

Abstract

In telecommunication, the limits of *bandwidth* is an important thing when digital image being transmitted and stored. To solve that problem, the author develop digital image compression technique to minimize the bits sum which represent the digital image data and image decompression technique which applied in compressed image in order to get back the information about that image before compression process. Digital image compression is a method that used in image processing to reduce storage size of image by reduce it information (lossy) or remain to maintain it (lossless). Information reduction were done by linear transformation that change the representation or domain of digital image from spatial domain to frequency domain, and then followed by eliminating higher frequency, quantization, and entropy encoding. In this final task, has developed a digital image compression method that combining Discrete Cosine Transform (DCT) and Singular Value Decomposition (SVD) by searching the singular value adaptively. The DCT is used to transform those image block that show a high correlation between their pixel, conversely SVD is used to decomposition those image block that show a low correlation between their pixel. A statistic method standard deviation (STD) of 8x8 image sub block is used to choose which transform should be used on each block. Scalar and vector quantization and Huffman coding also used in the encoding process. A Linde Buzo Gray (LBG) algorithm is used to produce codebook for vector quantization.

Keywords: discrete cosine transform, singular value decomposition, standard deviation, vector quantization, scalar quantization, Huffman encoding