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Agriculture balances both the world's food supply and the raw resources required by numerous businesses. The combination of Internet of Things (IoT) and Machine Learning (ML) technologies has revolutionized the agriculture industry, enabling efficient and data-driven decision-making processes. This paper explores the future prospects of using IoT and ML in agriculture, highlighting their potential... Show More

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Future Prospects of Agriculture Using IoT and Machine Learning

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Abstract:
Agriculture balances both the world's food supply and the raw resources required by numerous businesses. The combination of Internet of Things (IoT) and Machine Learning (ML) technologies has revolutionized the agriculture industry, enabling efficient and data-driven decision-making processes. This paper explores the future prospects of using IoT and ML in agriculture, highlighting their potential applications, benefits, and challenges. It examines how IoT devices, such as sensors, drones, and smart irrigation systems, can collect present data on soil situations, weather patterns, crop condition, and resource utilization. ML algorithms can then analyze this data to provide actionable insights for optimizing agricultural practices, improving crop yield, and reducing resource wastage. The paper discusses emerging trends, such as precision agriculture (PA), smart farming, and autonomous farming, which leverage the combined power of IoT and ML. It also addresses the challenges of data security, privacy, and scalability associated with implementing IoT and ML in agriculture. By understanding the future prospects of IoT and ML in agriculture, stakeholders in the agricultural sector can harness these technologies to enhance productivity, sustainability, and profitability.

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I. Introduction

The agriculture industry plays a critical role in ensuring food security, sustainable resource management, and environmental conservation. With the advancements in technology, the combination of Io T and ML has emerged as a transformative approach to revolutionize agricultural practices. This combination offers the potential to gather realtime data, analyze it using sophisticated ML algorithms, and derive actionable insights for adjusting agricultural operations. With the increase in population, there is a rapid rise in the demand for food, agricultural products, and farming practises to increase crop yield, cost-effectiveness, and quality while using cutting-edge technology like the IoT and artificial intelligence (AI). It is necessary to raise the yield, effectiveness, and improved production of land per unit area considered. To solve thes

be embraced. The adoption of new technology has a number of advantages, including enhanced production, optimal crop distribution, crop pattern suggestions, and proper use of resources like fertilisers and manures employing automation and AI models. The agricultural industry is essential to human survival and the economy. Crop selection in traditional farming methods relied on farmers' rudimentary understanding. Most of the time, farmers prefer to choose the most popular crop in their region or their immediate area. Crop rotation and a lack of scientific farming knowledge have a negative

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