Lokalisasi Pelat Kendaraan Bermotor Roda Dua Berbasis Pengolahan Citra Digital (Studi Kasus: Gerbang Parkir Pasar Sokaraja, Kabupaten Banyumas, Jawa Tengah, Indonesia)

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Abstract

Identity number localization is a method to find the location of the identity number on a particular image and one among the important parts of identity number recognition. Poor localization will decrease the accuracy of identity number recognition. Various studies had raised a lot of issues of localization, detection, and identity numbers recognition. However, most of these studies apply images that supporting image processing. Suppose the localization method is applied in an image with a corresponding real environment. There will be many conditions that might decrease accuracies, such as passing by of people, imperfect form of the identity number, unofficial identity number, several objects close to the identity number. Therefore, the identity number localization system is consideredly needed to solve the problem. The author applies images taken directly from the Sokaraja Market motorcycle parking gate at 06.00-09.00 AM in this study. Some real objects contaminate the image. The author applies some image processing methods in localizing the identity number to increase the accuracy: the background subtraction method to separate the background from the foreground, the morphological transformation method to reduce noise in the image, the Sobel edge detection to emphasize the edges in the image, the otsu threshold method and color masking to help reducing noise and other objects obstacle around the identity number. Based on the experimental result, this study resulted in an accuracy of 90.1%, recall of 95%, precision 92%, F1-Score 94%, Specificity 73%, and NPV 62%.

Keywords: Identity Number Localization, Background Subtraction, Morphological Transformation, Sobel Edge Detection, Otsu Threshold, Masking Color