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Topic of Research : Design and Analysis of Energy-Efficient
Data Transmission Schemes for Wireless Sensor Networks

Findings

The major problem in wireless sensor network is limited energy in batteries. Therefore, efficient use of node energy is very important to enhance the network lifetime.

The Virtual MIMO scheme is a proven technique to reduce energy consumption in WSN. But, in high node density WSN, DSC based on virtual MIMO can be used. The results reveal that, in the DSC-MIMO scheme, energy consumption is lower than that in the CMIMO technique.

For long distance communication, the multihop technique is necessary to transmit data from source node to sink node. The simulation results show that for long range communication, the multihop MIMO technique provides better energy saving than the MIMO technique or multihop single-input single-output (SISO) technique in a WSN, while satisfying the throughput and delay.

To reduce the multihop communication, sink mobility based WSN can be used. In a sink mobility based WSN, the sink node moves on a trajectory in the network region and collects the data of the sensor nodes in the vicinity. Sink mobility reduces the distance from average source node to sink and saves network transmission energy. The results depict that the GA based sink mobility provides increase in network lifetime than other protocols.