Authors: Erick Calado de Carvalho Filho, João Luiz de Deus Holanda Valença, João Paulo Aguilera Borges

This study aims to simulate an automatic plate recognition system (APR) and will evaluate different techniques of image enhancement to improve the character recognition. For each application, the complications and its characteristics problems are analyzed. For example the angle of the cameras and the quality of the images change from one application to another, some images can be blurry (especially motion blurry), or an object obscuring, such as dirt or fog, can be on plate. In order to recognize the plate, the system firstly enhance the input by using two linear filters: Laplacian of a Gaussian and Sobel. Secondly it extracts the plate location, separate the plate characters individually by segmentation and finally apply template matching with the use of correlation for recognition of plate character. The system was evaluated empirically; one hundred images were tested and for each enhancement algorithm the accuracy was measured. The experiment demonstrated that the background and the image condition modified the final result and that the Laplacian of Gaussian presents the best result.

Keywords: Image enhancement, License Plate Recognition, Laplacian of Gaussian, Sobel, Correlation