

Smart Agriculture Techniques for Plant Leaf Disease using AgriRobo

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Abstract: Machine learning is a branch of artificial intelligence (AI) and computer science. The primary causes of decreased agricultural production quality and quantity are Plant diseases. As plant structures and cultivation methods evolve, new diseases continue to emerge on plant leaves. Accurately classifying and detecting plant leaf diseases in their early stages restricts infection spread and promotes the healthy growth of plant production. Detecting plant diseases manually is a time-consuming and error-prone process. It can be an unreadable method of identifying and preventing the spread of plant diseases. The review resolves around two main axes: 1. Plant Leaf Disease Detection & Classification. 2. Agrirobo Suggested disinfectant and automatically spraying for that plant leaf disease. Smart Agriculture to produce good crops quality and quantity without harming the healthy plant. A deep CNN (Convolutional Neural Networks) model captures the deep features while LBP (Local Binary Pattern) effectively extracts the local texture information. YOLO algorithm divides an image into the grid system and in that each grid detects objects within itself. This review paper explores the recent advancements and methodologies employed in this area, focusing on key techniques, challenges and emerging trends. Various image processing algorithms including Deep Convolutional Neural Networks (DCNNs) and deep learning architectures, are discussed for their efficiency in automating plant leaves disease detection and classification.

Keywords: Machine Learning, Plant leaf disease detection, Classification, AgriRobo, Disinfectant, You Only Look Once (YOLO), Convolutional Neural Networks (CNN), Local Binary Pattern (LBP), Deep Convolutional Neural Networks (DCNN), Deep Learning

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