

Improvement of Lifetime For Corona Based Wireless Sensor Networks Using Cultural Algorithm

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Due to the large use of sensor networks in various fields, these networks have been attracted the attention of everyone today and also they are limited due to the use of energy resources. There are many challenges associated with increasing the network lifetime, because reducing the power consumption of each node increases the lifetime of the sensor network. So far, many methods have been proposed to minimize the energy consumption of nodes and increase the life of the network. The aim of this study is to provide an appropriate and optimal method in this field, which is proposed as the creation of energy holes in the sensor network and causes its challenges. The Corona-based wireless sensor network (the Concentric circles and the Sink which is at the center of these circles) are presented to overcome these challenges. In fact, by optimizing the number of sensor network nodes (Cultural algorithm to estimate the proper number of corona) in order to achieve the maximum coverage and use of relay nodes for the transmission of data packets that reduce the amount of redundancy of the data in the transmission process and increase the network lifetime and thus reduce the amount of energy consumed by the network. It was also shown with experimental results that the proposed method in this study was more effective than existing methods.

Keywords : Sensor Networks, Corona, Artificial Cultural Algorithm, Network Lifecycle, Energy Loss

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