

**DISTRIBUTED CLUSTERING-TASK SCHEDULING FOR
WIRELESS SENSOR NETWORKS USING DYNAMIC
HYPER ROUND POLICY**

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ABSTRACT

Prolonging the network life cycle is an essential requirement for many types of Wireless Sensor Network (WSN) applications. Dynamic clustering of sensors into groups is a popular strategy to maximize the network lifetime and increase scalability. In this strategy, to achieve the sensor nodes' load balancing, with the aim of prolonging lifetime, network operations are split into rounds, i.e. fixed time intervals. Clusters are configured for the current round and reconfigured for the next round so that the costly role of the cluster head is rotated among the network nodes, i.e. Round-Based Policy (RBP). This load balancing approach potentially extends the network lifetime.



CONT...

However, the imposed overhead, due to the clustering in every round, wastes network energy resources. This paper proposes a distributed energy-efficient scheme to cluster a WSN, i.e. Dynamic Hyper Round Policy (DHRP), which schedules clustering-task to extend the network lifetime and reduce energy consumption. Although DHRP is applicable to any data gathering protocols that value energy efficiency, a Simple Energy efficient Data Collecting (SEDC) protocol is also presented to evaluate the usefulness of DHRP and calculate the end-to-end energy consumption. Experimental results demonstrate that SEDC with DHRP is more effective than two well-known clustering protocols, HEED and M-LEACH, for prolonging the network lifetime and achieving energy conservation.



EXISTING SYSTEM

To attain load balancing for the purpose of prolonging network lifetime, the Round-Based Policy (RBP) schedules the clustering-task statically by splitting the time into fixed length rounds, at the beginning of which clustering is performed.

By rotating the cluster head responsibility among the sensor nodes and reconstructing the cluster formation, periodic reclustering balances the load of the network nodes. However, the cost of messages exchanged during the cluster formation phase creates a considerable overhead. Therefore, to obtain a competent energy consumption model with an acceptable network lifetime, the trade-off between the clustering cost reduction and improvement in load balancing should be addressed.



PROPOSED SYSTEM

- In this paper, a scalable, distributed, and energy-aware scheduling algorithm of the clustering-task is proposed which is based on the Dynamic Hyper Round Policy (DHRP).
- This policy decreases the granularity of clustering- task scheduling. In other words, with this policy, the clustering-task is only performed at the beginning of each dynamic hyper round instead of in every round. Whereas a hyper round is a reasonably long period of time within which there are many rounds.

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HARDWARE REQUIREMENTS

- Processor - Pentium-IV
- Speed - 1.1 Ghz
- RAM - 256MB(min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

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SOFTWARE REQUIREMENTS

- Tool - Network Simulator-2
- Operating system - LINUX
- Front end - OTCL (Object Oriented Tool Command Language)

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