Abstract

Master of Engineering

Classification and Counting The Number of Vehicles on Public Roads Using Line of Interest.

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The counting number of vehicles is used by public authority for road construction planning, congestion management, traffic control, etc. Existing methods were usually done by analyzing a portion of a video frame called region of interest (ROI) or the entire frame. This study discusses a method to detect, classify, and count the number of vehicles using a single feature called line of interest (LOI). Background subtraction method applied on line of interest to construct a 2-dimensional image that reflect object (vehicle) position when it passes the line of interest. Vehicle map is used to extract object feature for classification process. The results shows that by utilizing laser line the system can produces satisfactory results. Experiment in two different locations shows the average accuracy of vehicle counting is 94.25% and the sensitivity is 96%. Although the classification accuracy of car and motorcycle still low (84% and 83%), in the future, the performance could be improved by providing more data training or assign specific label such as non-vehicle, human, or overlapped moving object in training phase.

Key-words : detection, classification, counting, laser-line, line-of-interest.