GAS LEAKAGE MONITORING AND ALERTING SYSTEM

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LITERATURE REVIEW

1.TITLE: Gas leakage detection and alerting system using Arduino Uno
AUTHORS: Syeda Bushra Shahewaz and Ch. Rajendra Prasad
YEAR: 2020
This system monitors the gas, smoke by sensor 1, sensor 2, sensor 3. If any gas is detected the signal of sensors goes low and activate the Arduino UNO. Which send signals to the LCD (GAS DETECTED AT ZONE) Buzzer and GSM to alert the people about danger and if no gas is detected then LCD displays "NO GAS DETECTED" in its 16x2 display.

2.TITLE: IOT Based Industrial Plant Safety Gas Leakage Detection System
AUTHORS: Ravi Kishore Kodal, Greeshma, R.N.V, Kusuma Priya Nimmanapalli, Yatish Krishna Yogi Borra
YEAR: 2018

The change in analog resistance is converted to voltage through a signal conditioning circuit. This voltage is read by the micro-controller. The micro-controller measures this data and compares with threshold. If the measured concentration levels cross the safe levels, an SMS is sent to the concerned person through IFTTT. Buzzer gets on to alert the workers about the leakage and LEDs will be made to glow to specify the gas which is currently leaking.

3.TITLE: LPG Gas Leakage Detection and Alert System
AUTHORS: Jebamalar Leavline, Asir Antony Gnana Singh, Abinaya, H. Deepika
YEAR: 2017

The gas sensing layer of MQ-6 gas sensor is made of Tin Dioxide ($SnO2$) and gold (Au) electrodes. The output of the gas sensor is given to LM358 dual operational amplifier where it is compared with the threshold value for gas density which is set using preset potentiometers and amplified. If the sensed voltage is greater than the preset threshold voltage, the operational amplifier output fires the driver circuit for LED and Buzzer. As a result, the LED will glow and the buzzer starts to produce alarm sound.

4.TITLE: Gas Detector Alarm System
AUTHORS: Falohun A.S., Oke A.O., and Abolaji B.M
YEAR: 2016
The intention to ensure that the event of gas is intelligently detected, promptly notified and interactively managed. It is built around a timer to accept input from the gas sensor, MQ-9, and activate a buzzer and set of led that alerts in the event of gas. The sensor used is the MQ9 and from the datasheet, it specializes in gas detection equipment for carbon monoxide and CH4, LPG family and any other relevant industry or car assemblage

5.TITLE: Design and Development of Gas Leakage Monitoring System using Arduino and ZigBee

AUTHORS: Huan Hui Yan and Yusnita Rahayu

YEAR: 2014

The graph is used to display the gas concentration versus time in every minute and the sensor's voltage output waveform. Besides, there is voltmeter to show the voltage output from the gas sensor and the gas tank to indicate the concentration of leakage gas. Furthermore, the STOP button is used to stop the whole system during the emergency period. On the other hand, the Visa resource panel is used to indicate the VISA configuration, and data transfer interfacing between the Zigbee and Lab VIEW, VISA configuration serial ports are required.

6.TITLE: Gas Leakage Detection System

AUTHORS: Shyamaladevi, V G Rajaramya, P Rajasekar and P Sebastin Ashok

YEAR: 2014

This system detects the leakage of the LPG and alerts the consumer about the leak by SMS and as an emergency measure the system will turn off the power supply, while activating the alarm. Along with gas leakage detection, this system gives a fully automated approach towards the gas booking. Real time weight measurement of the gas and its display on LCD makes it an efficient home security system and also can be used in industries and other places to detect gas leaks. This project is implemented using the ARM 7 processor and simulated using the Keil software.

7.TITLE: GSM Based Gas Leakage Detection System

AUTHORS: Ashish Shrivastava, Ratnesh Prabhaker, Rajeev Kumar and Rahul Verma

YEAR: 2013

A new approach for gas leakage detection system at a low concentration. The leakage is detected with the help of MQ-6 gas sensor. Sensor sends a signal to microcontroller. In the next step microcontroller sends an active signal to other externally connected devices. The efficiency and memory of the microcontroller can be increased if Philips microcontroller is used in place of AT89C51.multiple SMS can be send by changing programming GSM module. To change the SIM card we have to make changes in program.

8.TITLE: Leakage Detection and Analysis of Leakage Point in the Gas Pipeline System

AUTHORS: Zhao Yang, Mingliang Liu, Min Shao, and Yingjie Ji

YEAR: 2011

The leakage detection is carried out by comparing the data acquired through the SCADA system with that by the Transient Simulation Model. This model could provide leakage point judgment and prompt warning based on transient simulation and volume balance. A computer program to run on-line has been developed to obtain leakage location and performs well when leakage percentage ranges from 0.3% to 93% of the nominal gas flow.

S.NO	YEAR	AUTHOR	TITLE	TECHNOLOGY USED	REMARKS
01	2020	Syeda Bushra Shahewaz and Ch. Rajendra Prasad	Gas leakage detection and alerting system using Arduino Uno	Arduino Uno	Detection of LPG leakage is incredible in the project. Applicable usefully in the industrial and domestic purpose.
02	2018	Ravi Kishore Kodal, Greeshma, R.N.V, Kusuma Priya Nimmanapalli, Yatish Krishna Yogi Borra	IOT Based Industrial Plant Safety Gas Leakage Detection System	IFTTT	A gas detection and confinement system can help in addressing the problems of leaks in gas pipelines, while preserving extensibility and usability, framework design simplicity.

03	2017	Jebamalar Leavline, Asir Antony Gnana Singh, Abinaya, H. Deepika	LPG Gas Leakage Detection and Alert System	Microcontrollers	This system triggers LED and buzzer to alert people when LPG leakage is detected. This system is very simple yet reliable.
04	2016	Falohun A.S, Oke A.O, and Abolaji B.M	Gas Detector Alarm System	Embedded Design	Methods based on the mathematical model of the pipe have good results at high flow rates while at low flow rates a mass balance based detection system would be more suitable

05	2014	Huan Hui Yan and Yusnita Rahayu	Design and Development of Gas Leakage Monitoring System using Arduino and ZigBee	Arduino and ZigBee	The gas pipeline leakage monitoring system is realized by communication cable system, therefore the cost of maintenance are very expensive.
06	2014	Shyamaladevi, V G Rajaramya, P Rajasekar and P Sebastin Ashok	Gas Leakage Detection System	Embedded Design	The cost involved in developing the system is significantly low and is much less than the cost of gas detectors commercially available in the market.

07	2013	Ashish Shrivastava, Ratnesh Prabhaker, Rajeev Kumar and Rahul Verma	GSM Based Gas Leakage Detection System	Microcontroller	The efficiency and memory of the microcontroller can be increased if Philips microcontroller is used in place of AT89C51.
08	2011	Zhao Yang, Mingliang Liu,Min Shao, and Yingjie Ji	Leakage Detection and Analysis of Leakage Point in the Gas Pipeline System	SCADA I/F Model	A computer program to run on-line has been developed to obtain leakage location and performs well when leakage percentage ranges from 0.3% to 93% of the nominal gas flow.