An Energy Efficient Clustering Approach for Underwater Wireless Sensor Networks

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Abstract : Wireless sensor networks that are used to monitor a special environment, are formed from a large number of sensor nodes. The role of these sensors is to sense special parameters from ambient and to make a connection. In these networks, the most important challenge is the management of energy usage. Clustering is one of the methods that are broadly used to face this challenge. In this paper, a distributed clustering protocol based on learning automata is proposed for underwater wireless sensor networks. The proposed algorithm that is called LA-Clustering forms clusters in the same energy level, based on the energy level of nodes and the connection radius regardless of size and the structure of sensor network. The proposed approach is simulated and is compared with some other protocols with considering some metrics such as network lifetime, number of alive nodes, and number of transmitted data. The simulation results demonstrate the efficiency of the proposed approach.