

# **DEEP LEARNING-BASED AUTOMATED CASSAVA LEAF DISEASES DETECTION SYSTEM**

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## Abstract

Agriculture has long played a vital role in Sri Lankan culture, and cassava crop cultivation plays a big role in the country's economy. Farmers are currently accustomed to using old procedures and approaching officers to diagnose ailments. Most of the time, due to the complexity of the disease, the time it takes to diagnose it is too long, resulting in too late to minimize the losses, and occasionally a large number of chemicals are required to recover the culture. Cassava Bacterial Blight, Cassava Brown Streak Disease, Cassava Green Mottle, and Cassava Mosaic Disease are currently a collection of common illnesses that are wreaking havoc the harvests. Several existing algorithms were examined, and the optimal technique for this task was chosen, which is the correct diagnosis of four diseases based on data collected by several government institutes involved in cassava farming. Because reaching out to officials is also hampered by the present COVID-19 Pandemic, the project's results will secure farmers' ability to detect cassava leaf diseases without relying on outsiders. With the assistance of officials, an existing dataset including the diseases stated was located and processed for this assignment. The approach of using a CNN model named and keras, which is training using Inception V3s mode. The solution is then embedded in an web application that allows uploading images directly from the computer device, allowing for precise and quick visual identification as well as detailed instructions on the diseases that affect cassava harvest each year. The author was able to successfully build the requested solution, which allows for easy differentiation between the targeted diseases and also includes community elements that can be used to contact officials.

**Keywords: Neural networks, Cassava Diseases, Cassava Leaf Disease detection, Convolutional Neural Networks, Image Processing, Transfer Learning**