

The Intel Quark Soc

While the Arduino is not widely considered an industrial-strength solution, it provides, due to its low price and ease of programming, the perfect prototyping platform for all kinds of Controller Area Network (CAN) applications. This book, written by a leading expert on CAN technologies, guides the reader through the process of acquiring all necessary hardware and software components, the implementation of the CAN driver, and the implementation of programs (Arduino Sketches) to read, send, process, and display data from and to a CAN network. The collection of programming examples cumulates into a full-fledged USB-to-CAN Gateway communicating with a Windows/Linux PC. This book will enable you to achieve CAN functionality literally within only a few hours.

An Update of the Most Practical A-to-Z Operating System Book Widely lauded for avoiding the typical black box approach found in other operating system textbooks, the first edition of this bestselling book taught readers how an operating system works and explained how to build it from the ground up. Continuing to follow a logical pattern for system d

The Intel Galileo board is the first in a family of Arduino-certified development and prototyping boards based on Intel architecture. Microsoft provides Windows for IoT Program which we can build and deploy application on top of Intel Galileo board using Windows Platform. This book helps you getting started with Windows for IoT program and Intel Galileo. The following is a list of highlight topics: * Preparing Development Environment * Deploying Windows IoT on Intel Galileo * Digital I/O * Analog I/O * Serial Communication * Working with SPI and I2C

A comprehensive overview of the Internet of Things' core concepts, technologies, and applications Internet of Things A to Z offers a holistic approach to the Internet of Things (IoT) model.

The Internet of Things refers to uniquely identifiable objects and their virtual representations in an Internet-like structure. Recently, there has been a rapid growth in research on IoT communications and networks, that confirms the scalability and broad reach of the core concepts. With contributions from a panel of international experts, the text offers insight into the ideas, technologies, and applications of this subject. The authors discuss recent developments in the field and the most current and emerging trends in IoT. In addition, the text is filled with examples of innovative applications and real-world case studies. Internet of Things A to Z fills the need for an up-to-date volume on the topic. This important book: Covers in great detail the core concepts, enabling technologies, and implications of the Internet of Things Addresses the business, social, and legal aspects of the Internet of Things Explores the critical topic of security and privacy challenges for both individuals and organizations Includes a discussion of advanced topics such as the need for standards and interoperability Contains contributions from an international group of experts in academia, industry, and research Written for ICT researchers, industry professionals, and lifetime IT learners as well as academics and students, Internet of Things A to Z provides a much-needed and comprehensive resource to this burgeoning field.

Quick Boot is designed to give developers a background in the basic architecture and details of a typical boot sequence. More specifically, this book describes the basic initialization sequence that allows developers the freedom to boot an OS without a fully featured system BIOS. Various specifications provide the basics of both the code bases and the standards. This book also provides insights into optimization techniques for more advanced developers. With proper background information, the required specifications on hand, and diligence, many developers can create quality boot solutions using this text. Pete Dice is Engineering Director of Verifone, where he manages OS Engineering teams in Dublin, Ireland and Riga Latvia. Dice successfully launched Intel(R) Quark(TM), Intel's first generation SoC as well as invented the Intel(R) Galileo(TM) development board and developed a freemium SW strategy to scale Intel IoT gateway features across product lines. He is also credited with architecting the "Moon Island" software stack and business model.

This book constitutes the thoroughly refereed post-conference proceedings of the Third International Workshop on the Security of Industrial Control Systems and of Cyber-Physical Systems, CyberICPS 2017, and the First International Workshop on Security and Privacy Requirements Engineering, SECPRE 2017, held in Oslo, Norway, in September 2017, in conjunction with the 22nd European Symposium on Research in Computer Security, ESORICS 2017. The CyberICPS Workshop received 32 submissions from which 10 full and 2 short papers were selected for presentation. They cover topics related to threats, vulnerabilities and risks that cyber-physical systems and industrial control systems face; cyber attacks that may be launched against such systems; and ways of detecting and responding to such attacks. From the SECPRE Workshop 5 full papers out of 14 submissions are included. The selected papers deal with aspects of security and privacy requirements assurance and evaluation; and security requirements elicitation and modelling.

This book constitutes the refereed proceedings of the 32nd IFIP TC 11 International Conference on ICT Systems Security and Privacy Protection, SEC 2017, held in Rome, Italy, in May 2017. The 38 revised full papers presented were carefully reviewed and selected from 199 submissions. The papers are organized in the following topical sections: network security and cyber attacks; security and privacy in social applications and cyber attacks defense; private queries and aggregations; operating systems and firmware security; user authentication and policies; applied cryptography and voting schemes; software security and privacy; privacy; and digital signature, risk management, and code reuse attacks.

Embedded Firmware Solutions is the perfect introduction and daily-use field guide--for the thousands of firmware designers, hardware engineers, architects, managers, and developers--to Intel's new firmware direction (including Quark coverage), showing how to integrate Intel® Architecture designs into their plans. Featuring hands-on examples and exercises using Open Source codebases, like Coreboot and EFI Development Kit (tianocore) and Chromebook, this is the first book that combines a timely and thorough overview of firmware solutions for the rapidly evolving embedded ecosystem with in-depth coverage of requirements and optimization.

The number of Android devices running on Intel processors has increased since Intel and Google announced, in late 2011, that they would be working together to optimize future versions of Android for Intel Atom processors. Today, Intel processors can be found in Android smartphones and tablets made by some of the top manufacturers of Android devices, such as Samsung, Lenovo, and Asus. The increase in Android devices featuring Intel processors has created a demand for Android applications optimized for Intel Architecture: Android Application Development for the Intel® Platform is the perfect introduction for software engineers and mobile app developers. Through well-designed app samples, code samples and case studies, the book teaches Android application development based on the Intel platform—including for smartphones, tablets, and embedded devices—covering performance tuning, debugging and optimization. This book

is jointly developed for individual learning by Intel Software College and China Shanghai JiaoTong University.

A Systematic Approach to Learn the Principles, Paradigms and Applications of Internet of Things DESCRIPTION In this book, Principles, Paradigm frameworks, and Applications of IoT (Internet of Things) in the modern era are presented. It also provides a sound understanding of the IoT concepts, architecture, and applications, and improves the awareness of readers about IoT technologies and application areas. A key objective of this book is to provide a systematic source of reference for all aspects of IoT. This book comprises nine chapters with close co-operation and contributions from four different authors, spanning across four countries and providing a global, broad perspective on major topics on the Internet of Things. **KEY FEATURES** - IoT applications in various sectors like Education, Smart City, Politics, Healthcare, Agriculture, etc. - Adoption of the IoT technology and strategies for various sectors - To present case studies and innovative applications of the IoT - To analyze and present the state of the art of the IoT and related technologies and methodologies - To propose new models, practical solutions and technological advances of the IoT **WHAT WILL YOU LEARN** - Become aware of the IoT components, their connectivity to form the IoT altogether, and future possibilities with IoT. - Understand how the various components of cloud computing work together to form the basic architecture of cloud computing. - Examine the relationship between the various layers in the IoT architecture. - Understand the programming framework for the Internet of Things (IoT) and various programming paradigms. **WHO THIS BOOK IS FOR** This book is intended for professionals, researchers, instructors, and designers of a smart system, who will benefit from reading this book. **TABLE OF CONTENTS** 1. IoT Introduction 2. IoT Architectures and Protocols 3. Programming Framework for IoT 4. Virtualization and IoT 5. Security, Privacy and Challenges in IoT 6. IoT Applications Areas 7. IoT and Cloud 8. Smart City Using IoT integration 9. Case Studies 10. Important Key Terms 11. References

The Intel Galileo board was designed to add the power of an Intel processor to the simplicity of the Arduino platform. Intel Galileo gives you the freedom to create a wide range of DIY projects. Intel Galileo Blueprints will be a detailed guide that covers several projects based on the Intel Galileo board, exploiting the full potential of the board. You will first go through how to set up the development environment for the Galileo board. Next, you will connect different kinds of sensors to the Galileo board, and learn how to use the SD card reader of the board. You will then connect actuators to the Galileo board, like a relay and a servomotor, and write simple software to control these components. Later, you will access the Galileo board remotely in order to monitor the measurements done by the board and send the measured data to a Twitter feed at regular intervals. Finally, you will move on to more advanced topics, such as building a complete home automation system, building a mobile robot controlled by the Intel Galileo board and computer vision applications such as face recognition.

The papers in these two volumes were presented at the International Conference on “NexGen Technologies for Mining and Fuel Industries” [NxGnMiFu-2017] in New Delhi from February 15-17, 2017, organized by CSIR-Central Institute of Mining and Fuel Research, Dhanbad, India. The proceedings include the contributions from authors across the globe on the latest research on mining and fuel technologies. The major issues focused on are: Innovative Mining Technology, Rock Mechanics and Stability Analysis, Advances in Explosives and Blasting, Mine Safety and Risk Management, Computer Simulation and Mine Automation, Natural Resource Management for Sustainable Development, Environmental Impacts and Remediation, Paste Fill Technology and Waste Utilisation, Fly Ash Management, Clean Coal Initiatives, Mineral Processing and Coal Beneficiation, Quality Coal for Power Generation and Conventional and Non-conventional Fuels and Gases. This collection of contemporary articles contains unique knowledge, case studies, ideas and insights, a must-have for researchers and engineers working in the areas of mining technologies and fuel sciences.

Build Complete Embedded Linux Systems Quickly and Reliably Developers are increasingly integrating Linux into their embedded systems: It supports virtually all hardware architectures and many peripherals, scales well, offers full source code, and requires no royalties. The Yocto Project makes it much easier to customize Linux for embedded systems. If you're a developer with working knowledge of Linux, Embedded Linux Systems with the Yocto Project™ will help you make the most of it. An indispensable companion to the official documentation, this guide starts by offering a solid grounding in the embedded Linux landscape and the challenges of creating custom distributions for embedded systems. You'll master the Yocto Project's toolbox hands-on, by working through the entire development lifecycle with a variety of real-life examples that you can incorporate into your own projects. Author Rudolf Streif offers deep insight into Yocto Project's build system and engine, and addresses advanced topics ranging from board support to compliance management. You'll learn how to Overcome key challenges of creating custom embedded distributions Jumpstart and iterate OS stack builds with the OpenEmbedded Build System Master build workflow, architecture, and the BitBake Build Engine Quickly troubleshoot build problems Customize new distros with built-in blueprints or from scratch Use BitBake recipes to create new software packages Build kernels, set configurations, and apply patches Support diverse CPU architectures and systems Create Board Support Packages (BSP) for hardware-specific adaptations Provide Application Development Toolkits (ADT) for round-trip development Remotely run and debug applications on actual hardware targets Ensure open-source license compliance Scale team-based projects with Toaster, Build History, Source Mirrors, and Autobuilder

Internet of Things: Principles and Paradigms captures the state-of-the-art research in Internet of Things, its applications, architectures, and technologies. The book identifies potential future directions and technologies that facilitate insight into numerous scientific, business, and consumer applications. The Internet of Things (IoT) paradigm promises to make any electronic devices part of the Internet environment. This new paradigm opens the doors to new innovations and interactions between people and things that will enhance the quality of life and utilization of scarce resources. To help realize the full potential of IoT, the book addresses its numerous challenges and develops the conceptual and technological solutions for tackling them. These challenges include the development of scalable architecture, moving from closed systems to open systems, designing interaction protocols, autonomic management, and the privacy and ethical issues around data sensing, storage, and processing. Addresses the main concepts and features of the IoT paradigm Describes different architectures for managing IoT platforms Provides insight on trust, security, and privacy in IoT environments Describes data management techniques applied to the IoT environment Examines the key enablers and solutions to enable practical IoT systems Looks at the key developments that support next generation IoT platforms Includes input from expert contributors from both academia and industry on building and deploying IoT platforms and applications

This book is a printed edition of the Special Issue "Sensors and Actuators in Smart Cities" that was published in JSAN

This novel textbook introduces Enterprise Internet of Things from technology, management and business perspectives, carefully examining enterprise environments through the lens of modernization with the Internet of Things (IoT). It also includes detailed case studies to offer meaningful insights for readers from various disciplines and areas. The book analyzes the ways in which the technology could contribute to the enterprise world in terms of revenue and new business models, and addresses the strategies and principles involved in developing IoT solutions with software engineering practices such as DevOps and Micro services architecture principles. By doing so, it offers readers a clear overview of the power of Internet of Things in building next generation enterprise use cases. The book enables readers to understand the latest opportunities to create new business models in enterprises using the unprecedented level of device connectivity, and the wealth of data generated and information exchange among these devices. As such, it appeals to various user groups, such as engineers trying to solve problems in their own domains using Enterprise IoT, academics interested in gaining a better understanding of applications of IoT in large-scale enterprises, and researchers wanting to contribute to the ever-growing and complex area of IoT.

This two volume set LNBI 10208 and LNBI 10209 constitutes the proceedings of the 5th International Work-Conference on Bioinformatics and Biomedical Engineering, IWBBIO 2017, held in Granada, Spain, in April 2017. The 122 papers presented were carefully reviewed and selected from 309 submissions. The scope of the conference spans the following areas: advances in computational intelligence for critical care; bioinformatics for healthcare and diseases; biomedical engineering; biomedical image analysis; biomedical signal analysis; biomedicine; challenges representing large-scale biological data; computational genomics; computational proteomics; computational systems for modeling biological processes; data driven biology - new tools, techniques and resources; eHealth; high-throughput bioinformatic tools for genomics; oncological big data and new mathematical tools; smart sensor and sensor-network architectures; time lapse experiments and multivariate biostatistics.

Internet of Things: Challenges, Advances, and Applications provides a comprehensive introduction to IoT, related technologies, and common issues in the adoption of IoT on a large scale. It surveys recent technological advances and novel solutions for challenges in the IoT environment. Moreover, it provides detailed discussion of the utilization of IoT and its underlying technologies in critical application areas, such as smart grids, healthcare, insurance, and the automotive industry. The chapters of this book are authored by several international researchers and industry experts. This book is composed of 18 self-contained chapters that can be read, based on interest. Features: Introduces IoT, including its history, common definitions, underlying technologies, and challenges Discusses technological advances in IoT and implementation considerations Proposes novel solutions for common implementation issues Explores critical application domains, including large-scale electric power distribution networks, smart water and gas grids, healthcare and e-Health applications, and the insurance and automotive industries The book is an excellent reference for researchers and post-graduate students working in the area of IoT, or related areas. It also targets IT professionals interested in gaining deeper knowledge of IoT, its challenges, and application areas.

This book is for anyone who wants to learn Intel Galileo for home automation and cross-platform software development. No knowledge of programming with Intel Galileo is assumed, but knowledge of the C programming language is essential.

This book introduces the problems facing Internet of Things developers and explores current technologies and techniques to help you manage, mine, and make sense of the data being collected through the use of the world's most popular database on the Internet - MySQL. The IoT is poised to change how we interact with and perceive the world around us, and the possibilities are nearly boundless. As more and more connected devices generate data, we will need to solve the problem of how to collect, store, and make sense of IoT data by leveraging the power of database systems. The book begins with an introduction of the MySQL database system and storage of sensor data. Detailed instructions and examples are provided to show how to add database nodes to IoT solutions including how to leverage MySQL high availability, including examples of how to protect data from node outages using advanced features of MySQL. The book closes with a comparison of raw and transformed data showing how transformed data can improve understandability and help you cut through a clutter of superfluous data toward the goal of mining nuggets of useful knowledge. In this book, you'll learn to: Understand the crisis of vast volumes of data from connected devices Transform data to improve reporting and reduce storage volume Store and aggregate your IoT data across multiple database servers Build localized, low-cost MySQL database servers using small and inexpensive computers Connect Arduino boards and other devices directly to MySQL database servers Build high availability MySQL solutions among low-power computing devices

This book addresses researchers and graduate students at the forefront of study/research on the Internet of Things (IoT) by presenting state-of-the-art research together with the current and future challenges in building new smart applications (e.g., Smart Cities, Smart Buildings, and Industrial IoT) in an efficient, scalable, and sustainable way. It covers the main pillars of the IoT world (Connectivity, Interoperability, Discoverability, and Security/Privacy), providing a comprehensive look at the current technologies, procedures, and architectures.

Written for advanced study in digital systems design, Roth/John's DIGITAL SYSTEMS DESIGN USING VHDL, 3E integrates the use of the industry-standard hardware description language, VHDL, into the digital design process. The book begins with a valuable review of basic logic design concepts before introducing the fundamentals of VHDL. The book concludes with detailed coverage of advanced VHDL topics. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Interact with the world and rapidly prototype IoT applications using Python About This Book Rapidly prototype even complex IoT applications with Python and put them to practical use Enhance your IoT skills with the most up-to-date applicability in the field of wearable tech, smart environments, and home automation Interact with hardware, sensors, and actuators and control your DIY IoT projects through Python Who This Book Is For The book is ideal for Python developers who want to explore the tools in the Python ecosystem in order to build their own IoT applications and work on IoT-related projects. It is also a very useful resource for developers with experience in other programming languages that want to easily prototype IoT applications with the Intel Galileo Gen 2 board. What You Will Learn Prototype and develop IoT solutions from scratch with Python as the programming language Develop IoT projects with Intel Galileo Gen 2 board along with Python Work with the different components included in the boards using Python and the MRAA library Interact with sensors, actuators, and shields Work with UART and local storage Interact with any electronic device that supports the I2C bus Allow mobile devices to interact with the board Work with real-time IoT and cloud services Understand Big Data and IoT analytics In Detail Internet of Things (IoT) is revolutionizing the way devices/things interact with each other.

And when you have IoT with Python on your side, you'll be able to build interactive objects and design them. This book lets you stay at the forefront of cutting-edge research on IoT. We'll open up the possibilities using tools that enable you to interact with the world, such as Intel Galileo Gen 2, sensors, and other hardware. You will learn how to read, write, and convert digital values to generate analog output by programming Pulse Width Modulation (PWM) in Python. You will get familiar with the complex communication system included in the board, so you can interact with any shield, actuator, or sensor. Later on, you will not only see how to work with data received from the sensors, but also perform actions by sending them to a specific shield. You'll be able to connect your IoT device to the entire world, by

integrating WiFi, Bluetooth, and Internet settings. With everything ready, you will see how to work in real time on your IoT device using the MQTT protocol in python. By the end of the book, you will be able to develop IoT prototypes with Python, libraries, and tools. Style and approach This book takes a tutorial-like approach with mission critical chapters. The initial chapters are introductions that set the premise for useful examples covered in later chapters.

The Intel Galileo board is the first in a family of Arduino-certified development and prototyping boards based on Intel architecture. Intel provides Intel IoT Developer Kit which you can build and deploy application on top of Intel Galileo board. This book helps you getting started with Intel IoT and Intel Galileo. The following is a list of highlight topics: * Preparing Development Environment * Working with Arduino IDE Software * Accessing Internal Linux OS * Connecting to Internet Network * Yocto Embedded Linux-based OS * Intel Galileo I/O Programming from Yocto Linux. It covers topics about GPIO, UART, SPI and I2C * Working with XBee IEEE 802.15.4 Code samples are be provided as illustration with written in Python, C and Node.js.

Write powerful programs for your Intel® Galileo—no experience required! This hands-on guide offers a step-by-step introduction to programming the Intel® Galileo using Arduino™ software. Written by an experienced electronics hobbyist, Programming the Intel® Galileo: Getting Started with the Arduino™-Compatible Development Board shows how to set up your board, configure the software, and quickly start writing sketches. You will discover how to work with the Galileo's inputs and outputs, use libraries, interface with the Web, and control external hardware. From there, you will learn to engineer and program your own useful and fun Galileo gadgets. • Explore the features and capabilities of the Intel® Galileo • Power up your board and install the Arduino IDE • Learn C programming basics and start writing sketches • Control LEDs, LCD, and servo motors • Process input from temperature and light sensors • Connect to the Internet through Ethernet and WiFi • Share sensor readings and other data via the cloud • Go further and design, build, and test your own projects

This book constitutes the refereed post-conference proceedings of the 4th International Workshop on Lightweight Cryptography for Security and Privacy, LightSec 2015, held in Bochum, Germany, in September 2015. The 9 full papers presented were carefully reviewed and selected from 17 submissions. The papers are organized in the following topical sections: cryptanalysis, lightweight constructions, implementation challenges.

Apress is proud to announce that Rethinking the Internet of Things was a 2014 Jolt Award Finalist, the highest honor for a programming book. And the amazing part is that there is no code in the book. Over the next decade, most devices connected to the Internet will not be used by people in the familiar way that personal computers, tablets and smart phones are. Billions of interconnected devices will be monitoring the environment, transportation systems, factories, farms, forests, utilities, soil and weather conditions, oceans and resources. Many of these sensors and actuators will be networked into autonomous sets, with much of the information being exchanged machine-to-machine directly and without human involvement. Machine-to-machine communications are typically terse. Most sensors and actuators will report or act upon small pieces of information - "chirps". Burdening these devices with current network protocol stacks is inefficient, unnecessary and unduly increases their cost of ownership. This must change. The architecture of the Internet of Things must evolve now by incorporating simpler protocols toward at the edges of the network, or remain forever inefficient. Rethinking the Internet of Things describes reasons why we must rethink current approaches to the Internet of Things. Appropriate architectures that will coexist with existing networking protocols are described in detail. An architecture comprised of integrator functions, propagator nodes, and end devices, along with their interactions, is explored.

A Systematic Approach to Learn the Principles, Paradigms and Applications of Internet of Things Key Featuresa- IoT applications in various sectors like Education, Smart City, Politics, Healthcare, Agriculture, etc.a- Adoption of the IoT technology and strategies for various sectorsa- To present case studies and innovative applications of the IoTa- To analyze and present the state of the art of the IoT and related technologies and methodologiesa- To propose new models, practical solutions and technological advances of the IoTDescriptionIn this book, Principles, Paradigm frameworks, and Applications of IoT (Internet of Things) in the modern era are presented. It also provides a sound understanding of the IoT concepts, architecture, and applications, and improves the awareness of readers about IoT technologies and application areas. A key objective of this book is to provide a systematic source of reference for all aspects of IoT. This book comprises nine chapters with close co-operation and contributions from four different authors, spanning across four countries and providing a global, broad perspective on major topics on the Internet of Things.What will you learna- Become aware of the IoT components, their connectivity to form the IoT altogether, and future possibilities with IoT.a- Understand how the various components of cloud computing work together to form the basic architecture of cloud computing.a- Examine the relationship between the various layers in the IoT architecture.a- Understand the programming framework for the Internet of Things (IoT) and various programming paradigms.Who this book is forThis book is intended for professionals, researchers, instructors, and designers of a smart system, who will benefit from reading this book.Table of Contents1. IoT Introduction2. IoT Architectures and Protocols3. Programming Framework for IoT4. Virtualization and IoT5. Security, Privacy and Challenges in IoT6. IoT Applications Areas7. IoT and Cloud8. Smart City Using IoT integration9. Case Studies10. Important Key Terms11. References About the AuthorDr Kamlesh Lakhwani works as an Associate Professor in the Department of Computer Science and Engineering at Lovely Professional University, Punjab, India. He has an excellent academic background and a rich experience of 13+ years as an academician and researcher in Asia. He is certified by Google and Coursera for the demanding course "e;Architecting with Google Compute Engine"e;. He has several awards to his credit, such as Best Research Paper Award and Research Appreciation Award from Lovely Professional University, Punjab, India; topper for course Cloud Computing by NPTEL (an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras, and Roorkee) and Indian Institute of Science (IISc); Appreciation Award for "e;Commendable Contribution in Academics and All-round Development"e; from the Management of VIT, Jaipur, Rajasthan, India; and three Performance Incentives Award from Poornima College of Engineering, Jaipur, Rajasthan, India.

He is an active member of many international societies/associations such as CSI, ICSES, and IAENG. Under the institute-industry linkage program, he delivers expert lectures on varied themes pertaining to Computer Science and Information Technology. As a prolific writer in the arena of Computer Sciences and Engineering, he has penned down a number of learning material on C, C++, Multimedia Systems, Cloud Computing, etc. He has one published patent in his credit and has contributed to more than 40 research papers in the conferences/journals/seminars of international and national repute. His area of interest includes Cloud Computing, Internet of Things, Computer Vision, Image Processing, Video Processing, and Machine Learning. LinkedIn Profile: <https://www.linkedin.com/in/dr-kamlesh-lakhwani-7119944b/> Dr Hemant Kumar Gianey obtained his PhD from Rajasthan; M.Tech (CSE) from the Rajasthan Technical University, Kota, Rajasthan; and B.E. from the Rajasthan University, Jaipur, Rajasthan, India. Presently, he is working as a Post-Doctoral Researcher in the National Chen Kung University of Taiwan, and as a lecturer at Thapar Institute of Engineering and Technology, Patiala, Punjab, India. He has about 15 years' experience (8 years in teaching and 7 years in the industry). His research interests include Big Data Analytics, Data Mining, and Machine Learning. He has conducted many workshops/FDPs (Faculty Development Programs) on Big Data Analytics at different colleges in India. He has also delivered guest lectures in colleges/universities in India. He has published 15 research papers in peer-reviewed international journals and conferences. Dr Hemant is also a reviewer of various reputed international journals in Elsevier, Springer, IEEE, Bentham Science, and IOS Press. He is an active member and helps organize many international seminars, workshops, and international conferences. LinkedIn Profile: <https://www.linkedin.com/in/dr-hemant-kumar-gianey-05174186/> Joseph Kofi Wireko is a full-time faculty member at the Faculty of IT-Business of the Ghana Technology University College (GTUC) in Accra, and Research Fellow in the Aalborg University, Denmark. He has over 20 years' experience in Academics, Industries, and Research work in Africa and Europe. He holds a Master of Science degree (MSc.) in International Marketing and Strategy from the Norwegian School of Management (BI). He also has a Master of Business Administration (MBA-marketing) degree from the University of Ghana after successfully completing his undergraduate studies in Geography and Resource Development with Political Science (B.A. Hons.) from the same university. Joseph's recent academic achievement, prior to undertaking his PhD studies (Aalborg University, Denmark), has been the completion of a post-graduate Certificate in Higher Education (PgCert HE) from the University of Coventry (UK). His recent research interest is in the studies of the intersection of information technology and marketing. He is interested in how to leverage technology, particularly the Internet in the socio-economic challenges in developing countries, in the area of smart cities concept application, digital marketing, online retailing, and the sharing economy. On one hand, he studies how data, particularly data that profiles individuals and depicts their social relationships, is gathered, processed and applied by firms to acquire and retain customers; on the other hand, he studies how stakeholders, particularly municipal and city authorities and policymakers, can leverage the presence and the ubiquitous nature of the Internet in creating demand-driven and multi-modal transportation systems, especially in developing countries. LinkedIn Profile: <https://www.linkedin.com/in/joseph-wireko-19048a14/> Kamal Kant Hiran works as an Assistant Professor in the School of Engineering at the Sir Padampat Singhanian University (SPSU), Udaipur, Rajasthan, India, and also as a Research Fellow at the Aalborg University, Copenhagen, Denmark. He has a rich experience of 15+ years as an academician and researcher in Asia, Africa, and Europe. He has several awards to his credit, such as International travel grant for Germany from ITS Europe, Gold Medal Award in M. Tech (ICT), IEEE Ghana Section Award, IEEE Senior Member Recognition, IEEE Student Branch Award, Elsevier Reviewer Recognition Award, and the Best Research Paper Award from the University of Gondar, Ethiopia. He has published 38 research papers in peer-reviewed international journals and conferences. He has authored the book, "e;Cloud Computing: Concepts, Architecture, and Applications"e;, which was published in 2019 by Asia's largest publisher, BPB, New Delhi. He has also authored the book, "e;The Proliferation of Smart Devices on Mobile Cloud Computing"e;, which was published by Lambert Academic Publishing, Germany. He is a reviewer and an editorial board member of various reputed international journals in Elsevier, Springer, IEEE Transactions, Bentham Science, IGI Global, IJSET, IJTEE, IJSTR, and IJERT. He is an active member and helps organize many international seminars, workshops, and conferences in India, Ghana, Liberia, Denmark, Germany, Jordan, and Ethiopia. Web: <http://www.kamalhiran.in/> LinkedIn Profile: <https://www.linkedin.com/in/kamal-kant-hiran-4553b643/>

The fourth edition of Embedded Systems takes a big leap from the fundamentals of hardware to Edge Computing, Embedded IoT & Embedded AI. The book discusses next generation embedded systems topics, such as embedded SoC, Exascale computing systems and embedded systems' tensor processing units. This thoroughly updated edition serves as a textbook for engineering students and reference book for students of software-training institutions and embedded-systems-design professionals. Salient Features: 1. New chapters on IoT system architecture and design & Embedded AI 2. Case studies, such as, of Automatic Chocolate Vending Machine and Automobile Cruise Control 3. Bloom's Taxonomy-based chapter structure 4. Rich Pedagogy o 1000+ Self-assessment questions o 150+ MCQs o 220+ Review questions o 200+ Practice exercises High-Performance Apparel: Materials, Development, and Applications covers the materials and techniques used in creating high-performance apparel, the technical aspects of developing high-performance garments, and an array of applications for high-performance clothing and wearable technology. Part One covers fabric construction for high-performance garments, from fiber types and spinning methods, to weaving, knitting, finishing, and joining techniques. Development of high-performance apparel is covered in Part Two, with particular emphasis on design and product development for function and wearer comfort. Part Three covers a range of applications and wearable technology that make use of high-performance apparel, including chapters on sportswear, protective clothing, and medical, military, and intelligent textiles. The book provides an excellent resource for all those engaged in garment development and production, and for academics engaged in research into apparel technology and textile science. Offers a range of

perspectives on high-performance apparel from an international team of authors with diverse expertise Provides systematic and comprehensive coverage of the topic from fabric construction, through apparel design and development, to the range of current and potential applications Presents an excellent resource for all those engaged in garment development and production, and for academics engaged in research

This book serves as a single-source reference to the state-of-the-art in Internet of Things (IoT) platforms, services, tools, programming languages, and applications. In particular, the authors focus on IoT-related requirements such as low-power, time-to-market, connectivity, reliability, interoperability, security, and privacy. Authors discuss the question of whether we need new IoT standardization bodies or initiatives, toward a fully connected, cyber-physical world. Coverage includes the research outcomes of several, current European projects related to IoT platforms, services, APIs, tools, and applications.

This handbook provides a glimpse of the research that is underway in smart cities, with an examination of the relevant issues. It describes software infrastructures for smart cities, the role of 5G and Internet of things in future smart cities scenarios, the use of clouds and sensor-based devices for monitoring and managing smart city facilities, a variety of issues in the emerging field of urban informatics, and various smart city applications. Handbook of Smart Cities includes fifteen chapters from renowned worldwide researchers working on various aspects of smart city scale cyber-physical systems. It is intended for researchers, developers of smart city technologies and advanced-level students in the fields of communication systems, computer science, and data science. This handbook is also designed for anyone wishing to find out more about the on-going research thrusts and deployment experiences in smart cities. It is meant to provide a snapshot of the state-of-the-art at the time of its writing in several software services and cyber infrastructures as pertinent to smart cities. This handbook presents application case studies in video surveillance, smart parking, and smart building management in the smart city context.

Unique experiences in designing and implementing the applications or the issues involved in developing smart city level applications are described in these chapters. Integration of machine learning into several smart city application scenarios is also examined in some chapters of this handbook.

This book constitutes the thoroughly refereed post-conference proceedings of the Third International Conference on Mobile, Secure and Programmable Networking, held in Paris, France, in June 2017. The 17 papers presented in this volume were carefully reviewed and selected from 35 submissions. They discuss new trends in networking infrastructures, security, services and applications while focusing on virtualization and cloud computing, network programming, software defined networks (SDN) and their security.

This book constitutes the thoroughly refereed post-workshop proceedings of the Second International Symposium, SETE 2017, held in conjunction with ICWL 2017, Cape Town, South Africa, in September 2017. The 52 full and 13 short papers were carefully reviewed and selected from 123 submissions. This symposium attempts to provide opportunities for the crossfertilization of knowledge and ideas from researchers in diverse fields that make up this interdisciplinary research area.

Getting Started with the Intel Galileo gets you up and running with this new, x86-powered board that was developed in collaboration between Arduino and Intel. You'll learn how to set it up, connect it to your computer, and begin programming. You'll learn how to build electronics projects around the Galileo, and you'll explore the features and power that make it different from all the boards that came before.

Developed in collaboration with the Intel Galileo team, and in consultation with members of the Arduino team, this is the definitive introduction to Intel's new board for makers.

This book reports on topics at the interface between manufacturing and materials engineering, with a special emphasis on design and simulation issues. Specifically, it covers the development of CAx technologies for product design, the implementation of smart manufacturing systems and Industry 4.0 strategies, topics in technological assurance, numerical simulation and experimental studies on cutting, milling, grinding, pressing and profiling processes, as well as the development and implementation of new advanced materials. Based on the 3rd International Conference on Design, Simulation, Manufacturing: The Innovation Exchange (DSMIE-2020), held on June 9-12, 2020 in Kharkiv, Ukraine, this first volume in a two-volume set provides academics and professionals with extensive information on the latest trends, technologies, challenges and practice-oriented lessons learned in the above-mentioned areas.

This book constitutes the proceedings of the 18th International Conference on Cryptographic Hardware and Embedded Systems, CHES 2016, held in Santa Barbara, CA, USA, in August 2016. The 30 full papers presented in this volume were carefully reviewed and selected from 148 submissions. They were organized in topical sections named: side channel analysis; automotive security; invasive attacks; side channel countermeasures; new directions; software implementations; cache attacks; physical unclonable functions; hardware implementations; and fault attacks.

Intel® Galileo and Intel® Galileo Gen 2: API Features and Arduino Projects for Linux Programmers provides detailed information about Intel® Galileo and Intel® Galileo Gen 2 boards for all software developers interested in Arduino and the Linux platform. The book covers the new Arduino APIs and is an introduction for developers on natively using Linux. Author Manoel Carlos Ramon is a member of the Intel Galileo development team; in this book he draws on his practical experience in working on the Galileo project as he shares the team's findings, problems, fixes, workarounds, and techniques with the open source community. His areas of expertise are wide-ranging, including Linux-embedded kernel and device drivers, C/C++, Java, OpenGL, Assembler, Android NDK/SDK/ADK, and 2G/3G/4G modem integration. He has more than 17 years of experience in research and development of mobile devices and embedded circuits. His personal blog about programming is BytesThink (www.bytesthink.com).

This book starts by teaching you the essentials of the Intel Galileo board, its components, how to wire it, and how to use it safely. The book will teach you how to use and combine simple sensors to build more complex connected objects with the help of an Internet connection. You'll also learn how to control and read from your sensors by building a number of interesting projects. Finally, the book will familiarize you with the art of controlling your objects using mobile devices. By the end of the book, you'll be able to understand the key concepts of the Internet of Things, and what a "Thing" truly is. This book will make you ready and also more aware of what you can do with a Galileo board, while inspiring you with more ideas to build your own home projects.

Wearable technology can range anywhere between activity trackers to prosthetics. These new advancements are continuously progressing and becoming a part of daily life. Examining Developments and Applications of Wearable Devices in Modern Society is a pivotal reference source for the most innovative research on the expansion of wearable computing and technology. Featuring coverage on a broad range of topics such as stroke monitoring, augmented reality, and cancer detection, this publication is ideally designed for academicians, researchers, and students seeking current research on the challenges and benefits of the latest wearable devices.

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