



RESEARCH ARTICLE

VEHICLE DETECTION AND TRAFFIC ASSESSMENT USING IMAGES

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Abstract— *The work deals with automatic vehicle detection and classification based on image features. The real images of vehicles mainly 2 wheeler and 4 wheeler are captured using a digital camera with 10 MP. The image database includes 2 wheeler and 4 wheeler separately. The images are enhanced by resizing. Then region of interest (vehicle) is obtained to count. Mainly edge descriptor (canny) is applied to obtain vehicle contour/edges. The extracted vehicle region is cropped and subjected to feature extraction. The PGH (pair wise geometrical histogram) and edge features are used to represent the model of vehicle type. The PGH is a powerful shape descriptor which is used for polygonal shape. It also can apply to an irregular shape. Then these features are trained with neural network (NN). The test image is also processed in similar steps. Then the vehicle is classified as 2 or 4 wheeler based on input and trained features. The percentage of accuracy is reported. Later based on the region count and some predefined knowledge about traffic surveillance the traffic is assessed. Hence the work deals with automatic vehicle detection, classification and traffic surveillance in restricted vehicle count. The work can be enhanced by including sound and video surveillance and better feature extraction techniques.*

Keywords: - *traffic assessment; vehicle classification; vehicle count; DWT; PGH*

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