

# Vehicle Counting System based on Vehicle Type Classification using Deep Learning Method

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**Abstract.** Vehicle counting system (VCS) is one of the technologies that able to fulfil the ITS aim in providing a safe and efficient road and transportation infra-structure. This paper is aimed to provide a more accurate VCS based on vehicle type classification method rather than current implementation in existing works that only count the vehicle as vehicle and non-vehicle. To fulfil the aim, we pro-posed to use Deep Learning method with CNNLS framework to classify the ve-hicle into three classes namely car, taxi and truck. This VCS is motivated by current implementation of the traffic census in Malaysia whereby they record the vehicle based on certain classes. The biggest challenge in this paper is how to discriminate features of taxi and car since taxi has almost identical features as car. However, with our proposed method, we able to count based on correctly classified of the vehicle with the average accuracy of 90.83 %. We tested our method based on frontal view of vehicle from the self-obtained database taken using mounted-camera at the selected federal road.