Real-Time Issues in Wireless Sensor Networks

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Many mission-critical applications require wireless sensor networks to interact with physical environments under stringent timing constraints and severe resource constraints. Examples include intruder tracking, medical care, fire monitoring, and structural health monitoring. This tutorial presents our research on a range of real-time issues in wireless sensor networks including (1) packet scheduling algorithms for end-to-end real-time communication; (2) power management protocols for energy-efficient real-time data collection; and (3) spatiotemporal query services for mobile users. This tutorial also discusses research challenges in the area of real-time wireless sensor networks.

Biography

Dr. Chenyang Lu is an Assistant Professor in the Department of Computer Science and Engineering at Washington University in St. Louis. He received the Ph.D. degree from University of Virginia in 2001, the M.S. degree from Chinese Academy of Sciences in 1997, and the B.S. degree from University of Science and Technology of China in 1995, all in computer science. He is author and co-author of more than 40 refereed technical papers and a recipient of the NSF CAREER Award. His current research interests include wireless sensor networks, adaptive QoS control, and real-time embedded systems and middleware.

References


