

VEHICLE LICENSE PLATE DETECTION AND RECOGNITION

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ABSTRACT

In this work, we develop a license plate detection method using a SVM (Support Vector Machine) classifier with HOG (Histogram of Oriented Gradients) features. The system performs window searching at different scales and analyzes the HOG feature using a SVM and locates their bounding boxes using a Mean Shift method. Edge information is used to accelerate the time consuming scanning process.

After detecting license plates, global alignment is then performed on the plate candidates. Conceptually, this alignment method searches neighbors of the bounding box detected, and finds the optimum edge position where the outside regions are very different from the inside regions of the license plate, from color's perspective in RGB space. This method accurately aligns the bounding box to the edges of the plate so that the subsequent license plate segmentation and recognition can be performed accurately and reliably.

The system performs license plate segmentation using global alignment on the binary license plate. A global model depending on the layout of license plates is proposed to segment the plates. This model searches for the optimum position where the characters are all segmented but not chopped into pieces. At last, the characters are recognized by another SVM classifier, with a feature size of 576, including raw features, vertical and horizontal scanning features.