V.S.B. ENGINEERING COLLEGE, KARUR

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IBM NALAIYA THIRAN LITERATURE SURVEY

TITLE : GAS LEAKAGE MONITORING AND ALERTING SYSTEM

DOMAIN NAME : INTERNET OF THINGS (IoT)

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ABSTRACT

Gas leakage is a major problem with industrial sector, residential premises and gas powered vehicles like CNG (compressed natural gas) buses and cars. Homes and Industrial fires have taken a growing toll in lives and property in recent years. Most gasses used for industrial activities are highly inflammable and can burn even at some distance from the source of leakage. Most fire accidents are caused because of a poor-quality rubber tube or when the regulator is not turned off. The supply of gas from the regulator to the burner is on even after the regulator is switched off. By accident, if the knob is turned on, it results in the gas leaks. Safety plays a major role in today's world and it is necessary that good safety systems are implemented in places of education and work. This project modifies the existing safety model installed in industries and this system also can be used in homes and offices. The main objective of this project is designing microcontroller based gas leakage detecting system. Some hazardous gases like Liquefied petroleum gas (LPG) and propane can be sensed using this device. One of the preventive methods to stop accident associated with the gas leakage is to install gas leakage detection

kit at vulnerable places. The aim of this project is to present such a design that can automatically detect gas leakage in vulnerable premises. In particular gas sensor has been used which has high sensitivity. This project was based on liquefied petroleum gas. If these gases exceed the normal level then an alarm is generated immediately. The advantage of this detection and alerting system over the manual method is that it offers quick response time and accurate detection of an emergency and in turn leading faster diffusion of the critical situation.

INTRODUCTION

The presence of hazardous LPG gas leakage in a domestic, work place, also, stored gases container gas which exhibits ideal characteristic is use. For that sake, an alarm unit is used to vibrate an alarm which is buzzer. Buzzer gives an audible sign of the presence of LPG volume. The sensors are widely used to detect essence of propane, iso-butane, LPG and even smoke. The sensor has an advantage to combine a sensitivity response time. If the LPG sensor senses gas leak from work place or home, sensor output goes to active low (logic-0) condition. Arduino UNO is used in the project; low signals are overlooked by the Arduino and gas leakage is been noticed by the Arduino. The Arduino UNO turns on the LCD and buzzer. It even turns on the GSM modem after that, it continues to send messages SMS to mobile number specifically mentioned in the program of the source code for alerting danger to the people.

LITERATURE SURVEY :

1. Smart Gas Level Monitoring, Booking & Gas Leakage Detector over IoT

This project proposed the most common problem experienced in our day- to- day lives that is regarding GAS container going empty. We bring this paper to create awareness about the reducing weight of the gas in the container, and to place a gas order using IOT. The gas booking/order is being done with the help IOT and that the continuous weight measurement is done using a load cell which is interfaced with a Microcontroller (to compare with an ideal value). For ease it is even has been added with an RF TX & Rx modules which will give the same information. When it comes it to security of the kit as well as gas container we have an

MQ-2(gas sensor), LM 35(temperature sensor), which will detect the surrounding environment for any chance of error. Whenever any change is subjected in and of the sensors (load cell, LM35, Mq-2) a siren (60db) is triggered.[1]s

A. LM 35 (temp. sensor)

For the sensors, if any fire is to be happened then the temperature sensor will sense an high change(positive change) in temperature and will send an pulse to microcontroller which intern will send an update to the internet through IoT, and as well it will trigger an siren alarm in the RF Rx kit(sub board)[2].

B. MQ-2 (Gas Sensor)

MQ 2 sensor is basically an LPG (liquefied petroleum gas) which is composed of propane & butane, so when a gas leakage is sensed by the sensor it will send an high pulse to the Mc which will update it in the IoT, and even[5] an buzzer is heard in the RF Rx kit. And the problem can be sorted & solved. Thus the overall components & sensors play role in the paper as explained above.

2. Gas Leak Detection and Localization System through Wireless Sensor Networks

In this project we proposed a prototype of a Wireless Sensor Network (WSN) to monitor and locate gas leaks of a complex indoor environment. Specifically, a mobile node is moving inside a building to monitor any leakage of carbon dioxide (CO2), supporting and displaying the level and the location of the leakage. Throughout the demonstration, the technological advantages of cognitive networking along with multichip routing are explored.

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