World Academy of Science, Engineering and Technology
International Journal of Electronics and Communication Engineering
Vol:12, No:04, 2018

Lane Detection Using Labeling Based RANSAC Algorithm

Authors : Yeongyu Choi, Ju H. Park, Ho-Youl Jung

Abstract : In this paper, we propose labeling based RANSAC algorithm for lane detection. Advanced driver assistance systems (ADAS) have been widely researched to avoid unexpected accidents. Lane detection is a necessary system to assist keeping lane and lane departure prevention. The proposed vision based lane detection method applies Canny edge detection, inverse perspective mapping (IPM), K-means algorithm, mathematical morphology operations and 8 connected-component labeling. Next, random samples are selected from each labeling region for RANSAC. The sampling method selects the points of lane with a high probability. Finally, lane parameters of straight line or curve equations are estimated. Through the simulations tested on video recorded at daytime and nighttime, we show that the proposed method has better performance than the existing RANSAC algorithm in various environments.

Keywords : Canny edge detection, k-means algorithm, RANSAC, inverse perspective mapping
Conference Title : ICIPACV 2018 : International Conference on Image Processing, Analysis and Computer Vision
Conference Location : London, United Kingdom
Conference Dates : April 24-25, 2018