

IOT-Based Home Automation for LPG Gas and Fire Detection System With Automated Safety Measures

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Abstract

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Abstract:

This paper introduces an advanced IoT-driven system aimed at identifying LPG gas leaks and fire hazards while providing automated safety mechanisms and real-time monitoring the mq2 sensor is utilized for detecting variations in gas concentrations and the DHT11 sensor monitors temperature fluctuations to identify potential fire risks an Arduino UNO serves as the core controller processing data from the sensors and initiating safety responses such as triggering an audible alarm rotating a servo motor to shut off the gas supply and powering an exhaust fan to vent the leaked gas to enable remote oversight the ESP32 module communicates with the Arduino and transmits data to the Blynk IoT platform allowing users to monitor conditions in real-time additionally the system integrates GSM-based functionality to deliver alerts via SMS or calls complementing app notifications and emails this comprehensive design ensures rapid response to emergencies offering a reliable and practical safety solution for environments vulnerable to gas leaks and fire outbreaks.

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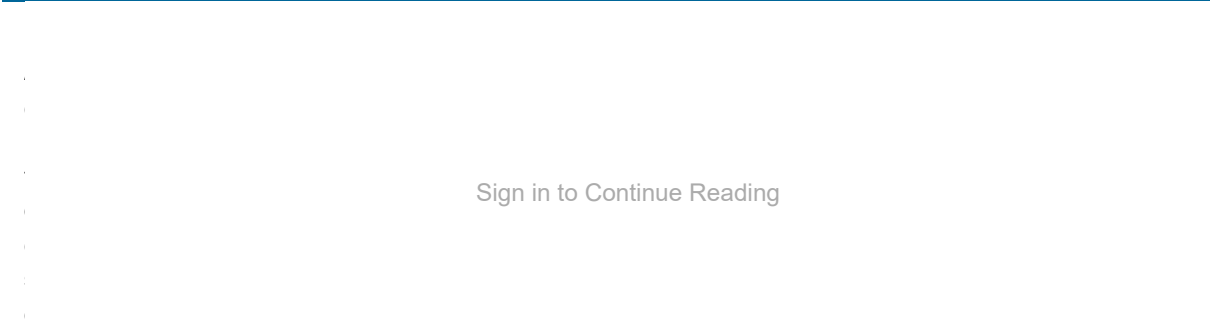
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