

Optimized Cluster Head Selection Algorithm Based on LEACH Protocol for Wireless Sensor Networks

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Abstract : Low-Energy Adaptive Clustering Hierarchy (LEACH) has been considered as one of the effective hierarchical routing algorithms that optimize energy and prolong the lifetime of network. Since the selection of Cluster Head (CH) in LEACH is carried out randomly, in this paper, we propose an approach of electing CH based on LEACH protocol. In other words, we present a formula for calculating the threshold responsible for CH election. In fact, we adopt three principle criteria: the remaining energy of node, the number of neighbors within cluster range and the distance between node and CH. Simulation results show that our proposed approach beats LEACH protocol in regards of prolonging the lifetime of network and saving residual energy.

Keywords : wireless sensors networks, LEACH protocol, cluster head election, energy efficiency

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