# Team ID : PNT2022TMID11820

# Project Design Phase-II

# Solution Requirements (Functional & Non-functional)

## 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 thesensor nodes<br>• To enable real-time monitoring of hazardous areasin 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<br>• To display the counter measures to take afterexposure |
| FR-4 | WEARABLE DEVICE | • To display timely alerts in case of a hazard<br>• To display the vitals of the user |
| FR-5 | ALERT SYSTEM | • To alert the personnel in times of a hazard<br>• To alert the personnel when their exposure levelexceeds critical level |
| FR-6 | ADMIN CONTROL | • To send out manual alerts<br>• To make updates in the UI of the mobile applicationand the wearable device |

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## 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<br>• The mobile application should be easy to access<br>• The displaying UI in both the wearable device and the mobile application should be accessibleand reliable |
| NFR-2 | **Security** | • The data stored in the cloud would beinaccessible to any third-party<br>• The connectivity between the remote sensornodes and the cloud should be secure.<br>• The connectivity between the wearable deviceand the cloud should be secure. |
| NFR-3 | **Reliability** | • The deployed remote sensors and the wearabledevice should withstand critical conditions and continue to function properly even at times of ahazard<br>• The algorithms used for the monitoring purposeshould be debugged |
| NFR-4 | **Performance** | • The alerts sent must be timely and accurate<br>• The algorithm used for monitoring should haveleast time complexity<br>• The mobile application should not crash easily<br>• The wearable device must have maximumpower capacity lasting a few days |
| NFR-5 | **Availability** | • The appropriate sensors can be acquired fromthe market<br>• The measured values should be displayed in thewearable device at all times and at all places<br>• Real- time monitoring of hazardous areas mustnever 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<br><br>• Updates to the monitoring algorithm can be made to scale up to the changing requirementsof the industrial plant safety protocol |