

Chapter 15

An Analysis of Directing Protocols for Subaquatic Wireless Sensor Systems

M. Vedhapriya

SRM Institute of Science and Technology, India

J. Dhilipan

SRM Institute of Science and Technology, India

ABSTRACT

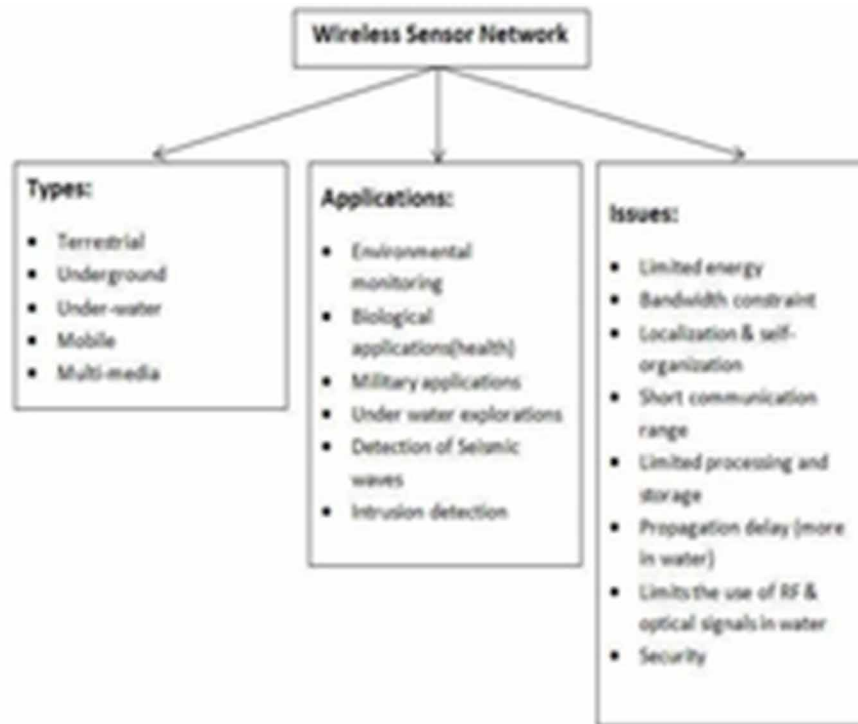
A submerged sensor network comprises of numeral different sensors and independent submerged vehicles sent to facilitate submerged, associate, and divide data between themselves to complete detecting and observing capacities. The submerged sensor networks have a wide scope of utilizations like contamination observing, catastrophic anticipations, facilitated route, under ocean investigations, an advanced military capacity, mine investigation, and so on. Submerged sensor networks present extraordinary tests to the current advances utilized in earthly sensor organization since submerged climate varies from earthbound radio climate regarding energy expenses and channel engendering peculiarities. Audile remote correspondence is utilized instead of wireless recurrence and optical sign in submerged sensor organization. A portion of the issues where submerged sensor network contrast from earthly are restricted for data transfer capacity, battery power, and disappointment of sensor hubs due to snarling and consumption.

1. INTRODUCTION

Remote sensor networks have acquired prevalence in later years because of ongoing progressions in Microcomputer Electro Mechanical Systems (MEMS) (Akyildiz & Su, 2002); (Yick, et al., 2008), remote interchanges, and Digital hardware (Jain, et al., 2022). The hubs are outfitted with information handling and imparting parts like at least one sensor, a radio, a processor, a memory, a power source, and an actuator (Buddhi, et al., 2022a). These type of sensor hubs detects, measure, gather information from the climate, and communicate the gathered information (Figure 1).

DOI: 10.4018/979-8-3693-1301-5.ch015

Figure 1. Wireless sensor network



The sensor-based hubs are conveyed in an ad hoc way or pre-arranged way (Ead, & Abbassy, 2018). In an ad hoc way, the sensor hubs are sent haphazardly into the field, and the organization is then left not attended to accomplish checking (Buddhi, et al., 2022a). In an ad hoc way, the organization’s support, for example, overseeing the network and recognizing disappointments, becomes troublesome (Derindere Köseoğlu, et al., 2022). For instance, a wearable Smart Vest measures circulatory strain, pulse, internal heat level, and so forth to screen patients proficiently and voltaic skin reaction (GSR), which estimates the ceaseless varieties in the electrical attributes of skin that has to be created (Dhanush, et al., 2022). They can be a better option for a specific WSN application if the sensor nodes’ tasks are set in stone for the duration of the program and when there are enough nodes to justify the expense of developing an ASIC (Ead & Abbassy, 2021). Networks of specialized sensors dispersed worldwide that track and record environmental and physical factors and communicate the acquired data to a centralized location are known as wireless sensor networks (WSNs) (Gehlot, et al., 2022; Sharma, et al., 2022).

However, given their greater versatility and easier usage, microcontrollers are currently the preferred option in WSN technology (Joseph, et al., 2022; Santoso, 2021). Although “convenient programmability over several orders of energy consumption and data processing requirements is a worthy research goal,” this is not necessarily the best option (Joseph, 2022; Santoso, 2019). Additionally, it is an appealing design and research option to divide processing jobs between some low-level, fixed functionality built into a very energy-efficient ASIC and high-level, flexible, rarely used processing on a microcontroller (Kazmi, et al., 2021; Sharma, et al., 2021).

14 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/an-analysis-of-directing-protocols-for-subaquatic-wireless-sensor-systems/330410

Related Content

Achieving Better Customer Experience by Harmonizing Automation and Human Touch

Geeta Kesavaraj and P. Shabanabi (2024). *Balancing Automation and Human Interaction in Modern Marketing* (pp. 19-38).

www.irma-international.org/chapter/achieving-better-customer-experience-by-harmonizing-automation-and-human-touch/343903

Mobile Technology and Learner Autonomy in Language Learning

Zineb Djoub (2016). *Human-Computer Interaction: Concepts, Methodologies, Tools, and Applications* (pp. 291-309).

www.irma-international.org/chapter/mobile-technology-and-learner-autonomy-in-language-learning/139039

Developing Creativity and Learning Design by Information and Communication Technology (ICT) in Developing Contexts

Chunfang Zhou and Aparna Purushothaman (2019). *Advanced Methodologies and Technologies in Artificial Intelligence, Computer Simulation, and Human-Computer Interaction* (pp. 499-511).

www.irma-international.org/chapter/developing-creativity-and-learning-design-by-information-and-communication-technology-ict-in-developing-contexts/213154

Femininities and Technologies: Gender Identities and Relations in Video Games

Mariana Michels Fontoura and Marília Abrahão Amaral (2020). *Interactivity and the Future of the Human-Computer Interface* (pp. 224-243).

www.irma-international.org/chapter/femininities-and-technologies/250755

Navigating the Digital Era: Exploring Privacy, Security, and Ownership of Personal Data

Atul Grover (2024). *Digital Technologies, Ethics, and Decentralization in the Digital Era* (pp. 201-227).

www.irma-international.org/chapter/navigating-the-digital-era/338873