Optimization of Mobile Agent using Genetic Algorithm in Wireless Sensor Network

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Abstract

A wireless sensor network (WSN) is a network of sensor nodes located at unattended areas. Nodes in network sense parameters from environment and send data to sink. Movable sink take number of rounds in network and predict parameters. Movable sink performs better than static sink as it saves energy and lifetime of a network. WSN do not have fixed architecture but have battery constrained. As WSN can perform multi tasking and multi agents can effectively solve these problems in it. In this paper proposes a genetic algorithm that plans the simultaneous itineraries that intelligent mobile agents are to follow, such that the sensed information is collected within a time bound, and the power spent is minimized. Moreover, mobile agents dynamically and autonomously adapt these itineraries to bypass unexpected failures. The algorithms have been integrated both into a real-time wireless sensor network and into a simulation environment. With these implementations, several experiments and simulations have been performed. The simulations provide empirical results that illustrate the effective functioning of our approach under a variety of different topologies and assumptions. The whole simulation has been done in MATLAB 7.10.
References


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Index Terms

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Keywords

Mobile agent, Wireless sensor network, Genetic algorithm.