Title: Plant Disease Identification Using Color Histogram and K-Nearest Neighbor

Authors: Christian R. ViernesJustinne Joy D. FranciscoVal Kenneth G. Arado

ABSTRACT

A plant infected with disease shows symptoms on the different parts of itself. The most common practice in determining the disease of a plant is by visually observing the leaves. Currently, there are several existing works on the automation of plant disease identification using image processing and classifying it with powerful neural networks. This paper is an experimental study on the classification performance of a simple algorithm, K-Nearest Neighbor and Color Histogram, on classifying plant diseases. In this study, the researchers focused only on corn diseases only. Sample images of corn plant diseases were used such as Northern Leaf Blight, Cercospora Leaf Spot, and Common Rust. Each disease has its distinct features which will also be discussed in this paper. Since KNN Algorithm is based on feature similarity, the researchers will have the images undergo pre-processing methods of resizing, quantization and color space conversion to achieve equal processing time in every image and to extract the color features to be analyzed using the color histogram. The algorithm has substantial results. However, the algorithm has low accuracy on diseases with similar characteristics

Keywords: K-NN, Image Quantization, Quantized, Color Histogram, Corn Leaf Disease, Clustering, Plant Leaf, Dataset, K-Nearest Neighbor, Image Quantization