Data Fusion in Wireless Sensor Networks using Fuzzy Systems

Abstract

Since battery is the source of energy for sensors, one of the important issues in wireless sensor networks is the energy and network lifetime. A method to reduce energy consumption and, as a result, increase the network lifetime is the fusion of data collected from the sensors in the covered environment before transmission to wireless sensor network. Data fusion in sensors is defined as the process in which the data received from multiple sources are integrated in order to achieve better perceived information with respect to only one source. In this paper, a new method is proposed for data fusion in network sensors using fuzzy systems. In the proposed method, by integrating the input data into each sensor, each of which had three inputs, the similarity percent of the data in sensors was obtained in order to identify the size of data (packets) to be sent. Simulation results on the proposed method verified the efficiency of the proposed method in terms of energy consumption in the network.

Index Terms

Computer Science Fuzzy Systems
Keywords

Data fusion, Wireless sensor network, Fuzzy Systems, Reduce the energy consumption.