

Chapter 17

The Development of Mobile Wireless Sensor Networks: A Survey

Yuenong Zhu

Lawrence Technological University, USA

Kun Hua

Lawrence Technological University, USA

ABSTRACT

In this chapter, the authors mainly discuss mobile wireless sensor networks (MWSNs). First, the authors are introduce the evolution of MWSNs from sensor networks to wireless sensor networks, and finally to mobile networks. Second, to provide a general context of MWSNs the authors then compare the peer work of MWSNs in chronological order. The third section discusses typical issues including localization, deployment, resource/energy efficiency and coverage issues. Cross-layer design is considered as one of the most useful ways to improve MWSNs in the future.

INTRODUCTION

Nowadays, sensors have been deployed onto many mobile platforms, such as cars, bikes, planes, animals, and even human body. A general scenario of MWSN is shown in Figure 1. And the organization structure of the whole book chapter is shown in Figure 2.

Sensor Networks

A sensor network consists in a group of specialized transducers with a communication infrastructure.

These specialized transducers intended to monitor and record conditions at diverse locations. Commonly, monitored parameters are temperature, humidity, pressure, wind direction and speed, illumination intensity, vibration intensity, sound intensity, power-line voltage, chemical concentrations, pollutant levels and vital body functions, etc.

A sensor network consists of multiple sensor nodes. Sensor nodes are kind of detection stations, each of them are very tiny, low-cost, light weight and portable. However, sensor nodes have various energy and computational constraints because of their inexpensive nature and ad hoc method

DOI: 10.4018/978-1-4666-8751-6.ch017

Figure 1. The schematic diagram of MWSNs

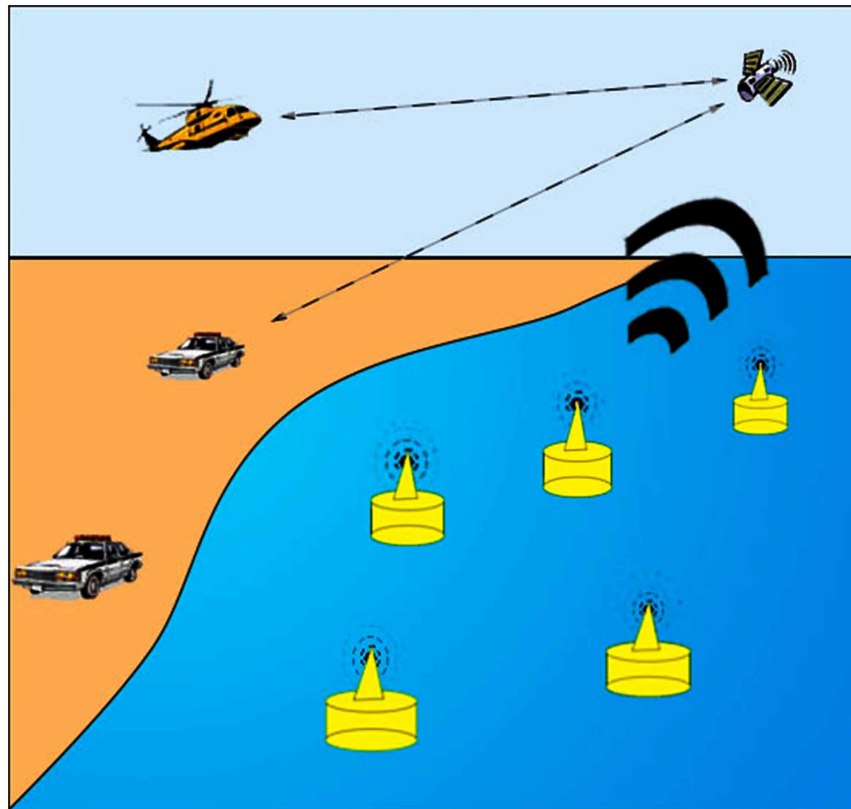
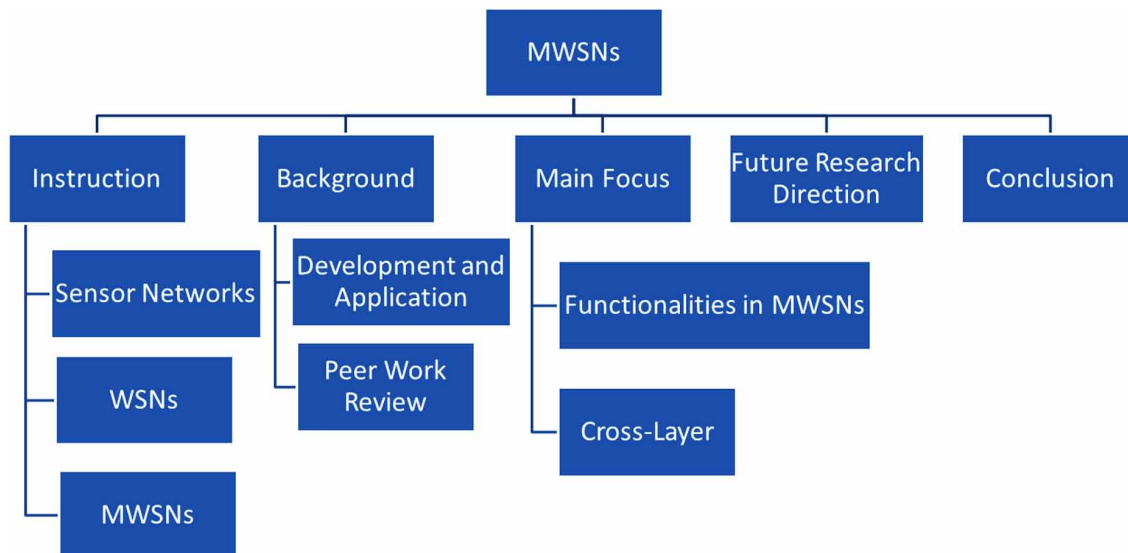


Figure 2. Book chapter organization structure



28 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/the-development-of-mobile-wireless-sensor-networks/138191

Related Content

Cognitive Radio Network-Based Design and Security Challenges in 5G Communication

Arvind Dhaka, Amita Nandal and Rahul Dixit (2021). *Research Anthology on Developing and Optimizing 5G Networks and the Impact on Society* (pp. 135-150).

www.irma-international.org/chapter/cognitive-radio-network-based-design-and-security-challenges-in-5g-communication/270190

Impact of the Structure of the Data Gathering Trees on Node Lifetime and Network Lifetime in Wireless Sensor Networks

Natarajan Meghanathan (2017). *Handbook of Research on Advanced Wireless Sensor Network Applications, Protocols, and Architectures* (pp. 184-196).

www.irma-international.org/chapter/impact-of-the-structure-of-the-data-gathering-trees-on-node-lifetime-and-network-lifetime-in-wireless-sensor-networks/162119

Enhancement of Network Performance in VANET Using Dynamic Routing Strategies

Mamata Rath and Sushruta Mishra (2021). *Managing Resources for Futuristic Wireless Networks* (pp. 266-291).

www.irma-international.org/chapter/enhancement-of-network-performance-in-vanet-using-dynamic-routing-strategies/262556

A Study on Channel Sharing for Congestion Control in WSN MAC Protocols

Anwar Ahmed Khan, Sayeed Ghani and Shama Siddiqui (2017). *International Journal of Wireless Networks and Broadband Technologies* (pp. 15-33).

www.irma-international.org/article/a-study-on-channel-sharing-for-congestion-control-in-wsn-mac-protocols/198514

A Demonstration of Practical DNS Attacks and their Mitigation Using DNSSEC

Israr Khan, William Farrelly and Kevin Curran (2020). *International Journal of Wireless Networks and Broadband Technologies* (pp. 56-78).

www.irma-international.org/article/a-demonstration-of-practical-dns-attacks-and-their-mitigation-using-dnssec/249154