

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

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|---------------|---|
| Date          | 20 October 2022                                 |
| Team ID       | PNT2022TMID40898                                |
| Project Name  | IOT Based Smart Crop Protection For Agriculture |
| 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   | User Registration             | Registration through Form<br>Registration through Gmail  |
| FR-2   | User Confirmation             | Confirmation via Email   |
| FR-3   | Interfacing with hardware     | Interface the sensors with the software application so as to alert the farmers in case of any harm for crops |
| FR-4   | Database Connection           | Databases are retrieved from IBM Cloud ant   |
| FR-5   | Mobile Application            | Alarm and motors can be accessed from the mobile app   |

**Non-functional Requirements:**

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

| FR No. | Non-Functional Requirement | Description  |
|--------|----------------------------|--|
| NFR-1  | <b>Usability</b>           | The smart crop protection alerts the farmers in case of any obstacles and helps in protecting the crops  |
| NFR-2  | <b>Security</b>            | Smart Agriculture can improve the farming practices and maintain sustainable production of crops especially by preventing the animals into the agricultural lands through IoT enabled devices.   |
| NFR-3  | <b>Reliability</b>         | With a proper power supply, SD card and programming the processor should be able to run 24/7 for years. The SD card and power supply will likely wear out faster than the Pi. The possible reasons behind Raspberry Pi failure can be power breakdowns, SD card failures, and ineligible environments. |
| NFR-4  | <b>Performance</b>         | Usage of an SD card module that helps to store a specified sound to scare the animals.<br>Crop damage due to animal attack can be sensed.<br>Network and Design Evaluation   |
| NFR-5  | <b>Availability</b>        | Agriculture for different variety of crops is based on the monsoon changes, indoor and outdoor climatic temperatures, availability of rainfall and irrigation methods.   |
| NFR-6  | <b>Scalability</b>         | The product shall be made available to everyone especially in remote areas for better efficiency of crop yield with the better safety of crops as well as the farmers.   |