Research Quarterly Progress Report
Partners for Advanced Transit and Highways

California Program Plan: Intersection Decision Support - Task S (Conduct Supporting Research)

Steven Shladover

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1) MOU: 5601
2) Project Title: California Program Plan: Intersection Decision Support - Task S (Conduct Supporting Research)
3) Project Leader(s): Steven Shladover
4) Fiscal Year: 2003 / 2004, **Quarter:** 4, **Version:** 1

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5) Schedule

Task Number	Description	Initially proposed:		Current:	
		Start	End	Start	End
1	S1.0 Intersection Simulation Tool Requirements	11/01/2003	12/31/2004	11/01/2003	12/01/2004
2	S1.1 Develop Models and Simulation Infrastructure	07/01/2004	12/31/2004	07/01/2004	12/01/2004
3	S1.3 Develop Analysis Tool	07/01/2004	12/31/2004	07/01/2004	12/01/2004
4	S2. Evaluation of COTS and Emerging Technologies Components	11/01/2004	12/31/2004	11/01/2004	12/01/2004

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6) Describe what was accomplished in the last quarter.

We conducted work in the two clusters of tasks, COTS investigation (S2) and in developing an intersection tool (S1).
We report them in this (reverse) order, primarily for readability.

During the past quarter that ended on June 30, the activities to find and evaluate the Commercially-Off-The-Shelf or COTS devices or Emerging Technologies continued from the previous months. A number of research team members attended the ITE Annual Conference which was held in Irvine, CA, at the end of March. This provided us the opportunity to discuss our detection needs with some of COTS representatives that have come from across the country to exhibit their products. It was a fruitful trip as we had a chance to see some demos and establish some

contacts with prospective COTS representatives. As for the IDS detection needs, two categories were presented there: video detection systems and radars. Some follow through communications were made with some of the COTS representatives and the research team has been able to secure commitments from both Iteris and traficon companies for a loaner video detection system. These systems will be installed at RFS intersection test-bed for evaluation.

During this quarter the following products were reviewed:
Video Image Processor: PEEKVideo Track, Nestor-CrossingGuard, IterisVantage Video Detector, EconoliteSolo Pro II, Traficon-Video Detection System
Microwave: SmartSensor-Wavetronix, EIS-RTMS
Passive Magnetic: Sensys-VDS
Doppler: Optisoft- A new un-named product
It should be noted that VDS sensors from Sensys Networks are an emerging technology. We have reached an agreement with Sensys networks to purchase two of their sensor nodes plus other necessary equipment if they pass our performance requirements.

Up to this point, we have chosen the following products for our evaluation:
1. Vantage Video by Iteris
2. Autoscope by Econolite
3. Video Detection System by Traficon
4. RTMS by EIS
5. New product by Optisoft
6. VDS by Sensys

We also developed a simulation tool ("Tool 1" in the documents referenced below) primarily for evaluating sensor designs and secondarily for limited evaluation of other components of the intersection collision countermeasure system. The tool can be used to evaluate sets of countermeasures (each with its own sensor design) against sets of LTAP/OD scenarios (each with its own SV and POV approach patterns). We measure the performance in terms of the difference between the output of a prototype warning system using the given sensor set and one using "perfect sensing". The first application is a preliminary study which may indicate that large classes of possible sensor designs are not feasible for IDS; countermeasures based on these designs should be rejected. The successive tools, Tool 2 and Tool 3, will be used to perform more detailed analyses on the remaining countermeasures, which are more narrowly defined.

As of July 1, the simulation part of Tool 1 was finished. However, the documentation and graphical aspects are not finished.

The IDS simulation project is documented at

http://PATH.Berkeley.EDU/~vjoel/ids/deliv/

All the project deliverables (documents and software) will be placed at this site as we release them. Currently, the site includes an overview of the project and its three tools, a glossary, and some of the documents covering Tool 1.

7) Explain any differences between actual accomplishments in the last quarter and what was proposed.

No differences.

8) Please list all papers, reports, or other products completed during this quarter under this project (provide complete reference and status).

No papers.

9) Briefly describe the work planned for the next quarter relative to the project schedule (see 10 if changes are required).

For the upcoming quarter, we would concentrate our efforts to complete the following under the COTS task:
An interim report to FHWA for the products reviewed but rejected for our evaluation,
Working with vendors to procure the chosen products for evaluation purposes,
And the evaluation of:
Microloops by 3M
VDS by Sensys
Vantage Video Detector by Iteris
Video Detection System by Traficon

We will also focus on Tool 1, namely:

* Plotting output. The current software can produce several kinds of useful plots. We are refining the aggregation and plotting capabilities to handle large collections of simulations with several dimensions of dependent and independent variables. This is needed for the preliminary study mentioned above.

* GUI for designing simulation experiments in terms of sets of countermeasures and sets of scenarios, for executing and controlling experiments, and for specifying output aggregation and plotting.

* Windows version of the tool.

* Documentation.

Additionally, the tool will be used during July by researchers in the evaluation task of the IDS project to perform evaluations.

10) Change in Plan: If you need to make changes in your work plan (changes in dates, tasks, or deliverables), please describe them here. Changes to task schedule do not require PATH approval (but should be justified). Changes in task content, deliverables, and deliverable completion dates require PATH approval.

No change expected.

Signatures:

	Person who submitted	PATH Manager/Engineer
Signature:	James Misener (username: jmisener / userid: 317)	Approved by: James Misener (username: jmisener / userid: 317)
Date:	2004-08-09 17:27:07	2004-08-09 17:38:56