ABSTRACT

The development of technology and information in the modern era is now developing so rapidly, thus encouraging the increasing need for information seeking in various daily activities. This can lead to new problems regarding property rights or protection of the authenticity of data made by senders or creators such as examples of illegal piracy of work and distribution. And requires data storage with a large memory capacity to hold information data.

Based on these problems, in this final project a system for compressive sensing CS design and simulation based on discrete wavelet transform was designed DWT and reconstruction of the Stage Wise Orthogonal Matching Pursuit (StOMP) as a compression side of the watermark image to reduce the size of the image file so that more efficient in storing and maintaining image quality. The combination of discrete wavelet transform (DWT) and singular value decomposition (SVD) as a quality improvement for watermarked images using MATLAB Simulink software in the process of designing and simulating the system

In the research and analysis of this final assignment, the image watermarking process is obtained by applying CS using the DWT-SVD method and the STOMP algorithm as reconstruction. The best value parameter results are tested when embedding, measurement rate, and the watermark is obtained at the green layer, subband HH condition, level 1, db2 mother wavelet, 0.4 ratio, 60% measurement rate, and image watermark 128 × 128. The system is made resistant to cropping and compression jpg attacks because it gets a BER value below 0.3. MOS testing gets results the highest value in scenario 1 is good 47.50%, scenario 2 is good 55.00%, scenario 3 is 55.00%, scenario 4 is 52.50%, and scenario 5 is good 45.00%.

Keywords: Image Watermarking, Compresive Sensing, Stage Wise Orthogonal Matching Pursuit (StOMP),Singular Value Decomposition (SVD), Discrete Wavelet Transform (DWT)