

Chapter 14 Analysis and Comparison of Sensor Node Scheduling Heuristic for WSN and Energy Harvesting WSN



Sakar Gupta and Sunita Gupta

Abstract Wireless Sensor Network (WSN) comprises of many small size sensors used to monitor targets data effectively. WSN is used to solve many such problems that are very hard to solve using other technologies. Also, some sensor nodes are damaged due to natural events or accidents. So topology of the network changes frequently. Due to inaccessible areas, some WSNs are very difficult to reach and it is almost impractical to change or recharge their batteries as it is very slow and expensive process. After deploying a WSN, battery of a node to be utilized properly to enhance the lifetime of the WSN. Reducing the energy consumption and maximizing the sensor network lifetime is therefore the main challenge in Wireless Sensor Networks. Designing of energy conservation scheme is very difficult. In order to override the limitations associated with power, Energy harvesting Wireless Sensor Networks (EH-WSNs) are proposed but these are not persistent. The aim of EH-WSN is to supply long-term power supplied WSN and rechargeable batteries. Ambient energy sources and the scavenging methods that can be used in WSNs to deal with energy issues are surveyed in this paper. Modified QC-MCSC is proposed for WSN supplemented with energy harvesting resources and it is compared with QC-MCSC used in battery-powered WSN. Challenges, issues are also focused next.

Keywords WSN · Connectivity · WSN-HEAP · Coverage · EH-WSN

14.1 Introduction

A WSN is made by many sensor nodes. Each Sensor node has the radio, battery, microcontroller, and sensor interface. Communication subsystem consumes maximum energy of a typical sensor node. The key constraint in WSN is the battery,

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