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Smart Crop Advisor for Indian Farmers by using Machine Learning

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Abstract: This research introduces an innovative approach harnessing the power of IoT and ML techniques to revolutionize crop forecasting in agriculture. The proposed system integrates a network of IoT devices deployed across farmlands to collect real-time data on various environmental parameters such as soil moisture, temperature, humidity, and weather data. This data is then transmitted to a centralized platform for analysis. The system leverages sophisticated machine learning algorithms to process the incoming data streams, employing predictive analytics models to generate accurate forecasts regarding crop growth, yield and adverse weather conditions. The models are trained on historical data encompassing diverse crop types, regional climatic patterns, and agronomic practices to enhance prediction accuracy. The integration of IoT and ML not only facilitates precise and timely crop forecasting but also offers a proactive approach to mitigate risks, thereby supporting sustainable agricultural practices. Through empirical validation and case studies, this research demonstrates the efficacy and practicality of the proposed system, showcasing its potential to revolutionize agricultural productivity and resilience in the face of dynamic environmental challenges.

Keywords: IoT, Machine Learning, Predictive Analytics, Crop Forecasting, Agriculture, Sustainability, Real-time Data, Adaptive Learning



