

ABSTRACT

Compression technique is a viable technique as a solution, because the technology in the field of multimedia is now growing very rapidly. The compression technique is fundamentally divided into two types, including lossy compression and lossless compression. Digital image compression aims to reduce the redundancy of the data contained in the image so that it can be stored or transmitted efficiently. In this final project will be explained about image compression using Discrete Wavelet Transform (DWT) and Huffman method. Discrete Wavelet Transform (DWT) is one of the methods used in digital image processing. DWT can be used for image transformation and image compression. The process of wavelet transformation is conceptually simple. The original transformation image is divided into 4 new sub-drawings to replace it. Each sub-picture is $\frac{1}{4}$ times the original image. The sub-picture at the top right, bottom left and bottom right will look like the original image of the original image as it contains the high-frequency component of the original image. Huffman belongs to the lossless compression method group that is a compression method that does not remove information after compression. Expected output is an application system that can perform an image compression by using compression method. In this paper, analysis will be done between the Discrete Wavelet Transform and Huffman Coding for contrast. On the image compression there is a standard of measurement error (error) compression: MSE (Mean Square Error), the sigma of the error between the result image compression and image of the original. Peak Signal to Noise Ratio (PSNR), namely to calculate the peak error. The value of low MSE will be better, while high PSNR values will be better. Referring to MSE and PSNR, the performance of the DWT method is better than the Huffman method. By using DWT, MSE 13,438 and PSNR 40,454 whereas with Huffman result MSE 2.2104 and PSNR 5.42716. The best compression result using DWT is image compression. Jpg on the 'island' image with 512x512 resolution, since the compression ratio reaches 88.76%. The best compression result using Huffman is image compression .png on 'cat' image with 256x256 resolution, because compression ratio reach 94,04%.

Keywords: Compression Technique, Discrete Wavelet Transform (DWT), Lossy Compression, Losless Compression