
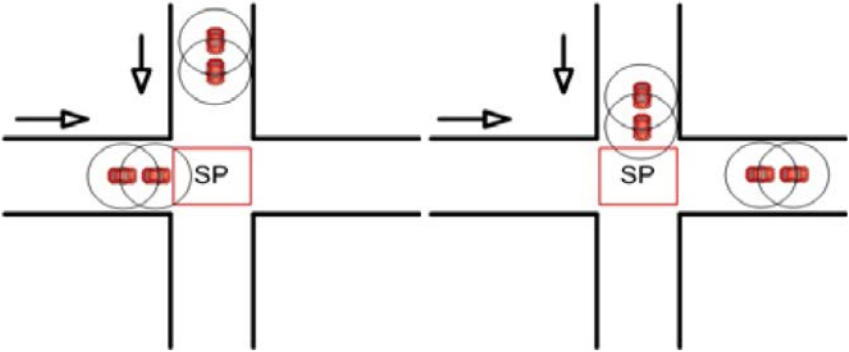


| UTC Project Information – National Transportation Center @ Maryland (NTC@Maryland) | |
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| Project Title | Distributed Traffic Monitoring and Prediction with Vehicle-to-Vehicle Communications |
| University | Arizona State University |
| Principal Investigator(s) | Yingyan Lou, Ph.D. |
| PI(s) Contact Information | Yingyan.lou@asu.edu 480-965-6361 |
| PI(s) and Co-PI(s) Photo(s) Image should be 80width x 120height pixels. Allowed file types: png gif jpg jpeg . |  |
| Funding Source(s) and Amounts Provided (by each agency or organization) | NTC @ Maryland, \$34,798 Arizona State University, \$45,807 |
| Total Project Cost | \$80,605 |
| Agency ID or Contract Number | DTRT13-G-UTC30 |
| Start and End Dates | 1/1/2015 – 12/31/2015 |
| Project Image (for website) Should be 233width x 155height pixels. Allowed file types: png gif jpg jpeg . |  <p>(a) At time 0</p> <p>(b) At time $t > 0$</p> |

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| <p>Brief Description of Research Project</p> | <p>The objective of this project is to develop innovative distributed traffic monitoring protocols as well as localized and area-wide traffic estimation algorithms, sustained by vehicle-to-vehicle (V2V) communications alone, to support coordinated transportation operations. The proposed project paves the first step towards the envisioned virtual traffic operation system for urban road networks by addressing two essential functions.</p> <ol style="list-style-type: none"> 1) Localized, distributed, and cooperative traffic monitoring and aggregation to provide traffic information that is ready-to-use as inputs to transportation network models optimizing coordinated traffic control. 2) Localized and area-wide traffic state estimation and prediction. |
| <p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>May Place Any Photos Here</p> | <p>Expected direct outcomes of this project consist of a set of new transportation models and algorithms, including 1) a distributed traffic monitoring protocol, 2) a cooperative localized traffic aggregation algorithm, 3) a cooperative localized platoon evolution prediction algorithm, and 4) an area-wide traffic estimation and prediction model; and a simulation program featuring the proposed V2V protocols.</p> |
| <p>Impacts/Benefits of Implementation (actual, not anticipated)</p> | <p>The PI plans to write one refereed journal paper on the proposed study. Target journals include Transportation Research Part C: Emerging Technologies. The results will also be presented at national venues such as Transportation Research Board annual meeting. Several follow-up studies are planned, such as transportation network models and tools to support optimal research allocation and coordinated operation through V2V alone or with limited existing infrastructure. The PI plans to seek external support for the follow-up studies from National Science</p> |

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| | Foundation and Federal Highway Administration Exploratory Advanced Research programs. |
| Web Links <ul style="list-style-type: none">• Reports• Project website | |