Rubber Buddy: A mobile application to empower rubber planters of Sri Lanka

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Abstract

This research was conducted to develop a mobile application that provides expert solutions for the common problems faced by rubber planters in Sri Lanka. The application developed consists of four components, namely, identification of pests in immature rubber plantations and rubber nurseries, leaf disease identification of cover crop, and identification of weeds. Images are captured through the mobile phone camera and those are recognized by using machine learning techniques. Most of the models were developed using several convolutional neural network (CNN) architectures such as mobile net version 2 (MobileNet v2), VGG 16, VGG19, and residual networks (ResNet). After the recognition of images, the application will provide expert solutions and management strategies to the rubber planters. As most of the rubber plantations are located in areas with low network coverage, the application was designed to be operated in offline mode using TensorFlow lite technology.

Keywords

Rubber, Pests, Leaf Diseases, Weeds, Cover Crops, CNN