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A STUDY OF WIRELESS SENSOR NETWORKS

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Abstract

Advances in technology has provided the availability of small and low-cost sensor nodes with capability of sensing various types of physical and environmental conditions, data processing, and wireless communication. Variety of sensing capabilities results in profusion of application areas. However, the characteristics of Wireless Sensor Networks (WSN) require more effective methods for data forwarding and processing. The purpose of this report to provide general knowledge of WSNs, application opportunities, and proposed routing for WSNs. Since there are too many routing algorithms for data forwarding problem in WSNs, only some of them will be presented in details. However, a full comparison of all methods will be given. A wireless sensor network (WSN) is a wireless network consisting of distributed self-organized autonomous devices using sensors to cooperatively monitor physical or environmental conditions, such as vibration, motion, temperature, sound etc.

A WSN node mainly consists of four main parts:

1- Processing unit,

2- Sensor

3- Transceiver

4- Energy Source Unit

Depending on usage purpose there may be additional components such as localization unit, energy producer, position changer etc. In the figure below, general architecture of WSN node and a real example is represented