Energy Sparing of the LEACH Communication Mechanism with Mobile Sink Node

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Abstract

Routing protocols play a key role in achieving an efficient transmission and proper routing for the aggregated data, due to the lack of network resources as Wireless Sensor Networks have less energy and memory. Therefore, it is important to exploit these assets efficiently and intelligently. A successful model of WSN is a model which can have a good compromise between maximum data collection and least energy consumption. In the process of crafting routing protocols for WSN, clustering became important aspect to spare network energy consumption and data delivery efficiently. Low-Energy Adaptive Clustering Hierarchy (LEACH) is a hierarchical cluster based, energy efficient routing protocol. It extends the network lifetime by randomly selecting Cluster Heads (CH) to aggregate and forward the routing information from the cluster members to the Sink node. LEACH in its archetype is a distributed routing protocol and one of the most efficient energy management mechanism for WSN. However, there exist some disadvantages, that leads to uneven energy consumption in the network, when the nodes closer to the Sink die more quickly than the nodes far away. Hence, we propose a new approach for network lifetime improvement, where the Sink node is mobile and cross the whole network horizontally to have a better energy consumption rate uniformly distributed across the network.

Keywords: *Low-energy adaptive clustering hierarchy (LEACH), Wireless Sensor Network (WSN), routing, clustering, energy consumption, mobility, uniform energy consumption.*

MSC: 65C60, 60G35, 91A28

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