

Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	15 October 2022
Team ID	PNT2022TMID14393
Project Name	Project – Gas Leakage Monitoring and Alerting System for industries
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	DC Motor	*With the help of a DC motor we can automatically close the knob of the cylinder whenever gas leakage is detected.
FR-2	Sensor	*MQ6 Sensor helps us to sense/detect gas leakage levels. This sensor can detect gas concentrations from 200 to 10000ppm.
FR-3	LCD Display	*LCD Display continuously shows the reading of gas level in the environment.
FR-4	Raspberry pi	*Raspberry pi receives the input light on the sensor and without any delay, it starts activating the DC motor and sends notification messages to the owner.
FR-5	GSM Module	*By using the GSM module we can able to alert the user by sending warning messages.
FR-6	Buzzer	*By fixing buzzers in industries we can able to alert the workers when there is a gas leakage is detected in their surroundings.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	*DC motor is to close the knob of the cylinder in case of leakage. *Sensors to sense gas leakage and the gas level are simultaneously shown on an LCD board.
NFR-2	Security	* GSM module is installed to send alert notification messages to the owner of the house/industry. *Buzzers are used in industries to indicate and alert workers.
NFR-3	Reliability	*It helps to monitor the gas level regularly by which we can able to avoid explosions.

		*Buzzers are used to notify the workers in industries which help to save many lives before any accidents occur.
NFR-4	Performance	<ul style="list-style-type: none"> *Actions are taken immediately after detection. *Alert notifications are sent to the owner without any delay. *Helps to reduce accidents that occur by gas explosions in homes/industries.
NFR-5	Availability	*This device has an MQ6 sensor that is highly sensitive to gas leakage and it helps us to know about the leakage without any delay.
NFR-6	Scalability	*instead of using a DC motor we can use a stepper motor which gives better performance and it does not require human help.