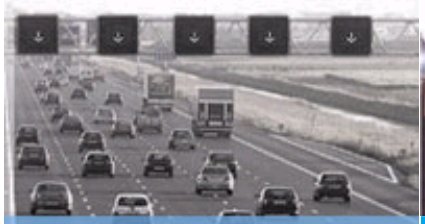

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A New Method for Travel Time Estimation on Long Freeway Sections

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Abstract

The knowledge of travel times on road networks is of vital importance for network operators as well as for drivers. Operators can use travel time information to improve control on their networks. Drivers or transport companies can choose their optimal route based on the traffic information available and their individual preferences. The presented approach focuses on travel time estimation. The method only requires the time stamps and vehicle lengths captured at subsequent detector stations. The distance between the stations is up to 13 km. The examined network is a two-lane freeway with three unobserved on- and off-ramps each. In order to investigate the influence of measurement errors and to have true data for comparison, simulated detector data based on an existing Swiss freeway section equipped with loop detectors was used. The method shows very good performance for the investigated scenarios. All relevant characteristics of the travel time process were detected and estimation errors were within a well acceptable range. Compared to existing travel time estimation methods, the presented approach considerably extends the maximum distance for which travel time estimations can be carried out.

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