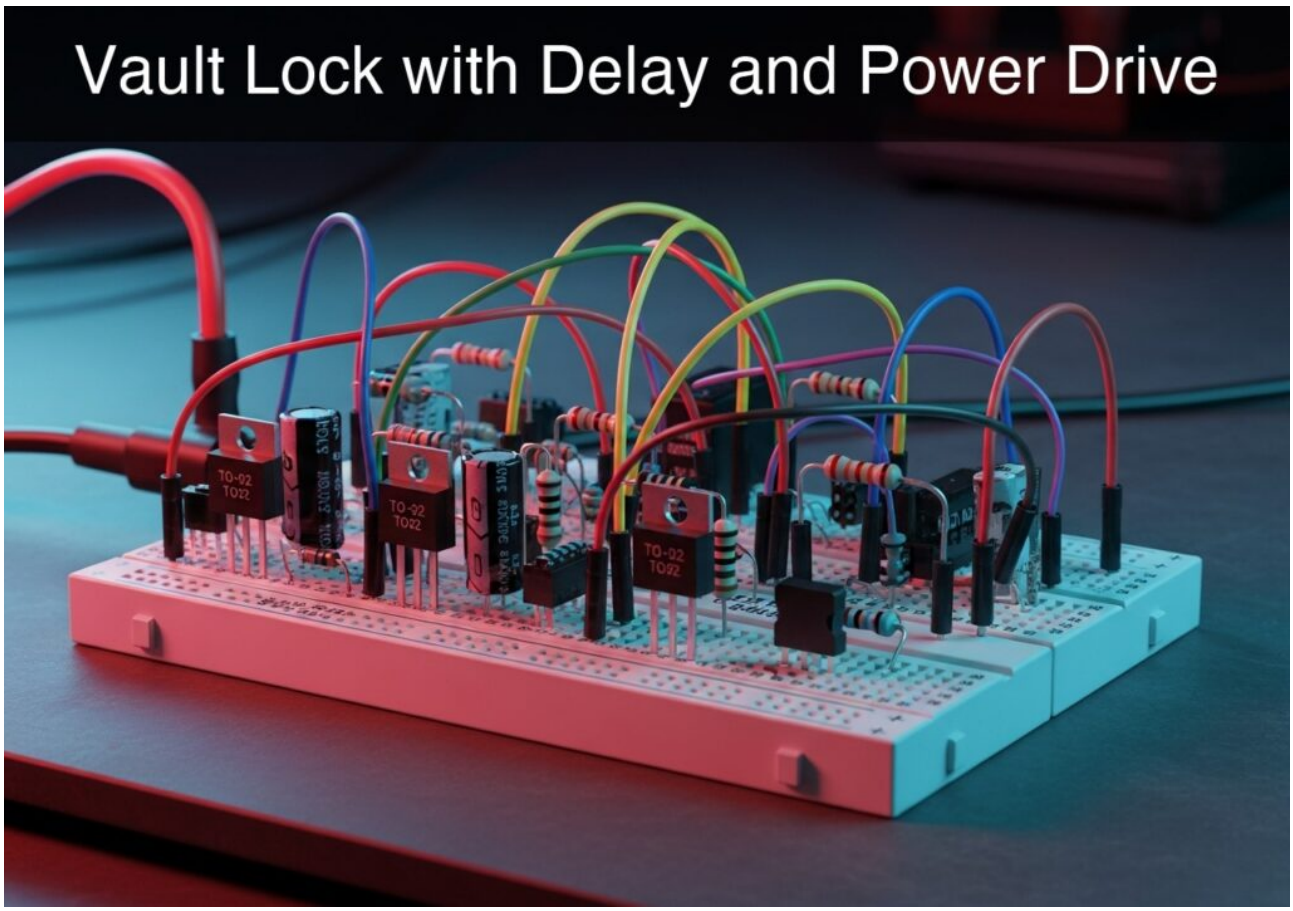
## Practical case: Vault Lock with Delay and Power Drive




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.

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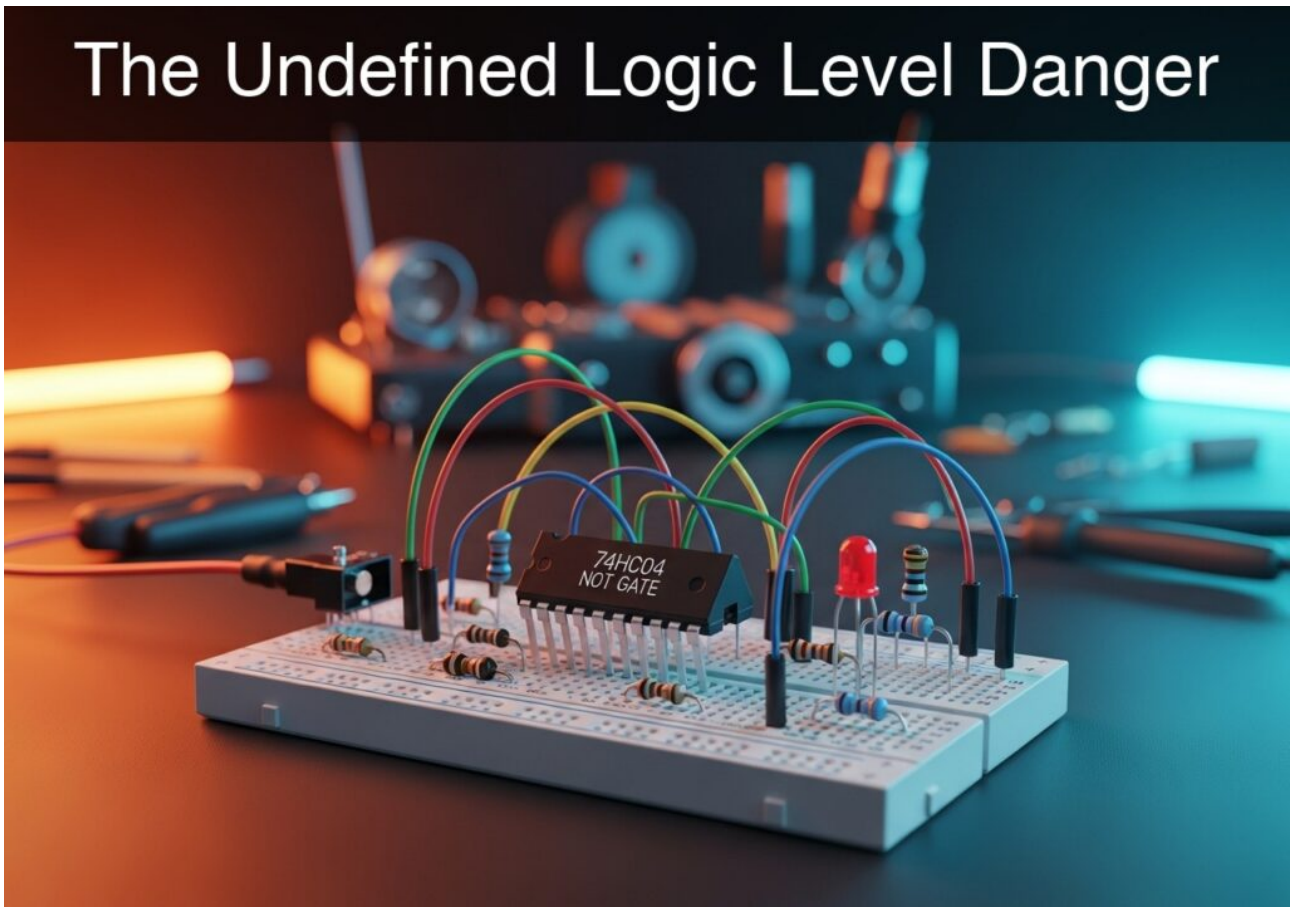
## Practical case: The Undefined Logic Level Danger




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

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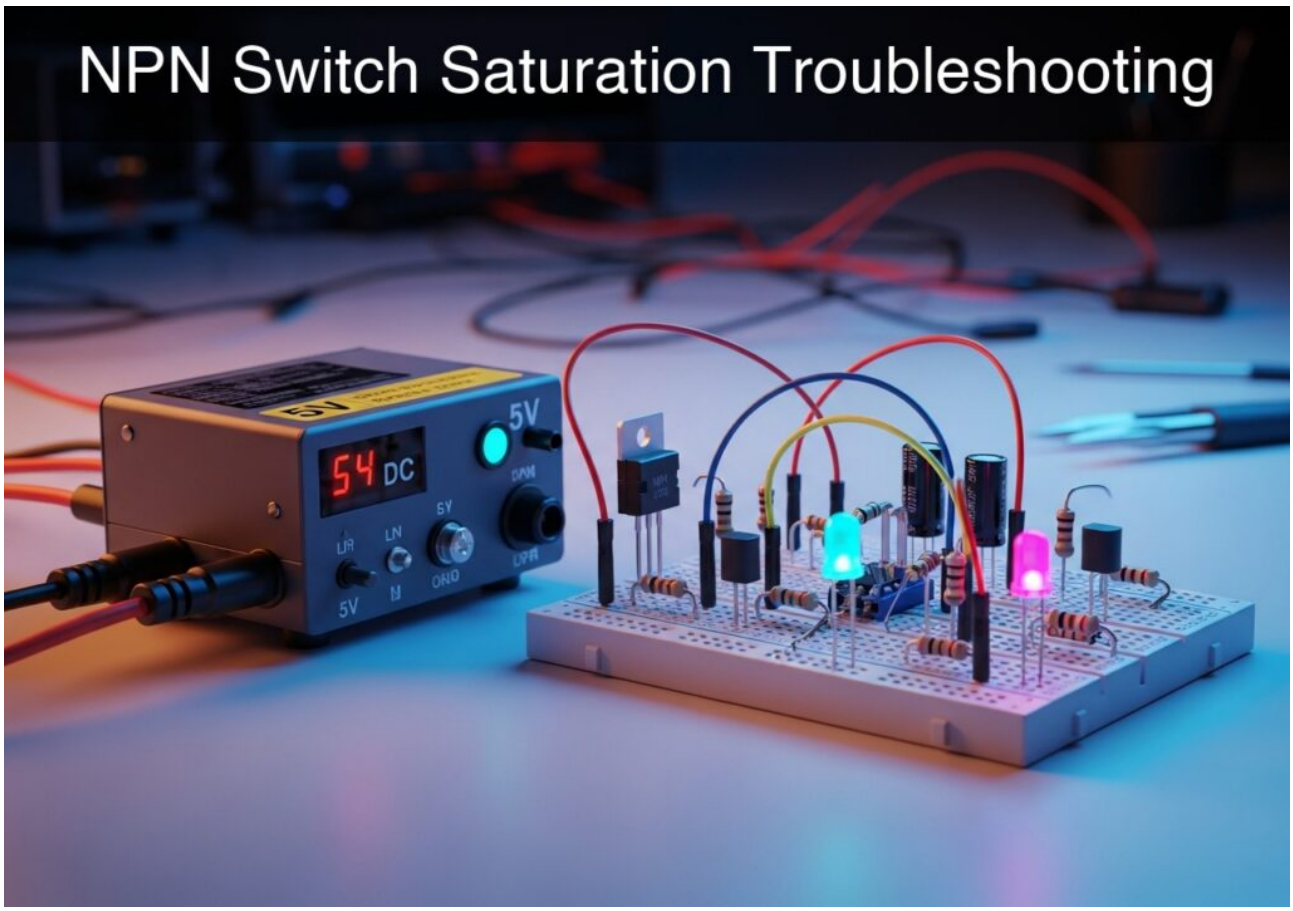
## Practical case: NPN Switch Saturation Troubleshooting




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

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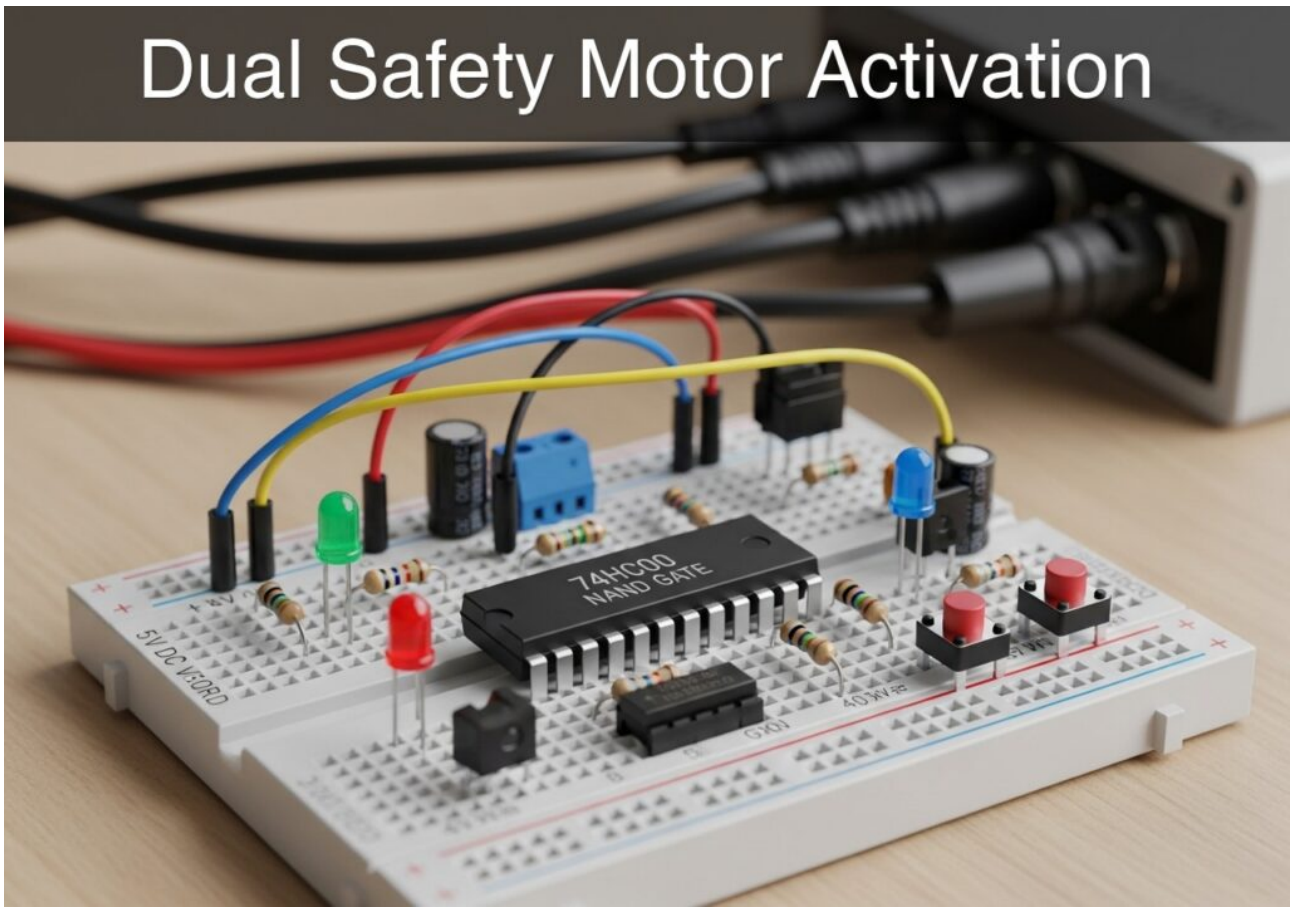
## Practical case: Dual Safety Motor Activation




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.