

عنوان مقاله:

Distributed Routing Protocol in Wireless Sensor Networks through Mimetic Algorithm and Time-Sharing Approach to Select Cluster Head

محل انتشار:

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خلاصه مقاله:

Wireless sensor networks include sensor nodes communicating each other through wireless links for effective data collection and routing. These wireless nodes are of limited processing power, memory, communication range, channel band width, and battery capacity, from among which the most important is limited capacity of batteries which are unchangeable, under many conditions. The limitation encourages designing efficient protocols in terms of energy consumption. Using clustering is one of the methods to optimize energy consumption. On the other hand, a technical challenge in successful expansion of wireless sensor networks and their exploitation is effective usage made of limited channel band width. To overcome the challenge, one of the methods is dividing schedule of channel usage through TDMA method (Time-Division Multiple Access) so that each cluster head node creates a schedule for transmission of data from member nodes of the cluster through TDMA. Accordingly, in the paper, a distributed routing protocol based on clustering through usage of mimetic algorithm and time-sharing approach is proposed; and, it is capable of optimizing energy consumption and throughput rate, as well as reducing delay. The simulation results are indicative of better performance of proposed method, compared to IEEE 802.15.4 Standard.

کلمات کلیدی:

Wireless Sensor Network, Clustering, Memetic Algorithm, Time-division multiple access, IEEE 802.15.4 Standard

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