Video to Keep Traffic Flowing

Motorway Traffic Control Centres use a range of sensors for traffic surveillance and control. The shortcomings of one type, magnetic loop detectors, has led researchers to successfully develop algorithms for alternative video sensors.

(PRWEB) June 9, 2005 -- Â□Loop detectors have a short life span of two to three years before they break,Â□ explains project partner Jo Versavel, General Manager, Traficon, Belgium. Â□They are also very expensive to repair because they involve road closings. Another drawback is that they are unreliable in congested traffic situations.Â□

Loop detectors consist of one or more loops of wire embedded in the pavement and connected to a control box, activated by a signal ranging in frequency from 10 KHz to 200 KHz. They are used to supply data on vehicle passage, presence, count and occupancy. Video sensors send live information to a control centre. For example, if an accident occurs, the data is sent in real time, which allows for a quicker response, decreasing the wait on the road as well as the resulting congestion.

Video sensors have proven advantages over traditional loop detectors. However, video-based information calls for modifications or a complete re-design of existing loop-based surveillance or control algorithms. Before they can be used in new systems, the efficiency of video sensors had to be tested and measured against loop detectors.

The IST programme-funded RHYTHM project developed new algorithms for traffic surveillance and control that use video-based data and rigorously compared them with algorithms that use loop-based data. Project partners focused on three surveillance tasks (estimating and predicting traffic flows, queue-tail tracking and travel time estimates) and one control task (isolated traffic-responsive ramp metering).

RHYTHMÂ□s surveillance and control algorithms were tested using a microscopic off-line simulation under a variety of different conditions. This was followed by a successful demonstration on two sites of a German motorway Â□ MunichÂ□s A92 for surveillance and A94 for control tasks.

The algorithms developed under RHYTHM proved Â□robust and innovativeÂ□, according to Versavel. Â□For example, the Alinea Algorithm was used to measure queue length on a ramp using video detection. This would allow traffic controllers to avoid a spill over of congestion onto local road networks,Â□ he explains.

Plans to commercialise the system developed under RHYTHM are being drawn up by the Technical University of Crete.

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