

## ABSTRACT

Through an image or a picture we can obtain information which might possibly be difficult or even cannot be portrayed by words. And image Quality is very important matter in obtaining information which contained the image. With the existence of various insufficiencies in digital images, such as ill defined and blur images that could be caused by noise attendance claims the existence of better image enhancement method than methods of image enhancement there is now days.

Hence in workmanship of this final project will be made a simulation which can reduces noise so that earn to enhances image quality by method of Fuzzy Image Filtering joined with sharpening that earn progressively enhances yielded image quality. This Fuzzy Image Filter consisted of two stages, where the first stage computes fuzzy derivatives for eight different directions. Second stage uses these derivatives to perform fuzzy smoothing by weighting the contributions of neighboring pixel values. Both stages are based on fuzzy rules which make use of membership functions. Blurring effect which possible be caused by fuzzy smoothing expected repairable by enhancing a sharpening process.

Expected end result is the existence of a system which can improve the damage caused by noise existence and blurring. Results from this enhancement process later will be analyzed qualitatively and also quantitatively. Image quality that achieved here is the decrease of noise level, and marked by the decrease of MSE value from processed image compared to degraded.

**Keyword:** Fuzzy Image Filtering, noise reduction, sharpening, image quality enhancement