Abstract

With the size of data spreading in the whole world today, file size become more significant in storing a file. This also applied to image files. One way of reducing an image file size is by doing image compression proccess.

The method of compression used in this paper based on a DCT basis, which will decorrelate each element of data in an image file based on its' frequency. Image processing will be done by block-per-block, where these blocks will be sent into a process of quantization using quantization matrice and enthropy encoding process. The enthropy encoding process will be done by using arithmetic encoding.

Compression performance will be determined by looking at compression ratio and PSNR value, where getting a low compression ratio while maintaining high PSNR value is the goal of the whole process. To measure these performance value, the system will be tested using different scale factor value in the quantization matrice and three image categories, based on its' spreading intencity or its' histogram. These categories are: high intencity, balanced intencity, and low intencity.

From the test result, the optimal value for the scale factor is 0.5. Using that value, the average PSNR and ratio for each categories are as follows: low intencity 37.1 dB , 76.6%, balanced intencity 35.0 dB , 103.3%, and high intencity 35.9 dB , 85.4%.

Key words: DCT, Arithmetic Coding, Image Compression