

Abstract for Project: Detection of Coffee Plant Disease Mobile-App

Coffee is one of the world's most valuable tropical crops, with over 125 million people depending on it for livelihood. However, diseases such as coffee leaf rust and coffee berry disease can devastate yields. Traditional diagnosis by manual inspection is often slow, subjective and error prone. We present a hybrid mobile/cloud AI system for coffee leaf disease detection: a React Native app captures leaf images, which are classified by a convolutional neural network on a remote server. For connectivity-challenged farms, an embedded TensorFlow Lite or PyTorch Mobile model runs inference directly on-device, enabling offline diagnosis. Using only open-source software and a self-hosted backend avoids paid cloud costs and supports local deployment. The system empowers rural farmers with real-time, actionable disease diagnoses in low-connectivity settings, enabling timely treatments and yield preservation. The approach promises reduced crop losses and more sustainable coffee production. By enabling timely disease detection and management, this application seeks to reduce crop losses, improve farmer incomes, and contribute to sustainable coffee production.