Fuzzy Clustering Enchanced Multipath Routing to Enhance the Network Lifetime in Wireless Sensor Networks

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Abstract:— Wireless Sensor Networks (WSNs) energy potency has used a restricted battery. We have a tendency to given a multi-parameter higher cognitive process cluster head choice below fuzzy surroundings. Fuzzy clustering technique is employed for the choice of cluster heads in WSNs. Three criteria as well as residual energy distance of the nodes from main node and the variety of neighbor nodes measure the throughput. So we have to optimize the quantity of cluster heads. The simulation result shows that this approach is simpler in increasing the property among every cluster and conjointly localizing high intensity traffic among a cluster.

Index Terms:— Cluster head, Fuzzy clustering, network period, WSN

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1.   INTRODUCTION

He Routing protocols for WSNs should be fastidiously designed to consider resource constraints like low process power, little memory and restricted energy of device nodes [1]. Additionally, WSNs ought to be scalable and ready to tolerate dynamic network changes. they vary from tens to thousands of device nodes. Therefore, the standard of the routing formula ought to be freelance of the size of the networks or the amount of device nodes [2]. They'd be impractical if memory utilization can increase as a result of the   nodes can increase. New nodes are additionally new deployed, or some nodes would possibly disappear, because of malfunctions [3].

The figure.1 shows the system architecture for wireless sensor networks. The author proposes [4] the fuzzy based multipath routing protocol supported AODV routing formula .The delineate protocol throughout this study tries to go looking out the distinct ways in which between offer and destination nodes with victimization Omni directional antennas, to send info through these at the same time.
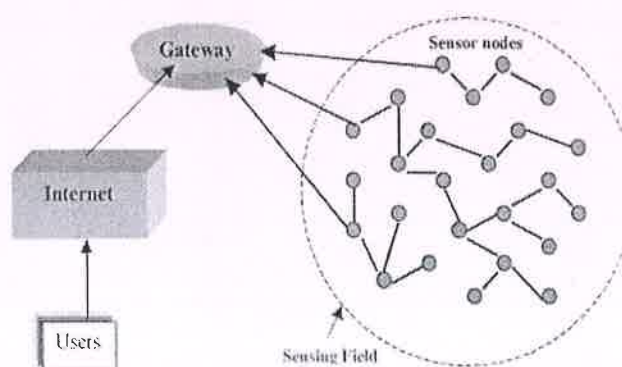
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Fig.1: System Architecture for WSN

This protocol [5] counts the amount of active neighbors for every path, and eventually, it chooses some ways that for inflicting info among which every node has lower vary of active neighbors all quickly. Here, active neighbors of a node are created public as nodes that have antecedently received the RREQ (route request). The aim of this work is to do to boost the energy potency of specific networks. The authors [6] proposed the fuzzy logic based multi-path routing theme constructs multiple ways in which from every node to chop back the prospect of congestion. Throughout this routing theme, every information packet is delivered to the amount of nodes. The authors [7] developed an analytical model to estimate network traffic load and to reduce energy consumption of sensor networks. The calculation was made on number of dead nodes, rising time and energy hole site during data gathering. In addition to this, polynomial time approximation method was also implemented to extend the time period of active nodes. Number of sensor nodes is reduced to cover the target points given by cluster regions. A Base station will keep on monitoring the activity of active and rising time period. A constant factor approximation algorithm was derived from the optimal solution inside the target point to develop coverage sensor factor.The authors [8] had proven the data reliability from the cloud computing to WSN by aggregating the data from source to sink node. The analysis was made on data gathering ability, powerful data storage and data processing capacity in WSN. The critical issues were

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