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Artificial Neural Network and Statistical Method

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Abstract : Traffic congestion is one of the main problems related to transportation in developed as well as developing countries. Traffic control systems are based on the idea of avoiding traffic instabilities and homogenizing traffic flow in such a way that the risk of accidents is minimized and traffic flow is maximized. Lately, Intelligent Transport Systems (ITS) has become an important area of research to solve such road traffic-related issues for making smart decisions. It links people, roads and vehicles together using communication technologies to increase safety and mobility. Moreover, accurate prediction of road traffic is important to manage traffic congestion. The aim of this study is to develop an ANN model for the prediction of traffic flow and to compare the ANN model with the linear regression model of traffic flow predictions. Data extraction was carried out in intervals of 15 minutes from the video player. Video of mixed traffic flow was taken and then counted during office work in order to determine the traffic volume. Vehicles were classified into six categories, namely Car, Motorcycle, Minibus, mid-bus, Bus, and Truck vehicles. The average time taken by each vehicle type to travel the trap length was measured by time displayed on a video screen.

Keywords : intelligent transport system (ITS), traffic flow prediction, artificial neural network (ANN), linear regression
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