Vehicle Counting and Classification from a Traffic Scene

M. Pancharatnam, D.U.J. Sonnadara

Department of physics, University of Colombo, Sri Lanka

ABSTRACT

This work was carried out to determine the performance of image processing techniques in classifying and counting moving vehicles in video streams of traffic scenes recorded by stationary cameras. The detection and tracking approach is as follows. The moving vehicles are first extracted from the traffic scene by applying the adoptive background subtraction technique. After the background subtraction, using threshold and median filters, isolated image blobs are identified as individual vehicles. Once the blobs are identified, counting and classification of vehicles in a selected region are carried out.

The preliminary results show that the developed system can efficiently and reliably track vehicles when unobstructed view of the traffic scene can be obtained. For optimal camera calibration, an accuracy better than 80% in counting vehicles was observed. The present system performs better with video data in which the vehicles are moving away from the camera compared to the video data in which the vehicles are moving towards the camera. The results obtained through the developed system show that with further improvements the system can be used in real-time to count and classify vehicles on busy traffic routes.