Project Design Phase-II
Solution Requirements (Functional & Non-functional)

TEAM ID: **PNT2022TMID52302**
Project Name: **Gas Leakage Monitoring & Alerting System for Industries**

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	signing up with Gmail Registration through a mobile device.
FR-2	User Confirmation	Email confirmation required OTP confirmation.
FR-3	Detection	The aforementioned technology is usable in residences, hotels, industrial settings, LPG cylinder storage places, etc. The primary benefit of this Arduino-based application is its ability to detect leaks and transmit the information to a destination.
FR-4	Monitoring	Toxic gas detection can be improved and the leakage can be monitored.
FR-5	Alerting	Along with keeping track of leaks, it can notify registered users and anyone around by emitting a buzzer, which can aid in averting tragedy.
FR-6	Communication	The system can send an SMS to the registered user notifying them of an alert, and they can also receive app notifications.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	This tool demonstrates the distinctive and significant role that usability plays in the analysis of user needs and how it can be used to further enhance tool quality. The analysis of user usability can in fact aid designers in developing models that better comprehend users' possible demands, behaviour, and experiences.
NFR-2	**Security**	People can evacuate in time if a hazardous gas leak is identified and made known in advance.

NFR-3	**Reliability**	We can locate gas leaks and detect different types of leaks by using a variety of sensors.
NFR-4	**Performance**	In this method, the gas sensor alerts the Arduino UNO to a gas leak by sending a signal. Arduino transmits strong signals to other devices that are connected to the outside world, such buzzers and GSM. As a result, the GSM module sends an SMS to the specified cellphone number. In practise, the outcomes are noted by those in the immediate vicinity who are notified by buzzer sound and warned of the danger by beep sound.
NFR-5	**Availability**	By creating and deploying a robust tool, we may notify users by sounding an alarm and sending an SMS to a user list.
NFR-6	**Scalability**	Utilizing this gas leak detection device is beneficial for both household and commercial purposes. Using this technique, we are able to save lives in dangerous situations.

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