Opportunistic Data Collection for Wireless Sensor Networks

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Abstract

In many potential wireless sensor network applications, the cost of the base station infrastructure can be prohibitive. Instead, we consider the use of mobile devices carried by people in their daily life to collect sensor reports opportunistically. Users move around in an uncontrolled manner and their smartphones rendevous with nearby sensor nodes, gathering reports in return for incentives. In this talk I will explain several aspects of our research on this issue:
- Components of the system architecture for opportunistic data collection;
- Techniques for efficient rendevous between smartphones and sensor nodes;
- Algorithms for pre-forwarding of data between sensor nodes so as to improve collection rates;
- Analysis of smartphone mobility traces to validate the feasibility of opportunistic data collection.

Bio

Cormac J. Sreenan is Professor of Computer Science at University College Cork in Ireland. Prior to joining UCC he was on the research staff at AT&T Labs Research (Florham Park, NJ, USA) and Bell Labs Research (Murray Hill, NJ, USA). At Cork he runs the Mobile & Internet Systems Laboratory, a group of about 12 externally-funded researchers investigating wireless sensor networks and next-generation mobile networks. He is on the Editorial Boards of IEEE Transactions on Mobile Computing, ACM Transactions on Sensor Networks, and ACM Multimedia Systems Journal. He holds a PhD in Computer Science from Cambridge University and is a Fellow of the BCS.

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