Project Design Phase-I
Proposed Solution

Date	3 November 2022
Team ID	PNT2022TMID12914
Project Name	Smart Farmer - IoT Enabled Smart Farming Application
Maximum Marks	2 Marks

Proposed Solution :

S.No.	Parameter
1.	Problem Statement (Problem to be solved)
2.	Idea / Solution description
3.	Novelty / Uniqueness
4.	Social Impact / Customer Satisfaction
5.	Business Model (Revenue Model)
6.	Scalability of the Solution

Problem Statement (Problem to be solved)

The traditional agriculture and allied sector cannot meet the requirements of modern agriculture which requires high-yield, high quality and efficient output. Thus, it is very important to turn towards modernization of existing methods and using the information technology and data over a certain period to predict the best possible productivity and crop suitable on the very particular land. The adoptions of access to high-speed internet, mobile devices, and reliable, low-cost satellites (for imagery and positioning) are few key technologies characterizing the precision agriculture trend.

Idea / Solution description

IOT based agriculture is the only solution for the high productivity from agriculture industries with efficient usage of data available. Internet-of-Things (IoT) technology have enabled a new paradigm of smart farming managing agricultural produce, land, and animals more effectively and efficiently. The most critical requirement in developing smart agriculture is the inclusion of "Things"-oriented sensor network systems, which require sensors with high integration, intelligence, ubiquitous connectivity, security, and energy independence.The focus is on the implementation of edge-based devices for producing, processing, and transferring a large amount of data which can be reliably utilized to interpret the past and predict the future, in order to make more timely or accurate decisions, both in sustainable/productive agriculture and in livestock applications.

Novelty / Uniqueness

Data, tons of data, collected by smart agriculture sensors, e.g. weather conditions, soil quality, crop's growth progress or cattle's health. This data can be used to track the state of business in general as well as staff performance, equipment efficiency, etc.
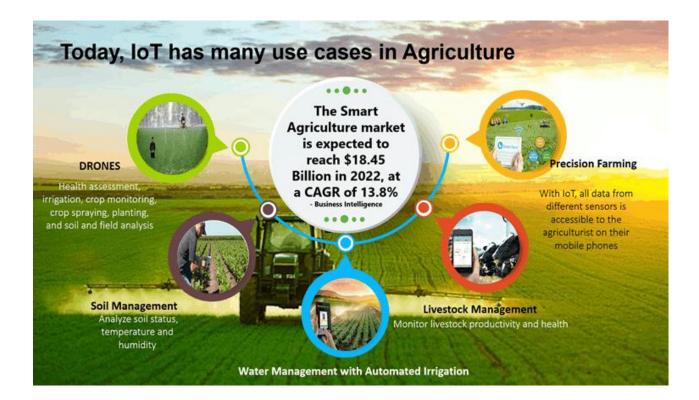Better control over the internal processes and, as a result, lower production risks.
The ability to foresee the output of your production allows you to plan for better product distribution. If you know exactly how much crops you are going to harvest, you can make sure your product won't lie around unsold. Cost management and waste reduction thanks to the increased control over the production. Being able to see any anomalies in the crop growth or livestock health, you will be able to mitigate the risks of losing your yield. Increased business efficiency through process automation. By using smart devices, you can automate multiple processes across your production cycle, e.g. irrigation, fertilizing, or pest control. Enhanced product quality and volumes. Achieve better control over the production process and maintain higher standards of crop quality and growth capacity through automation**.**

Social Impact / Customer Satisfaction

IOT based agriculture application has high impact on society where it gives new hope to the modern farmer in form of high productivity in low cost and efficient work experience.

Customer Satisfaction improves more in IOT agriculture as the proper handle of resource are used in limited time with efficient manner.

Business Model (Revenue Model)

Today, IoT has many use cases in Agriculture

The Smart Agriculture market is expected to reach $18.45 Billion in 2022, at a CAGR of 13.8%
- Business Intelligence

DRONES
Health assessment, irrigation, crop monitoring, crop spraying, planting, and soil and field analysis

Precision Farming
With IoT, all data from different sensors is accessible to the agriculturist on their mobile phones

Soil Management
Analyze soil status, temperature and humidity

Livestock Management
Monitor livestock productivity and health

Water Management with Automated Irrigation

Scalability of the Solution