Project Design Phase-I
Proposed Solution Template

Date	15.10.2022
Team ID	PNT2022TMID09849
Project Name	Gas Leakage Monitoring and Alerting System using IoT
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Liquid Petroleum Gas (LPG) is a highly flammable chemical that consists of mixture of propane and buntane. LPG is used for cooking at home, restaurant and certain use for industry. They have certain weaknesses that make the gas leakage of gases only can be detected by human nearby and if there are no human nearby, it cannot be detected. But sometimes it cannot be detected by human that has a low sense of smell. Thus, this system will help to detect the presence of gas leakage. Furthermore, gas leakage can cause fire that will lead to serious injury of death and it also can destroy human properties. This system was developed by using IoT to give real-time response to the user and the nearest fire station.
2.	Idea / Solution description	Safety for all must be insured in today's world and it is necessary that efficient and proactive safety systems should be implemented in public places and households. This IoT based project modifies the existing safety model installed in industries and this system also be used in homes and offices. The main objective of this IoT based work is designing microcontroller based toxic gas detecting and alerting system. The hazardous gases like LPG and propane were sensed. If the hazardous gases exceed the normal level then an alarm is triggered immediately at the incident place and also an alert message is sent to the authorized person through Internet with the help of used ESP8266 module incorporating IoT.
3.	Novelty / Uniqueness	This project is varying from other gas leakage detector is that Micro Python used here. A great advantage of using Micro Python is that it is easy to learn and has great documentation for a number of boards. At a moments, there are four boards that can be used together with Micro Python. IoT has become very popular in the pandemic, as it reduces interaction between people. It helps connect things without the need for multiple people to work on the same thing. It also provides a feature to control things remotely.

4.	Social Impact / Customer Satisfaction	Gas detection sensors are most commonly used to develop an IoT-powered system and identify the variation of toxic gases around an industrial facility. It helps benefit the factories and refineries by keeping them safe against any unexpected threats like explosions. Get real time alerts about the gaseous presence in the atmosphere. It prevent hazards and explosions. With the product of this idea helps to ensure workers health. An IoT powered gas monitoring solution works through sensors that provides accurate data regarding the presence of toxic gases in the atmosphere. It is a very useful system to implement in the industries or plant facilities to avoid catastrophic explosions. With the help of a gas monitoring solution, you can successfully measure temperature and humidity in the atmosphere, which results in improved plant facilities and ensures employee safety.
5.	Business Model (Revenue Model)	gas leakage is detectable one. gas is a explosionable one that's why it requires more careful when handing it. LPG is a highly combustible substance and quickly forms explosive air- hydrocarbon mixture when suspected to atmospheric condition. Liquid leakages that may from in LPG systems can create combustible and explosive gas mixtures in large volumes forms 250 unit. gas leakage detector provides a profit stability to the people who are having it. Because cost wise it becomes to low price in market even poor peoples can also using this easy manner. Inhaling LPG vapor at high concentration even for a short time can cause fainting and death. Inhaling in nose and throat, headache and nausea, vomiting, dizziness and loss of consciousness. LPG vapour can cause fainting and choking in closed or poorly ventilated environments.
6.	Scalability of the Solution	Its ability to warn its stakeholders about the leakage of the LPG gas. The future aspects of this detector include the GSM module and a tripper circuit which increases the efficiency of the system and provides more safety to the users. This detector is implemented successfully and is easy to use and also a low cost product. Another advantage of this device is that even though if no one is there in the house and then gas leaks occurs, GSM module is there to send immediate messages to the stakeholders regarding the gas leak and thus it lowers the intensity of accidents. GSM module in this device ensures better safety regarding the gas leaks.