Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	16 October 2022
Team ID	PNT2022TMID00340
Project Name	Hazardous Area Monitoring for Industrial Plant Powered by IoT
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	CLOUD STORAGE & CONNECTIVITY	• To store the values of critical parameters from the sensor nodes • To enable real-time monitoring of hazardous areas in the plant
FR-2	SENSORS	• To detect various critical parameters in the hazardous areas (different types of sensors are used)
FR-3	MOBILE APPLICATION	• To display timely alerts in case of a hazard • To display the counter measures to take after exposure
FR-4	WEARABLE DEVICE	• To display timely alerts in case of a hazard • To display the vitals of the user
FR-5	ALERT SYSTEM	• To alert the personnel in times of a hazard • To alert the personnel when their exposure level exceeds critical level
FR-6	ADMIN CONTROL	• To send out manual alerts • To make updates in the UI of the mobile application and the wearable device

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	• The wearable device should be light-weight • The mobile application should be easy to access • The displaying UI in both the wearable device and the mobile application should be accessible and reliable
NFR-2	**Security**	• The data stored in the cloud would be inaccessible to any third-party • The connectivity between the remote sensor nodes and the cloud should be secure. • The connectivity between the wearable device and the cloud should be secure.
NFR-3	**Reliability**	• The deployed remote sensors and the wearable device should withstand critical conditions and continue to function properly even at times of a hazard • The algorithms used for the monitoring purpose should be debugged
NFR-4	**Performance**	• The alerts sent must be timely and accurate • The algorithm used for monitoring should have least time complexity • The mobile application should not crash easily • The wearable device must have maximum power capacity lasting a few days
NFR-5	**Availability**	• The appropriate sensors can be acquired from the market • The measured values should be displayed in the wearable device at all times and at all places • Real- time monitoring of hazardous areas must never be stopped
NFR-6	**Scalability**	• Depending on the type of industrial plant, the critical parameters measured can be changes and the sensors used to measure them can be integrated into the safety monitoring system • Updates to the monitoring algorithm can be made to scale up to the changing requirements of the industrial plant safety protocol