ID 559

Smart Gas Leak Management System

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Abstract

Smart Liquefied Petroleum Gas (LPG) leakage management system is designed in a way to enhance residential safety. An intelligent system which is capable of timely detection and resulting in the best appropriate response is required as LPG leaks pose a significant risk in households. The system utilizes two MQ-2 gas sensors positioned near the gas cylinder and the gas cooker for broad coverage. After detecting a gas leak, the system undergoes a few processes like activating an exhaust fan, opening windows for ventilation, cutting off the power supply of the whole house and a loud buzzer is triggered to alert the occupants. Moreover, the system is integrated with a mobile application via Bluetooth, allowing home users to remotely control any component in the system. More importantly the system bears a notification feature, sending alerts to users' mobile phone when there is a gas leakage. The effectiveness of the system is demonstrated by the experimental results. The research contributes to the field of smart gas leak management systems, developing residential safety and enabling dynamic gas leak detection and response mechanisms.

Keywords: *LPG, Real-time response, Mobile alerting system, Power control mechanism*