

Universiti Teknologi MARA

**Medicinal Herb Recognition Using Convolutional
Neural Network (CNN)**

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ABSTRACT

The results of a study on identifying therapeutic herbs with convolutional neural networks (CNNs) model are presented in this publication. The goal of the project is to create a mobile app that could recognize several kinds of therapeutic herbs from photos. The proposed system was developed in 3 phases which are the preliminary phase, the design and implementation phase, and the evaluation phase. The study utilized a dataset with 5 classes of medicinal herbs that contain 100 to 122 range of leaf images. The pre-trained model, VGG16 is used as the base model because this project applies transfer learning. The app is designed to be an Android mobile app by using Android Studio and Visual Studio code. The model is evaluated by using 3 ratios of train-test split performance which are 80:20, 70:30, and 60:40. With just 4 incorrectly categorized photos, the 70:30 ratio produces the lowest misclassification rate. Performance graphs for 70:30 and 80:20 ratios indicate consistent declines in training and validation loss, with 70:30 closely trailing training loss. All ratios see a steady rise in training accuracy, with 70:30 yielding the highest. Validation accuracy reaches its maximum at 80:20, while 70:30 is not far behind. All things considered, the 70:30 ratio is the best option for model finalization since it achieves a balance between precision, applicability, and low misclassification.

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