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**LCD Screen Interface with ATtiny85**

**Objective:**
Display text or sensor values on a standard LCD (16x2 or 20x4) using the limited I/O pins of an ATtiny85.

**Components Required:**

- ATtiny85 microcontroller
- LCD screen (e.g., 16x2, HD44780-based)
- Optional: I²C module (PCF8574) or 74HC595 shift register for pin saving
- Pull-up resistors (if using I²C)
- Power supply (5V or 3.3V depending on components)

**Connection Methods:**

1. **Direct (Parallel) Connection**
    - Needs 6–7 I/O pins → not ideal for ATtiny85
2. **I²C Adapter (PCF8574)**
    - Only uses **2 pins (SDA & SCL)**
    - Great for space-saving and simplifies wiring
3. **74HC595 Shift Register**
    - Uses **3 digital pins**
    - Controls LCD through serial communication

**Working Principle:**

- ATtiny85 sends commands and data to the LCD either directly or through I²C/shift register.
- The LCD displays characters, numbers, or sensor readings.
- Libraries like **TinyWireM**, **LiquidCrystal_I2C**, or **ShiftLCD** are used depending on connection type.

**Use Cases:**

- Display sensor values (e.g., temperature, voltage)
- Show messages or system status
- Build compact standalone projects like mini clocks or meters

**Note:**
I²C and shift register methods are highly recommended with ATtiny85 due to limited I/O availability.

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