Abstract

A Wireless sensor network (WSN) has important applications such as remote ecological monitoring and target tracking. This has been enabled by the availability, particularly in recent years, of sensors that are smaller in size and smart. These sensors are equipped with wireless interfaces with which they can communicate with one another to form a network. Wireless sensor networks consist of sensor nodes with sensing and communication capabilities. As sensor nodes are generally battery-powered devices, the critical aspects to face concern how to reduce the energy consumption of nodes, so that the network lifetime can be improved to reasonable times. In this paper we first describe the energy consumption for components of a typical sensor node, and discuss the main directions to energy saving methods in wireless sensor networks. Then we present a methodical and comprehensive taxonomy of the energy optimization methods in wireless sensor networks. The main goal of energy optimization methods is to collect and aggregate data in an energy efficient manner so that network life time is enhanced. We conclude with possible future research directions.
References


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Index Terms

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Keywords

Wireless sensor network (WSN)  Multiple-input Multiple-output  Energy efficiency
Alamouti diversity schemes