

ABSTRACT

Leaves are used as humans attraction to carry out gardening activities or other activities such as selling plants because of the unique leaf shape and various characteristics. To find out the characteristics of the types of leaves, a feature extraction process is carried out which aims to determine the shape, texture, color, size, and has a value that can be used as a differentiator between one image object and another object so that there are differences between the objects used.

In this study, as many as 32 images were taken by researchers on author's home page. The method used is Compressive Sensing which has a function as data compression to be sent to the recipient so as to minimize data transmission time, and save memory. The next process is feature extraction on leaves using the Gray Level Co-Occurrence Matrix (GLCM) method to produce texture feature extraction by describing the spatial dependence of the Gray level. The classification process uses the K-Nearest Neighbour (K-NN) method by conducting a classification process on an object based on the characteristics of the test data or training data that is close to the object.

The parameters used are Peak Signal to Noise Ratio (PSNR), Mean Square Error (MSE), Accuracy Equation, and Compression Ratio and then compressed using Compressive Sensing. The best results are obtained when the training data is worth 20, the test data is worth 4, Block (B) is worth 32, the compression line (L) is 32, and the Resize used is 512×512 which produces the best compression ratio of 3.1%, then PSNR is worth 22. .1 dB, and the best Accuracy is 100%.

Key Words: *Compressive Sensing (CS), Gray Level Co-Occurrence Matrix (GLCM), K-Nearest Neighbour (K-NN), Leaf feature extraction.*