LITERATURE SURVEY

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Project Name	Gas leakage Monitoring and Alerting system for Industries

IOT BASED HOME SAFETY GAS LEAKAGE DETECTION AND AUTOMATIC BOOKING SYSTEM

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YEAR: 2021

❖ Abstract : Gas spillages causes a significant issue in family unit, It will be difficult situation for the individual who uses LPG gas for cooking reliably. The aim of this paper is to introduce another framework consequently books a cylinder at the point when the gas is going to discharge is by sending a notice to the gas office using Wifi using Internet of Things approach In addition to that sensor is utilized to identify gas spillage at home.

❖ INTRODUCTION:

Internet of things try towards making life less complex what's more, quicker via robotizing the whole little errands related with the life of human. Today, everything is getting keen because of the innovative advancement, for example, of IOT. As IOT is valuable for robotizing the assignments, the upside of IOTcan likewise be far reaching for improving the helpful security strategies.

ADVANTAGES :

- Our system helps customers to upgrade their safety and protect life and property from reputed accidents
- We can able to observe the amount of the gas and also the gasleak
- By this system, the users can be aware of their gas level and it also avoids the prior and delay booking of the cylinder.
- The system is much more efficient and also the sensor used in the system MQ-6, is in constant detection of any change in the environment. Immediate action is taken if there is an accidental leakage insuring 100% safety.
- The proposed system helps the LPG gas customers to lead a pleasant life.

RESULT:

The proposed system is developed to detect and monitor the LPG when a small amount of LPG is brought near the MQ6 sensor, it display the message in LCD.”Gas LEAKAGE” at the time of leakage of the gas and the system monitors the LPG level and displays the message “HIGH or LOW”. Internet of Things has gained its wide popularity in recent days due to its various streams of applications which has paved way for smooth, safe and easier mode of living style for human beings. The main intention of this work is to ensure safe and easier way of gas booking and gas leakage detection to avoid disasters that may occur due to negligence.

FUTURE SCOPE:

Voice feedback system can be included in GSM based LPG weight and LPG leakage detection system. User will get intimation through pre-recorded voice messages like the weight of gas Cylinder is ABC kg. In future, some other wireless technology can be used to sense gasses and can be helpful for control of gas leakage. A robot has been utilized in trading human for taking care of different errands in a risky and perilous working environment where human life may in danger. A portable gas detecting robot can be built to detect the spillage of gas through pipelines as the robot can proceed onward a track which is arranged along the length of pipeline.

Sensor-Based Gas Leakage Detector System

AUTHOR: Mohammad Monirujjaman Kha

YEAR:2020

- ABSTRACT: Liquefied Petroleum Gas (LPG) is a main source of fuel, especially in urban areas because it is clean compared to firewood and charcoal. Gas leakage is a major problem in the industrial sector, residential premises, etc. Nowadays, home security has become a major issue because of increasing gas leakage. Gas leakage is a source of great anxiety with ateliers, residential areas and vehicles like Compressed Natural Gas (CNG), buses, and cars which are run on gaspower. One of the preventive methods to stop accidents associated with the gas leakage is to install a gas leakage detection kit at vulnerable places. The aim of this paper is to propose and discuss a design of a gas leakage detection system that can automatically detect, alert and control gas leakage. This proposed system also includes an alerting system for the users. The system is based on a sensor that easily detects a gas leakage.

- INTRODUCTION: Gas leakage is a serious problem and nowadays it is observed in many places like residences, industries, and vehicles like Compressed Natural Gas (CNG), buses, cars, etc. The reason for such explosions is due to substandard cylinders, old valves, no regular checking of gas cylinders, worn out regulators and a lack of awareness of handling gas cylinders. Therefore, the gas leakage should be detected and controlled to protect people from danger. An odorant such as ethane thiol is added to LPG, so that leaks can be detected easily people.

However, some people who have a reduced sense of smell may not be able to rely upon this inherent safety mechanism. A gasleakage detector becomes vital and helps to protect people from the dangers of gas leakage. A number of research papers have been published on gas leakage detection techniques. In this paper a low-cost advanced sensor-based gas leakage detector, alert and control system is proposed and discussed. The system is very efficient, user friendly, portable, small in size and cost effective. It will cost only 917 Bangladeshi taka which is equivalent to ten USD.

❖ ADVANTAGES

- Simple and low cost technology.
- It is easy to operate in the absence of oxygen.
- It has very wide measurement range.
- It measures toxic gases in very low concentrations.
- It has ability to detect wide range of gases.
- It is very easy to operate in the absence of oxygen.
  is not affected by EMI (Electromagnetic Interference).
- It has very wide monitoring area.

❖ DISADVANTAGES:

- It requires air or oxygen to work.
- It can be poisoned by lead, chlorine and silicon.
- It is difficult to know failure modes unless very advanced methods of monitoring are used.
- All the gases do not have infrared absorption.
- Sequential monitoring is slower on multi-point analyzers.
- It is susceptible to contaminants and changes due to environment conditions.

FUTURE SCOPE: Futurescope of LPG/CNG gas leakage detection system this monitoring system can be further enhanced by using blutooth in place of GSM to send alert messages to the user, which supports anotherreal-time application.

LPG GAS LEAKAGE DETECTION USING IOT

AUTHOR: Dr. Chetana Tukkoji

Mr. Sanjeev Kumar A. N

YEAR:2020

- ABSTRACT: This paper provides a brand new approach to discover LPG discharge supported microcontroller based Arduino. To alert on Liquefied rock oil Gas (LPG) leakage and preventing any unwanted incident, we need to apply some cautions to discover the discharge. It can be developed associate degree Arduino based LPG gas detector alarm, if gas leakage happens. The LPG detector MQ6 is associate degree correct LPG sensing device that acquires the signal intensity. Associate degree economical Arduino based signal process mechanism is followed that effectively quantizes the non-inheritable electrical signal. The intensity of the LPG leakage is classed into 3 categories, such as LOW, MEDIUM and HIGH based on square measure. This paper conjointly shows the ratio and temperature over the alphanumeric display. The importance and connection of the paper is very beneficiary for man as a result of it's a vital cautions for our domestic life. The MQ6 gas sensor detects the concentration of gas in ppm and outputs analog value which can be converted to a digital signal using inbuilt Analog to Digital Convertor of Arduino. The paper allows the user to set the low, medium and dangerous level for leakage based on the same digital measure.

- INTRODUCTION: LPG is that the abbreviation or short kind for liquefied oil gas. Like all fossil fuels, it's a non-renewable supply of energy. It is extracted from fossil oil and gas. The most compositions of

LPG square measure Hydrocarbons containing three or four carbon atoms. The conventional parts of LPG so, square measure gas (ClHa) and alkane (CaHro). Tiny concentrations of alternative hydrocarbons may additionally be gift betting on the supply of the LPG and the way it's been created, parts apart from hydrocarbons may additionally be gift. LPG is extremely combustible and should thus be hold on off from sources of ignition and during a well-ventilated space, in order that any run will disperse safely. LPG vapors is heavier than air thus care ought to be taken throughout storage in order that any run won't sink to the bottom and find accumulated in a district that is low lying and tough to disperse. LPG gas is largely gas and alkane and it's scentless in its state of nature. The smell that we tend to notice once there's a run is really of a wholly totally different agent, referred to as alkyl radical Mercaptan.

ADAVANTAGE:

- It uses physical technique only for sensing.
- There are no unseen failure modes.
- It can be used in inert atmospheres.
- It is mechanically very robust sensor.
- It works well at constant high humidity condition.
- It can detect nerve and blister agents.

DISADAVANTAGE:

- All the gases do not have infrared absorption.
- Sequential monitoring is slower on multi-point analyzers.
- It requires more user expertise.

RESULT: Safety plays a serious role in today's world and it's necessary that smart safety systems are to be enforced in places of education and work. The LPG or gas that is combustible mixture of organic compound gases utilized in use as fuel in abundant application like homes, hostels, industries, automobiles' vehicles attributable to its fascinating properties that embrace high hot price, that manufacture the less smoke.

SMS Based Gas Leakage and Fire Detection Alert System to attempt as Firewall against Cybersecurity

AUTHOR: Maria Latif, Jazzba Asad, FaizaNawaz,Noman Mazher

YEAR:2020

❖ Abstract: Safety is the foremost aspect in today‟s world. In this world of technology, people need technology to help them in danger conditions. Gas leakage becomes a severe issue that results in many accidents which lead to mortal and monetary harm. It is need of hour to install the gas leakage detection systems on public places. This paper presents a system design that identifies the leakage of gas and warns the user about the situation by sending SMS on user‟s phone with the help of GSM. Smart kitchen by means of IOT is aimed, created and verified. Our system has more features than existing systems because those were manual while our system is automatic and provides rapid reply and correct identification that can save many lives and prevents humans from many hazardous case.

❖ INRODUCTION: IOT has changed the living of human beings. It‟s a hot topic in the industry but not a fresh idea. It‟s a concept of network devices that can sense and gather data throughout the world around us with the help of sensors, and then share that data across the Internet where it can be processed and utilized for many interesting purposes. Creating IOTs has put on much attractiveness over the past few years as it presents a new facet to the globe of technologies. Smart kitchen quarter of the household appliance market grasp vast prospective,

because the use of devices in the kitchen is more than any other area of the home that‟s why kitchen has enormous such devices which facilitate the work in kitchen. Also, a lot of people want to spend fewer times in cooking and also want their food to be quickly prepared, which is why people choose to purchase all those devices that help them in cookingand many other tasks in the kitchen.

ADVANTAGE:

- It is battery less.
- It can be used for wireless applications.
- It can be placed in harsh & rotating parts.
- It has robust and simple construction.
- It is easy to operate in the absence of oxygen.
- It has very wide measurement range.

DISADVANTAGE:

- Non-linear response affects sensor complexity.
- It is difficult to handle while fabrication due to smaller size.
- It is difficult to know failure modes unless very advanced methods of monitoring are used.

RESULT: Smart kitchen by means of IOT was aimed, created and successfully verified in this paper. Through simulation, we appraised the performance of system. This project is simulated using bluemix software. The outcome of the test demonstrates the ability of system to check the leakage of gas in the kitchen and send SMS alert to user‟s phone when the concentration of gas is above or below the set limit. Smart kitchen offers all the protection automation factors. The more work is coming in this domain. One more thing to add in these systems is battery power supply and to add many other methods for these systems to be more protective.

IoT Application for Gas Leakages Monitoring

AUTHOR: Ba Thanh Nguyen, Anh Vu Nguyen

YEAR:2020

❖ Abstract: Gas leaks are a potential risk in homes and other areas that use gas, so monitoring equipment is needed to limit the risk of harm. This paper presents the design and construction of IoT-based gas leak detector and alarm. This is an intelligent device with a highly sensitive gas sensor and LCD display that displays the device's status as well as the gas value in the environment. The device is placed in a position where there is a possibility of gas leaks. If the device detects that gas exists in the environment beyond the limit, it will immediately turn on the light, warning the buzzer. At the same time, the device will automatically call the phone number to notify in time, in case the owner is not in the area where the gas leak occurs. Also, the device is connected to the Internet so the gas value in the environment will be posted to the internet for online monitoring.

INTRODUCTION: In today's modern life, gas is widely used, especially gas which is used very popularly from households, restaurants to businesses. The gas plays a really important role in life. Therefore, a situation poses that the use of gas is likely to leak. In the event that the user does not detect it in time, it is forced to inhale a significant amount of gas, affecting the health, even the worst case scenario is death if in a

closed room. Besides, the possibility of fire is very high if gas is leaked in the space exposed to flammable substances or small sparks.

In this paper, the authors design and construct gas monitoring equipment with the following functions:

- Monitor gas level in the environment and display it on LCD
- The device is connected to the Internet.
- If detecting gas leak, the device will alarm through light, buzzer.
- Alarm of danger of gas leak via SMS and phone call to pre-phone number.
- This automatic gas detection application makes it safer to use gas in the household as well as in some areas that need fire control.

ADVANTAGE:

- Supervise gas concentration levels
- Get real-time alerts about the Gaseous presence in the atmosphere.
- Real-time updates about leakages.
- Data analytics for improved decisions.
- Ensure worker's health.

DISADVANTAGE:

- Susceptible to dirt and dust clogging up moving parts making it inoperative when needed.
- Depending upon what impact protection has been provided, the moving parts on floats can be easily damaged.
- Will also detect water or any liquid.