

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

Date	03 October 2022
Team ID	PNT2022TMID02525
Project Name	Gas Leakage Monitoring and Alerting System
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirements (Epic)	Sub Requirements (Story/ Sub-Task)
FR-1	User Entry	Scan the QR code
FR-2	User Access	Real time monitoring of gas leakage systems through web portals for authorised users.
FR-3	User Alert	User receives an alert through the website.
FR-4	Review and Feedback	Suggestion boards that allow customers to submit Feedback.
FR-5	Gas Sensor	Gas sensors are used to detect and identify different types of gas leaked.
FR-6	Temperature Sensor	Temperature sensor is used to measure the temperature of its environment and converts the input data into electronic data
FR-7	Open CV	OpenCV technology accesses a camera to detect the fire (may occur due to external entities like rise of temperature) and interface with an arduino to control the water sprinkler.
FR-8	Relay	Relays whose control is taken by arduino to switch ON or OFF the water sprinkler motor.
FR-9	Water Pump Motor	Water sprinkler system that discharges water when the fire has been detected, such as when a predetermined temperature has been exceeded.
FR-10	Arduino	Open-source electronic prototyping platform interfaces with sensors, OpenCV and delivers desired alerts, data , monitoring of unsafe places and takes control measures.

Non-Functional Requirements:

Following are the non-functional requirements of the proposed solution.

NFR No.	Non Functional Requirements	Description
NFR-1	Usability	Usage of UI template of Node - Red could make well understandable representation of data like usage of gauge representation, Graphical representation, Sliders etc
NFR-2	Security	Only authorised persons have access to the system and also data transmission and handling through secured protocols
NFR-3	Reliability	Gas Sensor has an anti-explosion network which ensures the heating element does not cause explosion on interfacing with flammable gases.
NFR-4	Performance	Faster response and high accuracy of gas leakage detection in localised areas
NFR-5	Availability	Real time monitoring system and also the user can access the website 24/7
NFR-6	Scalability	The system is scalable even in case of many gas sensors or in case of many supervisors.