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**ABSTRACT**

Image Compression is a science that is concerned with the reduction of the number of bits required to store, transmit and reconstruct the images without any loss of information. Though various transforms are used in the field of image compression. Wavelets are most popular and are increasingly being applied in the field of digital images. Wavelets are the way to analyse a signal using base function which are localized both in time and in frequency. Wavelet transform uses a large variety of wavelets for decomposition of images. The state of the art coding techniques like EZW, SPIHT (set partitioning in hierarchical trees) and EBCOT(embedded block coding with optimized truncation) use the wavelet transform as basic and common step for their own further technical advantages. The wavelet transform results therefore have the importance which is dependent on the type of wavelet used .In this thesis, Walsh discrete wavelet transform are used to perform the transform of a test image and the results have been discussed and analyzed. The analysis has been carried out in terms of PSNR (peak signal to noise ratio) obtained and time taken for decomposition and reconstruction and compression algorithms are optimized for this quantitative metric. Image compression using this wavelet transforms results in an improved compression ratio as well as image quality.

Experimental results show that the image quality is almost same when CRF is in small amount. We can calculate the size of compressed image and decompressed image with how much time it takes in compression as well as decompression.