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Embedded Systems For Smart Appliances And Energy Management

This volume constitutes the refereed proceedings of the Second International Conference on Intelligent Information Technologies, ICIIT 2017, held in Chennai, India, in December 2017. The 20 full papers and 7 short papers presented were carefully reviewed and selected from 117 submissions. They feature research on the Internet of Things (IoT) and are organized in the following topical sections: IoT enabling

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technologies; IoT security; social IoT; web of things; and IoT services and applications.

This comprehensive textbook provides a broad and in-depth overview of embedded systems architecture for engineering students and embedded systems professionals. The book is well suited for undergraduate embedded systems courses in electronics/electrical engineering and engineering technology (EET) departments in universities and colleges, as well as for corporate training of employees. The book is a readable and practical guide covering embedded hardware, firmware, and applications. It clarifies all concepts

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with references to current embedded technology as it exists in the industry today, including many diagrams and applicable computer code. Among the topics covered in detail are: · hardware components, including processors, memory, buses, and I/O · system software, including device drivers and operating systems · use of assembly language and high-level languages such as C and Java · interfacing and networking · case studies of real-world embedded designs · applicable standards grouped by system application *

Without a doubt the most accessible, comprehensive yet comprehensible book on

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embedded systems ever written! * Leading companies and universities have been involved in the development of the content * An instant classic!

This book constitutes the thoroughly refereed post-conference proceedings of the International Conference on Industrial IoT Technologies and Applications, IoT 2016, held in GuangZhou, China, in March 2016. The volume contains 26 papers carefully reviewed and selected from 55 submissions focusing on topics such as big data, cloud computing, Internet of Things (IoT). This comprehensive introduction describes

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embedded systems for smart appliances and energy management. The text combines a multidisciplinary blend of topics from embedded systems, information technology and power engineering.

Current Research

Modern Embedded Computing

Design, Applications, and Maintenance of Cyber-Physical Systems

With C and GNU Development Tools

Engineering Secure Future Internet Services and Systems

Second International Conference on Intelligent

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Information Technologies. ICIIT 2017, Chennai, India, December 20-22, 2017, Proceedings
Constructive Side-Channel Analysis and Secure Design

An introduction to the engineering principles of embedded systems, with a focus on modeling, design, and analysis of cyber-physical systems. The most visible use of computers and software is processing information for human consumption. The vast majority of computers in use, however, are much less visible. They run the engine, brakes, seatbelts, airbag, and audio system in your car. They digitally encode your voice and construct a radio signal to send it from your cell phone

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to a base station. They command robots on a factory floor, power generation in a power plant, processes in a chemical plant, and traffic lights in a city. These less visible computers are called embedded systems, and the software they run is called embedded software. The principal challenges in designing and analyzing embedded systems stem from their interaction with physical processes. This book takes a cyber-physical approach to embedded systems, introducing the engineering concepts underlying embedded systems as a technology and as a subject of study. The focus is on modeling, design, and analysis of cyber-physical systems, which integrate computation, networking, and physical processes. The second edition offers two new

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chapters, several new exercises, and other improvements. The book can be used as a textbook at the advanced undergraduate or introductory graduate level and as a professional reference for practicing engineers and computer scientists. Readers should have some familiarity with machine structures, computer programming, basic discrete mathematics and algorithms, and signals and systems.

In today's business in motion environments, workers expect to be connected to their critical business processes while on-the-go. It is imperative to deliver more meaningful user engagements by extending business processes to the mobile working environments. This IBM® Redbooks® publication

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provides an overview of the market forces that push organizations to reinvent their process with Mobile in mind. It describes IBM Mobile Smarter Process and explains how the capabilities provided by the offering help organizations to mobile-enable their processes. This book outlines an approach that organizations can use to identify where within the organization mobile technologies can offer the greatest benefits. It provides a high-level overview of the IBM Business Process Manager and IBM Worklight® features that can be leveraged to mobile-enable processes and accelerate the adoption of mobile technologies, improving time-to-value. Key IBM Worklight and IBM Business Process Manager capabilities are showcased in the examples

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included in this book. The examples show how to integrate with IBM Bluemix™ as the platform to implement various supporting processes. This IBM Redbooks publication discusses architectural patterns for exposing business processes to mobile environments. It includes an overview of the IBM MobileFirst reference architecture and deployment considerations. Through use cases and usage scenarios, this book explains how to build and deliver a business process using IBM Business Process Manager and how to develop a mobile app that enables remote users to interact with the business process while on-the-go, using the IBM Worklight Platform. The target audience for this book consists of solution architects,

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developers, and technical consultants who will learn the following information: What is IBM Smarter Process Patterns and benefits of a mobile-enabled Smarter Process IBM BPM features to mobile-enable processes IBM Worklight features to mobile-enable processes Mobile architecture and deployment topology IBM BPM interaction patterns Enterprise mobile security with IBM Security Access Manager and IBM Worklight Implementing mobile apps to mobile-enabled business processes

Cyber-physical systems (CPS) can be defined as systems in which physical objects are represented in the digital world and integrated with computation, storage, and communication capabilities and are connected to

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each other in a network. The goal in the use of the CPS is integrating the dynamics of the physical processes with those of the software and networking, providing abstractions and modelling, design, and analysis techniques for the integrated whole. The notion of CPS is linked to concepts of robotics and sensor networks with intelligent systems proper of computational intelligence leading the pathway. Recent advances in science and engineering improve the link between computational and physical elements by means of intelligent systems, increasing the adaptability, autonomy, efficiency, functionality, reliability, safety, and usability of cyber-physical systems. The potential of cyber-physical systems will spread to several directions,

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including but not limited to intervention, precision manufacturing, operations in dangerous or inaccessible environments, coordination, efficiency, Maintenance 4.0, and augmentation of human capabilities. Design, Applications, and Maintenance of Cyber-Physical Systems gives insights about CPS as tools for integrating the dynamics of the physical processes with those of software and networking, providing abstractions and modelling, design, and analysis techniques for their smart manufacturing interoperation. The book will have an impact upon the research on robotics, mechatronics, integrated intelligent multibody systems, Industry 4.0, production systems management and maintenance, decision support systems, and

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Maintenance 4.0. The chapters discuss not only the technologies involved in CPS but also insights into how they are used in various industries. This book is ideal for engineers, practitioners, researchers, academicians, and students who are interested in a deeper understanding of cyber-physical systems (CPS), their design, application, and maintenance, with a special focus on modern technologies in Industry 4.0 and Maintenance 4.0.

Embedded Systems for Smart Appliances and Energy Management
Springer Science & Business Media

A Cyber-Physical Systems Approach

Trusted Computing for Embedded Systems

Smart Secure Systems – IoT and Analytics Perspective

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Software Test Attacks to Break Mobile and Embedded Devices

Proceedings of ICICV 2022

Proceedings of the AHFE 2016 International Conference on Human Factors and System Interactions, July 27-31, 2016, Walt Disney World®, Florida, USA

COST IC0804 European Conference, EE-LSDS 2013, Vienna, Austria, April 22-24, 2013, Revised Selected Papers

**This comprehensive book will guide readers through CISSP exam topics, including:
Access Control Application Development
Security Business Continuity and Disaster**

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Recovery Planning Cryptography Information Security Governance and Risk Management Legal, Regulations, Investigations and Compliance Operations Security Physical (Environmental) Security Security Architecture and Design Telecommunications and Network Security This study guide will be complete with 100% coverage of the exam objectives, real world scenarios, hands-on exercises, and challenging review questions, both in the book as well via the exclusive Sybex Test Engine. The two-volume set LNCS 12013 and 12014

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constitutes the thoroughly refereed proceedings of the 17th International Conference on Computer Aided Systems Theory, EUROCAST 2019, held in Las Palmas de Gran Canaria, Spain, in February 2019. The 123 full papers presented were carefully reviewed and selected from 172 submissions. The papers are organized in the following topical sections: Part I: systems theory and applications; pioneers and landmarks in the development of information and communication technologies; stochastic models and

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applications to natural, social and technical systems; theory and applications of metaheuristic algorithms; model-based system design, verification and simulation. Part II: applications of signal processing technology; artificial intelligence and data mining for intelligent transportation systems and smart mobility; computer vision, machine learning for image analysis and applications; computer and systems based methods and electronic technologies in medicine; advances in biomedical signal

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and image processing; systems concepts and methods in touristic flows; systems in industrial robotics, automation and IoT. The book presents a collection of peer-reviewed articles from the International Conference on Advances and Applications of Artificial Intelligence and Machine Learning - ICAAIML 2020. The book covers research in artificial intelligence, machine learning, and deep learning applications in healthcare, agriculture, business, and security. This volume contains research papers from

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academicians, researchers as well as students. There are also papers on core concepts of computer networks, intelligent system design and deployment, real-time systems, wireless sensor networks, sensors and sensor nodes, software engineering, and image processing. This book will be a valuable resource for students, academics, and practitioners in the industry working on AI applications.

Written by a team of experts at the forefront of the cyber-physical systems (CPS) revolution, this book provides an in-

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depth look at security and privacy, two of the most critical challenges facing both the CPS research and development community and ICT professionals. It explores, in depth, the key technical, social, and legal issues at stake, and it provides readers with the information they need to advance research and development in this exciting area. Cyber-physical systems (CPS) are engineered systems that are built from, and depend upon the seamless integration of computational algorithms and physical components. Advances in CPS

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will enable capability, adaptability, scalability, resiliency, safety, security, and usability far in excess of what today's simple embedded systems can provide. Just as the Internet revolutionized the way we interact with information, CPS technology has already begun to transform the way people interact with engineered systems. In the years ahead, smart CPS will drive innovation and competition across industry sectors, from agriculture, energy, and transportation, to architecture, healthcare, and

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manufacturing. A priceless source of practical information and inspiration, Security and Privacy in Cyber-Physical Systems: Foundations, Principles and Applications is certain to have a profound impact on ongoing R&D and education at the confluence of security, privacy, and CPS. Applications of Artificial Intelligence and Machine Learning Embedded Systems for Smart Appliances and Energy Management Second International Conference, DAPI 2014, Held as Part of HCI International

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2014, Heraklion, Crete, Greece, June 22-27, 2014, Proceedings

Embedded Systems Design

The ARTIST Roadmap for Research and Development

Energy Efficiency in Large Scale Distributed Systems

About Face 3

Smart homes use Internet-connected devices, artificial intelligence, protocols and numerous technologies to enable people to remotely monitor their home, as well as manage various systems

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within it via the Internet using a smartphone or a computer. A smart home is programmed to act autonomously to improve comfort levels, save energy and potentially ensure safety; the result is a better way of life. Innovative solutions continue to be developed by researchers and engineers and thus smart home technologies are constantly evolving. By the same token, cybercrime is also becoming more prevalent. Indeed, a smart home system is made up of connected devices that cybercriminals can infiltrate

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to access private information, commit cyber vandalism or infect devices using botnets. This book addresses cyber attacks such as sniffing, port scanning, address spoofing, session hijacking, ransomware and denial of service. It presents, analyzes and discusses the various aspects of cybersecurity as well as solutions proposed by the research community to counter the risks. Cybersecurity in Smart Homes is intended for people who wish to understand the architectures, protocols and different technologies used in smart

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homes.

The essential interaction design guide, fully revised and updated for the mobile age About Face: The Essentials of Interaction Design, Fourth Edition is the latest update to the book that shaped and evolved the landscape of interaction design. This comprehensive guide takes the worldwide shift to smartphones and tablets into account. New information includes discussions on mobile apps, touch interfaces, screen size considerations, and more. The new full-color interior and

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unique layout better illustrate modern design concepts. The interaction design profession is blooming with the success of design-intensive companies, priming customers to expect "design" as a critical ingredient of marketplace success. Consumers have little tolerance for websites, apps, and devices that don't live up to their expectations, and the responding shift in business philosophy has become widespread. About Face is the book that brought interaction design out of the research labs and into the everyday

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lexicon, and the updated Fourth Edition continues to lead the way with ideas and methods relevant to today's design practitioners and developers. Updated information includes: Contemporary interface, interaction, and product design methods Design for mobile platforms and consumer electronics State-of-the-art interface recommendations and up-to-date examples Updated Goal-Directed Design methodology Designers and developers looking to remain relevant through the current shift in consumer technology

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habits will find AboutFace to be a comprehensive, essential resource.

This book reports on cutting-edge research in innovative systems interfaces, with an emphasis on both lifecycle development and human-technology interaction, especially in the cases of virtual, augmented and mixed reality systems. It describes advanced methodologies and tools for evaluating and improving interface usability and covers new models, as well as case studies and good practices. The book reports on considerations of the

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human, hardware, and software factors in the process of developing interfaces for optimizing total system performance, especially innovative computing technologies for teams dealing with dynamic environments, while minimizing total ownership costs. One of the main purposes is to discuss forces currently shaping the nature of computing and systems including: the needs of decreasing hardware costs; the importance of portability, which translates to the modern tendency of hardware

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miniaturization and technologies for reducing power requirements; the necessity of a better assimilation of computation in the environment; and social concerns about access to computers and systems for people with special needs. The book, which is based on the AHFE 2016 International Conference on Human Factors and System Interactions, held on July 27-31, 2016, in Walt Disney World®, Florida, USA, offers a timely survey and practice-oriented guide for systems interface users and developers alike.

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By incorporating electrical devices, appliances and house features in a system that is controlled and monitored either remotely or on-site, smart home technologies have recently gained an increasing popularity. There are several smart home systems already available, ranging from simple on-site home monitoring to self-learning and Wi-Fi enabled systems. However, current systems do not fully make use of recent technological advancement and synergy among a variable number of sensors for

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improved data collection. For a synergistic system to be provided it needs to be modular and scalable to match exact user needs (type of applications and adequate number of sensors for each application). With an increased number of sensors intelligently placed to optimize the data collection, a wireless network is indispensable for a flexible and inexpensive installation. Such a network requires an efficient medium access control protocol to sustain a reliable system, provide flexibility in design and

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to achieve lower power consumption. This thesis brings to light practical ways to improve current smart home systems. As the main contribution of this work, we introduce a novel application-specific medium access control protocol able to support suggested improvements. In addition, a smart home prototype system is implemented to evaluate the protocol performance and prove concepts of recommended advances. This thesis covers the design of the proposed novel medium access protocol and the software/hardware

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implementation of the prototype system focusing on the monitoring and data analysis side, while providing inputs for the control side of the system. The smart home system prototype is Wi-Fi and Web connected, designed and implemented to emphasize system usability and energy efficiency.

Security and Privacy in Cyber-Physical Systems

Component-Based Software Development for Embedded Systems

Embedded Systems Architecture

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(ISC)2 CISSP Certified Information Systems Security Professional Official Study Guide
Energy Conservation for IoT Devices
Energy-Efficient Distributed Computing Systems

The Cloud in IoT-enabled Spaces

Address Errors before Users Find Them Using a mix-and-match approach, Software Test Attacks to Break Mobile and Embedded Devices presents an attack basis for testing mobile and embedded systems. Designed for testers working in the ever-expanding world of "smart"

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devices driven by software, the book focuses on attack-based testing that can be used by individuals and teams. The numerous test attacks show you when a software product does not work (i.e., has bugs) and provide you with information about the software product under test. The book guides you step by step starting with the basics. It explains patterns and techniques ranging from simple mind mapping to sophisticated test labs. For traditional testers moving into the mobile and embedded area, the book bridges the gap

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between IT and mobile/embedded system testing. It illustrates how to apply both traditional and new approaches. For those working with mobile/embedded systems without an extensive background in testing, the book brings together testing ideas, techniques, and solutions that are immediately applicable to testing smart and mobile devices.

CISSP Study Guide - fully updated for the 2021 CISSP Body of Knowledge (ISC)2 Certified Information Systems Security Professional (CISSP) Official Study Guide, 9th Edition has

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been completely updated based on the latest 2021 CISSP Exam Outline. This bestselling Sybex Study Guide covers 100% of the exam objectives. You'll prepare for the exam smarter and faster with Sybex thanks to expert content, knowledge from our real-world experience, advice on mastering this adaptive exam, access to the Sybex online interactive learning environment, and much more. Reinforce what you've learned with key topic exam essentials and chapter review questions. The three co-authors of this book bring decades of

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experience as cybersecurity practitioners and educators, integrating real-world expertise with the practical knowledge you'll need to successfully pass the CISSP exam. Combined, they've taught cybersecurity concepts to millions of students through their books, video courses, and live training programs. Along with the book, you also get access to Sybex's superior online interactive learning environment that includes: Over 900 new and improved practice test questions with complete answer explanations. This includes all of the

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questions from the book plus four additional online-only practice exams, each with 125 unique questions. You can use the online-only practice exams as full exam simulations. Our questions will help you identify where you need to study more. Get more than 90 percent of the answers correct, and you're ready to take the certification exam. More than 700 Electronic Flashcards to reinforce your learning and give you last-minute test prep before the exam A searchable glossary in PDF to give you instant access to the key terms you need to know for

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the exam New for the 9th edition: Audio Review. Author Mike Chapple reads the Exam Essentials for each chapter providing you with 2 hours and 50 minutes of new audio review for yet another way to reinforce your knowledge as you prepare. Coverage of all of the exam topics in the book means you'll be ready for: Security and Risk Management Asset Security Security Architecture and Engineering Communication and Network Security Identity and Access Management (IAM) Security Assessment and Testing Security Operations

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Software Development Security

Embedded systems are ubiquitous. They appear in cell phones, microwave ovens, refrigerators, consumer electronics, cars, and jets. Some of these embedded systems are safety- or security-critical such as in medical equipment, nuclear plants, and X-by-wire control systems in naval, ground and aerospace transportation vehicles. With the continuing shift from hardware to software, embedded systems are increasingly dominated by embedded software. Embedded software is complex. Its

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engineering inherently involves a multidisciplinary interplay with the physics of the embedding system or environment. Embedded software also comes in ever larger quantity and diversity. The next generation of premium automobiles will carry around one gigabyte of binary code. The proposed US DDX submarine is effectively a floating embedded software system, comprising 30 billion lines of code written in over 100 programming languages. Embedded software is expensive. Cost estimates are quoted at around US\$15 – 30 per

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line (from commencement to shipping). In the defense realm, costs can range up to \$100, while for highly critical applications, such as the Space Shuttle, the cost per line approximates \$1,000. In view of the exponential increase in complexity, the projected costs of future embedded software are staggering.

The Cloud in IoT-enabled Spaces addresses major issues and challenges in IoT-based solutions proposed for the Cloud. It paves the way for IoT-enabled spaces in the next

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generation cloud computing paradigm and opens the door for further innovative ideas. Topics include Cloud-based optimization in the IoT era, scheduling and routing, medium access, data caching, secure access, uncertainty, home automation, machine learning in wearable devices, energy monitoring, and plant phenotyping in farming. Smart spaces are solutions where Internet of Things (IoT)-enabling technologies have been employed towards further advances in the lifestyle. It tightly integrates with the existing

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Cloud infrastructure to impact several fields in academia and industry. The Cloud in IoT-enabled Spaces provides an overview of the issues around small spaces and proposes the most up-to-date alternatives and solutions. The objective is to pave the way for IoT-enabled spaces in the next-generation Cloud computing and open the door for further innovative ideas. International Conference on Multi disciplinary Technologies and challenges in Industry 4.0 2020 IEEE International Conference on Embedded Software and Systems (ICESS)

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Intelligent Communication Technologies and Virtual Mobile Networks

Select Proceedings of ICAAAIML 2020

Internet of Things (IoT)

Principles, Paradigms and Applications of IoT Embedded Systems Security

This State-of-the-Art Survey contains a selection of papers representing state-of-the-art results in the engineering of secure software-based Future Internet services and systems, produced by the NESSoS project researchers. The engineering approach of the Network of Excellence NESSoS,

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funded by the European Commission, is based on the principle of addressing security concerns from the very beginning in all software development phases, thus contributing to reduce the amount of software vulnerabilities and enabling the systematic treatment of security needs through the engineering process. The 15 papers included in this volume deal with the main NESSoS research areas: security requirements for Future Internet services; creating secure service architectures and secure service design; supporting programming environments for secure and composable services; enabling security

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assurance and integrating former results in a risk-aware and cost-aware software life-cycle.

Modern embedded systems are used for connected, media-rich, and highly integrated handheld devices such as mobile phones, digital cameras, and MP3 players. All of these embedded systems require networking, graphic user interfaces, and integration with PCs, as opposed to traditional embedded processors that can perform only limited functions for industrial applications. While most books focus on these controllers, *Modern Embedded Computing* provides a thorough understanding of the platform

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architecture of modern embedded computing systems that drive mobile devices. The book offers a comprehensive view of developing a framework for embedded systems-on-chips. Examples feature the Intel Atom processor, which is used in high-end mobile devices such as e-readers, Internet-enabled TVs, tablets, and net books. Beginning with a discussion of embedded platform architecture and Intel Atom-specific architecture, modular chapters cover system boot-up, operating systems, power optimization, graphics and multi-media, connectivity, and platform tuning. Companion lab materials

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compliment the chapters, offering hands-on embedded design experience. Learn embedded systems design with the Intel Atom Processor, based on the dominant PC chip architecture. Examples use Atom and offer comparisons to other platforms Design embedded processors for systems that support gaming, in-vehicle infotainment, medical records retrieval, point-of-sale purchasing, networking, digital storage, and many more retail, consumer and industrial applications Explore companion lab materials online that offer hands-on embedded design experience

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The concept of aware systems is among the most exciting trends in computing today, fueled by recent developments in pervasive computing, including new computers worn by users, embedded devices, smart appliances, sensors, and varieties of wireless networking technology. Context-Aware Pervasive Systems: The Architecture of a New Breed of Applications introduces a diverse set of application areas and provides blueprints for building context-aware behavior into applications. Reviewing the anatomy of context-aware pervasive applications, this resource covers abstract architecture. It

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examines mobile services, appliances, smart devices, software agents, electronic communication, sensor networks, security frameworks, and intelligent software agents. The book also discusses the use of context awareness for communication among people, devices, and software agents and how sensors can be aware of their own situations. Exploring the use of physical context for controlling and enhancing security in pervasive computing environments, this guide addresses mirror worlds and elucidates design perspectives based on a declarative programming language paradigm. This

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Carefully paced volume presents a timely and relevant introduction to the emergence of context-aware systems and brings together architectures and principles of context-aware computing in one source.

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

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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

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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

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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

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Design and Implementation of Application-specific Medium Access Control Protocol for Scalable Smart Home Embedded Systems

6th International Workshop, COSADE 2015, Berlin, Germany, April 13-14, 2015. Revised Selected Papers

Architectures for a New Breed of Applications Distributed, Ambient, and Pervasive Interactions About Face

A Comprehensive Guide for Engineers and Programmers

Cybersecurity in Smart Homes

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The book is a collection of high-quality research papers presented at Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), held at Francis Xavier Engineering College, Tirunelveli, Tamil Nadu, India, during February 10-11, 2022. The book shares knowledge and results in theory, methodology and applications of communication technology and mobile networks. The book covers innovative and cutting-edge work of researchers, developers and practitioners from academia and industry working in the

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area of computer networks, network protocols and wireless networks, data communication technologies and network security.

The ultimate resource for making embedded systems reliable, safe, and secure Embedded Systems Security provides: A broad understanding of security principles, concerns, and technologies Proven techniques for the efficient development of safe and secure embedded software A study of the system architectures, operating systems and

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hypervisors, networking, storage, and cryptographic issues that must be considered when designing secure embedded systems Nuggets of practical advice and numerous case studies throughout Written by leading authorities in the field with 65 years of embedded security experience: one of the original developers of the world's only Common Criteria EAL 6+ security certified software product and a lead designer of NSA certified cryptographic systems. This book is indispensable for embedded systems and

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security professionals, new and experienced. An important contribution to the understanding of the security of embedded systems. The Kleidermachers are experts in their field. As the Internet of things becomes reality, this book helps business and technology management as well as engineers understand the importance of "security from scratch." This book, with its examples and key points, can help bring more secure, robust systems to the market. Dr. Joerg Borchert, Vice President, Chip Card & Security, Infineon

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Technologies North America Corp.; President and Chairman, Trusted Computing Group Embedded Systems Security provides real-world examples of risk and exploitation; most importantly the book offers clear insight into methods used to counter vulnerabilities to build true, native security into technology. Adriel Desautels, President and CTO, Netragard, LLC. Security of embedded systems is more important than ever. The growth in networking is just one reason. However, many embedded systems developers have

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insufficient knowledge of how to achieve security in their systems. David Kleidermacher, a world-renowned expert in this field, shares in this book his knowledge and long experience with other engineers. A very important book at the right time. Prof. Dr.-Ing. Matthias Sturm, Leipzig University of Applied Sciences; Chairman, Embedded World Conference steering board Gain an understanding of the operating systems, microprocessors, and network security critical issues that must be considered when designing secure

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embedded systems Contains nuggets of practical and simple advice on critical issues highlighted throughout the text Short and to -the- point real case studies included to demonstrate embedded systems security in practice

Embedded systems now include a very large proportion of the advanced products designed in the world, spanning transport (avionics, space, automotive, trains), electrical and electronic appliances (cameras, toys, televisions, home appliances, audio systems, and cellular

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phones), process control (energy production and distribution, factory automation and optimization), telecommunications (satellites, mobile phones and telecom networks), and security (e-commerce, smart cards), etc. The extensive and increasing use of embedded systems and their integration in everyday products marks a significant evolution in information science and technology. We expect that within a short timeframe embedded systems will be a part of nearly all equipment designed or manufactured in

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Europe, the USA, and Asia. There is now a strategic shift in emphasis for embedded systems designers: from simply achieving feasibility, to achieving optimality.

Optimal design of embedded systems means targeting a given market segment at the lowest cost and delivery time possible.

Optimality implies seamless integration with the physical and electronic environment while respecting real-world constraints such as hard deadlines,

reliability, availability, robustness, power consumption, and cost. In our view,

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optimality can only be achieved through the emergence of embedded systems as a discipline in its own right.

IEEE ICES is an international forum for researchers and developers from academia, industry and government to present and discuss the science, engineering, technology and emerging ideas and trends of embedded software and systems As the fastest growing industry, embedded systems have great societal and environmental impacts Embedded software and systems, ranging from smart appliances to unmanned

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trains vehicles, have been crucial in our daily life Therefore, the design and implementation of safe and efficient embedded software and systems are of utmost importance Aspects of the embedded systems development of interest to the conference include real time schedulability logical verification with special emphasis in source code platform aspects like Dynamic Thermal Management, frequency scaling ,and multicore processors and new trends in CPS such as autonomous systems

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CISSP (ISC)2 Certified Information Systems Security Professional Official Study Guide
Industrial IoT Technologies and Applications

Internet of Things in Smart Technologies for Sustainable Urban Development

Architectures, Solutions and Technologies
Context-Aware Pervasive Systems

Introduction to Embedded Systems, Second Edition

Embedded systems and IoT A Theoretical Approach

This book aims to provide a broad view of the Embedded

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systems and IoT: A Theoretical Approach. Embedded Systems and the Internet of Things are well known in various engineering fields. It provides a logical method of explaining various complicated concepts and stepwise methods to explain important topics. Each chapter is well supported with the necessary illustrations. All the chapters in the book are arranged in a proper sequence that permits each topic to build upon earlier studies. EMBEDDED SYSTEMS AND INTERNET OF THINGS are an important research area. The techniques developed in this area so far require to be summarized appropriately. In this book, the fundamental theories of these techniques are introduced. The brief content of this book is as follows- CHAPTER 1 BASIC OF EMBEDDED SYSTEMS CHAPTER 2 EMBEDDED

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FIRMWARE CHAPTER 3 REAL TIME OPERATING SYSTEM CHAPTER 4 INTRODUCTION TO INTERNET OF THINGS CHAPTER 5 IoT PROTOCOLS CHAPTER 6 IoT ARCHITECTURE CHAPTER 7 CHALLENGES AND APPLICATIONS OF IOT CHAPTER 8 DATA ANALYTICS FOR IOT CHAPTER 9 IoT PHYSICAL DEVICES AND ENDPOINTS CHAPTER 10 INTERNET OF EVERYTHING (IoE) CHAPTER 11 IOT APPLICATIONS & CASE STUDIES

This book is original in style and method. No pains have been spared to make it as compact, perfect, and reliable as possible. Every attempt has been made to make the book a unique one. In particular, this book can be very useful for practitioners and engineers interested in this area. Hopefully, the chapters presented in this book have just done that.

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This completely updated volume presents the effective and practical tools you need to design great desktop applications, Web 2.0 sites, and mobile devices. You'll learn the principles of good product behavior and gain an understanding of Cooper's Goal-Directed Design method, which involves everything from conducting user research to defining your product using personas and scenarios. Ultimately, you'll acquire the knowledge to design the best possible digital products and services.

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

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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.

This book constitutes the thoroughly refereed post-

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conference proceedings of the 6th International Workshop, COSADE 2015, held in Berlin, Germany, in April 2015. The 17 revised full papers presented were carefully selected from 48 submissions. the focus of this workshop was on following topics: side-channel attacks, FPGA countermeasures, timing attacks and countermeasures, fault attacks, countermeasures, and Hands-on Side-channel analysis.

Computer Aided Systems Theory □ EUROCAST 2019

The Essentials of Interaction Design

International Conference, Industrial IoT 2016, GuangZhou, China, March 25-26, 2016, Revised Selected Papers

Designing Connected, Pervasive, Media-Rich Systems

Foundations, Principles, and Applications

17th International Conference, Las Palmas de Gran Canaria,

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Spain, February 17-22, 2019, Revised Selected Papers, Part

I

Concepts, Paradigms and Solutions

This book provides solution for challenges facing engineers in urban environments looking towards smart development and IoT. The authors address the challenges faced in developing smart applications along with the solutions. Topics addressed include reliability, security and financial issues in relation to all the smart and sustainable development solutions discussed. The solutions they provide are affordable, resistive to threats, and provide high reliability. The

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book pertains to researchers, academics, professionals, and students. Provides solutions to urban sustainable development problems facing engineers in developing and developed countries Discusses results with industrial problems and current issues in smart city development Includes solutions that are reliable, secure and financially sound The energy consumption issue in distributed computing systems raises various monetary, environmental and system performance concerns. Electricity consumption in the US doubled from 2000 to 2005. From a financial and environmental

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standpoint, reducing the consumption of electricity is important, yet these reforms must not lead to performance degradation of the computing systems. These contradicting constraints create a suite of complex problems that need to be resolved in order to lead to 'greener' distributed computing systems. This book brings together a group of outstanding researchers that investigate the different facets of green and energy efficient distributed computing. Key features: One of the first books of its kind Features latest research findings on emerging topics by well-known scientists Valuable research for grad students,

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postdocs, and researchers Research will greatly feed into other technologies and application domains This book constitutes revised selected papers from the Conference on Energy Efficiency in Large Scale Distributed Systems, EE-LSDS, held in Vienna, Austria, in April 2013. It served as the final event of the COST Action IC0804 which started in May 2009. The 15 full papers presented in this volume were carefully reviewed and selected from 31 contributions. In addition, 7 short papers and 3 demo papers are included in this book. The papers are organized in sections named: modeling and monitoring of power

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consumption; distributed, mobile and cloud computing; HPC computing; wired and wireless networking; and standardization issues.

This book provides a comprehensive introduction to embedded systems for smart appliances and energy management, bringing together for the first time a multidisciplinary blend of topics from embedded systems, information technology and power engineering. Coverage includes challenges for future resource distribution grids, energy management in smart appliances, micro energy generation, demand response management, ultra-low power stand by,

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smart standby and communication networks in home and building automation.

Spatial Awareness of Autonomous Embedded Systems

Extending IBM Business Process Manager to the Mobile Enterprise with IBM Worklight

Programming Embedded Systems

Practical Methods for Safe and Secure Software and Systems Development

An Overview of Current Research Trends

Advances in Human Factors and System Interactions

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This book describes the state-of-the-art in trusted computing for embedded systems. It shows how a variety of security and trusted computing problems are addressed currently and what solutions are expected to emerge in the coming years. The discussion focuses on attacks aimed at hardware and software for embedded systems, and the authors describe specific solutions to create security features. Case studies are used to present new techniques designed as industrial security solutions. Coverage includes development of tamper

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resistant hardware and firmware mechanisms for lightweight embedded devices, as well as those serving as security anchors for embedded platforms required by applications such as smart power grids, smart networked and home appliances, environmental and infrastructure sensor networks, etc. · Enables readers to address a variety of security threats to embedded hardware and software; · Describes design of secure wireless sensor networks, to address secure authentication of trusted portable devices for embedded systems; ·

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Presents secure solutions for the design of smart-grid applications and their deployment in large-scale networked and systems.

This book constitutes the refereed proceedings of the Second International Conference on Distributed, Ambient, and Pervasive Interactions, DAPI 2014, held as part of the 16th International Conference on Human-Computer Interaction, HCII 2014, held in Heraklion, Crete, Greece in June 2014, jointly with 13 other thematically conferences. The total of 1476 papers and

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220 posters presented at the HCII 2014 conferences were carefully reviewed and selected from 4766 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The 58 papers included in this volume are organized in topical

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sections on design frameworks and models for intelligent interactive environments; natural interaction; cognitive, perceptual and emotional issues in ambient intelligence; user experience in intelligent environments; developing distributed, pervasive and intelligent environments; smart cities.

Clemens Holzmann investigates the role of spatial contexts for autonomous embedded systems. The author presents concepts for recognizing, representing, and reasoning about qualitative spatial relations and their

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changes over time, as well as an appropriate architecture which has prototypically been implemented in a flexible software framework. His results show that the proposed concepts are suitable for developing spatially aware applications and that qualitatively abstracted relations can constitute an adequate basis for this purpose.

Authored by two of the leading authorities in the field, this guide offers readers the knowledge and skills needed to achieve proficiency with embedded software.