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IoT-Based Optimization of Potato Farming Through Machine Learning and Neural Network Algorithms

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Abstract:

With the increasing demand for sustainable and efficient agricultural practices, the integration of Internet of Things (IoT) technologies with intelligent data-driven methods has become pivotal in modern farming. This study explores the optimization of potato farming through IoT-enabled systems combined with machine learning (ML) and neural network algorithms. Real-time data collected from environmental sensors—measuring soil moisture, temperature, humidity, and nutrient levels—are processed and analyzed using artificial neural networks (ANNs) to enable predictive decision-making in irrigation, fertilization, and pest control. The proposed framework significantly enhances crop yield, reduces resource wastage, and supports adaptive farm management. By leveraging deep learning models and IoT infrastructure, this system aims to revolutionize potato cultivation through precision agriculture, improving both productivity and sustainability.

Keywords:

IoT, potato farming, machine learning, neural networks, precision agriculture, smart farming optimization

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