ABSTRACT

Nowdays, the digital image is very popular imagery because it has the ease of collecting, sending, dan processing. At the time of image acquisition often a problem occur. Every disturbance of image is called noise. One of existing noise type that is impulsive noise. Usually impulsive noise emerge by environmental condition that interfere the image intake process such as dirt and dust. Impulsive noise appears when the digital transmission and also becaused use of ISO that too high when take a picture using the camera. Therefore, needed a noise filtering to increase image quality has been affected by noise.

The system in this final project is a combination of two methods used to reduce the impulsive noise in a digital image. The system tested the effect of Boundary Discriminative Noise Detection (BDND) as a impulsive noise detector in the Peer Group Filtering (PGF). The first, input the image that wil be tested, then the system reads it image as a pixel matrix. After that gives probability of image noise PSNR. It image noise divided by RGB color model, therefore can be produce each channel R, G, and B (Red, Green and Blue). The next step, determine window size that used to detection process and filtering process. Window size that can be choosed for detection process are 5x5, 9x9, dan 21x21. Window size that can be choosed for filtering process are 3x3, 5x5, and 7x7. BDND method give result in the form of the map of the binary matrix output on each channel R, G, and B in which the pixel are given a value 1 if its denote as impulsive noise and the value 0 if not impulsive noise. The value 1 on the binery matrix map to reference is then continue to filtering process by PGF. Then, the value of PSNR will be appear by filter result image. Finally all result are saved to analyze on the test system.

Pursuant to analysis to measurement objectively showing performance from combination of BDND and PGF where BDND as impulsive noise detector and PGF as filtering, hence can be pulled by conclusion that result of combination of BDND and PGF able to yield the PSNR which immeasurable enough. PGF method is good method to reduce impulsive noise in noise probability 0.01 which able to reaches difference PSNR 18,8847 dB. BDND method is good method to reduce impulsive noise in noise probability 0.05, 0.1, 0.2, 0.5 dan 0.75 which able to reaches difference PSNR 19,2185 dB. Therefore, BDND as impulsive noise detector and PGF as filtering can be told to made a success of the combination in increased of digital image quality.

Keyword: *Impulsive Noise, Peer Group Filtering, Boundary Discriminative Noise Detection, Filtering, PSNR.*