

Maximization of Lifetime for Wireless Sensor Networks Based on Energy Efficient Clustering Algorithm

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Abstract : Since last decade, wireless sensor networks (WSNs) have been used in many areas like health care, agriculture, defense, military, disaster hit areas and so on. Wireless Sensor Networks consist of a Base Station (BS) and more number of wireless sensors in order to monitor temperature, pressure, motion in different environment conditions. The key parameter that plays a major role in designing a protocol for Wireless Sensor Networks is energy efficiency which is a scarcest resource of sensor nodes and it determines the lifetime of sensor nodes. Maximizing sensor node's lifetime is an important issue in the design of applications and protocols for Wireless Sensor Networks. Clustering sensor nodes mechanism is an effective topology control approach for helping to achieve the goal of this research. In this paper, the researcher presents an energy efficiency protocol to prolong the network lifetime based on Energy efficient clustering algorithm. The Low Energy Adaptive Clustering Hierarchy (LEACH) is a routing protocol for clusters which is used to lower the energy consumption and also to improve the lifetime of the Wireless Sensor Networks. Maximizing energy dissipation and network lifetime are important matters in the design of applications and protocols for wireless sensor networks. Proposed system is to maximize the lifetime of the Wireless Sensor Networks by choosing the farthest cluster head (CH) instead of the closest CH and forming the cluster by considering the following parameter metrics such as Node's density, residual-energy and distance between clusters (inter-cluster distance). In this paper, comparisons between the proposed protocol and comparative protocols in different scenarios have been done and the simulation results showed that the proposed protocol performs well over other comparative protocols in various scenarios.

Keywords : base station, clustering algorithm, energy efficient, sensors, wireless sensor networks

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