

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 gas leakage 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. [1]

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. [2]

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 nontechnical 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]