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RESEARCH ARTICLE

Energy Efficient Clustering Using Fuzzy Logic

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Abstract—Wireless Sensor Networks (WSNs) are an important emerging wireless technology with the advantages of ease of distribution and low cost. They consist of a large number of nodes that sense real-time events and transfer them to a base station for processing. However, WSNs have a few constraints such as energy consumption due to the node CPU and battery which directly affects the network life time. In this paper, we propose a method that focuses on reduction of energy consumption and increasing the network life time using a fuzzy logic approach. The technique is based on two parameters, namely, energy level and centrality, and uses a controller that prevents unwanted concentration of cluster heads in a particular region. The simulation results clearly show a significant amount of increase in energy preservation and longer network life time compared to other proposed approaches.

Keywords— Wireless Sensor Networks; Fuzzy Logic; LEACH Protocol; Energy Consumption

Full Text: <http://www.ijcsmc.com/docs/papers/ICMIC13/ICMIC13R2.pdf>