On Scheduling Real-time Multi-item Queries in Multi-RSU Vehicular Ad Hoc Networks (VANETs)

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**VENUE**  CS Seminar Room, Y6405, 6th Floor  
Yellow Zone, Academic 1  
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**ABSTRACT**

The issue of multi-item queries in wireless broadcasting systems has received considerable interest recently. Two problems, namely query starvation and bandwidth utilization, have been identified as key issues that need to be solved. In this paper, we examine this problem in the context of VANETs with multiple cooperating Road Side Units (RSUs). We characterize a query with two deadlines: query total deadline (QTD) which is the actual deadline of a query and query local deadline (QLD) which is the duration a vehicle dwells in an RSU range after submitting that query. By careful consideration of these deadlines, vehicle speed, RSU range and inter-RSU distance, we propose a Cooperative Query Serving (CQS) approach which allows multiple RSUs to share residual bandwidth, deal effectively with both the query starvation and the bandwidth utilization problem and hence maximize the chance of serving multiple items queries. Simulation results show CQS outperforms other scheduling algorithms.

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**Supervisor:** Dr. CHAN, Edward  
**Research interests:** Computer Networking, Mobile Computing, and Ad Hoc Networking with a focus on Vehicular Ad Hoc Networking.

**All are welcome!**

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