A survey of state of the art: hierarchical routing algorithms for wireless sensor networks

ABSTRACT

Generally, any device that has the ability to sense the surrounding environment can be considered as a sensor node. A wireless sensor network is a group of sensor nodes that cooperate with each other, it may contain a few numbers of sensors or it can consist of thousands of sensors. Wireless sensor networks can be used in wide range of applications such as measuring temperature, humidity, pressure, noise level, monitoring the vehicular movement, military applications and health applications. One of the main crucial issues can face the operation and the surveillance of wireless sensor networks is energy consumption. Energy in wireless sensor networks mostly powered by battery and the greatest share of this energy is consumed during data transmission. Many researches have been done to solve this problem or at least find a solution to decrease the energy consumption. One of those solutions is using efficient routing algorithm. The most efficient type of algorithms that can be used for WSNs in large areas is hierarchical routing algorithms. In this article, we will present a review for the state of the art for recent hierarchical algorithms. Moreover, we will use criteria to classify the hierarchical algorithms that never used before in any article, which is the mechanism that implemented in the hierarchical algorithm such as clustering, chaining, or hybrid between cluster and chain.