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Abstract

Smart agriculture is an emerging concept, because IOT sensors are capable of providing information about agriculture fields and then act upon based on the user input. In this Paper, it is proposed to develop a Smart agriculture System that uses advantages of cutting edge technologies such as Arduino, IOT and Wireless Sensor Network.

Background

IoT-based smart agriculture systems use sensors and connected devices to monitor and optimize farming conditions in real-time. They improve resource efficiency, crop yields, and sustainability by enabling precision farming, reducing environmental impact, and integrating technologies like machine learning for predictive analytics and early disease detection.

Methods

IoT-based smart agriculture uses sensors and data analytics to optimize farming by monitoring soil, temperature, and crop health in real-time. Automated irrigation and drones enhance efficiency, while AI and machine learning analyze data for better decision-making. Cloud platforms allow farmers to remotely manage operations, improving resource use and boosting productivity.

Expected Outcome

An IoT-based smart agriculture system enhances productivity and sustainability by leveraging real-time data from sensors and drones to optimize irrigation, fertilization, and pest control while minimizing resource wastage and operational costs.

Conclusion

IoT-based smart agriculture systems enhance farming efficiency and sustainability through real-time monitoring and resource optimization, playing a vital role in global food security.

Future Perspectives

The future of IoT-based smart agriculture systems promises increased productivity and sustainability through real-time data analytics, precision farming, and automation, enhancing resource optimization and crop quality to bolster global food security.

Impact on Society

IoT-based smart agriculture systems enhance food security, optimize resource use, and promote sustainability, benefiting both farmers and consumers while supporting rural economic growth.