

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 5, Issue 2, March 2025

AI-Based Prediction Kit for Agriculture

Prof. Yogita Kolhe¹, Chinmay Ahire², Krushnali Patil³, Snehal Katad⁴, Aasavari Bhagat⁵

Professor, Department of Computer Engineering¹ Students, Department of Computer Engineering^{2,3,4,5} Mahavir Polytechnic, Nashik, Maharashtra, India

Abstract: This project aims to create an innovative AI-based prediction kit for agriculture that provides real-time, data-driven recommendations to farmers. By utilizing various sensors such as pH, humidity, temperature, NPK (Nitrogen, Phosphorus, Potassium), and nitrogen, the system gathers vital soil data. This data is sent via Node MCU to a cloud service, where it is processed by a Python application integrated with AI. The system then analyses the information to recommend optimal fertilizers and predict crop yields, helping farmers make informed decisions for better agricultural outcomes.

The integration of AI into this system offers a modern approach to tackling challenges in precision agriculture. By combining sensor data and machine learning algorithms, the kit not only enhances the accuracy of fertilizer recommendations but also ensures that crop management practices are optimized. This project envisions a sustainable future for farming by empowering farmers with actionable insights, improving soil health, and maximizing crop productivity through intelligent, data-backed decisionmaking.

Keywords: Smart Agriculture, Precision Farming, AI in Agriculture, IoT in Farming, Agriculture Predictions

