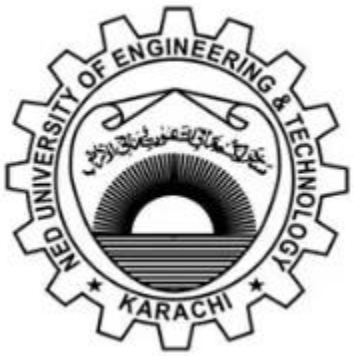
MICROPROCESSSOR BASED SYSTEM DESIGN

COMPLEX ENGINEERING PROBLEM



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Abstract:

The **Bidirectional Visitor Counter** is a microcontroller-based system that uses IR sensors to monitor entries and exits in real time. Powered by the ATmega8 and displayed on a 7-segment or LCD screen, it offers a low-cost, automated solution that improves space management and supports energy efficiency in smart environments.

Key Modules:

- **Entry/Exit Detection (IR Sensor-Based):**

Two infrared sensors detect movement across a threshold. If Sensor 1 is triggered before Sensor 2, a person is counted as entering. If Sensor 2 is triggered first, it indicates an exit.

- **Microcontroller Processing (ATmega8):**

The ATmega8 microcontroller processes the sensor data and updates the visitor count accordingly. It also ensures that the count does not fall below zero.

- **Display Unit (7-Segment or LCD):**

The visitor count is displayed in real-time on either a 7-segment display or a 16x2 LCD module.