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Microcontroller based Ultrasonic Distance Meter

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Abstract: *This paper presents the development and implementation of a microcontroller-based ultrasonic distance meter, designed for accurate distance measurement and obstacle detection. Utilizing ultrasonic sensors, the system measures the time delay between the emission and reception of ultrasonic waves to calculate the distance to an object. The microcontroller processes the sensor data, converts it into distance measurements, and displays the results on an LCD screen. The proposed device offers high precision, real-time processing, and a cost-effective solution for various applications, including robotics, automotive systems, and industrial automation. Key aspects such as sensor calibration, signal processing, and the integration of the hardware and software components are discussed in detail.*

Keywords: Microcontroller, Ultrasonic Sensor, Distance Measurement, Obstacle Detection, Real-Time Processing, Sensor Calibration, Signal Processing, LCD Display, Embedded System, Robotics, Industrial Automation, Cost-Effective Solution.

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