Gas Leakage Monitoring and Alerting System for Industries

Proposed System:

Problem Statement:

In this world there have a been a lot of incidents due to explosion and fires and the main cause is due to gas leakage. These incidents cause major effects and are not detected in the early days. Gas Leakage Monitoring and Alerting System using IoT will help in identifying the gas leakage in the surroundings. 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 have the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. If appropriate measures are taken after receiving the alert from the IoT system many lives and property in the environment can be saved. We can enhance the gas leakage detection system to detect toxic gases and fire.

Idea / Solution description:

The arduino UNO-based gas detection system gives remote indication to the admin about the gas leakage. This gauge can also be used in offices, industries and colleges. To refine this project, we can add a GPS modem to this system. It is used in dangerous Gas detection. It is used in Fire Hazard Prevention. It is also used in Oxygen level Measurement. The sensor has exquisite sensitivity combined with a precipitate response time. The system is highly authentic, tamper-proof, and fixed. in the long run, the preservation cost is very less when compared to the present systems.

Novelty / Uniqueness:

IoT technology is used for enhancing the existing safety standards. IOT technology is used to make a Gas Leakage Detector for society which having Smart Alerting techniques involving sending text message to the concerned authority and an ability performing data analytics on sensor. In this system gas sensors are used to detect the gas leakage. The main objective of this system is to bring a dramatic change in the field of safety against the leakage of harmful and toxic gases in environment.

Social impact / Customer satisfaction:

Gas leakage leads to various accidents resulting in the both human injuries and property loss. To avoid such cases we have introduced gas leakage detection and alerting system. This system will be able to detect the gas leakage and notify the admin regarding the gas leakage. Gas sensors are used for the detection.

Business Model:

Gas leakage give rise to explosion that are harmful for the humans. In automotive industries a lot of inflammable gas are used, a gas detection system is a basic requirement for the safety. An IoT powered detection system uses gas sensor to identify the gas leakage. Especially, in the oil and gas industry where many gaseous products like propane, butane, and hydrogen are manufactured at a greater level. Hence, the chances of gas explosions are higher as these gases are easily combustible in the oxygen-rich environment. The Internet of Things is an advanced technology that works on multiple levels creating a smart network of sensor devices, equipment, and assets. These devices help provide valuable data for analysis and allow the industrialists to make better decisions. In a gas monitoring system, the gas detection sensors are installed strategically on different locations for real-time monitoring. These sensors are used to notify the admin when gas leakage is detected.

Scalability of Solution:

It enables threshold-based triggers that alert the concerned admin regarding the gas leakage. Notifying the admin helps in avoiding the air pollution in the environment. Accurate data helps in avoiding property loss and ensures safety. Scalability offers an efficient, cost-effective solution to achieve reliable condition monitoring of a rapidly increasing number of assets without increasing staff resources to match. Our end to end wireless gas monitoring system uses wireless sensors to detect the presence of toxic gases. The solution can hence be scaled up for flexible functionality and offer great extendibility for multipurpose usage.