Abstract

Energy Management can be improved by proficient clustering algorithms in heterogeneous wireless sensor networks. Coordination through cluster head selection provides efficient data aggregation that reduces communication overhead in the network. In this paper, we propose a fuzzy logic approach based DDEEC clustering algorithm which aims to prolong the lifetime of nodes in heterogeneous WSNs. We compare this algorithm with the PSO based DDEEC algorithm and original DDEEC algorithm according to the parameters of first node dies at different rounds and energy-efficiency metrics. The efficiency of proposed optimized fuzzy algorithm is proved by the Matlab experimental results. Simulation results exhibits that the proposed algorithm has higher energy efficiency and can improve life span of a node and data delivery at the base station over its comparatives.

References

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Developed Distributed Energy-Efficient Clustering (DDEEC) Algorithm based on Fuzzy Logic Approach for Optimizing Energy Management in Heterogeneous WSNs

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Index Terms

Computer Science Fuzzy Systems
Keywords

Heterogeneous WSN; cluster head; fuzzy logic  DDEEC  Energy conservation network lifetime.