

Title: Traffic Congestion Prediction using Machine Learning

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Abstract: Due to the world population growing rapidly over time, the number of personal and local vehicles are increasing which is one of the main causes of high traffic on the roads. For high traffic, the average speed of vehicles is decreasing which is known as traffic congestion. It is a very common and alarming problem in today's world. Due to traffic congestion, civilians are facing different problems in this 21st century. Time is a precious thing and traffic congestion is killing the most precious times of our lives. In this paper, the authors aimed to offer a traffic congestion prediction model that will help to predict the traffic congestion of a particular area in a definite time period. During working with machine learning models or algorithms there is a concern about the accuracy of the result. To overcome this problem, 5 different machine learning models which are used decision tree, random forest, logistic regression, SVM, and MLP to predict the congestion rate. The authors compared those models with each other and calculated the mean absolute error for each of the models so that the prediction can be more accurate. Efforts are made to alleviate the traffic congestion reducing commute times and lower carbon emissions and to enhance the overall quality of life in cities.

Keywords: Traffic congestion prediction Machine learning Decision Tree Random Forest Logistic Regression Support Vector Machine (SVM)

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