عنوان مقاله:

A New Method for Clustering Wireless Sensor Networks to Improve the Energy Consumption

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خلاصه مقاله:

Clustering is an effective approach for managing nodes in Wireless Sensor Network (WSN). A new method of clustering mechanism with using Binary Gravitational Search Algorithm (BGSA) in WSN, is proposed in this paper to improve the energy consumption of the sensor nodes. Reducing the energy consumption of sensors in WSNs is the objective of this paper that is through selecting the sub optimum sensors as Cluster Heads (CHs) to eliminate the number of transmissions and subsequently to attain more network lifetime. Clustering mechanism consist of two phases: CH selection and cluster formation. One of the major problems affecting energy consumption in WSN is cluster head selection. The proposed method is used for selecting suboptimum cluster head nodes. However, selecting CHs is not an easy subject. In this paper this issue will be discussed based on the residual energy or distance from Base Station (BS) or both of them with considering BS coordinate by BGSA algorithm. Simulation results show that if the BS is not very far from the network area, considering distance and residual energy for selecting CHs by proposed method can be efficient for reducing energy consumption and prolonging lifetime.

کلمات کلیدی:

Wireless Sensor Networks, Binary Gravitational Search Algorithm, Cluster Heads, Energy consumption, Distance from BS

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