**Project Design Phase-II**

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

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| Date | 14 October 2022 |
| Team ID | PNT2022TMID23566 |
| Project Name | IOT BASED SMART CROP PROTECTION FOR AGRICULTURE |
| 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 | Farm montioring (drone) | * Sensors (data transfer) * Monitoring intrusion of wild animals,rodents,macro insects * Releasing RF waves to destroy them |
| FR-2 | Weather forecast (drone) | * Current weather in the field as well as in the region * Temperature and humidity * Wind speed and direction to detect storm * Rainfall detection before impact |
| FR-3 | Field livestream to tablelts | * All images and livecasts from field * Live Weather forecast readings updated * Live forecast from sensors in land portion * Customized tablets for easy operation , multilingual facilities. * Generates alarm messages when any of the parameters goes abnormal |
| FR-4 | Farm monitoring (land part) | * Sensors (data transfer) * Footprints of the animals detected * Sounds of the animals detected |
| FR-5 | Power consumption (drone&tablet) | * Solar panels used for conventional supply |

**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** | Understandable,multilingual,user-friendly applications in the tablet |
| NFR-2 | **Security** | * Database collected are accessed using TCP-IP protocol system (esp. UDP ) , stored in cloud . * Communication interface done using SP-D2GCS protocol * Security establised using Transport layer security protocol and IoT security |
| NFR-3 | **Reliability** | Consistency in tolerance , accuracy maintained , application uptime enhanced |
| NFR-4 | **Performance** | Provides accurate data , efficient functioning despite unexpected variations in climatic conditions and geographical terrains |
| NFR-5 | **Availability** | Drone’s downtime : available 90% of the time in every month  Tablet’s downtime : availabe 99% of the time |
| NFR-6 | **Scalability** | Can respond to demand access changes in near future |