LeafDoc: A Generative AI–Based Plant Identification and Disease Diagnosis System

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Abstract: *Accurate plant identification and early disease diagnosis are essential for effective plant health management. Many existing disease detection systems assume prior knowledge of plant species, limiting their usability for non-expert users. This paper proposes LeafDoc, a Generative AI–based system that identifies a plant from an uploaded image and subsequently analyzes it for possible diseases. The system utilizes a vision-language generative AI model to generate plant identification results, disease information, and treatment recommendations. A web-based interface and integrated chatbot enhance user interaction and accessibility. Functional evaluation demonstrates that the proposed system effectively supports intelligent plant health monitoring, providing a practical and user-friendly solution for agriculture and home gardening applications.*

Keywords: Plant Identification, Plant Disease Detection, Generative AI, Vision-Language Models, Smart Agriculture