
Digital Voltmeter using Arduino Uno

Objective:
Measure and display the voltage of a DC source digitally using Arduino.

Components Required:

- Arduino Uno
- Voltage divider (2 resistors)
- LCD display (16x2 or OLED) or Serial Monitor
- Jumper wires & breadboard

Circuit Overview:

- The unknown voltage is connected to an analog pin (e.g., A0) through a **voltage divider** to reduce the voltage to within Arduino's 0–5V ADC range.
- The Arduino reads the voltage using its **10-bit ADC (Analog to Digital Converter)**.
- The measured voltage is displayed on an **LCD** or the **Serial Monitor**.

Working Principle:

- The voltage divider scales down the input voltage.
- Arduino calculates the actual voltage based on ADC value and resistor ratio.
- The result is updated and shown in real time.

Use Cases:

- Battery voltage monitoring
- DIY multimeter projects
- Measuring small DC circuits safely

Note:
For higher voltages (>5V), proper resistor values in the voltage divider are essential to protect the Arduino.
