Abstract

Recent technological developments in Micro-Electro-Mechanical Systems (MEMS) technology, wireless communications and electronics have led to the emergence of large-scale wireless sensor networks (WSNs). One of the key research questions of the wireless sensor networks is issues of having coverage while keeping connectivity. Most of the related researches have concerned coverage, connectivity and energy conservation independently or required...
sensing/transmission range restrictions. The quality of service (QoS) of a wireless sensor network depends to a large extent on the sensing coverage, and its lifetime is determined by its energy consumption. In this paper we present energy efficient, scalable and collision free priority based multiple MAC layer protocol for wireless sensor networks. The approach proposes time-based arbitration of medium access to control signal interference among the transmission of sensors and the authors aim to prolong the network lifetime by redundant sensor nodes with ensured connectivity and coverage simultaneously, without any accurate location information was addressed. We evaluate the distributed algorithm using NS2 simulator and show that our algorithm results in significant reduction of energy consumption, with strong connectivity and coverage.

References


- Maulin Patel, R. Chandrasekaran and S. Venkatesan, Telecommunication Engineering Program, Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, Richardson, Texas.
- Shuo Zhang, Juhua Pu, Xiao Zeng, Yuheng Liu, Zhang Xiong, School of Computer Science and Technology, China.

**Index Terms**

Computer Science

Information Technology

**Keywords**

Sensor Coverage Energy Connectivity Wireless Sensor Networks