

ABSTRACT

Today, over the development period, the need for digital video data is increasing, both in the corporate environment, the entertainment industry, telecommunications and home services. It makes digital video technology becomes a necessity that must be met. The biggest problems faced is the large size of this video file. Shannon Nyquist sampling theorem tells that if we sample the signal densely (on Nyquist rate), we can reconstruct analog data completely. In sensing with sampling, the presented opinion to obtain digital data is to sample data fairly on Nyquist rate (2 times wider than fourier bandwidth) and then do the data compression. In many application including digital image and video camera, Nyquist rate can be very high in collect sample and it has to be compressed again due to transmit need or storing.

Compression is done to digital data which when the collecting time (captured or recorded) resulting an amount of data to then will be wasted in compression process. To avoid this unefficient thing, it is used the newest technique called compressive sensing.

In this final project, it is used *inverse discrete cosine transform (IDCT)* as a sparsity transform, where the image/video will be measured. The measurement is done using projection transform based on Gaussian distribution. Then, the image/video will be reconstructed using basis pursuit.

From the research result, it is known that *IDCT* can be used as sparsity transform to make the image/video sparse. In addition, the test system obtained MSE, PSNR, MOST, and computation time for each video input grayscale as a parameter measuring the performance.

Keyword: *Compressive Sensing, inverse discrete cosine transform (IDCT), sparsity, basis pursuit.*