

GAS LEAKAGE MONITORING & ALERT SYSTEM

LITERATURE SURVEY

Chen Rong in the year 2008 wrote a paper which focuses on, Intelligent residential burglar alarm, emergency alarm, fire alarm, toxic gas leakage remote automatic sound alarm and remote control system, which is based on 89c51 single chip computer. The system can perform an automatic alarm, which calls the police hotline number automatically. It can also be a voice alarm and shows alarm occurred address. This intelligent security system can be used control the electrical power remotely through telephone.

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, BS 5730, 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.

Prof. M. Amsaveni, A. Anurupa, R. S. Anu Preetha, C. Malarvizhi, M. Gunasekaran; their research paper on “GSM based LPG leakage detection and controlling system” the leakage of LPG gas is detected by the MQ-6 gas sensor. Its analog output is given to the microcontroller. It consists of predefined instruction set. Based on this, the exhaust fan is switched on. So, the concentration of gas inside the room gets decreased. Then, the stepper motor is rotated thus closing the knob of the cylinder. Because of this process, the leakage of gas is stopped. The relay is switched to off the power supply of the house. The buzzer produces an alarm to indicate the gas leakage. Then, the user is alerted by SMS through the GSM module. They proposed their methodology that the system takes an automatic control action after the detection of 0.001% of LPG leakage.

Chen Peijiang found that the classification accuracy can degrade up to 30% when the motion speed of the data used for training highly differs from that of the testing. Gas leakages results a serious problem in household and other areas where household gas is used, therefore the proposed gas leakage detection and monitoring system is developed.

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 this 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.