Abstract

The Wireless sensor network (WSN) is the renowned name in the area of research due to the large possibilities of sensor networks to provide many fields such as military applications, health monitoring, environmental monitoring etc. The recent WSN technology has given the receptiveness of tiny and cheaper cost sensor nodes with capability of sensing various types of rural, dangerous environmental conditions, integrated circuit technologies, distributed signal processing, data processing, wireless communications, Ad-hoc networking routing protocols, micro electro-mechanical systems technology, , nano technology, microprocessor hardware, and embedded systems have made the concept of Wireless Sensor Network. Sensor network nodes are restricted with respect to energy supplying, limited computational power and communication bandwidth. So the main aim is to design effective and energy based protocol to increase the network lifetime. In WSN, the sensor nodes have a little transmission range, their processing and storage capacity and aslo their energy resources are limited. In this paper, we have given a survey of routing protocols for Wireless Sensor Network with their advantages and limitations and also analyzed the design issues of sensor networks. These classifications of
protocols are done based on the energy efficiency, data-centric, hierarchical and location based depending on the network structure. Some of these criteria are further detailed classified. We have also emphasized some extending characteristics of some protocols. The design challenges of WSN are also discussed with its application area.

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**Index Terms**

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