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Improving energy consuming in WSN using mobile sink

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ABSTRACT

Wireless sensor networks (WSN) are consisted of many sensors which often are located in harsh and out-of-reach environments. One of the main challenges in WSNs is the limitation of theenergy consumption. One of applied methods for mitigating the energy consumption in these WSNs is to make use of the mobile sink in order to collect data of the sensor nodes from the network. In this research, a new method based on the Genetic Algorithm and fuzzy logic is proposed for reducing the WSN's energy consumption using the mobile sink. In proposed procedure, the suitable mobile sink's routing is determined using GA. GA functions based on stop stations position, stop time period and the coverage radius. The evaluation function in GA calculates the GA responses' quality with phasing the network's residual energy, amount of data collected and balance of energy consumption between network nodes. The simulation results indicate that the proposed method in different scenarios provides optimal performance in term of motion rout determination and increase in WSN lifetime relative to other existing methods.

Keyword:
wireless sensor networks (WSN), energy consumption, mobile sink, genetic algorithm (GA), fuzzy logic

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