Abstract

In recent years, wireless sensor networks are in great use in applications like disaster management, combat field reconnaissance, border protection and safe care. Although, much research has been done on wireless sensor networks, but in the quality of service (QoS) field there are not enough researches. Since these networks are widely used in many areas, there are different QoS parameters in contrast with traditional networks such as network coverage, optimal number of active nodes, network lifetime and energy consumption. We have proposed an automata-based scheduling method to improve the QoS parameters of the networks. In this method, each node is equipped with a learning automaton to select its correct status (active or passive) at any given time. Simulation results show that the proposed method in comparison with some existing methods such as: CCP, Lacoverage, PEAS and Ottawa reduce energy consumption and increase network's lifetime. As a result, several QoS parameters are considered in sensor networks, simultaneously.

Index Terms

Computer Science
Wireless
Keywords
wireless sensor networks; energy consumption; coverage; learning automata.