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

Date	03 October 2022
Team ID	PNT2022TMID27262
Project Name	**Project - Smart Farmer - IoT Enabled Smart Farming Application**
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 Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Log in to the system through login credentials	Check Credentials Check Roles of Access
FR-4	Manage Modules	Manage System Admins Manage Roles of User Manage User permission
FR-5	Check the details which received by sensors	Temperature details Humidity details Soil ph details
FR-6	Log out	Exit

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Increased production: the optimisation of all the processes related to agriculture and livestock-rearing increases production rates. Water saving: weather forecasts and sensors that measure soil moisture mean watering only when necessary and for the right length of time.
NFR-2	**Security**	we present a holistic study on security and privacy in a smart farming ecosystem. The paper outlines a multi layered architecture relevant to the precision agriculture domain and discusses the security and privacy issues in this dynamic and distributed cyber

		physical environment. Furthermore, the paper elaborates on potential cyber-attack scenarios and highlights open research challenges and future directions.
NFR-3	**Reliability**	A reliability prediction based on different handbooks has been carried out to estimate the failure rate of the nodes self-designed and self-developed to be used under harsh environments. Then, using the Fault Tree Analysis the real deployment of the nodes is taken into account considering the Wi-Fi coverage area and the possible communication link between nearby nodes.
NFR-4	**Performance**	Enabled farmers to reduce waste and enhance productivity with the help of sensors (light, humidity, temperature, soil moisture, etc.) and automation of irrigation systems. Further with the help of these sensors, farmers can monitor the field conditions from anywhere
NFR-5	**Availability**	Machine learning. Self-learning technologies give you the power to predict changes in climate, soil and water parameters, carbon content, disease and pest spreading, and more. Smart farming sensors. Sensitive sensors help farmers to monitor the slightest changes in the state of the environment and fields in real-time. Drones and satellites with cameras.
NFR-6	**Scalability**	Currently, there is no scalable defactor open IoT platform but the European Commission is pushing FIWARE to fill this gap. We analysed the performance of FIWARE under different platform configurations comparing fog/cloud and cloud-only scenarios for precision irrigation in smart farming. Our results reveal interesting and non-intuitive findings, such as that fog computing does not always improve the overall system performance and in some cases, it even makes it worse.