A Genetic Algorithm Based Sleep-Wake up Protocol for Area Coverage in WSNs

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Abstract : Energy efficiency is an important issue in the field of Wireless Sensor Networks (WSNs). So, minimizing the energy consumption in this kind of networks should be an essential consideration. Sleep/wake scheduling mechanism is an efficient approach to handling this issue. In this paper, we propose a Genetic Algorithm-based Sleep-Wake up Area Coverage protocol called GA-SWAC. The proposed protocol puts the minimum of nodes in active mode and adjusts the sensing radius of each active node to decrease the energy consumption while maintaining the network's coverage. The proposed protocol is simulated. The results demonstrate the efficiency of the proposed protocol in terms of coverage ratio, number of active nodes and energy consumption.