Advancement in Integrated Crop Management System forSustainable Agriculture

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Abstract: *The Crop Management System (CMS) is an innovative web application designed to revolutionize agricultural practices by integrating advanced technologies. This project encompasses four essential modules: Crop Prediction, Disease Detection, Marketing, and Government Forum Dashboard. Leveraging the power of Python, the CMS aims to provide a comprehensive solution for modern farming. The Crop Prediction module employs machine learning algorithms to forecast optimal crops based on factors such as soil type, climate, and historical data. This feature empowers farmers to make informed decisions, enhancing crop yield and profitability. The Disease Detection module employs image processing techniques to identify and diagnose diseases affecting crops, allowing for timely intervention and reducing yield loss. The Marketing module serves as a platform for farmers to streamline the selling process. Through features like price tracking and market trends analysis, farmers canoptimize their sales strategies. The Government Forum Dashboard acts as a central hub for stakeholders to exchange information, policies, and best practices, fostering a collaborative ecosystem. Implemented as a web application, the CMS ensures accessibility across devices, providing a user-friendly interface for farmers and stakeholders. The backend is built using Python, leveraging its versatility and robust libraries for data processing, machine learning, and web development. In conclusion, the Crop Management System addresses critical aspects of modern agriculture, ranging from crop selection to disease management, marketing, and policy advocacy. By harnessing the power of Python and cutting-edge technologies, this project stands as a pivotal tool for advancing agricultural practices, ultimately contributing to sustainable and efficient farming practices.*

Keywords: Data Mining, Crop Recommendation system, Resource Optimization, Prediction

REFERENCES

[1]. Mythresh A, Lavanya B, Meghana BS, Nisarga B, Crop Prediction using Machine Learning, Students of Dept. ComputerScience and Engineering, International Research Journal ofEngineering and Technology (IRJET), June 2020

[2]. Konstantinos G. Liakos, Patrizia Busato , Dimitrios Moshou Simon Pearson ID and Dionysis Bochtis," Machine Learning in Agriculture: A Review", Lincoln Institute for Agrifood Technology (LIAT), University of Lincoln, Brayford Way, Brayford Pool, Lincoln LN6 7TS, UK,spearson@lincoln.ac.uk, pg4,2018

[3]. Dhanapal, R., AjanRaj, A., Balavinayagapragathish, S., & Balaji, J. (2021, May). Crop price prediction using supervised machine learning algorithms. In Journal of Physics: Conference Series(Vol. 1916, No. 1, p. 012042). IOP Publishing.

[4]. Amrutha, A., Lekha, R., & Sreedevi, A. (2016, December). Automatic soil nutrient detection and fertilizer dispensary system. In 2016 International Conference on Robotics: Current Trends andFuture Challenges (RCTFC) (pp.1-5). IEEE.

[5]. Balakrishnan, N., & Muthukumarasamy, G. (2016). Crop production-ensemble machine learning model for prediction. International Journal of Computer Science and Software Engineering,5(7), 148.

[6]. Rohit R, Vishnu R, Kishore A, Deeban Chakkarawarthi, "Crop Price Prediction and Forecasting System using Supervised Machine Learning Algorithms", (BE Department of CSE,JCTCET Coimbatore, Tamil Nadu, India),

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[7]. Kaggles.com for the open-source datasets