ABSTRACT

Multimedia is the one of the fastest growing things, as image is one element of it. It will need more larger storage, where more good image quality is wanted. Compressive sensing is one of the newest technique for reduce both sensing and compressing inefficiency process. Compressive sensing system have two transformation type to process, that is sparsity transformation which prove the sparse signal component, and projection transformation to operate measurement and sighting. Compression process based on the limited humans eye to look and observe the pixels changes, without to obliterate importance information in it.

Compressive sensing system has several main block, first sparsity transform, projection transform, and the last recontruction. First level and second level of discrete haar transformation wavelet are used both in sparsity transformation bloc, while bernoulli projection transformation with p=0,5 and p=0,75 is used for projection transformation block, and recontruction block use basis pursuit as dictionary reference. Moreover, the scenario is using different measurement rate condition that is 20%, 40%, 60%, 80%, and 90%. There are three image with different characteristic and differnt pixel dimension that is 32x32 and 64x64 which are used as input for the sistem. Different experiment scenarios above will be processed in compressive sensing system. Furthermore, the output system will be analyzed especially for projection transformation block.

In this final assessment, Compressive sensing system has been designed and implemented with using Bernoulli as projection transformation. The system can achieve good PSNR result (>25dB) while use 64x64 pixel image testing image, MR=60%, Second level DHWT, and p=0.5 or p=0.75. Difference value of p doesn't affect PSNR value, whereas the bigger size of image pixel dimension give more bigger PSNR in the result.

Keywords: compressive sensing, bernoulli projection transform, spasity, basis pursuit.