

1. Record Nr.	UNINA9910829959503321
Autore	Zheng Jun, Ph. D.
Titolo	Wireless sensor networks : a networking perspective // edited by Jun Zheng, Abbas Jamalipour
Pubbl/distr/stampa	Piscataway, New Jersey : , : IEEE, , c2009 [Piscataway, New Jersey] : , : IEEE Xplore, , [2009]
ISBN	1-282-34622-9 9786612346224 0-470-44352-9 0-470-44351-0
Descrizione fisica	1 online resource (521 p.)
Altri autori (Persone)	JamalipourAbbas ZhengJun, Ph. D.
Disciplina	004.6 004.68
Soggetti	Wireless sensor networks Wireless communication systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Acknowledgments -- About the Editors -- Contributors -- 1. INTRODUCTION TO WIRELESS SENSOR NETWORKS (Jun Zheng and Abbas Jamalipour) -- 1.1 Overview of Wireless Sensor Networks -- 1.2 Technological Background -- 1.3 Features of This Book -- 1.4 Organization of This Book -- References -- 2. NETWORK ARCHITECTURES AND PROTOCOL STACK (Jun Zheng) -- 2.1 Introduction -- 2.2 Network Architectures for Wireless Sensor Networks -- 2.3 Classifications of Wireless Sensor Networks -- 2.4 Protocol Stack for Wireless Sensor Networks -- 2.5 Summary -- References. -- 3. MEDIUM ACCESS CONTROL (Jun Zheng) -- 3.1 Introduction -- 3.2 Fundamental MAC Protocols -- 3.3 MAC Design for Wireless Sensor Networks -- 3.4 MAC Protocols for Wireless Sensor Networks -- 3.5 Summary and Future Directions -- References -- 4. ROUTING AND DATA DISSEMINATION (Sajal K. Das and Habib M. Ammari) -- 4.1 Introduction -- 4.2 Fundamentals and Challenges -- 4.3 Taxonomy of Routing and Data Dissemination Protocols -- 4.4 Overview of Routing

and Data Dissemination Protocols -- 4.5 Summary and Future Directions -- 5. BROADCASTING, MULTICASTING, AND GEOCASTING (Baoxian Zhang and Guoliang Xue) -- 5.1 Introduction -- 5.3 Broadcasting Mechanisms -- 5.4 Multicasting Mechanisms -- 5.5 Geocasting Mechanisms -- 5.6 Summary and Future Directions -- References -- 6. NODE CLUSTERING (Chao Zhang, Edwin Hou, and Nirwan Ansari) -- 6.1 Introduction -- 6.2 Node Clustering Algorithms -- 6.3 Node Clustering Algorithms for Wireless Sensor Networks -- 6.4 Summary and Future Directions -- References -- 7. QUERY PROCESSING AND DATA AGGREGATION (Torsha Banerjee and Dharma P. Agrawal) -- 7.1 Introduction -- 7.2 Query Processing in Wireless Sensor Networks -- 7.3 Data Aggregation in Wireless Sensor Networks -- 7.4 Summary and Future Directions -- References -- 8. NODE LOCALIZATION (Nayef A. Alsindi and Kaveh Pahlavan) -- 8.1 Introduction -- 8.2 Concepts and Challenges of Node Localization Technologies -- 8.3 Ranging Techniques for Wireless Sensor Networks. 8.4 Wireless Localization Algorithms -- 8.5 Wireless Sensor Node Localization -- 8.6 Summary and Future Directions -- References -- 9. TIME SYNCHRONIZATION (Fikret Sivrikaya and Blent Yener) -- 9.1 Introduction -- 9.2 Need for Synchronization in Wireless Sensor Networks -- 9.3 Requirements of Synchronization in Wireless Sensor Networks -- 9.4 Synchronization Protocols for Wireless Sensor Networks -- 9.5 Summary and Future Directions -- References -- 10. ENERGY EFFICIENCY AND POWER CONTROL (Nikolaos A. Pantazis and Dimitrios D. Vergados) -- 10.1 Introduction -- 10.2 Need for Energy Efficiency and Power Control in Wireless Sensor Networks -- 10.3 Passive Power Conservation Mechanisms -- 10.4 Active Power Conservation Mechanisms -- 10.5 Summary -- References -- 11. TRANSPORT PROTOCOLS AND QUALITY OF SERVICE (Chonggang Wang, Bo Li, and Kazem Sohraby) -- 11.1 Introduction -- 11.2 Traditional Transport Protocols -- 11.3 Transport Protocol Design for Wireless Sensor Networks -- 11.4 Transport Protocols for Wireless Sensor Networks -- 11.5 Summary and Future Directions -- References -- 12. NETWORK SECURITY AND ATTACK DEFENSE (Yun Zhou and Yuguang Fang) -- 12.1 Introduction -- 12.2 Confidentiality -- 12.3 Integrity -- 12.4 Authenticity -- 12.5 Nonrepudiation -- 12.6 Freshness -- 12.7 Availability -- 12.8 Intrusion Detection -- 12.9 Key Management -- 12.10 Summary -- Acknowledgements -- References. -- 13. SENSOR NETWORK STANDARDS (Stefano Chessa) -- 13.1 Introduction -- 13.2 IEEE 802.15.4 Standard -- 13.3 ZigBee Standard -- 13.4 Summary -- References -- 14. FUTURE TRENDS IN WIRELESS SENSOR NETWORKS (Mehmet Can Vuran, Dario Pompili, and Tommaso Melodia) -- 14.1 Introduction -- 14.2 Wireless Multimedia Sensor Networks -- 14.3 Wireless Sensor and Actor Networks -- 14.4 Sensor Network Applications in Challenging Environments -- 14.5 Cross-Layer Design for Wireless Sensor Networks -- 14.6 Summary -- Acknowledgements -- References -- Index.

Sommario/riassunto

Learn the fundamental concepts, major challenges, and effective solutions in wireless sensor networking This book provides a comprehensive and systematic introduction to the fundamental concepts, major challenges, and effective solutions in wireless sensor networking (WSN). Distinguished from other books, it focuses on the networking aspects of WSNs and covers the most important networking issues, including network architecture design, medium access control, routing and data dissemination, node clustering, node localization, query processing, data aggregation, transport and quality of
