

ABSTRACT

Today technological developments which associated with the world entertainment continues to grow rapidly. Along with this, multimedia contents such as video, now more interested by the community. Video is a moving image that displays some aspects that are not contained in the one image. Via internet, video sharing technology commonly are used by the people.

The necessity of multimedia's files in large numbers, such as video, needs large memories too. Therefore, a suitable compression method is needed to make a high compression ratio but not to decrease the quality significantly.

This final task will implement the motion compensation as interframe compression method and wavelet transformation with vector quantization as intraframe compression method in a video compression's system. The performance's parameter of this system are ratio of compression, Mean Squared Error (MSE), Peak Signal to Noise Ratio (PSNR), and Mean Opinion Score (MOS). The performance is analyzed based on input variables. They are decomposition level of wavelet, numbers of vector in a cluster on codebook generating at vector quantization, and size of macroblocks that are used at motion compensation.

The system's testing results show that increasing of decomposition level will be proportional with increasing of compression's ratio and MSE, but it will decreasing the value of PSNR. The greater number of vectors in a cluster will result the greater compression's ratio and MSE, but it will decrease the value of PSNR. And the greater macroblock's size is used will result the greater compression's ratio and PSNR, but it will decrease the value of MSE. The usage of clustering with genetic algorithm and the usage of adaptive block matching algorithm besides NCDS are suggested on this final task, so that the performance of the system will be more optimal.

Keywords : *video compression, wavelet transformation, vector quantization, motion compensation, New Cross Diamond Search*