

Problem Statement 3

Title – *Smart Farming and Agriculture Management app*

Smart Farming and Agriculture Management is an important field where technology can transform traditional farming practices. We propose an innovative app that leverages Internet of Things (IoT) sensors to monitor vital aspects like crop health, soil conditions, and weather forecasts. By providing real-time data and actionable insights, this app helps farmers make informed decisions and improve their agricultural processes. The agriculture industry faces challenges due to inefficient practices, resulting in lower crop yields and sustainability. Our Smart Farming and Agriculture Management app aims to tackle these issues by offering advanced tools for data-driven crop management. The app's main objectives include optimizing irrigation schedules, fertilization, and pest control to boost crop yields and sustainability. By continuously monitoring crop health and soil conditions, the app can offer personalized recommendations to farmers.

To develop the app, we consider key agricultural management stages such as crop monitoring, soil analysis, irrigation management, pest control, and weather forecasting. IoT sensors are vital components of the app, collecting data from various farm locations in real-time. Farmers can access essential information about their crops' health and environmental conditions. The app is equipped with AI-driven algorithms to analyze collected data and generate personalized insights and recommendations for farmers. Additionally, the app provides progress reports and future crop trend predictions, empowering farmers to stay ahead of challenges and opportunities. To facilitate effective communication and decision-making, a real-time dashboard with visual tools, charts, and graphs is implemented in the app, providing farmers with easy access to critical information. The stakeholders involved in the Smart Farming and Agriculture Management app include farmers, agriculturalists, agronomists, and potentially agricultural supply companies, distributors, and government authorities. By leveraging IoT technology and AI-driven insights, our innovative app aims to empower farmers, increase crop yields, and promote sustainable agricultural practices, contributing to food security and improved agricultural productivity.