

Sx1272 Datasheet Semtech

This book covers the theory, design and applications of computer networks, distributed computing and information systems. Networks of today are going through a rapid evolution, and there are many emerging areas of information networking and their applications. Heterogeneous networking supported by recent technological advances in low-power wireless communications along with silicon integration of various functionalities such as sensing, communications, intelligence and actuations is emerging as a critically important disruptive computer class based on a new platform, networking structure and interface that enable novel, low-cost and high-volume applications. Several of such applications have been difficult to realize because of many interconnections problems. To fulfill their large range of applications, different kinds of networks need to collaborate, and wired and next-generation wireless systems should be integrated in order to develop high-performance computing solutions to problems arising from the complexities of these networks. The aim of the book "Advanced Information Networking and Applications" is to provide latest research findings, innovative research results, methods and development techniques from both theoretical and practical perspectives related to the emerging areas of information networking and applications.

LINUX DRIVER DEVELOPMENT FOR EMBEDDED PROCESSORS - SECOND EDITION - The flexibility of Linux embedded, the availability of powerful, energy efficient processors designed for embedded computing and the low cost of new processors are encouraging many industrial companies to come up with new developments based on embedded processors. Current engineers have in their hands powerful tools for developing applications previously unimagined, but they need to understand the countless features that Linux offers today. This book will teach you how to develop device drivers for Device Tree Linux embedded systems. You will learn how to write different types of Linux drivers, as well as the appropriate APIs (Application Program Interfaces) and methods to interface with kernel and user spaces. This is a book is meant to be practical, but also provides an important theoretical base. More than twenty drivers are written and ported to three different processors. You can choose between NXP i.MX7D, Microchip SAMA5D2 and Broadcom BCM2837 processors to develop and test the drivers, whose implementation is described in detail in the practical lab sections of the book. Before you start reading, I encourage you to acquire any of these processor boards whenever you have access to some GPIOs, and at least one SPI and I2C controllers. The

hardware configurations of the different evaluation boards used to develop the drivers are explained in detail throughout this book; one of the boards used to implement the drivers is the famous Raspberry PI 3 Model B board. You will learn how to develop drivers, from the simplest ones that do not interact with any external hardware, to drivers that manage different kind of devices: accelerometers, DACs, ADCs, RGB LEDs, Multi-Display LED controllers, I/O expanders, and Buttons. You will also develop DMA drivers, drivers that manage interrupts, and drivers that write/read on the internal registers of the processor to control external devices. To easy the development of some of these drivers, you will use different types of Frameworks: Miscellaneous framework, LED framework, UIO framework, Input framework and the IIO industrial one. This second edition has been updated to the v4.9 LTS kernel. Recently, all the drivers have been ported to the new Microchip SAMA5D27-SOM1 (SAMA5D27 System On Module) using kernel 4.14 LTS and included in the GitHub repository of this book; these drivers have been tested in the ATSAMA5D27-SOM1-EK1 evaluation platform; the ATSAMA5D27-SOM1-EK1 practice lab settings are not described throughout the text of this book, but in a practice labs user guide that can be downloaded from the book's GitHub. Inertial Sensing and Technology GNSS Connected, Integrated, Alternative Sensing Application to Automated, Semi Autonomous and Fully Autonomous Systems

This book constitutes the refereed proceedings of the 22nd International Conference on Distributed and Computer and Communication Networks, DCCN 2019, held in Moscow, Russia, in September 2019. The 44 full papers and 2 short papers were carefully reviewed and selected from 174 submissions. The papers cover the following topics: Computer and Communication Networks, Analytical Modeling of Distributed Systems, and Distributed Systems Applications.

23rd International Conference, DCCN 2020, Moscow, Russia, September 14-18, 2020, Revised Selected Papers

22nd International Conference, DCCN 2019, Moscow, Russia, September 23-27, 2019, Revised Selected Papers

Third International Conference, SCDS 2017, Yogyakarta, Indonesia, November 27-28, 2017, Proceedings

Wireless Automation as an Enabler for the Next Industrial Revolution

Learn to Develop Linux Embedded Drivers with Kernel 4. 9 LTS

19th International Conference, DCCN 2016, Moscow, Russia, November 21-25, 2016, Revised Selected Papers

Real-Time Sensor Networks and Systems for the Industrial IoT

The idea of using robots in our daily lives was an inspiring research in the field of robotics during the last decades. Service robots can be found nowadays in

warehouses, hospitals, retail stores, city streets, and industrial parks or as personal assistants. The effort on the development of these robots is confirmed by the amount of money invested in projects and companies, the creation on new start-ups worldwide, and, not less important, the quantity and quality of the manuscripts published in journals and conferences worldwide. This book is an outcome of research done by several researchers who have highly contributed to the field of service robots. The main goal of this book is to present the recent advances in the field of service robots.

The Industrial Internet of Things (Industrial IoT/IloT) has emerged as the core construct behind the various cyber-physical systems constituting a principal dimension of the fourth Industrial Revolution. While initially born as the concept behind specific industrial applications of generic IoT technologies, for the optimization of operational efficiency in automation and control, it quickly enabled the achievement of the total convergence of Operational (OT) and Information Technologies (IT). The IloT has now surpassed the traditional borders of automation and control functions in the process and manufacturing industry, shifting towards a wider domain of functions and industries, embraced under the dominant global initiatives and architectural frameworks of Industry 4.0 (or Industrie 4.0) in Germany, Industrial Internet in the US, Society 5.0 in Japan, and Made-in-China 2025 in China. As real-time embedded systems are quickly achieving ubiquity in everyday life and in industrial environments, and many processes already depend on real-time cyber-physical systems and embedded sensors, the integration of IoT with cognitive computing and real-time data exchange is essential for real-time analytics and realization of digital twins in smart environments and services under the various frameworks' provisions. In this context, real-time sensor networks and systems for the Industrial IoT encompass multiple technologies and raise significant design, optimization, integration and exploitation challenges. The ten articles in this Special Issue describe advances in real-time sensor networks and systems that are significant enablers of the Industrial IoT paradigm. In the relevant landscape, the domain of wireless networking technologies is centrally positioned, as expected. This book constitutes the refereed proceedings of the 16th International Conference on Ad-hoc, Mobile, and Wireless Networks, ADHOC-NOW 2018, held in St. Malo, France, in September 2018. The 21 full and 6 short papers plus 2 invited talks presented in this volume were carefully reviewed and selected from 52 submissions. The contributions were organized in topical sections named: on ad-hoc, mobile and wireless sensor, networks and computing.

This book presents select and peer-reviewed proceedings of the International Conference on Smart Communication and Imaging Systems (MedCom 2020). The contents explore the recent technological advances in the field of next generation communication systems and latest techniques for image processing, analysis and their related applications. The topics include design and development of smart, secure and reliable future communication networks; satellite, radar and microwave techniques for intelligent communication. The book also covers methods and applications of GIS and remote sensing; medical image analysis and its applications in smart health. This book can be useful for students, researchers and professionals working in the field of communication systems and image processing.

Soft Computing in Data Science
IoT and Low-Power Wireless

Recent Advances in Electrical Engineering and Related Sciences : Theory and Application

Wireless Sensor Networks

Ambient Intelligence

Second International Conference, Smart-CT 2017, Málaga, Spain, June 14-16, 2017, Proceedings

LPWAN Technologies for IoT and M2M Applications

This book presents selected articles from INDIA SMART GRID WEEK (ISGW 2017), which is the third edition of the Conference cum Exhibition on Smart Grids and Smart Cities, organized by India Smart Grid Forum from 07-10 March 2017 at Manekshaw Centre, Dhaula Kuan, New Delhi, India. ISGF is a public private partnership initiative of the Ministry of Power, Govt. of India with the mandate of accelerating smart grid deployments across the country. This book gives current scenario updates of Indian power sector business. It also highlights various disruptive technologies for power sector business.

This book explores and discusses various aspects of intelligent systems technologies and their applications. Presenting the refereed post-conference proceedings of the 5th International Symposium on Intelligent Systems Technologies and Applications (ISTA 2019), held at the Indian Institute of Information Technology and Management-Kerala (IIITM-K), Trivandrum, India, on December 18–21, 2019, it covers a variety of topics, such as knowledge discovery, data mining, pattern recognition, signal processing, intelligent image processing, artificial vision, ad hoc and wireless sensor networks, business intelligence and big data analytics.

This unique resource provides a detailed understanding of the options for harvesting energy from localized, renewable sources to supply power to autonomous wireless systems. You are introduced to a variety of types of autonomous system and wireless networks and discover the capabilities of existing battery-based solutions, RF solutions, and fuel cells. The book focuses on the most promising harvesting techniques, including solar, kinetic, and thermal energy. You also learn the implications of the energy harvesting techniques on the design of the power management electronics in a system. This in-depth reference discusses each energy harvesting approach in detail, comparing and contrasting its potential in the field.

This book gathers papers from the International Conference on Advanced Intelligent Systems for Sustainable Development (AI2SD-2019), held on July 08–11, 2019 in Marrakech, Morocco, which address the environment, industry and economy, and the role of advanced intelligent systems and computing in connection with these three fields. The book includes a host of interesting studies and successful applications regarding the economy and industry, e.g. in Manufacturing, Digital Factories, Smart Supply Chain Management in Industry, Project Management in Industry, Digital Economy, Digital Business, M-commerce, Blockchain and Digital Currencies. In addition, the book highlights work that addresses the environmental aspect, covering topics such as Big Data Analysis & the Internet of Things for Environmental Management, Sensor Networks for Environmental Services, Network Interoperability in Environmental Ecosystems, Wireless Sensors and Cognitive Radio Networks, Environmental Management Computing Systems, Sustainable Mobility Solutions, Remote Sensing Applications, Geo-information & Geophysics. Addressing social, legislative and environmental aspects, the book is intended for all stakeholders in the industrial world. It will be of interest e.g. to customers, helping them improve their profits and economic profitability, and to professionals and fishermen working to evolve

and optimize their supply chains, and to improve productivity, in the fiercely competitive I4.0 world. The authors of each chapter report on the state of the art and present the outcomes of their own research, laboratory experiments, and successful applications. The purpose of the book is to combine the idea of advanced intelligent systems with appropriate tools and techniques for modeling, management, and decision support in the fields of the environment, industry and economy.

Fundamental Concepts and Key Architectures

Design and Construction of Smart Cities

Advanced Intelligent Systems for Sustainable Development (AI2SD'2019)

Linux Driver Development for Embedded Processors - Second Edition

2021 28th International Conference on Telecommunications (ICT)

Service Robots

Energy Harvesting for Autonomous Systems

This book focuses on the Internet of Everything and related fields. The Internet of Everything adds connectivity and intelligence to just about every device, giving it special functions. The book provides a common platform for integrating information from heterogeneous sources. However, this can be quite reductive, as the Internet of Everything provides links not only among things, but also data, people, and business processes. The evolution of current sensor and device networks, with strong interactions between people and social environments, will have a dramatic impact on everything from city planning, first responders, the military and health. Such a shared ecosystem will allow for the interaction between data, sensor inputs and heterogeneous systems. Semantics is a fundamental component of this since semantic technologies are able to provide the necessary bridge between different data representations, and to solve terminology incongruence. Integrating data from distributed devices, sensor networks, social networks and biomedical instruments requires, first of all, the systematization of the current state of the art in such fields. Then, it is necessary to identify a common action thread to actually merge and homogenize standards and techniques applied in such a heterogeneous field. The exact requirements of an Internet of Everything environment need to be precisely identified and formally expressed, and finally, the role of modern computing paradigms, such as Cloud and Fog Computing, needs to be assessed with respect to the requirements expressed by an Internet of Everything ecosystem.

This book constitutes the refereed proceedings of the 19th International Conference on Distributed and Computer and Communication Networks, DCCN 2016, held in Moscow, Russia, in November 2016. The 50 revised full papers and the 6 revised short papers presented were carefully reviewed and selected from 141 submissions. The papers cover the following topics: computer and communication networks architecture optimization; control in

computer and communication networks; performance and QoS/QoE evaluation in wireless networks; analytical modeling and simulation of next-generation communications systems; queuing theory and reliability theory applications in computer networks; wireless 4G/5G networks, cm- and mm-wave radio technologies; RFID technology and its application in intellectual transportation networks; internet of things, wearables, and applications of distributed information systems; probabilistic and statistical models in information systems; mathematical modeling of high-tech systems; mathematical modeling and control problems; distributed and cloud computing systems, big data analytics.

This book constitutes the proceedings of the 28th International Tyrrhenian Workshop on Digital Communication, TIWDC 2017, which took place in Palermo, Italy, in September 2017. The 18 papers presented in this volume were carefully reviewed and selected from 40 submissions. They were organized in topical sections named: biometric systems; emerging services with Network Function Virtualization (NFV); multimedia forensics; security protocols; software defined networks; and technologies for Internet of Things (IoT).

What can you do with the Raspberry Pi, the affordable computer the size of a credit card? All sorts of things! If you're learning how to program--or looking to build new electronic projects, this hands-on guide will show you just how valuable this flexible little platform can be. Updated to include coverage of the Raspberry Pi Model B+, *Getting Started with Raspberry Pi* takes you step-by-step through many fun and educational possibilities. Take advantage of several preloaded programming languages. Use the Raspberry Pi with Arduino. Create Internet-connected projects. Play with multimedia. With Raspberry Pi, you can do all of this and more. In *Getting Started with Raspberry Pi*, you'll: Get acquainted with hardware features on the Pi's board Learn enough Linux to move around the operating system Start programming in Python and Scratch Draw graphics, play sounds, and handle mouse events with Pygame Use the Pi's input and output pins to do some hardware hacking Discover how Arduino and the Raspberry Pi can work together Create your own Pi-based web server with Python Work with the Raspberry Pi Camera Module and USB webcams Internet of Everything Electronic Projects with Python, Scratch, and Linux Power-efficient System Design

28th International Tyrrhenian Workshop, TIWDC 2017, Palermo, Italy, September 18-20, 2017, Proceedings
ISGW 2017: Compendium of Technical Papers

**29th June 2019, Shah Alam, Malaysia : Proceedings
Advanced Computing and Intelligent Technologies**

These proceedings address a broad range of topic areas, including telecommunication, power systems, digital signal processing, robotics, control systems, renewable energy, power electronics, soft computing and more. Today ' s world is based on vitally important technologies that combine e.g. electronics, cybernetics, computer science, telecommunication, and physics. However, since the advent of these technologies, we have been confronted with numerous technological challenges such as finding optimal solutions to various problems regarding controlling technologies, signal processing, power source design, robotics, etc. Readers will find papers on these and other topics, which share fresh ideas and provide state-of-the-art overviews. They will also benefit practitioners, who can easily apply the issues discussed here to solve real-life problems in their own work. Accordingly, the proceedings offer a valuable resource for all scientists and engineers pursuing research and applications in the above-mentioned fields.

This book constitutes the refereed proceedings of the 23rd International Conference on Distributed and Computer and Communication Networks, DCCN 2020, held in Moscow, Russia, in September 2020. Due to the COVID-19 pandemic the conference was held online. The 43 papers were carefully reviewed and selected from 167 submissions. The papers are organized in the following topical sections: computer and communication networks and technologies; analytical modeling of distributed systems, and distributed systems applications.

This book constitutes the refereed proceedings of the International Conference on Soft Computing in Data Science, SCDS 2017, held in Yogyakarta, Indonesia, November 27-28, 2017. The 26 revised full papers presented were carefully reviewed and selected from 68 submissions. The papers are organized in topical sections on deep learning and real-time classification; image feature classification and extraction; classification, clustering, visualization; applications of machine learning; data visualization; fuzzy logic; prediction models and e-learning; text and sentiment analytics.

LPWAN Technologies for IoT and M2M Applications provides insight into LPWAN technologies, also presenting a wide range of applications and a discussion on security issues and future challenges and research directions. This book is a beneficial and insightful resource for university researchers, graduate students and R&D engineers who are designing networks and implementing IoT applications. To support new requirements for this emerging industry, a new paradigm of Low Power Wide Area Networks (LPWAN) has recently evolved, including LoRa, Sigfox and NB-IoT, hence this book presents the latest updates.

Proceedings of the 35th International Conference on Advanced Information Networking and Applications (AINA-2021), Volume 2

11th International Conference, CROWNCOM 2016, Grenoble, France, May 30 - June 1, 2016, Proceedings

Wireless Medical Systems and Algorithms

Concepts, Applications, Experimentation and Analysis

Volume 3 - Advanced Intelligent Systems for Sustainable Development Applied to Environment, Industry and Economy

Algorithms, Methodologies, Technologies and Perspectives

MUE/FutureTech 2017

This book constitutes the thoroughly refereed conference proceedings of the 11th International Conference on Cognitive Radio Oriented Wireless Networks, CROWNCOM 2016, held in Grenoble, France, May 30 - April 1, 2016. The 62 revised full papers presented were carefully reviewed and selected from numerous submissions and cover the evolution of cognitive radio technology pertaining to 5G networks. The papers are clustered to topics on dynamic spectrum access/management, networking protocols for CR, modeling and theory, HW architecture and implementations, next generation of cognitive networks, standards and business models, emerging applications for cognitive networks.

This book focuses on the principles of wireless sensor networks (WSNs), their applications, and their analysis tools, with meticulous attention paid to definitions and terminology. This book presents the adopted technologies and their manufacturers in detail, making WSNs tangible for the reader. In introductory computer networking books, chapter sequencing follows the bottom-up or top-down architecture of the 7-layer protocol. This book addresses subsequent steps in this process, both horizontally and vertically, thus fostering a clearer and deeper understanding through chapters that elaborate on WSN concepts and issues. With such depth, this book is intended for a wide audience; it is meant to be a helper and motivator for senior undergraduates, postgraduates, researchers, and practitioners. It lays out important concepts and WSN-related applications; uses appropriate literature to back research and practical issues; and focuses on new trends. Senior undergraduate students can use it to familiarize themselves with conceptual foundations and practical project implementations. For graduate students and researchers, test beds and simulators provide vital insights into analysis methods and tools for WSNs. Lastly, in addition to applications and deployment, practitioners will be able to learn more about WSN manufacturers and components within several platforms and test beds.

The aim of this conference is to provide a forum for researchers and technologists to present new advances and contributions in the form of keynotes, tutorials, workshops as well as regular and special sessions with the objective to share ideas and progress in wireless communications, networking and signal processing employed to support the needs of the information and communications society. This twenty sixth edition of the ICT event will bring together various wireless communication systems developers to discuss the current status, technical challenges, standards, fundamental issues, and future services and applications. ICT 2019 seeks to address and capture highly innovative and state of the art research from academia, wireless industry as well as recent advances in standardization. This book constitutes the refereed proceedings of the 5th International Symposium on Ubiquitous Networking, UNet 2019, held in Limoges, France, in November 2019. The 17 revised full papers presented together with 1 short paper were carefully reviewed and selected from 41 submissions. The papers are organized in topical sections: ubiquitous communication

technologies and networking; ubiquitous Internet of things; pervasive services and applications.

Smart Cities

Delay-Tolerant Satellite Networks

Proceedings of Fifth ISTA 2019, India

AETA 2018

Communication Networks

2019 IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS 2019)

Distributed Computer and Communication Networks: Control, Computation, Communications

This book presents the proceedings of the 11th International Conference on Multimedia and Ubiquitous Engineering (MUE2017) and the 12th International Conference on Future Information Technology (FutureTech2017), held in Seoul, South Korea on May 22–24, 2017. These two conferences provided an opportunity for academic and industrial professionals to discuss recent advances in the area of multimedia and ubiquitous environments including mobile devices and systems, new directions, and novel applications associated with the utilization and acceptance of ubiquitous computing devices and systems. The resulting papers address the latest technological innovations in the fields of digital convergence, multimedia convergence, intelligent applications, embedded systems, mobile and wireless communications, bio-inspired computing, grid and cloud computing, semantic web, user experience, HCI, and security and trust computing. The book offers a valuable resource for a broad readership, including students, academic researchers, and professionals. Further, it provides an overview of current research and a “snapshot” for those new to the field.

The Information and communication technology (ICT) industry is said to account for 2% of the worldwide carbon emissions – a fraction that continues to grow with the relentless push for more and more sophisticated computing equipment, communications infrastructure, and mobile devices. While computers evolved in the direction of higher and higher performance for most of the latter half of the 20th century, the late 1990s and early 2000s saw a new emerging fundamental concern that has begun to shape our day-to-day thinking in system design – power dissipation. As we elaborate in Chapter 1, a variety of factors colluded to raise power efficiency as a first class design concern in the designer’s mind, with profound consequences all over the world: semiconductor process design, circuit design, design automation tools, system and application software, all the way to large data centers. Power-efficient System Design originated from a desire to capture and highlight the exciting developments in the rapidly evolving world of power and energy optimization in electronic and computer based systems. Tremendous progress has been made in the last two decades, and this topic continues to be a fascinating research area. To develop a clearer focus, we have concentrated on the relatively higher level of design abstraction that is loosely called the system level. In addition to the extensive coverage of traditional power reduction targets such as CPU and memory, the book is distinguished by detailed coverage of relatively modern power optimization ideas focussing on components such as compilers, operating systems, servers, data centers, and graphics processors.

This book gathers selected high-quality research papers presented at International Conference on Advanced Computing and Intelligent Technologies (ICACIT 2021) held at NCR New Delhi, India, during March 20–21, 2021, jointly organized by Galgotias University, India, and Department of Information Engineering and Mathematics Università Di Siena, Italy. It discusses emerging topics pertaining to advanced computing, intelligent technologies, and networks including AI and machine learning, data mining, big data analytics, high-performance computing network

performance analysis, Internet of things networks, wireless sensor networks, and others. The offers a valuable asset for researchers from both academia and industries involved in advanced studies.

This book constitutes the refereed proceedings of the 15th European Conference on Ambient Intelligence, Aml 2019, held in Rome, Italy, in November 2019. The 20 full papers presented together with 10 short papers were carefully reviewed and selected from 50 submissions. The papers cover topics such as embedded devices that can merge unobtrusively and in natural ways using information and intelligence hidden in the network connecting these devices (e.g., the Internet of Things). The main topic of Aml 2019 was "Data-driven Ambient Intelligence," which follows the vision of Calm Technology, where technology is useful but does not demand our full attention or interfere with our usual behavior and activities.

Advanced Multimedia and Ubiquitous Engineering
Intelligent Systems, Technologies and Applications
Ubiquitous Networking

Ubiquitous Computing and Ambient Intelligence

Getting Started with Raspberry Pi

Advanced Information Networking and Applications

3rd International Conference and Exhibition on Smart Grids and Smart Cities

These proceedings address a broad range of topic areas, including telecommunication, power systems, digital signal processing, robotics, control systems, renewable energy, power electronics, soft computing and more. Today's world is based on vitally important technologies that combine e.g. electronics, cybernetics, computer science, telecommunication, and physics.

However, since the advent of these technologies, we have been confronted with numerous technological challenges such as finding optimal solutions to various problems regarding controlling technologies, signal processing, power source design, robotics, etc. Readers will find papers on these and other topics, which share fresh ideas and provide state-of-the-art overviews. They will also benefit practitioners, who can easily apply the issues discussed here to solve real-life problems in their own work. Accordingly, the proceedings offer a valuable resource for all scientists and engineers pursuing research and applications in the above-mentioned fields.

This book focuses on how to maintain environmental sustainability as one of its main principles, and it addresses how smart cities serve to diminish wastes and maintain natural resources by having clean green energy that is operated by new smart technology designs. Living in a smart city is not something of the future anymore, it is here, and it is being implemented all over the world. A smart city uses different types of electronic Internet of things (IoT) sensors to collect data and then use these data to manage assets and resources efficiently. The smart city concept integrates information and communication technology (ICT), and various physical devices connected to the IoT network to optimize the efficiency of city operations and services and achieve sustainable solutions to allow us to grow with proper management of our resources.

Smart sustainable structures and infrastructures face the need of urban areas due to the growth of populations while in the same time save our environment. To achieve this, we need to revisit the conventional methods in design and construction and the conventional materials which are used now to optimize the design and provide smart solutions. In the past few years, the consumption of resources has been massive, and the waste produced from that consumption has been inconceivable. This is causing environmental degradation, which produces many environmental challenges, such as global climate change, excessive fossil fuel dependency and the growing demand for energy. As well as, discussing the challenges facing the civil engineering design and construction of smart cities components and presenting concepts and insight from experts and

researchers from different civil engineering disciplines., this book explains how to construct buildings and special structures and how to manage and monitor energy.

This book constitutes the refereed conference proceedings of the 11th International Conference on Ubiquitous Computing and Ambient Intelligence, UCAmI 2017, held in Philadelphia, PA, USA in November 2017. The 60 revised full papers and 22 short papers presented were carefully reviewed and selected from 100 submissions. The papers are presented in six tracks and two special sessions. These are Ambient Assisted Living, Human-Computer Interaction, Ambient Intelligence for Health, Internet of Things and Smart Cities, Ad-hoc and Sensor Networks, Sustainability, Socio-Cognitive and Affective Computing, AmI-Systems and Machine Learning.

Presents the components, challenges, and solutions of wireless automation as enablers for industry 4.0 This timely book introduces the state of the art in industrial automation techniques, concentrating on wireless methods for a variety of applications, ranging from simple smart homes to heavy-duty complex industrial setting with robotics accessibility. It covers a wide range of topics including the industrial revolution enablers, applications, challenges, their possible solutions, and future directions. Wireless Automation as an Enabler for the Next Industrial Revolution opens with an introduction to wireless sensor networks and their applications in various domains, emphasizing industrial wireless networks and their future uses. It then takes a look at life-span extension for sensor networks in the industry, followed by a chapter on multiple access and resource sharing for low latency critical industrial networks. Industrial automation is covered next, as is the subject of ultra reliable low latency communications. Other topics include: self healing in wireless networks; cost efficiency optimization for industrial automation; a non event-based approach for non-intrusive load monitoring; wireless networked control; and caching at the edge in low latency wireless networks. The book finishes with a chapter on the application of terahertz sensing at nano-scale for precision agriculture. Introduces the future evolving dimension in industrial automation and discusses the enablers of the industrial revolution Places particular emphasis on wireless communication techniques which make industrial automation reliable, efficient, and cost-effective Covers many of the associated topics and concepts like robotics, AI, internet-of-things, telesurgery, and remote manufacturing Of great interest to researchers from academia and industry who are looking at the industrial development from various perspectives Wireless Automation as an Enabler for the Next Industrial Revolution is an excellent book for telecom engineers, IoT experts, and industry professionals. It would also greatly benefit researchers, professors, and doctorate and postgraduate students involved in automation and industry 4.0. Proceedings of ICACIT 2021

5th International Symposium, UNet 2019, Limoges, France, November 20–22, 2019, Revised Selected Papers

Advances in Smart Communication and Imaging Systems

11th International Conference, UCAmI 2017, Philadelphia, PA, USA, November 7–10, 2017, Proceedings

Design and Applications

Select Proceedings of MedCom 2020

Cognitive Radio Oriented Wireless Networks

Advanced Computing and Intelligent Technologies Proceedings of ICACIT 2021 Springer Nature

. This book is designed for introductory one-semester or one-year courses in

communications networks in upper-level undergraduate programs. The second half of the book can be used in more advanced courses. As pre-requisites the book assumes a general knowledge of computer systems and programming, and elementary calculus. The second edition expands on the success of the first edition by updating on technological changes in networks and responding to comprehensive market feedback..

This book constitutes the proceedings of the second International Conference on Smart Cities, Smart-CT 2017, held in Málaga, Spain, in June 2017. The 16 papers presented in this volume were carefully reviewed and selected from 21 submissions. The topics covered include studies and tools to improve road traffic, energy consumption, logistics, frameworks to provide new services and take decisions in a holistic way, driving assistance, electric vehicles, public transport, and surveys on smart city concepts.

This cutting-edge resource provides a comprehensive treatment of satellite-based delay-tolerant satellite networks (DTNs) and uses detailed models and analytical tools to evaluate performance and provide guidance in the field. This book presents the state-of-the-art in existing on-board and ground technologies that support satellite applications, such as communications protocols, algorithms, and security procedures. Readers gain key insight into the fundamental concepts of DTN applied to satellite networks (STSNs) and case studies are provided. Satellite communications are examined, including satellite links, communication protocols, and distributed multiple access schemes, such as time division, code division, and frequency division. The fundamental concepts and analysis of the Ring Road Architecture are explored. Unique analyses on the motivating factors of using Inter-Satellite Links (ISL) to form networks in disruptive environments in space are discussed. This book provides readers with an authoritative introduction to the methods for computing metrics for satellite network modeling. The book concludes with a discussion of the many challenges in DTN.

Circuits, Architectures, and Techniques

Toward Sustainable Community

AETA 2018 - Recent Advances in Electrical Engineering and Related Sciences: Theory and Application

Digital Communication. Towards a Smart and Secure Future Internet

Ad-hoc, Mobile, and Wireless Networks

Distributed Computer and Communication Networks

17th International Conference on Ad Hoc Networks and Wireless, ADHOC-NOW 2018, Saint-Malo, France, September 5-7, 2018. Proceedings

The Internet of Things (IoT) networks have revolutionized the world and have innumerable real-time applications on automation. A few examples include driverless cars, remote monitoring of the elderly, remote order of tea or coffee of your choice from a vending machine, and home/industrial automation amongst others. Fundamentals of Internet of Things build the foundations of IoT networks by leveraging the relevant concepts from signal processing, communications, net-works, and machine learning. The book covers two fundamental components of IoT networks, namely, the Internet and Things. In particular, the book focuses on networking concepts, protocols, clustering, data fusion, localization, energy harvesting, control optimization, data analytics, fog computing, privacy, and security including elliptic curve cryptography and blockchain technology. Most of the existing books are theoretical and without many mathematical details and examples. In addition, some essential topics of the IoT networks are also missing in the existing books. Features:

- The book covers cutting-edge research topics
- Provides mathematical understanding of the topics in addition to relevant theory and insights
- Includes illustrations

with hand-solved numerical examples for visualization of the theory and testing of understanding

- **Lucid and crisp explanation to lessen the study time of the reader** The book is a complete package of the fundamentals of IoT networks and is suitable for graduate-level students and researchers who want to dive into the world of IoT networks.

Wireless Medical Systems and Algorithms: Design and Applications provides a state-of-the-art overview of the key steps in the development of wireless medical systems, from biochips to brain-computer interfaces and beyond. The book also examines some of the most advanced algorithms and data processing in the field. Addressing the latest challenges and solutions related to the medical needs, electronic design, advanced materials chemistry, wireless body sensor networks, and technologies suitable for wireless medical devices, the text: Investigates the technological and manufacturing issues associated with the development of wireless medical devices Introduces the techniques and strategies that can optimize the performances of algorithms for medical applications and provide robust results in terms of data reliability Includes a variety of practical examples and case studies relevant to engineers, medical doctors, chemists, and biologists **Wireless Medical Systems and Algorithms: Design and Applications** not only highlights new technologies for the continuous surveillance of patient health conditions, but also shows how disciplines such as chemistry, biology, engineering, and medicine are merging to produce a new class of smart devices capable of managing and monitoring a wide range of cognitive and physical disabilities.

The book offers unique insight into the modern world of wireless communication that included 5G generation, implementation in Internet of Things (IoT), and emerging biomedical applications. To meet different design requirements, gaining perspective on systems is important. Written by international experts in industry and academia, the intended audience is practicing engineers with some electronics background. It presents the latest research and practices in wireless communication, as industry prepares for the next evolution towards a trillion interconnected devices. The text further explains how modern RF wireless systems may handle such a large number of wireless devices. Covers modern wireless technologies (5G, IoT), and emerging biomedical applications Discusses novel RF systems, CMOS low power circuit implementation, antennae arrays, circuits for medical imaging, and many other emerging technologies in wireless co-space. Written by a mixture of top industrial experts and key academic professors.

Fundamentals of Internet of Things

15th European Conference, AmI 2019, Rome, Italy, November 13–15, 2019, Proceedings
2020 IEEE ION Position, Location and Navigation Symposium (PLANS)