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Performance of a connected random covered energy efficient wireless sensor network.

ABSTRACT

For the sensor network to operate successfully, the active nodes should maintain both sensing coverage and network connectivity. Furthermore, scheduling sleep intervals plays critical role for energy efficiency of wireless sensor networks. Traditional methods for sensor scheduling use either sensing coverage or network connectivity, but rarely both. In this paper, we use random scheduling for sensing coverage and then turn on extra sensor nodes, if necessary for network connectivity. Simulation results have demonstrated that the number of extra nodes that is on with upper bound of around 9% is small compared to the total number of deployed sensor nodes. Thus energy consumption for switching on extra sensor node is small.

Keyword: Wireless sensor network; Energy efficient network; Performance analysis; Network coverage.