# Project Design Phase-II
## Solution Requirements (Functional & Non-functional)

| Date | 15 October 2022 |
|---|---|
| Team ID | PNT2022TMID08358 |
| Project Name | Industry-specific intelligent fire management system |
| 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 | Rapid Detection of fire | The system must be able to detect fire rapidly |
| FR-2 | Automatic, Accurate, Dynamic Aiming | The system must be able to quickly aim a large volume of water directly onto the flames, and it must be able to dynamically follow the flames if the fire grows or spreads |
| FR-3 | 3D location | The system must be able to accurately determine the three-dimensional position and volume of the flames in 3-dimensional space |
| FR-4 | Automation and Autonomy | The system must be able to activate and function completely autonomously, without any external network or power and any human intervention |
| FR-5 | Web server | The system must have a web server for system monitoring and allow for remote control by designated persons |
| FR-6 | Cloud server | Cloud servers allows us to store information on the cloud and access this information using an internet connection. As the cloud provider is responsible for providing security, so they offer various backup recovery application for retrieving the lost data. |

**Non-functional Requirements:**

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

| FR No. | Non-Functional Requirement | Description |
|---|---|---|
| NFR-1 | **Usability** | It is completely automated. No need to manually remove any pin like a fire extinguisher. Instead, when the flame is detected, the sprinkler is turned on immediately and when a gas sensor detects any gases, an alarm is sent immediately and notifications are sent to the authorities. It is easier to use the fire management system. |

| NFR-2 | Security | According to the testing and maintenance schedule, frequent tests are done to secure the fire management system. Fire management systems should be discharged, disassembled, and inspected annually. Mock drills should be conducted periodically. It should be checked whether it includes all the fire safety standards. |
|-------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NFR-3 | Reliability | This is the highest quality and most innovative fire sprinklers and special systems on the market; |
|  |  | distributes a full line of best-in-class system components; and backs it up with premier customer service. |
| NFR-4 | Performance | All the minimum durations of operations are here decided for every fire management system, according to the value of the flame sensor, gas, and temperature sensor. The emission of sprinklers shall start within a few seconds since the flame is detected and in case of any gas is detected, an alarm is turned on within a few seconds. |
| NFR-5 | Availability | The fire management systems were effective in extinguishing fires 95% of the time. A new installation of the system shall be available for first-time use within 24 hours of the start of the installation. |
| NFR-6 | Scalability | This model is not only used for small industries but it can also be used in large industries and buildings with proper infrastructure and technology. |