

Project Design Phase-I
Proposed Solution Template

Date	29 September 2022
Team ID	PNT2022TMID02488
Project Name	Gas Leakage Monitoring and Alerting System for Industries
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	<p>Gas leakage is the main problem of the industrial sector, residential areas and gas-powered vehicles such as CNG (Compressed Natural Gas) buses and cars. Gas Leakage fires took an increasing toll on lives and property in recent years. Most Gases used for industrial activities are highly inflammable and will even catch fire from the source of the leak. The leakage of gases only may be detected by humans nearby and if there are not any humans nearby, it cannot be detected. But sometimes it cannot be detected by humans who have a coffee sense of smell. Therefore, in such cases Industries are in need of a Gas Leakage Detection System for gas leakage identification and to perform certain measures in order to scale back the impact incase of any fire and to alert people/workers about the gas leakage.</p>
2.	Idea / Solution description	<p>To create a device which periodically monitors the level of the gas in the area of interest and updates the status in the server, which can be viewed using an application. It continuously listens to the level of gas in the atmosphere and provides a warning using a buzzer and provides the alert to the incharge people if any leakage occurs via the GSM network.</p>
3.	Novelty / Uniqueness	<p>A safety has been a major issue in today's day to day life. LPG and CNG i.e. petroleum gas and compressed natural gas are most commonly used in residential and commercial places for cooking purpose and in various vehicles as a replacement for costly fuels like diesel, petrol. These gases are filled in cylinders which are easily un-damageable. But leakage can take place through pipes or regulators or knobs which may cause accidents like suffocation, uneasiness or sometimes may catch fire and short circuit as well.</p>

4.	Social Impact / Customer Satisfaction	<p>Explosions caused by unidentified gas leaks are dangerous for the workers who are exposed to a dangerous atmosphere. For increased safety, it becomes necessary to implement smart systems to precisely identify combustible, flammable, and hazardous gases as well as detect oxygen depletion in industrial buildings.</p> <p>A gas detection system is a fundamental necessity for safety in the oil and gas, hospital, and hotel industries, as well as other settings where dangerous gases are frequently employed.</p>
5.	Business Model (Revenue Model)	<p>The product can be made compact, cost efficient and easily installable so that all the industries from small scale to large scale can afford to buy the product which creates more profit. It can even be used for domestic purposes for LPG gases.</p>
6.	Scalability of the Solution	<p>A mobile application can be developed that can provide details about the amount of gas present in the region, set reminders to check gas levels, and anticipate gas leaks by providing values. To increase safety, relay motors can be added to the system. In the event that the gas concentration exceeds a certain threshold, these motors have the ability to turn off the main power and gas supplies.</p>