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Coconut Tree Disease Prediction Using AI

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Abstract: *Coconut farming plays a crucial role in sustaining rural livelihoods and supporting the agricultural economy in tropical regions. However, frequent occurrence of leaf-related diseases significantly reduces crop yield and quality. In most villages, disease identification is still performed manually, which delays treatment and increases losses. This work introduces an automated coconut tree disease identification framework based on deep learning. The proposed system accepts coconut leaf images from farmers through a web interface and applies image enhancement methods such as resizing, normalization, and noise filtering. A Convolutional Neural Network is trained to differentiate between healthy leaves and common coconut diseases. The developed model delivers accurate predictions within seconds and suggests suitable remedial actions, enabling farmers to respond quickly and minimize damage. This approach reduces dependency on agricultural experts and promotes the use of artificial intelligence in smart farming practices.*

Keywords: Coconut Tree Disease Prediction, Convolutional Neural Network(CNN), Deep Learning, Image Processing, Artificial Intelligence in Agriculture, Smart Farming System, Plant Disease Classification, Precision Agriculture

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