Project Design Phase-II

Solution Requirements (Functional & Non-functional)

# Functional Requirements:

Following are the functional requirements of the proposed solution.

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| **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.

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| **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 |