# Project Design Phase-II

**Solution Requirements (Functional & Non-functional)**

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| Date | 15 October 2022 |
| Team ID | PNT2022TMID09994 |
| Project Name | Project - Hazardous Area Monitoring for Industrial Plant powered by IoT |
| Maximum Marks | 4 Marks |

## 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 | Data Gathering | The smart beacon must be able to accurately determine the temperature of a given area. |
| FR-2 | Location Detection | When a wearable device enters an area close to the smart beacon, it must be able to recognize it. |
| FR-3 | Beacon Data Syncing | The wearable device and admin dashboard must be able to access the smart beacon's stored data through the cloud. |
| FR-4 | Wearable Device Display | The admin dashboard and wearable device must be able to access the smart beacon's cloud-based data storage. |
| FR-5 | SMS Notification | The worker should be warned through SMS to their phone that they need to leave the location if it is determined that the temperature has reached unsafe levels. |
| FR-6 | Admin Dashboard | The admin is notified via the dashboard if the temperature is discovered to have reached dangerous levels, and they must then take the appropriate safety measures. |

## 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 technology should be discreet and shouldn't irritate or distract the workers wearing it.  They should also clearly notify users when danger is identified and show the temperature reliably without significant delays. |
| NFR-2 | **Security** | Beacons should be connected securely to the cloud and to wearable technology.  Additionally, the database that stores all of the temperature data needs to be made more secure. |
| NFR-3 | **Reliability** | Even at harmful temperatures, the wearable device should be able to operate without any issues.  If a problem is found, it should alert the user and the administrator so it can be fixed right away.  For reliability, the beacons should also receive routine maintenance. |
| NFR-4 | **Performance** | In order to update temperature values in real time, the device needs sophisticated sensors and CPUs.  Additionally, it should take the least amount of time feasible to deliver data to the cloud and other devices. |

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| NFR-5 | **Availability** | No matter where they are in the plant or what time it is, the user should be able to check the temperature of the region.  The dashboard needs to be active at all times so that safety measures can be taken when danger is identified. |
| NFR-6 | **Scalability** | Installing new smart beacon devices and connecting them to the same system as the existing beacons is all that is required to expand the monitoring area.  It is also very replicable in several plants with various elements to be tracked, making it highly scalable. |