ABSTRACT

Compression is an application data to reduce redundancy, so it can be saved and transmitted efficiently. In this research, the object of compression is face image, which only one face in a picture. This compression implemented using ROI (Region of Interest) method in JPEG 2000. In this research, face and background compressed using different level (wavelet level 0-1, 0-2, 1-1, 1-2 and quantization level 16, 64, 128) and simulated using Matlab 7.7.

The simulation steps are take twenty datas of image, segmented of skin face, separated face part from background part, and JPEG 2000 compression steps, such as encoder (wavelet, quantization, encoding), and decoder (decoding, dequantization,inverse wavelet).

After simulating, the quality of image compression be analyzed using RMSE (Root Mean Square Error), PSNR (Peak Signal to Noise Ratio), and MOS (Mean Opinion Score). RMSE and PSNR are objective parameter which compression image be compared with origin image using an formula. And MOS is subjective parameter which quality of compression based on opinion from some people.

Based on the analysis of quality and performance image, the best quality of compression image is compression image using 0-1 wavelet level and 128 quantization level.

Keyword : JPEG 2000, ROI (Region of Interest), RMSE (Root Mean Square Error), MOS (Mean Opinion Score)