IMPROVING ENERGY EFFICIENCY BY ADVANCED TRAFFIC CONTROL SYSTEMS

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ABSTRACT: The problem of traffic congestion is particularly acute in urban areas in which the possibilities for the physical increase of capacities are limited or nonexistent. Traffic congestion has a direct impact on the emission, energy efficiency and fuel consumption of personal vehicles. Several projects in the European Union are focused on solving this problem (both at the physical level − automotive industry, as well as at the traffic management level). This paper explores the possibility of the implementation of advanced traffic control systems in urban areas in which driving behavior involves a multitude of stopand-go actions, lower speeds in lower vehicle gears. Since this type of driving behavior affects vehicle fuel consumption and emission, relevant evaluation parameters were defined (queue length, average vehicle speed, etc.). A demonstration corridor in the city of Zagreb was chosen and a simulation model based on the traffic data collected in real traffic situations developed. The basis for further research is laid down to allow the application of the proposed model and adaptive traffic control algorithms to the greater urban traffic network.

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