Energy Efficient In Network Rfid Data Filtering Scheme In

This book constitutes the refereed proceedings of the Second International Conference on High Performance Computing and Communications, HPCC 2006. The book presents 95 revised full papers, addressing all current issues of parallel and distributed systems and high performance computing and communication. Coverage includes networking protocols, routing, and algorithms, languages and compilers for HPC, parallel and distributed architectures and algorithms, wireless, mobile and pervasive computing, Web services, peer-to-peer computing, and more.

RFID (radio frequency identification) tags are becoming ubiquitously available in object tracking, access control, and toll payment. The current application model treats tags simply as ID carriers and deals with each tag individually for the purpose of identifying the object that the tag is attached to. The uniqueness of RFID as an Infrastructure is to change the traditional individual view to a collective view that treats universally-deployed tags as a new infrastructure, a new wireless platform on which novel applications can be developed. The book begins with an introduction to the problems of tag estimation and information collection from RFID systems, and explains the challenges. It discusses how to efficiently estimate the number of tags in a large RFID system, considering both energy cost and execution time. It then gives a detailed account on how to collect information from a sensor-augmented RFID network with new designs that significantly reduce execution time.

Here are the refereed proceedings of the EUC 2006 workshops, held in conjunction with the IFIP International Conference on Embedded and Ubiquitous Computing in Seoul, Korea, August 2006. The book presents 102 revised papers spanning six workshops: network-centric ubiquitous systems (NCUS 2006), security in ubiquitous computing systems (SecUbiq 2006), RFID and ubiquitous sensor networks (USN 2006), trustworthiness, reliability and services in ubiquitous and sensor networks (TRUST 2006), embedded software optimization (ESO 2006), and multimedia solution and assurance in ubiquitous information systems (MSA 2006).

The topic of "Energy Efficiency in Communications and Networks" attracts growing attention due to economical and environmental reasons. The amount of power consumed by information and communication technologies (ICT) is rapidly increasing, as well as the energy bill of service providers. According to a number of studies, ICT alone is responsible for a percentage which varies from 2% to
10% of the world power consumption. Thus, driving rising cost and sustainability concerns about the energy footprint of the IT infrastructure. Energy-efficiency is an aspect that until recently was only considered for battery driven devices. Today we see energy-efficiency becoming a pervasive issue that will need to be considered in all technology areas from device technology to systems management. This book is seeking to provide a compilation of novel research contributions on hardware design, architectures, protocols and algorithms that will improve the energy efficiency of communication devices and networks and lead to a more energy proportional technology infrastructure.

An Energy-efficient Routing Protocol for Hybrid-RFID Sensor Network
5th International Conference, UIC 2008, Oslo, Norway, June 23-25, 2008 Proceedings
Status and Perspective
Third International Conference, NGCT 2017, Dehradun, India, October 30-31, 2017, Revised Selected Papers, Part II
Emerging Directions in Embedded and Ubiquitous Computing
Energy-Efficient Wireless Sensor Networks
Mobile, Secure, and Programmable Networking

Wireless sensors and sensor networks (WSNs) are nowadays becoming increasingly important due to their decisive advantages. Different trends towards the Internet of Things (IoT), Industry 4.0 and 5G Networks address massive sensing and admit to have wireless sensors delivering measurement data directly to the Web in a reliable and easy manner. These sensors can only be supported, if sufficient energy efficiency and flexible solutions are developed for energy-aware wireless sensor nodes. In the last years, different possibilities for energy harvesting have been investigated showing a high level of maturity. This book gives therefore an overview on fundamentals and techniques for energy harvesting and energy transfer from different points of view. Different techniques and methods for energy transfer, management and energy saving on network level are reported together with selected interesting applications. The book is interesting for researchers, developers and students in the field of sensors, wireless sensors, WSNs, IoT and manifold application fields using related technologies. The book is organized in four major parts. The first part of the book introduces essential fundamentals and methods, while the
second part focusses on vibration converters and hybridization. The third part is
dedicated to wireless energy transfer, including both RF and inductive energy transfer.
Finally, the fourth part of the book treats energy saving and management strategies. The
main contents are: Essential fundamentals and methods of wireless sensors Energy
harvesting from vibration Hybrid vibration energy converters Electromagnetic transducers
Piezoelectric transducers Magneto-electric transducers Non-linear broadband converters
Energy transfer via magnetic fields RF energy transfer Energy saving techniques Energy
management strategies Energy management on network level Applications in agriculture
Applications in structural health monitoring Application in power grids Prof. Dr. Olfa
Kanoun is professor for measurement and sensor technology at Chemnitz university of
technology. She is specialist in the field of sensors and sensor systems design.
This book constitutes the thoroughly refereed post-conference proceedings of the 5th
International Conference on Mobile, Secure and Programmable Networking, held in
Mohammedia, Morocco, in April 2019. The 23 papers presented in this volume were carefully
reviewed and selected from 48 submissions. They discuss new trends in networking
infrastructures, security, services and applications while focusing on virtualization and
cloud computing for networks, network programming, software defined networks (SDN) and
their security.
This book constitutes the proceedings of the First International Conference on
Intelligent Robotics and Manufacturing, IRAM 2012, held in Kuala Lumpur, Malaysia, in
November 2012. The 64 revised full papers included in this volume were carefully reviewed
and selected from 102 initial submissions. The papers are organized in topical sections
named: mobile robots, intelligent autonomous systems, robot vision and robust, autonomous
agents, micro, meso and nano-scale automation and assembly, flexible manufacturing
systems, CIM and micro-machining, and fabrication techniques.
This publication represents the best thinking and solutions to myriad of contemporary
issues in wireless networks. Coverage includes wireless LANs, multihop wireless networks,
and sensor networks. Readers are provided with insightful guidance in tackling such issues
as architecture, protocols, modeling, analysis, and solutions. The book also highlights
economic issues, market trends, emerging, cutting-edge applications, and new paradigms, such as middleware for RFID, smart home design, and "on-demand business" in the context of pervasive computing. Mobile, Wireless, and Sensor Networks is divided into three distinct parts: * Recent Advances in Wireless LANs and Multihop Wireless Networks * Recent Advances and Research in Sensor Networks * Middleware, Applications, and New Paradigms In developing this collected work, the editors have emphasized two objectives: * Helping readers bridge the gap and understand the relationship between practice and theory * Helping readers bridge the gap and understand the relationships and common links among different types of wireless networks Chapters are written by an international team of researchers and practitioners who are experts and trendsetters in their fields. Contributions represent both industry and academia, including IBM, National University of Singapore, Panasonic, Intel, and Seoul National University. Students, researchers, and practitioners who need to stay abreast of new research and take advantage of the latest techniques in wireless communications will find this publication indispensable. Mobile, Wireless, and Sensor Networks provides a clear sense of where the industry is now, what challenges it faces, and where it is heading.

Innovations in Information and Communication Technologies (IICT-2020)
Technology, Applications, and Future Directions
Green, Energy-Efficient and Sustainable Networks
Networks of the Future
Decision and Game Theory for Security
Energy Efficient Solutions for Business and Home
Chipless and Conventional Radio Frequency Identification: Systems for Ubiquitous Tagging
This book focuses on the fusion between the core technologies of the future Artificial Intelligence (AI), 5G, and the Internet of Things (IoT), exploring how they can be mutually supportive. AI, IoT, and 5G are the pillars that lead digital transformation, and the combination of super-fast 5th generation networks with AI and IoT will usher in a new age of intelligent connectivity, particularly beneficial to transportation, logistics, education, healthcare, entertainment, public safety/security and industrial and manufacturing operations. The book will offer technical and economic insights about intelligent connectivity as a key part of transformation in the 4th industrial revolution. The reader (technical and non-technical) will benefit from a comprehensive discussion of Artificial Intelligence, 5G, IoT and machine-learning and how they are vital in the period of open-source programming and moderate cloud computing.

This book constitutes the refereed proceedings of the Second International Conference on Embedded Software and Systems, ICESS 2005, held in Xi'an, China, in December 2005. The 63 revised full papers presented together with the abstracts of 3 keynote speeches were thoroughly reviewed and selected from 361 submissions. The papers are organized in topical sections on embedded hardware, embedded software, real-time systems, power aware computing, hardware/software co-design and system-on-chip, testing and verification, reconfigurable computing, agent and distributed computing, wireless communications, mobile computing, pervasive/ubiquitous computing and intelligence, multimedia and human-computer interaction, network protocol, security and fault-tolerance, and abstracts of eight selected workshop papers.

The book Green, Energy-Efficient and Sustainable Networks provides insights and solutions for a range of problems in the field of obtaining greener, energy-efficient, and sustainable networks. The book contains the outcomes of the Special Issue on Green, Energy-Efficient and Sustainable Networks of the Sensors journal. Seventeen high-quality papers published in the Special Issue have been collected and reproduced in this book, demonstrating significant achievements in the field. Among the published papers, one paper is an editorial and one is a review, while the remaining 15 works are research articles. The published papers are self-contained peer-reviewed scientific works that are authored by more than 75 different contributors with both academic and industry backgrounds. The editorial paper gives an introduction to the problem of information and communication technology (ICT) energy consumption and greenhouse gas emissions, presenting the state of the art and future trends in terms of improving the energy-efficiency of wireless networks and data centers, as the major energy consumers in the ICT sector. In addition, the published articles aim to improve energy efficiency in the fields of software-defined networking, Internet of things, machine learning, authentication, energy harvesting, wireless relay systems, routing metrics, wireless sensor networks, device-to-device communications, heterogeneous wireless networks, and image sensing. The last paper is a review that gives a detailed overview of energy-efficiency improvements and methods for the implementation of fifth-generation networks and beyond. This book can serve as a source of information in industrial, teaching, and/or research and development activities. The book is a valuable source of information, since it presents recent advances in different fields related to greening and improving the energy-efficiency and sustainability of those ICTs particularly addressed in this book.

Handbook of Industry 4.0 and SMART Systems

Hearing Before the Subcommittee on Technology and Innovation, Committee on Science and Technology, House of Representatives, One Hundred Tenth Congress, Second Session, June 24, 2008

Smart and Innovative Trends in Next Generation Computing Technologies
Industry 4.0 refers to fourth generation of industrial activity characterized by smart systems and internet-based solutions. This book describes the fourth revolution based on instrumented, interconnected and intelligent assets. The different book chapters provide a perspective on technologies and methodologies developed and deployed leading to this concept. With an aim to increase performance, productivity and flexibility, major application area of maintenance through smart system has been discussed in detail. Applicability of 4.0 in transportation, energy and infrastructure is explored, with effects on technology, organisation and operations from a systems perspective.

Consolidating recent research in the area, the Handbook on Mobile and Ubiquitous Computing: Status and Perspective illustrates the design, implementation, and deployment of mobile and ubiquitous systems, particularly in mobile and ubiquitous environments, modeling, database components, and wireless infrastructures. Supplying an overarching perspective, The Wireless Identification and Sensing Platform (WISP) is the first of a new class of RF-powered sensing and computing systems. Rather than being powered by batteries, these sensor systems are powered by radio waves that are either deliberately broadcast or ambient. Enabled by ongoing exponential improvements in the energy efficiency of microelectronics, RF-powered sensing and computing is rapidly moving along a trajectory from impossible (in the recent past), to feasible (today), toward practical and commonplace (in the near future). This book is a collection of key papers on RF-powered sensing and computing systems including the WISP. Several of the papers grew out of the WISP Challenge, a program in which Intel Corporation donated WISPs to academic applicants who proposed compelling WISP-based projects. The book also includes papers presented at the first WISP Summit, a workshop held in Berkeley, CA in association with the ACM Sensys conference, as well as other relevant papers. The book provides a window into the fascinating new world of wirelessly powered sensing and computing.

Delay- and Disruption Tolerant Networks (DTNs) are networks subject to arbitrarily long-lived disruptions in connectivity and therefore cannot guarantee end-to-end connectivity at all times. Consequently DTNs called for novel core networking protocols since most existing Internet protocols rely on the network’s ability to maintain end-to-end communication between participating nodes. This book presents the fundamental principles that underline DTNs. It explains the state-of-the-art on DTNs, their architecture, protocols, and applications. It also explores DTN’s future technological trends and applications. Its main goal is to serve as a reference for researchers and practitioners.
Architectures, Technologies, and Implementations
Green Computing in Network Security
Delay and Disruption Tolerant Networks
Wirelessly Powered Sensor Networks and Computational RFID
AI, IoT, and 5G

Concepts, Paradigms and Solutions
The last decade has witnessed an unprecedented development and growth in global wireless communications systems, technologies and network “traffic” generated over network infrastructures. This book presents state-of-the-art energy-efficient techniques, designs and implementations that pertain to wireless communication networks such as cellular networks, wireless local area networks (WLANs) and wireless ad hoc networks (WAHNs) including mobile ad hoc networks (MANETs), and wireless sensor networks (WSNs) as they are deployed across the world to facilitate “always on” reliable high-speed wireless access from anywhere, at anytime to accommodate the new paradigm of the “Internet of Things” (IoT). The pervasive and exponential growth of Wi-Fi and the impact of bandwidth-intensive applications on the energy consumption of Wi-Fi-enabled devices are discussed along with energy harvesting as an advantageous option to power WAHNs. The book aims to serve as a useful reference for researchers, students, regulatory authorities, and educators.

This book evaluates the role of innovative machine learning and deep learning methods in dealing with power system issues, concentrating on recent developments and advances that improve planning, operation, and control of power systems. Cutting-edge case studies from around the world consider prediction, classification, clustering, and fault/event detection in power systems, providing effective and promising solutions for many novel challenges faced by power system operators. Written by leading experts, the book will be an ideal resource for researchers and engineers working in the electrical power engineering and power system planning communities, as well as students in advanced graduate-level courses.

Radio-frequency identification (RFID), which uses radio-frequency electromagnetic fields to transfer data between an RFID reader and RFID tags in order to identify and track objects, has been widely deployed in recent years. RFID systems have the advantages of low cost, easy deployment and high design flexibility, and hence are used for access control, commercial tracking, toll collection and asset management. Compared to other identification methods such as bar codes and QR codes, RFID tags can be accessed without a line of sight,
which increases the flexibility of ID tracking. One of the key limitations for RFID technology is coverage. An RFID system with better coverage can access more tags in a larger area with fewer RFID readers, which leads to lower cost, less access delay and higher tag access efficiency. My research begins with an investigation of the coverage problem for passive RFID tags. Due to the limitations of the transmission power, the coverage is limited. I developed and implemented a range extension approach for passive RFID tags using devices called edge devices (ZigBee-based, battery-powered, low-power readers). With the help of edge devices, the coverage of a single RFID reader can be doubled. Also, multiple edge devices can work cooperatively to further extend the coverage area. A nother challenge in RFID system design is the MAC (Media Access Control) protocol. Due to some hardware limitations, most RFID systems are designed to use a contention based MAC protocol, which leads to high collisions, low fairness and low scalability. I proposed a token based RFID MAC protocol called Token-MAC to address these issues. Token-MAC can achieve a higher tag rate than contention based protocols. Also, Token-MAC can provide higher fairness performance, and it increases the scalability of the RFID system as well. I implemented the Token-MAC protocol in a programmable RFID tag and evaluated the performance of Token-MAC. I also compared the performance of Token-MAC with a TDMA approach and the standard RFID protocol called C1G2 in experiments and through simulations. A s passive RFID tags can be powered by an electromagnetic field, it is possible to use these devices to build a wake-up radio for Wireless Sensor Networks (WSNs). Passive wake-up radios can greatly increase the operational lifetime for a wireless sensor node by eliminating idle listening, when the node is awake but not transmitting or receiving data. However, due to the limited amount of energy harvested by an RFID tag, the limited wake-up range is a problem for passive wake-up radio sensor nodes. Most passive wake-up radio receivers can only work with a wake-up distance much shorter than the communication range. In this thesis, I present a passive wake-up radio design for Wireless Sensor Networks with extended wake-up range. This wake-up radio utilizes a high efficiency power harvesting receiver, a low power wake-up trigger circuit, and a wireless sensor node to build a passive wake-up sensor node called a REACH-Mote. Furthermore, due to the high efficiency power harvesting receiver and the compact RFID transmitter, it is possible to build a sensor node that operates using the energy obtained from the power harvester rather than from a battery and utilizes the harvested energy to transmit energy to nodes further away, waking up a second level of nodes. This potential network topology may lead to a new design in wireless sensor networks. In summary, I have developed 1) an RFID range extension method using edge devices that improves the coverage of RFID systems; 2) Token-MAC, an RFID MAC protocol that improves the performance of the RFID
system; 3) passive wake-up radio sensor nodes called REACH-Mote and REACH2-Mote designed for wireless sensor networks; and 4) a multi-hop passive radio wake-up sensor node. These designs improve the performance of RFID systems and wireless sensor networks, enhancing the network stability, throughput and lifetime and enabling new applications of RFID systems and wireless sensor networks"--Pages v-vii.

This book explores the concepts and role of green computing and its recent developments for making the environment sustainable. It focuses on green automation in disciplines such as computers, nanoscience, information technology, and biochemistry. This book is characterized through descriptions of sustainability, green computing, their relevance to the environment, society, and its applications. Presents how to make the environment sustainable through engineering aspects and green computing Explores concepts and the role of green computing with recent developments Processes green automation linked with various disciplines such as nanoscience, information technology, and biochemistry Explains the concepts of green computing linked with sustainable environment through information technology This book will be of interest to researchers, libraries, students, and academicians that are interested in the concepts of green computing linked with green automation through information technology and their impacts on the future.

4th ICCST 2017, Kuala Lumpur, Malaysia, 29–30 November, 2017
Increasing Coverage and Improving Efficiency for Radio-frequency Identification Systems and Wireless Sensor Networks
Electric, Electronic and Control Engineering
Wireless Communications, Networking and Applications
EUC 2006 Workshops: NCUS, SecUbiq, USN, TRUST, ESO, and MSA, Seoul, Korea, August 1-4, 2006,
Proceedings
Energy Efficiency in Wireless Networks
Intelligent Connectivity

With the ubiquitous diffusion of the IoT, Cloud Computing, 5G and other evolved wireless technologies into our daily lives, the world will see the Internet of the future expand ever more quickly. Driving the progress of communications and connectivity are mobile and wireless technologies, including traditional WLANs technologies and low, ultra-power, short and long-range technologies. These technologies facilitate the communication among the growing number of connected devices, leading to the generation of huge volumes of
data. Processing and analysis of such "big data" brings about many opportunities, as well as many challenges, such as those relating to efficient power consumptions, security, privacy, management, and quality of service. This book is about the technologies, opportunities and challenges that can drive and shape the networks of the future. Written by established international researchers and experts, Networks of the Future answers fundamental and pressing research challenges in the field, including architectural shifts, concepts, mitigation solutions and techniques, and key technologies in the areas of networking. The book starts with a discussion on Cognitive Radio (CR) technologies as promising solutions for improving spectrum utilization, and also highlights the advances in CR spectrum sensing techniques and resource management methods. The second part of the book presents the latest developments and research in the areas of 5G technologies and Software Defined Networks (SDN). Solutions to the most pressing challenges facing the adoption of 5G technologies are also covered, and the new paradigm known as Fog Computing is examined in the context of 5G networks. The focus next shifts to efficient solutions for future heterogeneous networks. It consists of a collection of chapters that discuss self-healing solutions, dealing with Network Virtualization, QoS in heterogeneous networks, and energy efficient techniques for Passive Optical Networks and Wireless Sensor Networks. Finally, the areas of IoT and Big Data are discussed, including the latest developments and future perspectives of Big Data and the IoT paradigms.

Radio Frequency Identification (RFID) is a wireless tracking and data capturing technique for automatic identification, tracking, security surveillance, logistics, and supply chain management. RFID tags, which have been successfully employed in many industries including retail and healthcare, have provided a multitude of benefits but also currently remain very costly. Chipless and Conventional Radio Frequency Identification: Systems for Ubiquitous Tagging explores the use of conventional RFID technology as well as chipless RFID technology, which provides a cheaper method of implementation, opening many doors for a variety of applications and industries. This practical reference, designed for researchers and practitioners, investigates the growing field of RFID and its promising future.
This book gathers the proceedings of the Fourth International Conference on Computational Science and Technology 2017 (ICCST2017), held in Kuala Lumpur, Malaysia, on 29–30 November 2017. These proceedings offer practitioners and researchers the opportunity to present exciting advances in computational techniques and solutions in this area. They also identify emerging issues, help to shape future research directions, and will enable industrial users to apply cutting-edge, large-scale and high-performance computational methods.

An Energy-efficient Routing Protocol for Hybrid-RFID Sensor Network

Green Computing in Network Security

Energy Efficient Solutions for Business and Home

CRC Press

Application of Machine Learning and Deep Learning Methods to Power System Problems

5th International Conference, MSPN 2019, Mohammedia, Morocco, April 23–24, 2019, Revised Selected Papers

Technology, Components and System Design

Sensor Networks for Sustainable Development

Interplanetary and Earth-Bound -- Architecture, Protocols, and Applications

Architectures, Protocols, Security, and Integrations

Critical Issues for the Development of Sustainable E-health Solutions

This book is based on a series of conferences on Wireless Communications, Networking and Applications that have been held on December 27-28, 2014 in Shenzhen, China. The meetings themselves were a response to technological developments in the areas of wireless communications, networking and applications and facilitate researchers, engineers and students to share the latest research results and the advanced research methods of the field. The broad variety of disciplines involved in this research and the differences in approaching the basic problems are probably typical of a developing field of interdisciplinary research. However, some main areas of research and development in the emerging areas of wireless communication technology can now be identified. The contributions to this book are mainly selected from the papers of the conference on wireless communications, networking and applications and reflect the main areas of interest: Section 1 - Emerging Topics in Wireless and Mobile Computing and Communications; Section 2 - Internet of Things and Long Term Evolution Engineering; Section 3 - Resource Allocation and Interference Management; Section 4 - Communication Architecture, Algorithms, Modeling and Evaluation; Section 5 - Security, Privacy, and Trust; and Section 6 - Routing, Position Management and Network Topologies.

This book constitutes the refereed proceedings of the 7th International Conference on Decision and Game Theory for Security, GameSec 2016, held in New York, NY, USA, in November 2016. The 18 revised full papers presented together with
8 short papers and 5 poster papers were carefully reviewed and selected from 40 submissions. The papers are organized in topical sections on network security; security risks and investments; special track-validating models; decision making for privacy; security games; incentives and cybersecurity mechanisms; and intrusion detection and information limitations in security.


Pervasive healthcare is an emerging research discipline, focusing on the development and application of pervasive and ubiquitous computing technology for healthcare and wellness. Pervasive healthcare seeks to respond to a variety of pressures on healthcare systems, including the increased incidence of life-style related and chronic diseases, emerging consumerism in healthcare, need for empowering patients and relatives for self-care and management of their health, and need to provide seamless access for healthcare services, independent of time and place. Pervasive healthcare may be defined from two perspectives. First, it is the development and application of pervasive computing (or ubiquitous computing, ambient intelligence) technologies for healthcare, health and wellness management. Second, it seeks to make healthcare available to anyone, anytime, and anywhere by removing locational, time and other restraints while increasing both the coverage and quality of healthcare. This book proposes to define the emerging area of pervasive health and introduce key management principles, most especially knowledge management, its tools, techniques and technologies. In addition, the book takes a socio-technical, patient-centric approach which serves to emphasize the importance of a key triumvirate in healthcare management namely, the focus on people, process and technology. Last but not least the book discusses in detail a specific example of pervasive health, namely the potential use of a wireless technology solution in the monitoring of diabetic patients.

High Performance Computing and Communications
The Art of Wireless Sensor Networks
Trends in Intelligent Robotics, Automation, and Manufacturing
7th International Conference, GameSec 2016, New York, NY, USA, November 2-4, 2016, Proceedings
Green Automation for Sustainable Environment
Proceedings of International Conference on ICRIHE - 2020, Delhi, India: IICT-2020

The escalating demand for ubiquitous computing along with the complementary and flexible natures of Radio Frequency Identification (RFID) and Wireless Sensor Networks (WSNs) have sparked an increase in the integration of these two dynamic technologies. Although a variety of applications can be observed under development and in practical use, there

This comprehensive text/reference examines the various challenges to secure, efficient and cost-effective next-generation wireless networking. Topics and features: presents the latest advances, standards and technical challenges in a broad range of emerging wireless technologies; discusses cooperative and mesh networks, delay tolerant networks, and other next-generation networks such as LTE;
examines real-world applications of vehicular communications, broadband wireless technologies, RFID technology, and energy-efficient wireless communications; introduces developments towards the ‘Internet of Things’ from both a communications and a service perspective; discusses the machine-to-machine communication model, important applications of wireless technologies in healthcare, and security issues in state-of-the-art networks.

Accessing remote instrumentation worldwide is one of the goals of e-Science. The task of enabling the execution of complex experiments that involve the use of distributed scientific instruments must be supported by a number of different architectural domains, which inter-work in a coordinated fashion to provide the necessary functionality. These domains embrace the physical instruments, the communication network interconnecting the distributed systems, the service oriented abstractions and their middleware. The Grid paradigm (or, more generally, the Service Oriented Architecture -- SOA), viewed as a tool for the integration of distributed resources, plays a significant role, not only to manage computational aspects, but increasingly as an aggregator of measurement instrumentation and pervasive large-scale data acquisition platforms. In this context, the functionality of a SOA allows managing, maintaining and exploiting heterogeneous instrumentation and acquisition devices in a unified way, by providing standardized interfaces and common working environments to their users, but the peculiar aspects of dealing with real instruments of widely different categories may add new functional requirements to this scenario. On the other hand, the growing transport capacity of core and access networks allows data transfer at unprecedented speed, but new challenges arise from wireless access, wireless sensor networks, and the traversal of heterogeneous network domains. The book focuses on all aspects related to the effective exploitation of remote instrumentation and to the building complex virtual laboratories on top of real devices and infrastructures. These include SOA and related middleware, high-speed networking in support of Grid applications, wireless Grids for acquisition devices and sensor networks, Quality of Service (QoS) provisioning for real-time control, measurement instrumentation and methodology, as well as metrology issues in distributed systems.

This book addresses the Internet of Things (IoT), an essential topic in the technology industry, policy, and engineering circles, and one that has become headline news in both the specialty press and the popular media. The book focuses on energy efficiency concerns in IoT and the requirements related to Industry 4.0. It is the first-ever “how-to” guide on frequently overlooked practical, methodological, and moral questions in any nations’ journey to reducing energy consumption in IoT devices. The book discusses several examples of energy-efficient IoT, ranging from simple devices like indoor temperature sensors, to more complex sensors (e.g. electrical power measuring devices), actuators (e.g. HVAC room controllers, motors) and devices (e.g. industrial circuit-breakers, PLC for home, building or industrial automation). It provides a detailed approach to conserving energy in IoT devices, and comparative case studies on performance evaluation metrics, state-of-the-art approaches, and IoT legislation.

Handbook on Mobile and Ubiquitous Computing
Sustainable, Energy-efficient Transportation Infrastructure
Second International Conference, ICESS 2005, Xi’an, China, December 16-18, 2005, Proceedings
Energy Efficiency in Communications and Networks
Proceedings of WCNA 2014
Embedded Software and Systems

Recent advances in technology and manufacturing have made it possible to create small, powerful, energy-efficient, cost-effective sensor nodes for specialized telecommunication applications—nodes “smart” enough to be capable of adaptation, self-awareness, and self-organization. Sensor Networks for Sustainable Development examines sensor network technologies that increase the quality of human life and encourage societal progress with minimal effect on the earth’s natural resources and environment. Organized as a collection of articles authored by leading experts in the field, this valuable reference captures the current state of the art and explores applications where sensor networks are used for sustainable development in: Agriculture Environment Energy Healthcare Transportation Disaster management Beneficial to designers and planners of emerging telecommunication networks, researchers in related industries, and students and academia seeking to learn about the impact of sensor networks on sustainable development, Sensor Networks for Sustainable Development provides scientific tutorials and technical information about smart sensor networks and their use in everything from remote patient monitoring to improving safety on the roadways and beyond.

The two-volume set CCIS 827 and 828 constitutes the thoroughly refereed proceedings of the Third International Conference on Next Generation Computing Technologies, NGCT 2017, held in Dehradun, India, in October 2017. The 135 full papers presented were carefully reviewed and selected from 948 submissions. There were organized in topical sections named: Smart and Innovative Trends in Communication Protocols and Standards; Smart and Innovative Trends in Computational Intelligence and Data Science; Smart and Innovative Trends in Image Processing and Machine Vision; Smart Innovative Trends in Natural Language Processing for Indian Languages; Smart Innovative Trends in Security and Privacy.

During the last one and a half decades, wireless sensor networks have witnessed significant growth and tremendous development in both academia and industry. “The Art of Wireless Sensor Networks: Volume 1: Fundamentals” focuses
This book focuses on green computing-based network security techniques and addresses the challenges involved in practical implementation. It also explores the idea of energy-efficient computing for network and data security and covers the security threats involved in social networks, data centers, IoT, and biomedical applications. Green Computing in Network Security: Energy Efficient Solutions for Business and Home includes analysis of green-security mechanisms and explores the role of green computing for secured modern internet applications. It discusses green computing-based distributed learning approaches for security and emphasizes the development of green computing-based security systems for IoT devices. Written with researchers, academic libraries, and professionals in mind so they can get up to speed on network security, the challenges, and implementation processes.

The advances in low-power electronic devices integrated with wireless communication capabilities are one of recent areas of research in the field of Wireless Sensor Networks (WSNs). One of the major challenges in WSNs is uniform and least energy dissipation while increasing the lifetime of the network. This is the first book that introduces the energy efficient wireless sensor network techniques and protocols. The text covers the theoretical as well as the practical requirements to conduct and trigger new experiments and project ideas. The advanced techniques will help...
in industrial problem solving for energy-hungry wireless sensor network applications. While conventional similar books focus on medical science and social aspects, this book emphasizes computing science and engineering design. This feature can help with both industry development and academic research. It book explains in detail both entire telehealthcare engineering system and individual hardware components. For example, it has circuit design details on ECG /EEG sensors. Highlighting basic principles and deep research development (R&D) details, the book focuses on two important design aspects: medical sensor design and medical signal processing. Their principles can be directly used for practical product design.

RFID and Sensor Networks
RFID as an Infrastructure
Service Architecture and Networking
Ubiquitous Intelligence and Computing
Principles and Design