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Energy Aware Multi-speed and Multi-SPEED Routing Protocol in Wireless Sensor Networks

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Wireless sensor networks are aimed to provide any routing protocol used in wireless sensor networks should take into consideration the time sensitive nature of the traffic in such networks along with the amount of energy left for each sensor node. In this paper we propose a new distributed packet delivery mechanism for probabilistic Quality of Service (QoS) guaranteed in wireless sensor networks. Each node uses routing decisions based on its own progress towards the destination, total required end-to-end total reaching probability, delay of the intermediate forwarding node and residual energy. The simulation results demonstrate that the proposed protocol effectively controls the energy usage efficiency of the sensor nodes, maximizing the lifetime of a wireless sensor network while keeping guaranteed QoS.



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Cellular Learning Automata based Scheduling Method for Wireless Sensor Networks

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Abstract

In wireless sensor network often micro-battery with very limited power provides the energy of sensor nodes. Since sensors are usually utilized in remote or hostile environments, recharging or replacing the battery of the sensors is something quite undesirable or even impossible. Thus long system lifetime is a must. Sleep scheduling is a mechanism in wireless sensor network to save energy. In this paper, we propose an energy-efficient distributed scheduling method considering mobile target tracking also called dynamic target coverage. The algorithm is based on cellular learning automata. In this algorithm, each node is equipped with a learning automaton which will learn (schedule) the proper on and off times of that node based on the movement nature of a single moving target. To evaluate the proposed method it is tested under straight with constant velocity movement model of target. The results of experimentations have shown that the proposed scheduling algorithm outperforms two existing dynamic target coverage scheduling methods.