

## **AUTOMATED LEADING VEHICLE DISTANCE MEASUREMENT BASED ON IMAGE PROCESSING THEORY**

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### **ABSTRACT**

As of now, several improvements of detecting and measuring the leading vehicle distance have been carried out, unfortunately failed to meet the requirement of intelligent vehicle technologies providing some unsatisfactory results. One of the common and major drawbacks of such methods is inability to detect black color vehicles with precision. As a solution novel approach is presented in this article emphasizing on clustering based segmentation technique. In this method leading vehicle is identified by homogeneously segmenting an image into region of interest, for this purpose it uses an improved k -means clustering algorithm which classify a data set into clusters according to predefined distance measure by computing the similarity between data elements of a group and the dissimilarity between different groups, the vehicles actual position in the image is determined. Finally, the real distance is obtained by the transform from image coordinate to world coordinate with the camera intrinsic parameters. It is proved that the experimental result is similar to the real value and meets the requirement. The effectiveness of the proposed method has been verified using real video sequences.

**KEYWORDS:** ITS, Frame Extraction, Segmentation by K-means Clustering, Target Identification