Patent Search

Invention Title	Microcontroller-Based LPG Leakage Detection and Alert System
Publication Number	01/2026
Publication Date	02/01/2026
Publication Type	INA
Application Number	202541126342
Application Filing Date	13/12/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRONICS
Classification (IPC)	G08B 21/16, G01N 33/00, G01N 33/22, F17D 5/06, G08B 21/14

Inventor

Name	Address	Country	Nat
Ramu Inala	Professor, Dept. of Mechanical Engineering, Vishnu Institute of Technology, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh 534202	India	Indi
Jowdula Chandra Sekhar	Assistant Professor, Dept. of Mechanical Engineering, Vishnu Institute of Technology, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh 534202	India	Indi
Nimmala V V Manikanta	Assistant Professor, Dept. of Mechanical Engineering, Vishnu Institute of Technology, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh 534202	India	Indi
Venu Mangam	Professor, Dept. of Mechanical Engineering, Vishnu Institute of Technology, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh 534202	India	Indi
Karri V G Rama Seshu	Associate Professor, Dept. of Mechanical Engineering, Vishnu Institute of Technology, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh 534202	India	Indi

Applicant

Name	Address	Country	Nation
Vishnu Institute of Technology	Sri Vishnu Education Society, Kovvada Rd, Vishnupur, Kovvada, Andhra Pradesh 534202	India	India

Abstract:

The present invention discloses a microcontroller-based LPG leakage detection and alert system configured to monitor ambient gas concentration and initiate multi-moda responses. The system incorporates an MQ-5 gas sensor for detecting LPG levels, an Arduino microcontroller for executing signal processing and threshold evaluation, anc buzzer and LCD display for generating on-site audible and visual warnings. A GSM communication module transmits remote SMS alerts to predefined users when leakage exceeds a programmed threshold. A regulated power supply ensures stable operation of all components, and a protective casing facilitates reliable deployment in domest commercial, or industrial environments. The invention provides improved sensitivity, reduced false alarms, and enhanced safety through

Complete Specification

Description:FIELD OF THE INVENTION

[001] The present invention relates to the field of gas-safety monitoring technologies and, more particularly, to an intelligent system for detecting leakage of Liquefied Petroleum Gas (LPG) in residential, commercial, industrial, storage, and vehicular environments. The invention concerns microcontroller-based sensing and automatic alerting mechanisms that integrate gas-concentration detection, signal processing, and wireless communication features for real-time hazard identification. The system further relates to multi-modal safety notification through acoustic alarms, visual indicators, and GSM-enabled remote messaging, thereby enabling rapid response and mitigation of risks associated with explosive gas accumulation.

BACKGROUND OF THE INVENTION

[002] Liquefied Petroleum Gas (LPG) remains one of the most widely used domestic and industrial fuels due to its high calorific value, ease of transport, and cost-effectiveness. However, its highly flammable nature also makes LPG leakage a significant safety concern in kitchens, restaurants, industrial plants, warehouses, gas-stora facilities, and vehicular installations. Conventional LPG safety measures rely largely on manual supervision, periodic valve-tightening, and visual inspection, all of which a inherently unreliable and incapable of ensuring continuous monitoring. Such measures fail to detect low-level gas accumulation and provide no automatic mechanism tc warn occupants before leakage escalates to an explosive concentration, leading to catastrophic accidents, property destruction, and loss of life.

View Application Status