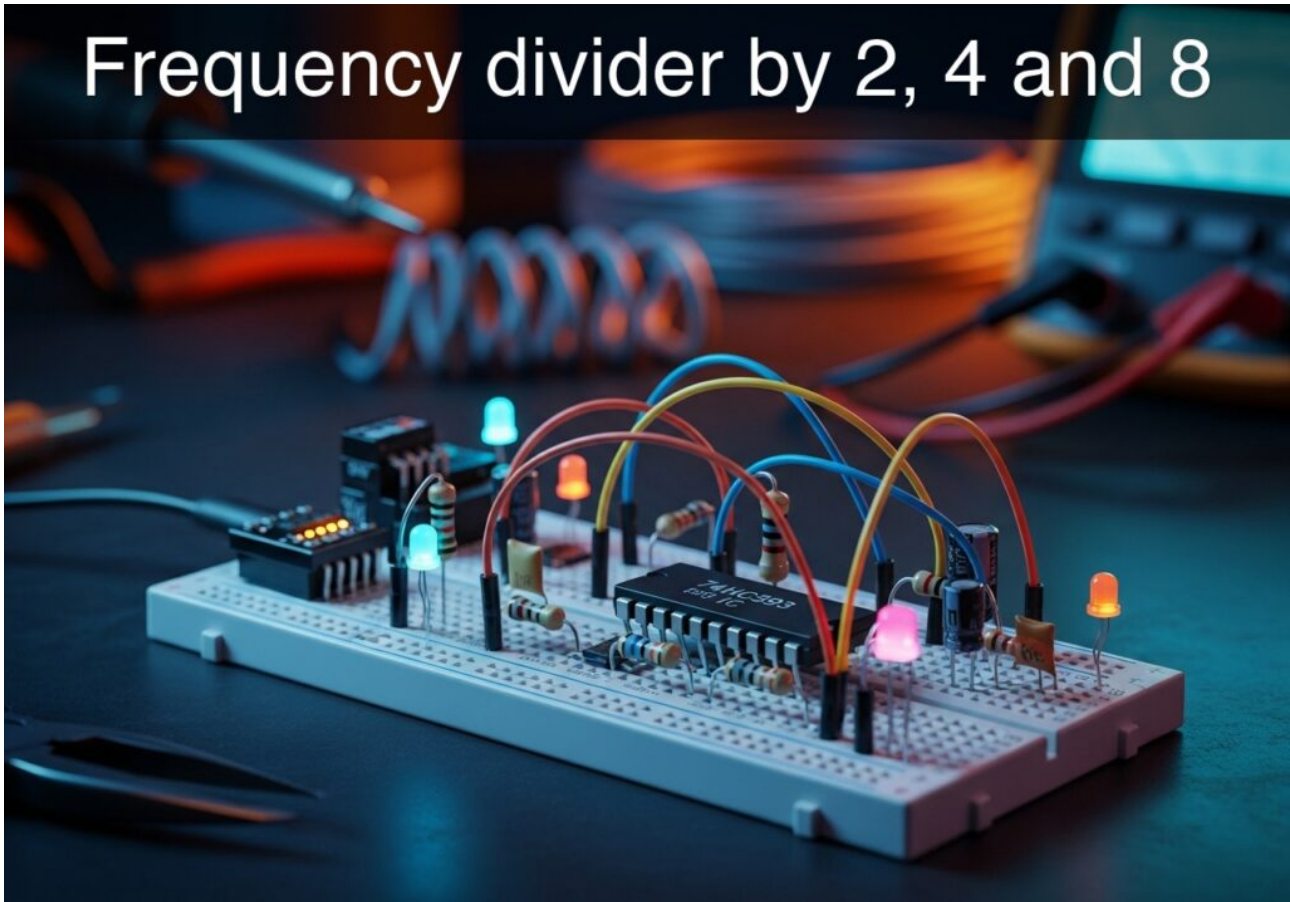


## Practical case: Frequency divider by 2, 4 and 8

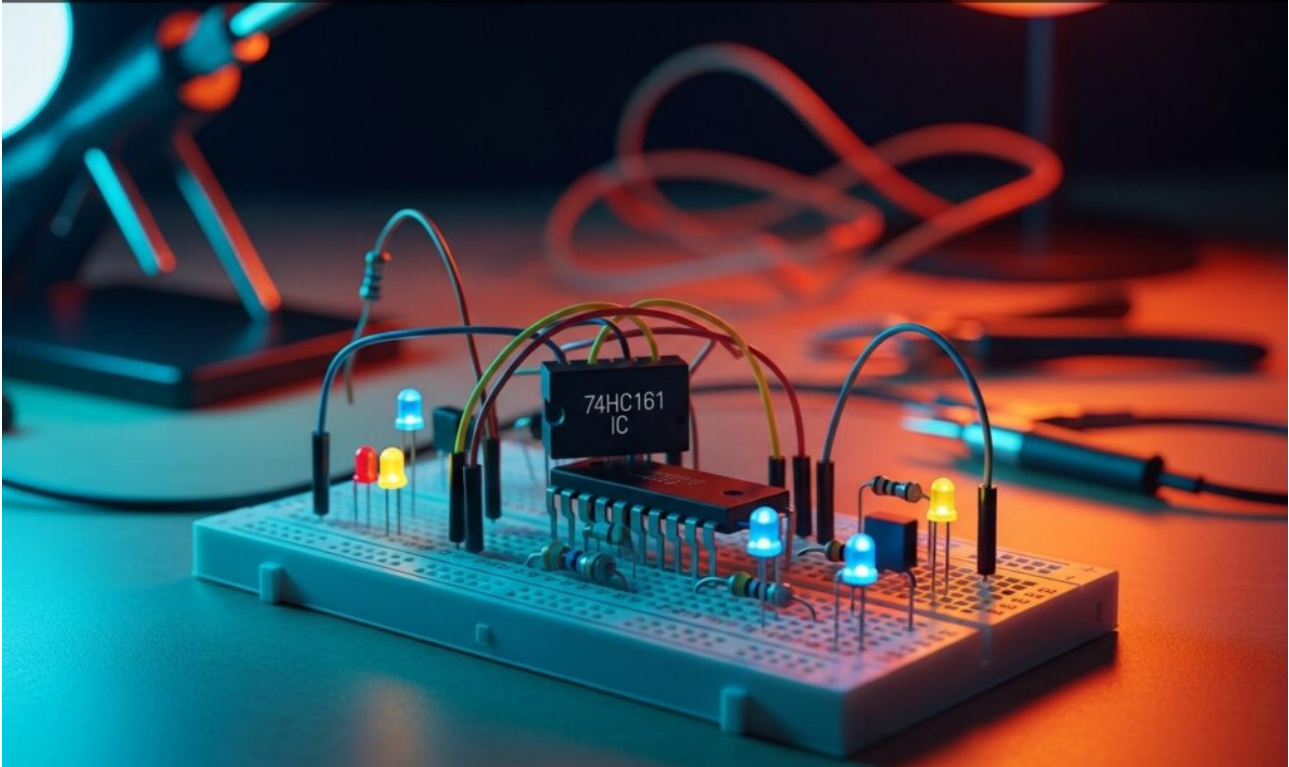


In this Digital Electronics lab, use a Binary counter to build a frequency divider. Verify square wave outputs at  $f/2$ ,  $f/4$ , and  $f/8$  relative to the clock.

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

# 4-bit up counter with LEDs

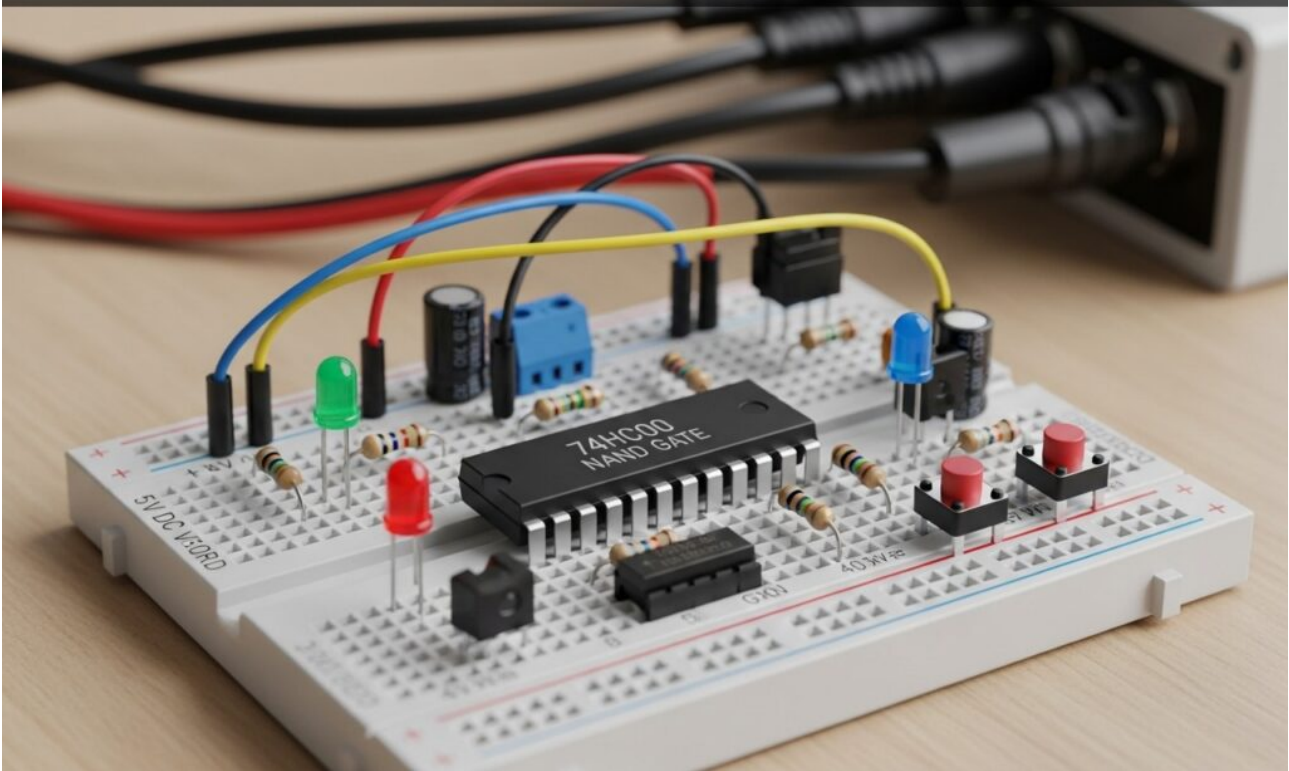


Build a practical Digital Electronics circuit with a Binary counter. Visualize the 0 to 15 sequence on LEDs and verify synchronous clock signals.

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## **Practical case: Dual Safety Motor Activation**

# Dual Safety Motor Activation

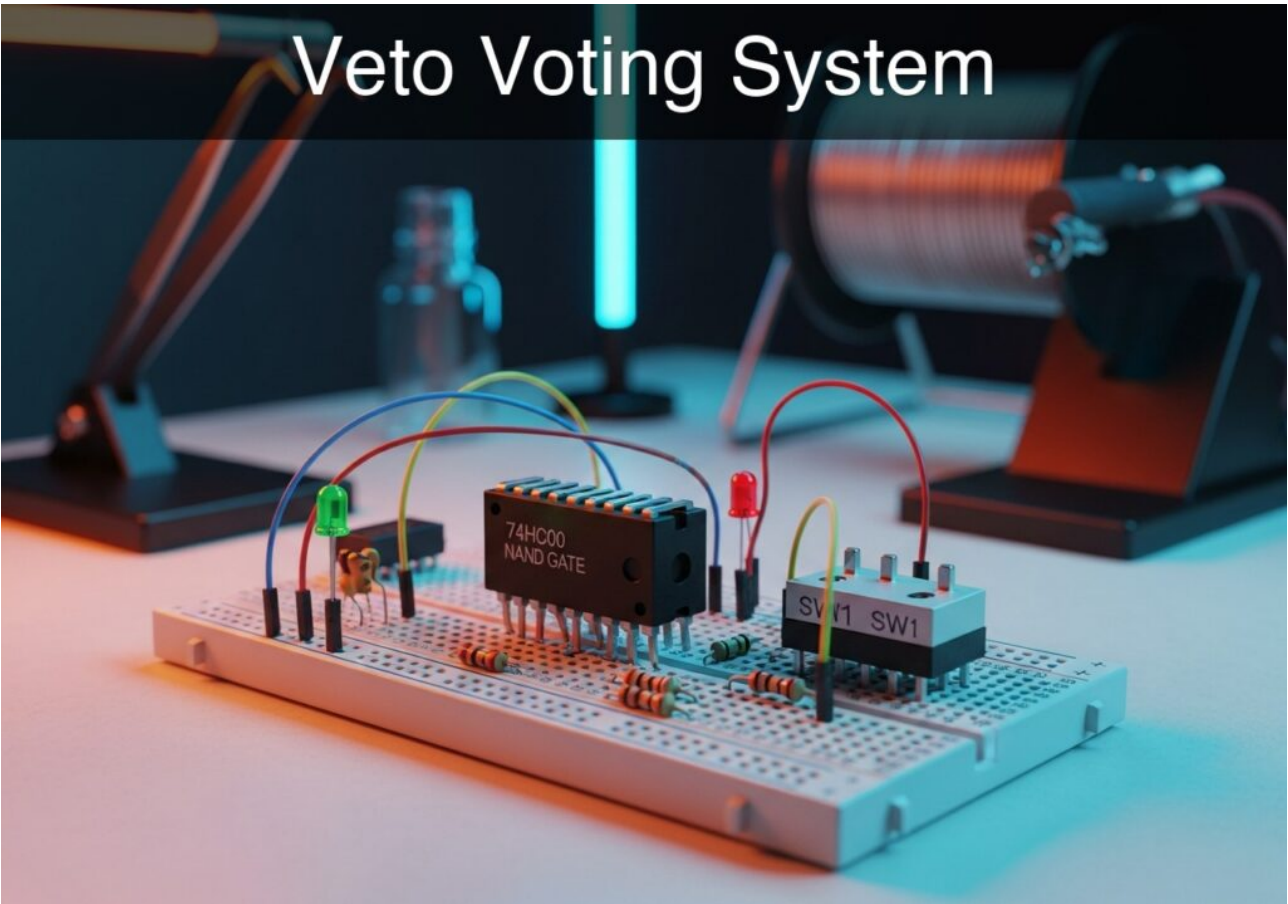


Learn Digital Electronics by building a safety circuit with a NAND gate. Create a two-hand motor control system that activates 5V output only on dual press.

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## Practical case: Veto Voting System

# Veto Voting System

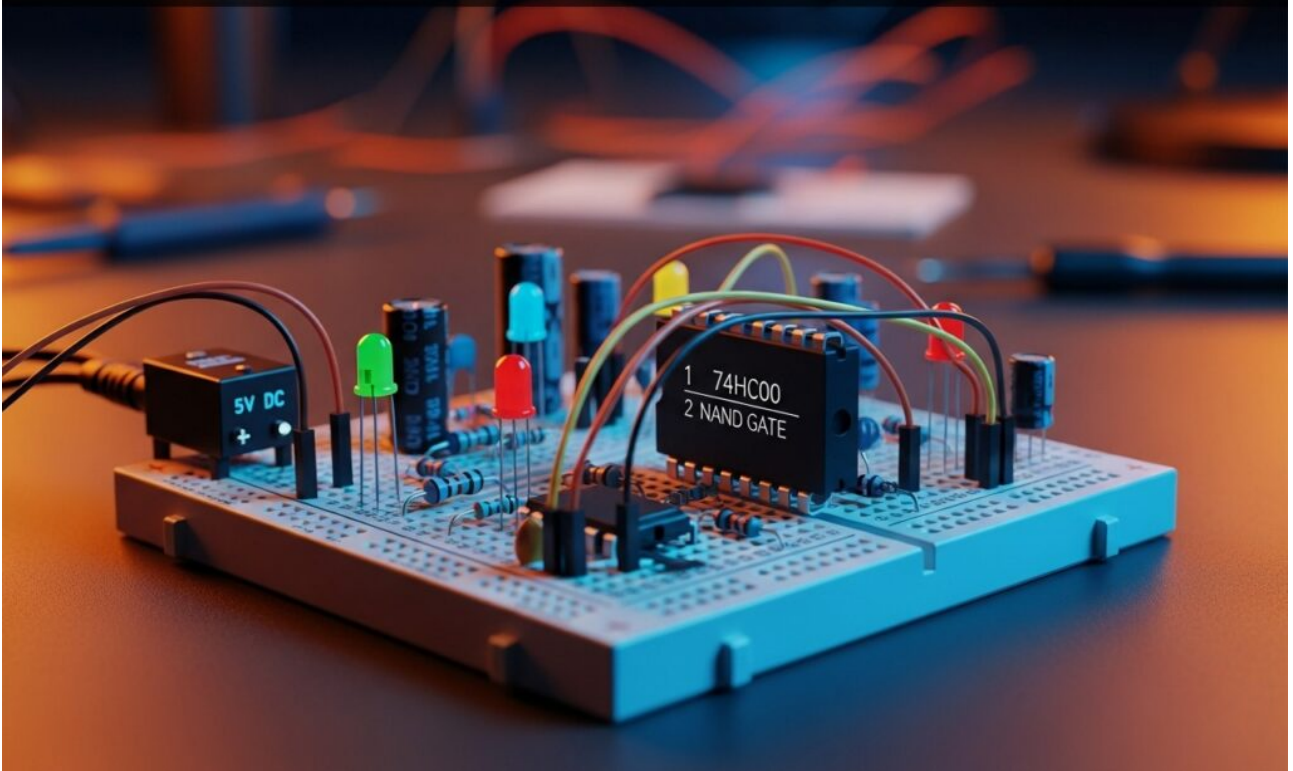


Master Digital Electronics by building a voting system using a single 74HC00 NAND gate IC. Create a safety interlock circuit where LED output signals approval.

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## Practical case: Water tank level control

# Water tank level control

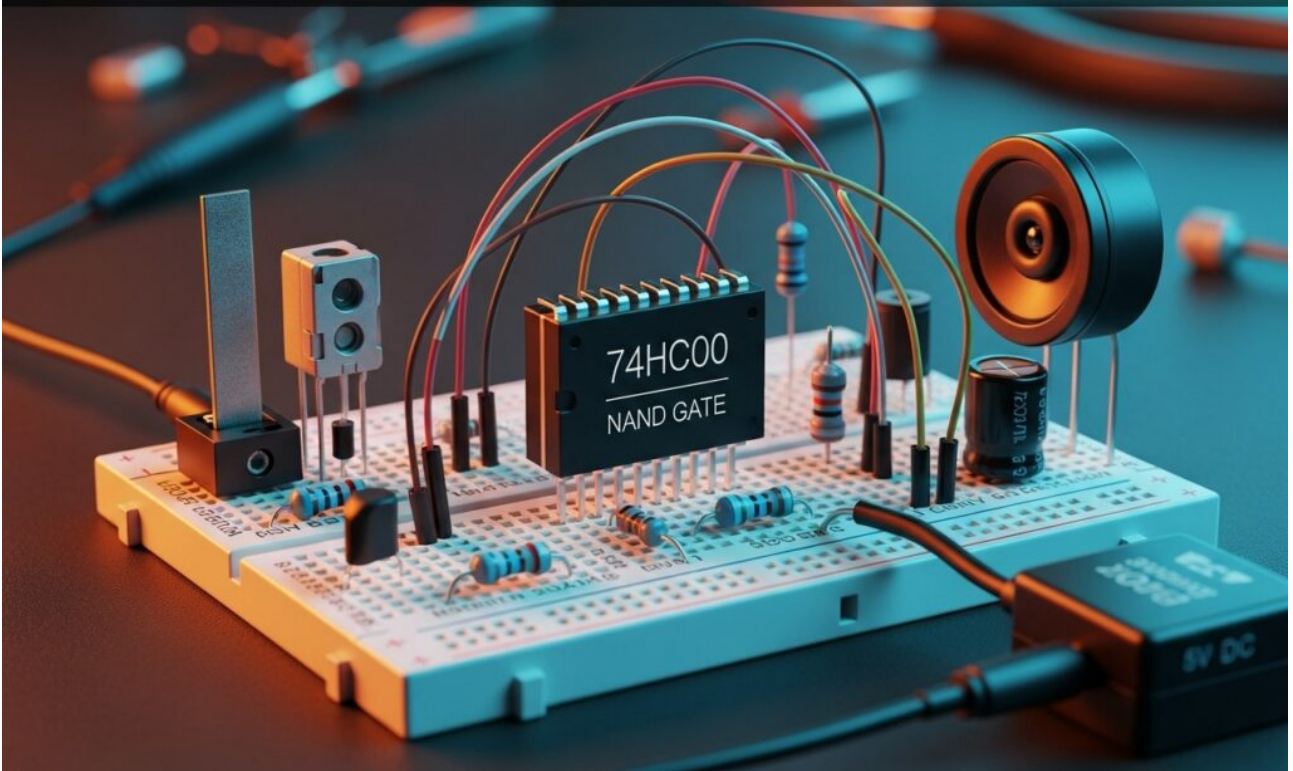


Learn Digital Electronics by building a pump safety stop using a NAND gate. Design a circuit that cuts power to 0V only when two sensors detect a full tank.

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## **Practical case: Window sensor security alarm**

# Window sensor security alarm



Master Digital Electronics by building a fail-safe alarm with a NAND gate. Detect open windows and trigger a 5V LED signal instantly when security is breached.