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APPROXIMATION ALGORITHMS FOR ENERGY EFFICIENT ROUTING IN WIRELESS SENSOR NETWORKS

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Abstract

Wireless technologies and embedded computing systems have led to the emergence of un-attended wireless sensor networks (WSNs). Regardless of the limited energy availability in the sensor nodes.WSNs have enabled a new services and applications. In Sensor networks each node has a limited battery energy supply and can generate information that needs to be communicated to a sink node.Every node in the wireless network has the capacity to transform information in the form of packets and also each node is assumed to be able to dynamically adjust its transmission power depending on the distance over which it transmits a packet. To improve the power efficiency requirements, without affecting the network delay, we propose approximation algorithm to compute an optimal routing scheme that maximizes the time at which the first node in the network runs out of energy. The resulting algorithms have low computational complexity and are guaranteed to converge to an optimal routing scheme that maximizes the lifetime of a network. For reducing the power consumption we are taking source node as dynamically move from one location to the other where it is created and the sensor nodes are static and cannot move from one location to the other location where it is created. The results of our study will allow a network designer to implement such a system and to tune its performance to ensure with some level of confidence that the information is successfully carried through the mobile network and delivered within some time period.

Keywords : wireless sensor networks, energy efficient routing, metric based routing, sleep based routing