

Artificial Immune System Based Multi Hop Energy Efficient Routing Protocol For Wireless Sensor Network



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Abstract

Clustering is one of the important methods for prolonging the network lifetime in wireless sensor networks (WSNs). It involves grouping of sensor nodes into clusters and electing cluster heads (CHs) for all the clusters. CHs collect the data from respective cluster's nodes and forward the aggregated data to base station. A major challenge in WSNs is to select appropriate cluster heads. In this work, we present a new algorithm for Cluster-Head selection, which is based on artificial immune system (AIS) with a new two-hop routing technique for serving remote nodes using the vice-Cluster Head plus a multi-hop routing technique. To confirm the improvements brought by our algorithm we conducted a simulation using the NS2 network simulator, in which the performance of our algorithm are evaluated and compared with the existing clustering protocol LEACH.

Keywords Cluster Head Selection, Wireless Sensor Network, LEACH, AIS, VCH.