Energy Efficient Cross-Layer Approach for Wireless Sensor Networks

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 127
Number 10

Year of Publication: 2015

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10.5120/ijca2015906519

Abstract

Energy minimization has become a burning issue for Wireless sensor networks (WSNs) which are mainly event based systems and rely on the collective effort of several micro-sensor nodes continuously observing a physical phenomenon. Energy efficient approaches or tools are the key to prolong the lifetime of the sensor nodes. This paper presents a cross-layer approach between the medium access control (MAC) and the network layer to achieve energy efficiency. Ad-hoc On-Demand Distance Vector (AODV) is used here as routing protocol in the network layer along with IEEE-802.11 protocol in the MAC layer. Simulation results show that cross-layer approach obtains significant energy savings compared with traditional approaches.

References


Index Terms

Computer Science Wireless
Keywords

Wireless sensor network, Cross-layer, MAC, AODV, Energy Consumption, Goodput, Throughput.