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Stanford Artech House

Increasing miniaturization of devices, components, and integrated systems requires developments in the capacity to measure, organize, and manipulate matter at the nanoscale. This textbook, first published in 2007, is a comprehensive, interdisciplinary account of the technology and science that underpin nanoelectronics, covering the underlying physics, nanostructures, nanomaterials, and nanodevices. Without assuming prior knowledge of quantum physics, this book provides a unifying framework for the basic ideas needed to understand the recent developments in the field. Numerous illustrations, homework problems and interactive Java applets help the student to appreciate the basic principles of nanotechnology, and to apply them to real problems. Written in a clear yet rigorous and interdisciplinary manner, this textbook is suitable for advanced undergraduate and graduate students in electrical and electronic engineering, nanoscience, materials, bioengineering, and chemical engineering.

PIC Microcontrollers: Know It All CRC Press

This handbook provides in a single place the essential information needed in the practical switching mode power supply (SMPS) design in an easy-to-use format. It may be as useful to the experienced designer as it will to the recent engineering grad, a student, and a hobbyist. The key covered topics: - Main practically used isolated and non-isolated converter topologies, including active PFC; - Power transformer and inductor design and estimation of the losses; - Feedback control loop relationships including transfer function with TL431; - Miscellaneous design and analysis topics, such as MOSFET switching time and losses, capacitance calculation for transient response, PCB trace characteristics, and little-known empirical equations. The covered converter topologies are: - Buck - Fly-Buck(TM) - Boost - Buck-boost (non-isolated flyback) - SEPIC - CCM and DCM isolated flyback - Forward (including active clamp forward) - Half-bridge - Phase shifted full bridge with current doubler - LLC - CCM and DCM PFC boost For each covered topology, the book provides power plant diagram, brief operation principal, basic waveforms, DC transfer function with efficiency factor, voltage and current stresses in switches and rectifiers, magnetics equations, DC and AC components of the currents in all coils, and often overlooked RMS currents in input and output capacitors. The analysis is provided for worth case input voltage. Note that this is not a textbook for learning power electronics. This handbook is for those who know the electronics basics and need a quick reference and practical engineering equations. It should speed up your design by saving time that would otherwise be spent on deriving equations and searching the literature, not to mention on re-spinning the board because of incorrectly selected magnetics, underrated components, or improperly sized PCB traces.

Handbook of Measurement in Science and Engineering CRC Press

Swarm Intelligence has recently emerged as a next-generation methodology belonging to the class of evolutionary computing. As a result, scientists have been able to explain and understand real-life processes and practices that previously remained unexplored. The Handbook of Research on Swarm Intelligence in Engineering presents the latest research being conducted on diverse topics in intelligence technologies such as Swarm Intelligence, Machine Intelligence, Optical Engineering, and Signal Processing with the goal of advancing knowledge and applications in this rapidly evolving field. The enriched interdisciplinary contents of this book will be a subject of interest to the widest forum of faculties, existing research communities, and new research aspirants from a multitude of disciplines and trades.

Official Gazette of the United States Patent and Trademark Office Cambridge University Press

Famed author Jack Ganssle has selected the very best embedded systems design material from the Newnes portfolio. The result is a

book covering the gamut of embedded design, from hardware to software to integrated embedded systems, with a strong pragmatic emphasis.

Statistics and Probability for Engineering Applications Newnes

Hispanic Engineer & Information Technology is a publication devoted to science and technology and to promoting opportunities in those fields for Hispanic Americans.

Industrial and Engineering Applications of Artificial Intelligence and Expert Systems Springer Science & Business Media

Microcontrollers are present in many new and existing electronic products, and the PIC microcontroller is a leading processor in the embedded applications market. Students and development engineers need to be able to design new products using microcontrollers, and this book explains from first principles how to use the universal development language C to create new PIC based systems, as well as the associated hardware interfacing principles. The book includes many source code listings, circuit schematics and hardware block diagrams. It describes the internal hardware of 8-bit PIC microcontroller, outlines the development systems available to write and test C programs, and shows how to use CCS C to create PIC firmware. In addition, simple interfacing principles are explained, a demonstration program for the PIC mechatronics development board provided and some typical applications outlined. *Focuses on the C programming language which is by far the most popular for microcontrollers (MCUs) *Features Proteus VSMg the most complete microcontroller simulator on the market, along with CCS PCM C compiler, both are highly compatible with Microchip tools *Extensive downloadable content including fully worked examples

Lubrication, Corrosion and Wear Springer Science & Business Media

Electrokinetic Phenomena emphasizes the impact of methods such as capillary zone electrophoresis, capillary electrochromatography, and capillary gel electrophoresis on the analysis of biomolecules. This reference reveals the electrokinetic phenomena that underlie high-performance electro-based analytical tools and vividly depicts how electro

Handbook of Industrial and Systems Engineering Elsevier

Statistics and Probability for Engineering Applications provides a complete discussion of all the major topics typically covered in a college engineering statistics course. This textbook minimizes the derivations and mathematical theory, focusing instead on the information and techniques most needed and used in engineering applications. It is filled with practical techniques directly applicable on the job. Written by an experienced industry engineer and statistics professor, this book makes learning statistical methods easier for today's student. This book can be read sequentially like a normal textbook, but it is designed to be used as a handbook, pointing the reader to the topics and sections pertinent to a particular type of statistical problem. Each new concept is clearly and briefly described, whenever possible by relating it to previous topics. Then the student is given carefully chosen examples to deepen understanding of the basic ideas and how they are applied in engineering. The examples and case studies are taken from real-world engineering problems and use real data. A number of practice problems are provided for each section, with answers in the back for selected problems. This book will appeal to engineers in the entire engineering spectrum (electronics/electrical, mechanical, chemical, and civil engineering); engineering students and students taking computer science/computer engineering graduate courses; scientists needing to use applied statistical methods; and engineering technicians and technologists. *

Filled with practical techniques directly applicable on the job *

Contains hundreds of solved problems and case studies, using real data sets *

Avoids unnecessary theory

Smart Card Research and Advanced Applications CRC Press

Speech Processing has rapidly emerged as one of the most widespread and well-understood application areas in the broader discipline of Digital Signal Processing. Besides the telecommunications applications that have hitherto been the largest users of speech processing algorithms, several non-traditional embedded processor applications are enhancing their functionality and user interfaces by utilizing various aspects of speech processing. "Speech Processing in Embedded Systems" describes several areas of speech processing, and the various algorithms and industry standards that address each of these areas. The topics covered include different types of Speech Compression, Echo Cancellation, Noise Suppression, Speech Recognition and Speech Synthesis. In addition this book explores various issues and considerations related to efficient implementation of these algorithms on real-time embedded systems, including the role played by processor CPU and peripheral functionality.

The Man Behind the Microchip John Wiley & Sons

In the areas of industry and engineering, AI techniques have become the norm in sectors including computer-aided design, intelligent manufacturing, and control. Papers in this volume represent work by both computer scientists and engineers separately and together. They directly and indirectly represent a

real collaboration between computer science and engineering, covering a wide variety of fields related to intelligent systems technology ranging from neural networks, knowledge acquisition and representation, automated scheduling, machine learning, multimedia, genetic algorithms, fuzzy logic, robotics, automated reasoning, heuristic searching, automated problem solving, temporal, spatial and model-based reasoning, clustering, blackboard architectures, automated design, pattern recognition and image processing, automated planning, speech recognition, simulated annealing, and intelligent tutoring, as well as various computer applications of intelligent systems including financial analysis, artificial

Genesis Solar Energy Project, Application for Certification, Riverside County Springer

Biochip technology has experienced explosive growth in recent years and Biochip technology describes the basic manufacturing and fabrication processes and the current range of applications of these chips. Top scientists from the biochip industry and related areas explain the diverse applications of biochips in gene sequencing, expression monitoring, disease diagnosis, tumor examination, ligand assay and drug discovery.

Navy Civil Engineer John Wiley & Sons

The triumphs and setbacks of inventor and entrepreneur Robert Noyce are illuminated in a biography that describes his colorful life in context of the evolution of the high-tech industry and the complex interrelationships among technology, business, big money, politics, and culture in Silicon Valley.

Embedded Software: Know It All Elsevier

Alphabetically arranged by state, this indispensable annual director to over 21,000 employers offers a variety of pertinent contact, business, and occupational data. - American Library Association, Business Reference and Services Section (BRASS) Completely updated to include the latest industries and employers, this guide includes complete profiles of more than 20,000 employers nationwide featuring: Full company name, address, phone numbers, and website/e-mail addresses Contacts for professional hiring A description of the companys products or services Profiles may also include: Listings of professional positions advertised Other locations Number of employees Internships offered

Embedded Multitasking Simon and Schuster

A comprehensive textbook on nanoelectronics covering the underlying physics, nanostructures, nanomaterials and nanodevices.

Embedded Systems: World Class Designs Elsevier

The Newnes Know It All Series takes the best of what our authors have written over the past few years and creates a one-stop reference for engineers involved in markets from communications to embedded systems and everywhere in between. PIC design and development a natural fit for this reference series as it is one of the most popular microcontrollers in the world and we have several superbly authored books on the subject. This material ranges from the basics to more advanced topics. There is also a very strong project basis to this learning. The average embedded engineer working with this microcontroller will be able to have any question answered by this compilation. He/she will also be able to work through real-life problems via the projects contained in the book. The Newnes Know It All Series presentation of theory, hard fact, and project-based direction will be a continual aid in helping the engineer to innovate in the workplace. Section I. An Introduction to PIC Microcontrollers Chapter 1. The PIC Microcontroller Family Chapter 2. Introducing the PIC 16 Series and the 16F84A Chapter 3. Parallel Ports, Power Supply and the Clock Oscillator Section II. Programming PIC Microcontrollers using Assembly Language Chapter 4. Starting to Program-An Introduction to Assembler Chapter 5. Building Assembler Programs Chapter 6. Further Programming Techniques Chapter 7. Prototype Hardware Chapter 8. More PIC Applications and Devices Chapter 9. The PIC 1250x Series (8-pin PIC microcontrollers) Chapter 10. Intermediate Operations using the PIC 12F675 Chapter 11. Using Inputs Chapter 12. Keypad Scanning Chapter 13. Program Examples Section III. Programming PIC Microcontrollers using PicBasic Chapter 14. PicBasic and PicBasic Pro Programming Chapter 15. Simple PIC Projects Chapter 16. Moving On with the 16F876 Chapter 17. Communication Section IV. Programming PIC Microcontrollers using MBasic Chapter 18. MBasic Compiler and Development Boards Chapter 19. The Basics-Output Chapter 20. The Basics-Digital Input Chapter 21. Introductory Stepper Motors Chapter 22. Digital Temperature Sensors and Real-Time Clocks Chapter 23. Infrared Remote Controls Section V. Programming PIC Microcontrollers using C Chapter 24. Getting Started Chapter 25. Programming Loops Chapter 26. More Loops Chapter 27. NUMB3RS Chapter 28.

Interrupts Chapter 29. Taking a Look under the Hood Over 900 pages of practical, hands-on content in one book! Huge market - as of November 2006 Microchip Technology Inc., a leading provider of microcontroller and analog semiconductors, produced its 5 BILLIONth PIC microcontroller Several points of view, giving the reader a complete 360 of this microcontroller Spinoff CRC Press

Based on the popular Artech House classic, Digital Communication Systems Engineering with Software-Defined Radio, this book provides a practical approach to quickly learning the software-defined radio (SDR) concepts needed for work in the field. This up-to-date volume guides readers on how to quickly prototype wireless designs using SDR for real-world testing and experimentation. This book explores advanced wireless communication techniques such as OFDM, LTE, WLA, and hardware targeting. Readers will gain an understanding of the core concepts behind wireless hardware, such as the radio frequency front-end, analog-to-digital and digital-to-analog converters, as well as various processing technologies. Moreover, this volume includes chapters on timing estimation, matched filtering, frame synchronization message decoding, and source coding. The orthogonal frequency division multiplexing is explained and details about HDL code generation and deployment are provided. The book concludes with coverage of the WLAN toolbox with OFDM beacon reception and the LTE toolbox with downlink reception. Multiple case studies are provided throughout the book. Both MATLAB and Simulink source code are included to assist readers with their projects in the field.

Practical Aspects of Embedded System Design using Microcontrollers Cambridge University Press

Second in the series, Practical Aspects of Embedded System Design using Microcontrollers emphasizes the same philosophy of “ Learning by Doing ” and “ Hands on Approach ” with the application oriented case studies developed around the PIC16F877 and AT 89S52, today ’ s most popular microcontrollers. Readers with an academic and theoretical understanding of embedded microcontroller systems are introduced to the practical and industry oriented Embedded System design. When kick starting a project in the laboratory a reader will be able to benefit experimenting with the ready made designs and ‘ C ’ programs. One can also go about carving a big dream project by treating the designs and programs presented in this book as building blocks. Practical Aspects of Embedded System Design using Microcontrollers is yet another valuable addition and guides the developers to achieve shorter product development times with the use of microcontrollers in the days of increased software complexity. Going through the text and experimenting with the programs in a laboratory will definitely empower the potential reader, having more or less programming or electronics experience, to build embedded systems using microcontrollers around the home, office, store, etc. Practical Aspects of Embedded System Design using Microcontrollers will serve as a good reference for the academic community as well as industry professionals and overcome the fear of the newbies in this field of immense global importance.

Electrokinetic Phenomena Newnes

A multidisciplinary reference of engineering measurement tools, techniques, and applications "When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science." — Lord Kelvin Measurement is at the heart of any engineering and scientific discipline and job function. Whether engineers and scientists are attempting to state requirements quantitatively and demonstrate compliance; to track progress and predict results; or to analyze costs and benefits, they must use the right tools and techniques to produce meaningful data. The Handbook of Measurement in Science and Engineering is the most comprehensive, up-to-date reference set on engineering and scientific measurements—beyond anything on the market today. Encyclopedic in scope, Volume 3 covers measurements in physics, electrical engineering and chemistry: Laser Measurement Techniques Magnetic Force Images using Capacitive Coupling Effect Scanning Tunneling Microscopy Measurement of Light and Color The Detection and Measurement of Ionizing Radiation Measuring Time and Comparing Clocks Laboratory-Based Gravity Measurement Cryogenic Measurements Temperature-Dependent Fluorescence Measurements Voltage and Current Transducers for Power Systems Electric Power and Energy Measurement Chemometrics for the Engineering and Measurement Sciences Liquid Chromatography Mass Spectroscopy Measurements of Nitrotyrosine-Containing Proteins Fluorescence Spectroscopy X-Ray Absorption Spectroscopy Nuclear Magnetic Resonance (NMR) Spectroscopy Near Infrared (NIR) Spectroscopy Nanomaterials Properties Chemical Sensing Vital for engineers, scientists, and technical managers in industry and government, Handbook of Measurement in Science and Engineering will also prove ideal for academics and researchers at universities and laboratories.

World Marxist Review Newnes

In an embedded system, firmware is the software that directly interfaces with the microcontroller, controlling the system ’ s function. The major forces driving the embedded firmware development process today are reduced development times, increased complexity, and the need to handle multiple tasks simultaneously. These forces translate into strenuous design requirements for embedded engineers and programmers. Many low-level embedded microcontroller designs have insufficient memory and/or architectural limitations that make the use of a real-time operating system impractical. The techniques presented in this book allow the design of robust multitasking firmware through the use of interleaved state machines. This book presents a complete overview of multitasking terminology and basic concepts. Practical criteria for task selection and state machine design are also discussed. Designing multitasking firmware is arduous, complex and fraught with potential for errors, and there is no one, “ standard way

to do it. This book will present a complete and well-organized design approach with examples and sample source code that designers can follow. Covers every aspect of design from the system level to the component level, including system timing, communicating with the hardware, integration and testing.

Biochip Technology Elsevier

Newnes has worked with Marty Brown, a leader in the field of power design to select the very best design-specific material from the Newnes portfolio. Marty selected material for its timelessness, its relevance to current power supply design needs, and its real-world approach to design issues. Special attention is given to switching power supplies and their design issues, including component selection, minimization of EMI, toroid selection, and breadboarding of designs. Emphasis is also placed on design strategies for power supplies, including case histories and design examples. This is a book that belongs on the workbench of every power supply designer! *Marty Brown, author and power supply design consultant, has personally selected all content for its relevance and usefulness *Covers best design practices for switching power supplies and power converters *Emphasis is on pragmatic solutions to commonly encountered design problems and tasks