

## Abstract

With the easy multiplication process on digital products, needed a way to protect intellectual property rights on these multimedia products (images/photo, audio,text,video).Theres is one way is with digital watermarking techniques, i.e. by inserting information into these multimedia data.Nowadays watermarking system is most stressed watermarking robustness on JPEG compression, noise addition and removal attack, but little about the geometrical attack on watermarked image, but according to research that changing the image size or its orientation, even in small amounts can dramatically reduce the ability of recipient to retrieve the watermark.Geometrical attack includes image scaling for website, printing and scanning marked document, change the aspect ratio of digital video and cropping the image to extract the desired area.

In this final project have been implemented watermarking system with Log-Polar Mapping (LPM) Method and Phase Correlation.LPM Method and Phase Correlation is used in watermark embedding process and extraction .LPM method used in embedding process to make watermark invariants to rotation and scaling.Phase Correlation in watermark extraction process along with LPM method used in the process of adjusting the digital image.

Based on the result of testing, the system can insert a watermark on the original image and obtained a fairly good robustness of the watermark which extracted with a correlation value above 0.5 on the attack rotation, scaling and translation within a reasonable range.

**Keywords:** *Digital Watermarking, digita imagel, geometrical attacks, log-polar mapping, phase correlation*