

A Virtual Grid Based Energy Efficient Data Gathering Scheme for Heterogeneous Sensor Networks

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Abstract : Traditional Wireless Sensor Networks (WSNs) generally use static sinks to collect data from the sensor nodes via multiple forwarding. Therefore, network suffers with some problems like long message relay time, bottle neck problem which reduces the performance of the network. Many approaches have been proposed to prevent this problem with the help of mobile sink to collect the data from the sensor nodes, but these approaches still suffer from the buffer overflow problem due to limited memory size of sensor nodes. This paper proposes an energy efficient scheme for data gathering which overcomes the buffer overflow problem. The proposed scheme creates virtual grid structure of heterogeneous nodes. Scheme has been designed for sensor nodes having variable sensing rate. Every node finds out its buffer overflow time and on the basis of this cluster heads are elected. A controlled traversing approach is used by the proposed scheme in order to transmit data to sink. The effectiveness of the proposed scheme is verified by simulation.

Keywords : buffer overflow problem, mobile sink, virtual grid, wireless sensor networks

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