Multi-Objective Clustering Protocol for Heterogeneous Wireless Sensor Network

san Vish purkar (✉ svpurkar@kkwagh.edu.in)

Matoshri College of Engineering and Research Center

Rajkumar S Deshpande

JSPM's Bhiwarabai Sawant Institute of Technology and Research Wagholi

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Abstract

As we know the capabilities of communication system seems to be extended to greater level with the integration of wireless sensor network (WSN). Seamless control of real time application is been possible. But, an energy constraint of sensor node limits the lifecycle of the activity. Thus, it is necessary to utilize the available energy efficiently to prolong the lifetime of sensory system. Secondly by adding Heterogeneity in WSN and by controlling the communication activity it is possible to extend the lifetime of the network multifold. Thus, it is possible to improve energy efficiency of WSN without constraints of deployments, responsibility and heterogeneity level. So, design perceptive based on multilevel clustering scheme for varied objectives is the better choice for proposed scheme. As clustering scheme reduces internal traffic, efforts of communication and improve the load balancing over the network. Here, we propose Multi-objective (MO) clustering protocol for Heterogeneous WSN to enhance the energy efficiency of deployed network. We hereby found that proposed scheme work better for varied deployment condition and for various performance parameters. Simulation results of proposed design outperform the well-known published protocols by more than 1.97 times.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Figures

Figure 1

Alive Nodes Versus No. of Cluster Rounds of MOC protocol with published protocol.

Figure 2

Dead Nodes Versus No. of Cluster Rounds of MOC protocol with published protocol.

Figure 3

Energy Remain in the network Versus No. of Cluster Rounds of MOC protocol with published protocol.

Figure 4

Throughputs of the network Versus No. of Cluster Rounds of MOC protocol with published protocol.

Figure 5

Performance Improvement of proposed design with published protocol