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

Date	25 October 2022
Team ID	PNT2022TMID52158
Project Name	SmartFarmer - 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	Registration and Login	❖ User needs to login the app by using their Gmail. ❖ Registration needs to be done by giving their Name,Mobile Number and their locality.This is the required Field.
FR-2	sensor and camera	❖ Small devices to collecting environment data, such as humidity , temperature,water level,soil moisture,weather monitor,etc…
FR-3	Actuator	❖ Devices or systems for changing the environment state such us, sprinkler, ventilation, and irrigation systems,etc..
FR-4	GPS	❖ A System that provides geolocation of sensors, agricultural machinery and farm resources
FR-5	Connection Technologies	❖ Devices and technologies to interconnecting remote devices and transferring data via router, access points, protocols.
FR-6	Security Features	❖ Security protocols and schemes for ensuring the availability, integrity, and confidentiality of the system and data.
FR-7	In-Out Interface	❖ Software and hardware interface for communication beyond the local area.
FR-8	Gateway	❖ System located at the edge of the network, connected with farm devices and the cloud. This system can process data, store small amount of data and communicate with the cloud.
FR-9	Data Base	❖ System for storing data produced by the smart system.

FR-10	Web tools	❖ Resources for exchanging data between the remote application and provide access to the end-user application on the Internet.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	❖ Usability is a method for improving ease-of-use during the design process. Smart farming prototype was built using IoT sensors and Cloud based Server running with custom software incorporating specialized algorithms and a graphical user interface. So it assesses how easy user interfaces are to use
NFR-2	**Security**	❖ Security incidents may be accidental or intentional. ❖ Animals, farm working, and machinery can easily access farming environments and cause incidents. ❖ Smart communication technologies introduce a vast exposure to cybersecurity threats and vulnerabilities in smart farming environments.
NFR-3	**Reliability**	❖ It monitor the crop field with the help of sensors ❖ It provides transparency and real-time crop monitoring, which results in better yield. ❖ Farmers can able to identify the condition for their fields, and quickly identify pests or disease before it can damage their yield.
NFR-4	**Performance**	❖ Data collected by smart sensors allows farmers to better control processes. ❖ Smart agriculture sensors can notify farmers of possible changes in weather, air and soil quality, humidity and other factors affecting crop growth.
NFR-5	**Availability**	❖ IoT in smart farming uses robots, drones, remote sensors, and computer imaging combined with continuously progressing machine learning and analytical tools for monitoring crops, surveying, and mapping the fields, and providing data to farmers for

			rational farm management plans to save both time and money.
NFR-6	**Scalability**		❖ Scalability in smart farming is the adaptability of a system to increase the capacity ❖ The ability to support an increasing number of connected devices, users, application features,and analytics capabilities, without any degradation in the quality of service.The IBM cloud services makes the solution more scalable.