Energy efficiency has been an important concern in wireless sensor networks where Medium Access Control (MAC) protocol plays an important role. MAC protocols proposed for wireless sensor networks assume static sensor nodes but nodes know their locations, and they sleep-wake cycle, waking up periodically but not synchronously, which usually causes upgradation in network performance in scenarios involving mobile sensors. When a node has a packet to forward to the sink, there is a trade-off between how long this node waits for a suitable neighbor to wake up and the progress the packet makes towards the sink once it is forwarded to this neighbor. In this paper, it is introduce a mobility aware and energy efficient medium access protocol with sleep and wake up cycle (shortly abbreviated as MMAC-SW) for mobile wireless sensor networks. Our MMAC-SW is based on a hybrid scheme of TDMA and CSMA that informs sensor nodes when to wakeup or when to go to sleep to save energy. Through computer simulations, it is evaluate the performance of the MMAC-SW and compare it against the MMAC protocol. Simulation results will show that MMAC-SW better performs than MMAC in terms of energy consumption, packet delivery ratio and average packet delay.
Energy Efficient Adaptive Mobility of MAC Protocol using Sleep and Wake Cycling in Wireless Sensor Networks


Index Terms

Computer Science

Wireless

Keywords

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