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# Artificial Neural Network Based Approach for Estimation of Individual Vehicle Speed under Mixed Traffic Condition

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**Abstract :** Developing speed model is a challenging task particularly under mixed traffic condition where the traffic composition plays a significant role in determining vehicular speed. The present research has been conducted to model individual vehicular speed in the context of mixed traffic on an urban arterial. Traffic speed and volume data have been collected from three midblock arterial road sections in New Delhi. Using the field data, a volume based speed prediction model has been developed adopting the methodology of Artificial Neural Network (ANN). The model developed in this work is capable of estimating speed for individual vehicle category. Validation results show a great deal of agreement between the observed speeds and the predicted values by the model developed. Also, it has been observed that the ANN based model performs better compared to other existing models in terms of accuracy. Finally, the sensitivity analysis has been performed utilizing the model in order to examine the effects of traffic volume and its composition on individual speeds.

**Keywords :** speed model, artificial neural network, arterial, mixed traffic
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