

{tag}

{/tag}

Communication and Mobile Networks
© 2012 by IJCA Journal

IJCA Special Issue on Wireless

wcmn - Number 1

Year of Publication: 2012

Authors:

Munish Bhardwaj

Surender Soni

Dinesh Kumar Kotary

{bibtex}wcmn1014.bib{/bibtex}

Abstract

A wireless sensor network is consists of hundreds or thousands of nodes that are densely deployed in a large geographical area. These nodes are commonly used for continuously monitoring applications. Also these sensor nodes have small batteries. The energy consumption is the main issue in WSN's. The efficient routing protocol should minimize the energy consumption. In this paper, we propose energy efficient routing protocol, which uses hierarchical based clustering. It is an extension of LEACH routing protocol. Instead of a single

cluster head, a group of associates called group of cluster heads in a cluster manages the network. Group of cluster heads have two phases namely election phase and data transfer phase. On rotation basis, a group of cluster heads member receives data from the neighbor nodes and transmits the aggregated data to distance base station. At a time only one member of the group of cluster heads is active and the remaining members are in sleep mode. The group of cluster heads not only optimizes energy consumption by reducing the number of election but evenly distributed the long-range transmission among the networks nodes. The simulation results shows that the proposed protocol outperform the traditional clustering techniques

Refer

ences

- B. Warneke, M. Last, B. Liebowitz, K. Pister, (2001), "Smart Dust: Communicating with a cubicmillimeter computer" IEEE Computer, p. 2-9.
- R. Min, M. Bhardwaj, S. Cho, E. Shih, A. Sinha, A. Wang, and A. Chandrakasan , (2001) "Lowpower wireless sensor networks", VLSI Design-2001, Invited Paper, Bangalore.
- WSN, http://www.intel.com/research/exploratory/wireless_sensor.htm.
- W.Heinzelman, A.Chandrakasan, H. Balakrishnan(2000) "Energy-efficient communication protocol for wireless microsensor Networks " Proceedings of the 33rd International Conference on System Sciences (HICSS '00).
- W.B.Heinzelman, A.P.Chandrakasan, and H. Balakrishnan,(2002) "An Application Specific Protocol Architecture for Wireless Microsensor Networks," IEEE Trans. Wireless Commun. , vol.1, no. 4, pp. 660–70.
- Jamal N. Al-Karaki, Ahemed E. Kamal "Routing Technique In WireLess Sensor Networks: A Survey,"
- Sajid Hussain, Abdul W. Matin(2006) "Base Station Assisted Hierarchical Cluster-Based Routing " IEEE conference.

Index Terms

Computer Science
Mobile Networks

Wireless Communication and

Keywords

Energy Efficiency Network Lifetime Wireless Sensor Networks Group of cluster heads (GCH) Energy efficient routing protocol (EERP)

