Abstract

Recent advances in wireless telecommunication and electronics have provided the ability to design and produce sensors with low consumption power, small size, fair price and different usages. These small sensors, which are able to accomplish tasks like receiving different peripheral information, are the cause of creation of an idea for developing networks called Wireless Sensor Networks (WSN). The most challenging task in WSN networks is routing. There are different protocols in WSN, which were used for routing data packages from beginning to destination. LEACH is the first and the most famous hierarchical clustering algorithm with effective energy for WSNs, which was proposed for decreasing the energy consumption. Definite clustering protocol (DEC) uses the remaining energy of each cluster node (RE) for the process of selecting CH. As long as the RE of each node is higher than its adjacent, DEC considers that node as a selection choice and guarantees that each CH has enough energy to cope with its role, of course until the end of the network lifetime (unlike LEACH). In this research, it is decided that in order for improving the results, the LEACH-C protocol, which excels the performance of the LEACH protocol, to be combined with the
protocol IDEC (Improved DEC). In this study, the descriptive-analytical approach was carried out as a research methodology based on the proposed model. The proposed model was combined with two algorithms of LEACH-C and IDEC. In this study, results of LEACH, LEACH-C and DEC were compared. According to the research results, we observed that the performance of the proposed protocol excels other proposed protocols. The protocol ICED & LEACH-C saves energy. As we know, decreased energy consumption increases lifetime of the network.

References


Index Terms

Computer Science  Wireless

Keywords

Low Energy Adaptive Clustering Hierarchy (LEACH); Low Energy Adaptive Clustering Hierarchy-Centralized (LEACH-C); Definite Clustering Protocol (DEC)