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# Agri-Weather – Smart Crop Management

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**Abstract:** *Agriculture remains the backbone of India's economy, with a large portion of the population depending on it for their livelihood. Harvestify is developed to revolutionize farming practices by harnessing the power of machine learning (ML). This project introduces an intelligent system that assists farmers in determining the optimal harvest periods and recommending the most suitable crops based on regional soil and climate conditions.A standout feature of Harvestify is its Soil-Based Profiling System, which analyzes soil quality, rainfall patterns, and other environmental factors to offer personalized crop suggestions and fertilizer recommendations aimed at enhancing soil health and maximizing yields. Moreover, the system integrates advanced image recognition techniques to detect and manage plant diseases effectively. By employing machine learning models such as Random Forest and Convolutional Neural Networks (CNNs), Harvestify can accurately identify diseased leaves and recommend timely treatments, empowering farmers to protect their crops and improve productivity.*

**Keywords:** Harvestify, Agriculture, India, Machine Learning, Smart Farming, Crop Selection, Soil Profiling System, Fertilizer Optimization, Disease Identification, Image-Based Analysis



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