A Wireless Mobile-Phone Approach to Traffic Signal Preemption for Faster Service of Emergency Vehicles

Abstract

Modern cities contain extensive numbers of road intersections. The coordination of traffic at these intersections is usually governed by traffic signals. During rush hours, waiting at traffic signals consumes substantial amounts of time even if for short distances. Since the operation of emergency vehicles mandates reaching the accident location and then the hospital at the minimum time possible, traffic signal preemption by emergency vehicles represents a valuable solution, where the emergency vehicle possesses the capability of evacuating the traffic ahead of it at the traffic signal and owns the right to cross the road. After the passage of the emergency vehicle, the traffic signal returns to its normal operation. Several approaches have been proposed in the literature for preempting traffic signals by emergency vehicles. However, the current solutions suffer from certain drawbacks. In this paper we propose a novel approach for traffic signal preemption using wireless mobile-phone transmission. Compared to the state-of-the-art solutions, the proposed system is a low cost and can be made of off-the-shelf
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components. Simulation results show the effectiveness of the proposed approach.

References


Index Terms
Computer Science  Wireless

Keywords
Traffic Signal Preemption  Emergency Vehicle  Siren  Hardware Design