(تقنية تجميع البيانات في شبكات الاستشعار اللاسلكية)

(Data Aggregation Technique in Wireless Sensor Networks)

مشروع التخرج هو احد متطلبات الحصول على درجة البكالوريوس في تخصص شبكات المعلومات في تكنولوجيا المعلومات

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Abstract

In the last years, Wireless Sensor Networks (WSNs) are widely used in many applications in the real life, such as tracking, monitoring, transferring, military, and medical therefore, maintain sensor nodes lifetime is an important issue in WSN. The energy supplied by the battery is the most critical resource in the sensor nodes affecting WSN's lifetime. Therefore, energy-saving is essential since sensor nodes are working by their restricted battery. At sensor nodes, energy is disposed in too many ways like receiving and transmitting the data, data processing, sensing, etc., Among all these, transferring the data is very costly in terms of power exhausting, while the consumption in data processing is considered to be much fewer. Therefore, it is important to decrease data sending/receiving to save energy and improve the WSN lifetime. we proposed data aggregation technique based on segmentation works on sensor nodes. Perceptually Important Points Data Aggregation (PIP-DA), The proposed technique work on a periodic basis and there are three stages in each period namely: data collection, data aggregation and data transmission. These technique proposed for reducing the size of transmitted measurements through remove redundant data before transmitted to Base Station (BS), decreasing the consumed energy, and thus extending the network lifespan while maintaining an acceptable level of accuracy of the measurements received at the Base Station or Cluster Head (CH) . The evaluation of proposed method is conducted by using extensive simulation experiments. The results of the simulation demonstrate the techniques efficiency.