

# Use of Image Processing as an Alternative to Manual Traffic Counts

O. K. Herath, T. Sivakumar

*Department of Transport and Logistics Management, University of Moratuwa, Colombo, Sri Lanka*

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Intelligent Transport Systems are essential to achieve efficient and effective traffic management system in the Sri Lankan context. Quality and accurate traffic data are essential in analyzing, visualizing and for future prediction of traffic. We used deep learning based real-time object detection YOLOv3 to traffic surveillance. The research focuses on identifying best camera orientation for better accuracy, transfer-learning of Sri Lankan Vehicles categories into classes, classified vehicle counts using video processing and compare accuracy and efficiency of image processed vehicle classified counts with that of manually collected data. Videos are captured in 1080p @ 60fps at an angle of  $\Theta = 0^\circ$  and  $\Theta = 15^\circ$  in different heights. Use 500 vehicles in each category to train and 500 vehicles in each category for evaluation. This study intends to apply image processing and Deep Learning based real-time object detector to capture different vehicles classification in order to solve the existing traffic problem in Sri Lanka.

*Keywords: Image Processing; YOLOv3; Traffic Counting; Vehicle Classification.*