

LITERATURE SURVEY

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GAS LEAKAGE MONITORING AND ALERTING AND SYSTEM FOR INDUSTRIES

ABSTRACT:

Internet of Things (IOT) is the networking of 'things' by which physical things can communicate with the help of sensors, electronics, software, and connectivity. These systems do not require any human interaction. Internet of Things aim towards making life simpler by automating every small task around us. As much as IOT is helping in automating tasks, the benefits of IOT can also be extended for enhancing the existing safety standards. Safety plays a major role in today's world and it is necessary that good safety systems are to be implemented in places of education and work. This work modifies the existing safety model installed in industries and this system can also be used in homes and offices. The traditional Gas Leakage Detector Systems though have great precision, fail to acknowledge a few factors in the field of alerting the people about the leakage. Therefore we have used the IOT technology to make a Gas Leakage Detector for society which has Smart Alerting techniques involving sending.

INTRODUCTION:

The Internet of Things is an emerging topic of technical, social, and economic significance. Consumer products, durable goods, cars and trucks, industrial and utility components, sensors, and other everyday objects are being combined with Internet connectivity and powerful data analytic capabilities that promise to transform the way we work, live, and play. Projections for the impact of IOT on the Internet and economy are impressive, with some anticipating as many as 100 billion connected IOT devices and a global economic impact of more than \$11 trillion by 2025. The Internet of Things (IOT) is an important topic in technology industry, policy, and engineering circles. This technology is embodied in a wide spectrum of networked products, systems, and sensors, which take advantage of advancements in computing power, electronics miniaturization, and network interconnections to offer new capabilities. The large-scale implementation of IOT devices promises to transform many aspects of the way we live. For consumers, new IOT products like Internet-enabled appliances, home automation components, and energy management devices are moving us toward a vision of the "smart home", offering more security and energy efficiency. IOT systems like networked vehicles, intelligent traffic systems, and sensors embedded in roads and bridges move us closer to the idea of "smart cities", which help minimize congestion and energy consumption. IOT technology offers the possibility to transform agriculture, industry, and energy production and distribution by increasing the availability of information.

LITERATURE SURVEY:

A number of reviews on the subject of gas leakage detection techniques were done in the past either as part of research papers/technical reports on a certain leak detection method and other gas related subjects

A.Mahalingam,r.T. Naayagi,n.E. Mastorakis ; they introduce design and implementation of an economic gasleakage detector. They gave the formulation of many problems in previous gas leakage detectors. They told that several standards have been formulated for the design of a gas leakage detection system such as IEEE, BS5730 and IEC. For this work, the recommended UK safety standards have been adopted. The proposed alarm system is mainly meant to detect LPG leakage, which is most commonly used in residential and commercial premises. The system detects not only the presence of gas (gas leak), but also the amount of leakage in the air, and accordingly raises an appropriate audio visual alarm. The objective of the system is to detect LPG gases such as propane and butane. The allowed UK level for butane is 600 ppm above which it is considered to be of high level and poses a danger. The proposed system ensures a continuous monitoring of the gas levels. If the gas level increases above the normal threshold level of 400 ppm butane (LPG), the system starts to issue early warning alarms at 100ms interval, which implies low level gas leakage. If the leakage level increases to 575 ppm of butane (LPG), the system activates high severity audio alarms at 50 ms intervals warning the occupants to run to safety.

P.Meenakshi Vidya, S.Abinaya, G.Geetha Rajeshwari, N.Guna, "Automatic LPG detection and hazard controlling" published in April 2014 proposed the leakage detection and real time gas monitoring system. In this system, the gas leakage is detected and controlled by means of exhaust fan. The level of LPG in cylinder is also continuously monitored.

Pal-Stefan Murvaya, Ioan Sileaa, 2008, they told in their survey on gas leak detection and localization techniques various ways to detect the gas leakage. They introduce some old or new technique to detect the gas. The proposed techniques in their paper are non technical methods, hardware-based methods which include acoustic methods, optical methods and active methods. In their survey they told a wide variety of leak detecting techniques is available for gas pipelines. Some techniques have been improved since their first proposal and some new ones were designed as a result of advances in sensor manufacturing and computing power. However, each detection method comes with its advantages and disadvantages. Leak detection techniques in each category share some advantages and disadvantages. For example, all external techniques which involve detection done from outside the pipeline by visual observation or portable detectors are able to detect very small leaks and the leak location, but the detection time is very long. 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. This disadvantage is prone to disappear for some of these techniques due to forthcoming technological advancements.[3]

Srinivasan, Leela, Jeyabharathi, Kirthik, Rajasree; in this research paper they told about gas leakage detection and control. In this paper, the gas leakage resulting into fatal inferno has become a serious problem in household and other areas where household gas is handled and used. It alerts the subscriber through the alarm and the status display besides turning off the gas supply valve as a primary safety measure. [4]

Falohun A.S., Oke A.O., and Abolaji B.M. 2016, in this paper they proposed their dangerous gas detection using an integrated circuit and MQ-9. In this basically, they used an embedded design which includes typical input and output devices include switches, relays, solenoids, LEDs, small or custom LCD displays, radio frequency devices, and sensors for data such as temperature, humidity, light level etc. Embedded systems usually have no keyboard, screen, disks, printers, or other recognizable I/O devices of a personal computer, and may lack human interaction device. The amount and type of detectors and the type of fire alarm system that one chooses for property protection will depend on the owner's property protection goals, the value of the property and the requirements of the owner's insurance company. Generally, heat detection will be used in all areas that are not considered high value. Here again, one of the most common mistakes in fire alarm generally, heat detection will be used in all areas that are not considered high value. Here again, one of the most common mistakes in fire alarm system application is to provide partial protection of a building and expect high performance from the installed systems of any kind. System application is to provide partial protection of a building and expect high performance from the installed systems of any kind. [5]

Hina Ruqsar, Chandana R , Nandini R , Dr. T P Surekha , have proposed a system that along with monitoring and detection of gas leakage, real time data is made available through real time feed over internet. They have used Xively IOT platform to provide real time sensor data over the internet value chain of production using networked sensors.

CONSLUSION:

Internet of Things is a new revolution of the Internet & it is a key research topic for researcher in embedded, computer science & information technology area due to its very diverse area of application & heterogeneous mixture of various communications and embedded technology in its architecture. In our modern scenario the usage of LPG has increased in a greater manner. As a result of this, the damages caused by the leakage of gas is increasing day by day. So as to eradicate this problems we are introducing highly advanced system known as Internet Of Things (IOT) . It is used in wide range of applications in present day society and introducing a vast scope to the future. Our proposed system is more effective and eco friendly due to the reason of detecting the leakage of gas and controlling the gas valve. So it is mainly designed for the safety of people and property. Using IOT ,it also allows us to book the gas from the gas agency ,when the weight of the gas cylinder reduces below a threshold value .Thus people could easily use their time effectively. It also uses to alert the consumers about the wastage of gas while removing the utensils from the burner by using an object detection sensor