

Design and Development of LPG Monitoring and Leakage Detection System

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Abstract: *This study focuses the design and developed of an LPG Monitoring and Leakage Detection System, with the goal of enhancing safety in areas where LPG is utilized by identifying gas leaks and monitoring gas levels in real time. The project employs an Arduino-based sensor system to automate the detection of gas leaks, emphasizing functionality, durability, and safety. The proposed system is assessed for its effectiveness in providing early warnings to avert potential accidents, fires, or health hazards linked to LPG leaks. The system was tested by 30 participants who regularly used LPG for cooking and possessed basic electronics knowledge, enabling them to evaluate the project's materials, functionality, and operation. The results indicated that the system is highly effective in detecting LPG and other combustible gases, which can pose significant safety risks. The device includes a display that indicates the amount of gas detected and the concentration percentage, offering real-time data on gas levels. In the event of a gas leak, the system activates a buzzer to alert users immediately, thereby minimizing the risk of accidents.*

Keywords: Gas leakage, Gas Sensor, Arduino Microcontroller, HX711 Amplifier, Loadcell