GAS LEAKAGE MONITORING & ALERTING SYSTEM

(AGILE METHODOLOGIES & IOT)

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LITERATURE REVIEW

Survey 1:

Ch. Manohar Raju and N. Sushma Rani (2008)

'Android based automatic gas detection and indication robot'

They proposed prototype depicts a mini mobile robot which is capable to detect gas leakage in hazardous places. Whenever there is an occurrence of gas leakage in a particular place the robot immediately read and sends the data to android mobile through wireless communication like Bluetooth. Thus develop an android application for android based smart phones which can receive data from robot directly through Bluetooth. The application warns with an indication whenever there is an occurrence of gas leakage and we can also control the robot movements via Bluetooth by using text commands as well as voice commands. Earlier mobile robots are based on heterogeneous technologies like GSM, GPS, internet based etc., but the main disadvantage of those prototypes were the absence of communication in particular areas. So, with the rapid developments and tremendous changes in technology thus implemented lots of techniques to eradicate previous problems. They used one of the best feature of smart phone, i.e., the Bluetooth technology to control and monitor parameters driven by a robot.

Survey 2:

J.Sunithaa and K.Padma Priya (2003):

'Wireless LPG leakage monitoring system, Embedded system for Gas Cylinder maintenance'

This system detects the leakage of the LPG and alerts the consumer using GSM about the leakage and it will switch on the exhaust fan. This system also has a feature that the consumption is approximately indicated in terms of the total weight. Whenever the system detects the increase in the concentration of the LPG leakage it immediately alerts by activating an alarm and simultaneously sending message to the particular mobile phones. The fan is switched on to exhaust gas and an LPG safe valve fitted to the cylinder is closed through signals to avoid further leakage. The device assures safety and prevents explosion.The proposed system consists of three main modules a GSM and PIC module, leakage detection module and protection circuitry. The detection module detect the gas leakage and sends SMS to the consumer through GSM. The GSM module is used to send short messages about the possibility of gas leak and as an added feature indicate that it may book a refill cylinder or can program the device to automatically book the cylinder via SMS. The weight of the cylinder is monitored by interfacing load cell to micro-controller.

Survey 3:

Pal-Stefan Murvaya, Ioan Sileaa (2008):

‘Gas leak detection and localization techniques’

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. 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.

Survey 5:

V Suma, Ramya R Shekar, Kumar A Akshay(2019)

'Gas Leakage Detection Based on IOT'

The aim of this paper is to present a new system automatically books a cylinder when the gas is about to empty is by sending a notification to the gas agency using wifi using Internet of Things approach. In addition to that sensor is used to detect gas leakage at home. If the gas leakage is sensed automatically it will send SMS to the user. wifi is one of the most used networks across the world. Hence, load cell has been used to monitor the weight of the LPG gas regularly. If the gas in the cylinder indicates a value where the remaining percentage level is crossed below the threshold level set for gas to be indicated as getting emptied, then a notification will be delivered to gas enterprise automatically to book the new cylinder. Subsequently, reply notification will be sent to the customer about the booking status.

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