Literature Survey – 1

Name: Gas Leakage Detection Based on IOT

Authors: Suma V, Ramya R Shekar, Akshay Kumar A Department of Information Science and Engineering Dayananda Sagar College of Engineering, Bengaluru

Ref. Link: https://ieeexplore.ieee.org/document/8822055

Published In: IEEE Conference

Year: 2019

Summary:

This paper detects leakage of gas in household and sends a warning message to the appropriate user. It can also automatically book a new cylinder when the gas is about to empty. Here load cells are used to monitor the weight of the gas cylinder.

Merits:

1. Gases that are widely used in household are detected in case of leakage.
2. Message has been successfully sent to the owner in case of emergency.

De Merits:

1. MQ5 sensor can only detect H2, LPG, CH4, CO and Alcohol.
2. In case of emergency respective safety authorities must also be intimated.

Literature Survey – 2

Done by: Athinarayanan.B

Name: A Wireless Home Safety Gas Leakage Detection System

Authors: Luay Fraiwan, Khaldon Lweesy, Aya Bani-Salma, Nour Mani Jordan University of Science & Technology Department Biomedical Engineering

Published In: IEEE Conference

Ref.Link: https://ieeexplore.ieee.org/document/5752053

Year:2011

Summary:

The device is intended for use in household safety where appliances and heaters that use natural gas and liquid petroleum gas (LPG) may be a source of risk. The system also can be used for other applications in the industry or plants that depend on LPG and natural gas in their operations.

Merits:

The working of the proposed system depends on detecting the change in concentration of any of the gases, which provides a flexibility in the system to detect any leakage of these gases that avoids false alarms.

De Merits:

The operation range of the wireless system was found to be working only around 22 m for indoor and 110 m for outdoor (open space).

Literature Survey – 3

Done by: Mohamad Umar M

Name: Gas Leakage Detection System using IoT with integrated notifications using Pushbullet.

Authors: M Athish Subramanian, Naveen Selvam, Rajkumar S, R Mahalakshmi, J Ramprabhakar Department of Electrical and Electronics Engineering, Amrita School of Engineering, Bengaluru,

Amrita Vishwa Vidyapeetham, India.

Published In: IEEE International Conference on Inventive Systems and Control (ICISC 2020)

Ref. Link: https://ieeexplore.ieee.org/document/9171093

Year: 2020

Summary:

The main idea of this paper is to carry out the literature review on IoT based gas detection techniques and to ensure the safety of people and surroundings. By presenting a simple yet reliable system, gas leakage detection system using MQ5 gas sensor and arduino uno controller is incorporated with a cloud storage for data collection and also used for storing and analyzing data. Gas leaked is converted from Parts Per Million (PPM) to volts through the arduino IDE and results in notifying the user

when the threshold limit is crossed. The user is alerted via an application for quick notification through the internet and also through a buzzer /LED for physical notification.

Merits:

The proposed system replaces the conventional methods such as database logging for prediction and thingtweet which is configured through thingSpeak to send twitter messages as smart alerts.

De Merits:

The operation range of the wireless system was found to be working only around 22 m for indoor and 110 m for outdoor (open space).

Literature Survey – 4

Done by: Anto Nidhish M

Name: Microcontroller Based Low Cost Gas Leakage Detector with SMS Alert.

Authors: Mr. Arijit Banik, Mr. Bodhayan Aich, Mr. Suman Ghosh, Department of Electrical Engineering, Guru Nanak Institute of Technology, Kolkata, West Bengal, India.

Published In: 2018 Emerging Trends in Electronic Devices and Computational Techniques (EDCT)

Date of Conference: 08-09 March 2018

Ref. Link: https://ieeexplore.ieee.org/document/8405094

Year: 2018

Summary:

The aim of this project is to develop a device that can automatically detect and notify gas leakages in those permeable areas. The system detects the leakage of the LPG (Liquefied Petroleum Gas) using a gas sensor (MQ-5 Sensor) and uses the GSM to alert the person about the gas leakage via SMS. When the LPG concentration in the air exceeds a predetermined level, the gas sensor senses the gas leakage and the output of the sensor goes LOW. This is detected by the microcontroller and the

LED and buzzer are turned ON simultaneously. The system then alerts the customer by sending an SMS to the specified mobile-phone.

Merits:

- SMS based Alert Mechanism and send 3 SMS (3 alert messages) to 2 specified mobile numbers specified inside Arduino Program.
- Produces an alarm sound upon gas leakage and stops the alarm once gas leakage is under control.
- Displays status in an LCD using a 16×2 LCD module.
- Low cost, low power consumption, and high accuracy.
- It also detects alcohol, so it can be used as liquor tester.
- The sensor has excellent sensitivity combined with a quick response time.

De Merits:

- No prevention of fires is possible with the kit.
- It works only when 5v power supply is given.
- Its sensitivity depends on humidity and temperature.
- It is a little sensitive to smoke.
- MQ-5 sensor can only detect H2, LPG, CH4, CO and Alcohol.

Literature Survey – 5

***Done By**: ArunPriyan.K*

Name: IOT Based Industrial Plant Safety Gas Leakage Detection System

Authors: Ravi Kishore Kodali, Greeshma, R.N.V, Kusuma Priya Nimmanapalli, Yatish KrishnaYogi

Ref. Link: https://ieeexplore.ieee.org/document/8777463

Published In: IEEE Conference

Year: 2018

Summary:

This project proposes a leakage detector which sends the warning to the concerned people through SMS. This detector senses the presence of harmful gases particularly, LPG, Methane and Benzene. LPG and Methane gases catch fire easily resulting in blasts. Benzene is carcinogen effecting the health of workers, if inhaled in higher concentrations. Hence, detection of these gases is essential.

Merits:

1. The gas leakage is detected by the sensors. Here, MQ-6 sensor is used for sensing LPG concentrations in air, they can detect gas concentrations in the range of 200 to 10000 ppm and has very fast response time.
2. An SMS is sent to the concerned person through IFTTT

De Merits:

1. Output of these sensors is analog resistance.
2. The non-availability of a wifi module makes us inclined towards the internet throughout for receiving notifications.