VANET-based Coordinated Signal Control in a Local Network for Minimizing CO2 Emissions and Fuel Consumption

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Abstract
As the global warming issue is gaining more and more attentions, how to reduce the emissions of greenhouse gas as well as the fuel consumption is a big challenge. Lot of greenhouse gas is coming from transportation system and most of it is produced by congested traffic situation due to inefficient traffic signal control. A suitable traffic signal control algorithm considering the real-time traffic can reduce the fuel consumption and greenhouse emissions. In this paper, a VANET-based coordinated signal control model which focuses on the reduction of fuel consumption and CO2 emissions is proposed. The simulation result shows that the proposed VCSC model is outperformed to the traditional pre-timed or actuated traffic signal control models, both in fuel consumption and CO2 emissions.

Keyword: VANET, Adaptive Traffic Signal Control, fuel consumption, CO2 emissions