Project Design Phase-I

Proposed Solution Template

Team ID	PNT2022TMID06806
Project Name	Gas Leakage Monitoring and Alerting System
Maximum Mark	2 marks

Proposed Solution Template :-

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Home fires have been taking place frequently and the threat to human lives and properties is growing in recent years. Liquid petroleum gas (LPG) is highly inflammable and can burn even at some distance from the source of leakage. Most fire accidents are caused because of a poor-quality rubber tube or the regulator is not turned off when not in use. Therefore, developing the gas leakage alert system is very essential. Hence, this project presents a gas leakage alert system to detect the gas leakage and to alarm the people onboard.
2.	Idea / Solution description	The solution could detect gas leakage, send an alert to the end-user via an SMS or a buzzer, and feature an exhaust fan that gets activated once the gas or fire is detected. The fan aims to push the air outside. In another scenario, we could use a load cell sensor to monitor the weight of the LPG gas cylinder regularly and feed the values to the microcontroller.Suppose the gas in the cylinder indicates a value where the remaining percentage level falls below the threshold level set for gas. In that case, the gas cylinder company should be notified immediately to refill the cylinder or replace it. The sensor is also handy for monitoring gas usage over a period.

3.	Novelty / Uniqueness	We have used the IOT technology 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. This system will be able to detect the gas in environment using the gas sensors. This will prevent form the major harmful problem.
4.	Social Impact / Customer Satisfaction	Get real-time alerts about the gaseous presence in the atmosphere Prevent fire hazards and explosions Supervise gas concentration levels Ensure worker's health Real-time updates about leakages Cost-effective installation Data analytics for improved decisions Measure oxygen level accuracy Get immediate gas leak alerts
5.	Business Model (Revenue Model)	With a machine-to-machine interaction, the chemical industry is empowering its potential in dealing with productivity. IoT is a data-driven concept that utilizes the information for predicting future trends, enabling better business growth. The assistive technology segment leads the Internet of Things in the chemical industry with effective costs.
6.	Scalability of the Solution	The developed system provides an effective monitoring system and can be used in a wide range of applications such as gas leaks, fires, and mining applications and if converted for use in an outdoor environment, applications such as agriculture biomass burning emissions and chemical and biological agent detection studies.The system could be used in conjunction with ground sensors and integrated into an extensive gas monitoring system.