Gas Leakage Monitoring and Alerting System

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LPG GAS LEAKAGE DETECTION AND ALERT SYSTEM by E.Jebamalar Leavline, H.Deepika, et al., in International Conference on Electronics Engineering Research, ISSN:0975-6450, Vol. 9, No. 7, 2017

The system is designed in such a way that it can also be operate with ac power supply. To detect the LPG, MQ-6 gas sensor is employed. Which can detect the LPG concentration in the range of 200-10000 ppm. The output the gas sensor is given to the LM358 dual operational amplifier where it is compared with the threshold value for gas density which is set using preset potentiometers and amplified. If the sensed voltage is greater than the preset threshold voltage the operational amplifier output fires the driver circuit for LED and buzzer. As a result, the LED will glow and the buzzer starts to produce alarm sound.

METHANE LEAKAGE MONITORING TECHNOLOGY FOR NATURAL GAS STATIONS AND ITS APPLICATION by Bing Han,Qiang Fu, et al,. in IEEE 5th International Conference on Computer and Communications, DOI: 10.1109/ICCC47050.2019.9064041

The Fiber Bragg Grating sensing technology is applied to monitor key areas and equipment in natural gas stations that may suffer methane leakage, considering the shortcomings of existing leakage monitoring technologies applied for the natural gas stations, i.e. high false alarm rate, poor stability, easy to be interfered by background gas, etc. The false alarm rate can be effectively reduced by simultaneously monitoring the leakage vibration and methane concentration.

ADVANCED MONITORING SYSTEM FOR GAS DENSITY OF GIS by Makiko Kawada, Tadao Minagawa, et al., in International Conference on Condition Monitoring and Diagnosis
DOI : 10.1109/CMD.2008.4580302

The paper describes a state-of-the-art gas leakage detection system, which consists of a high-performance gas pressure sensor and a new algorithm improving accuracy of the leakage rate calculation. The gas pressure sensor has enough properties, resolution of 20 Pa and the stability of 0.004 % per year. Furthermore, in order to achieve high accuracy of leakage detection in the actual field, the new algorithm of the leakage rate calculation has been developed to cancel the interference due to solar radiation and weather. A yearlong test of the 84 kV GIS system demonstrated that the algorithm reduces fluctuations of obtained gas pressure to one fifth and enables to detect the leakage of 0.5 % per year, which is standardized maximum leakage by the new standard, IEC 62271-203.