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“Crowdsource Traffic Controllers”

Abstract:

Current transportation management systems rely on physical sensors that use traffic volume and queue-lengths. These physical sensors incur significant capital and maintenance costs. The ubiquity of mobile devices has made possible access to accurate and cheap traffic delay data. However, current traffic signal control algorithms do not accommodate the use of such data. In this paper, we propose a novel parsimonious model to utilize real-time crowdsourced delay data for traffic signal management. We demonstrate the versatility and effectiveness of the data and the proposed model on seven different intersections across three cities and two countries. This signal system provides an opportunity to leapfrog from physical sensors to low-cost, reliable crowdsourced data.