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KEY=STM32 - ADELAIDE WASHINGTON

SOFTWARE-DEFINED RADIO FOR ENGINEERS

Artech House **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.**

ADVANCED PROGRAMMING WITH STM32 MICROCONTROLLERS

MASTER THE SOFTWARE TOOLS BEHIND THE STM32 MICROCONTROLLER

PROGRAMMING WITH STM32 NUCLEO BOARDS

BEGINNING STM32

DEVELOPING WITH FREERTOS, LIBOPENCM3 AND GCC

Apress **Using FreeRTOS and libopencm3 instead of the Arduino software environment, this book will help you develop multi-tasking applications that go beyond Arduino norms. In addition to the usual peripherals found in the typical Arduino device, the STM32 device includes a USB controller, RTC (Real Time Clock), DMA (Direct Memory Access controller), CAN bus and more. Each chapter contains clear explanations of the STM32 hardware capabilities to help get you started with the device, including GPIO and several other ST Microelectronics peripherals like USB and CAN bus controller. You'll learn how to download and set up the libopencm3 + FreeRTOS development environment, using GCC. With everything set up, you'll leverage FreeRTOS to create tasks, queues, and mutexes. You'll also learn to work with the I2C bus to add GPIO using the PCF8574 chip. And how to create PWM output for RC control using hardware timers. You'll be introduced to new concepts that are necessary to master the STM32, such as how to extend code with GCC overlays using an external Winbond W25Q32 flash chip. Your knowledge is tested at the end of each chapter with exercises. Upon completing this book, you'll be ready to work with any of the devices in the STM32 family. Beginning STM32 provides the professional, student, or hobbyist a way to learn about ARM without costing an arm! What You'll Learn Initialize and use the libopencm3 drivers and handle interrupts Use DMA to drive a SPI based OLED displaying an analog meter Read PWM from an RC control using hardware timers Who This Book Is For Experienced embedded engineers, students, hobbyists and makers wishing to explore the ARM architecture, going beyond Arduino limits.**

DIGITAL SIGNAL PROCESSING USING ARM CORTEX-M BASED MICROCONTROLLERS

THEORY AND PRACTICE

Arm Education Media **This textbook introduces readers to digital signal processing fundamentals using Arm Cortex-M based microcontrollers as demonstrator platforms. It covers foundational concepts, principles and techniques such as signals and systems, sampling, reconstruction and anti-aliasing, FIR and IIR filter design, transforms, and adaptive signal processing.**

NUCLEO BOARDS PROGRAMMING WITH THE STM32CUBEIDE

HANDS-ON IN MORE THAN 50 PROJECTS

THE CAR HACKER'S HANDBOOK

A GUIDE FOR THE PENETRATION TESTER

No Starch Press **Modern cars are more computerized than ever. Infotainment and navigation systems, Wi-Fi, automatic software updates, and other innovations aim to make driving more convenient. But vehicle technologies haven’t kept pace with today’s more hostile security environment, leaving millions vulnerable to attack. The Car Hacker’s Handbook will give you a deeper understanding of the computer systems and embedded software in modern vehicles. It begins by examining vulnerabilities and providing detailed explanations of communications over the CAN bus and between devices and systems. Then, once you have an understanding of a vehicle’s communication network, you’ll learn how to intercept data and perform specific hacks to track vehicles, unlock doors, glitch engines, flood communication, and more. With a focus on low-cost, open source hacking tools such as Metasploit, Wireshark, Kayak, can-utils, and ChipWhisperer, The Car Hacker’s Handbook will show you how to: –Build an accurate threat model for your vehicle –Reverse engineer the CAN bus to fake engine signals –Exploit vulnerabilities in diagnostic and data-logging systems –Hack the ECU and other firmware and embedded systems –Feed exploits through infotainment and vehicle-to-vehicle communication systems –Override factory settings with performance-tuning techniques –Build physical and virtual test benches to try out exploits safely If you’re curious about automotive security and have the urge to hack a two-ton computer, make The Car Hacker’s Handbook your first stop.**

THE IOT HACKER'S HANDBOOK

A PRACTICAL GUIDE TO HACKING THE INTERNET OF THINGS

Apress **Take a practioner’s approach in analyzing the Internet of Things (IoT) devices and the security issues facing an IoT architecture. You’ll review the architecture's central components, from hardware communication interfaces, such as UARTand SPI, to radio protocols, such as BLE or ZigBee. You'll also learn to assess a device physically by opening it, looking at the PCB, and identifying the chipsets and interfaces. You'll then use that information to gain entry to the device or to perform other actions, such as dumping encryption keys and firmware. As the IoT rises to one of the most popular tech trends, manufactures need to take necessary steps to secure devices and protect them from attackers. The IoT Hacker's Handbook breaks down the Internet of Things, exploits it, and reveals how these devices can be built securely. What You’ll LearnPerform a threat model of a real-world IoT device and locate all possible attacker entry points Use reverse engineering of firmware binaries to identify security issues Analyze,assess, and identify security issues in exploited ARM and MIPS based binariesSniff, capture, and exploit radio communication protocols, such as Bluetooth Low Energy (BLE), and ZigBee Who This Book is For Those interested in learning about IoT security, such as pentesters working in different domains, embedded device developers, or IT people wanting to move to an Internet of Things security role.**

PRACTICAL HARDWARE PENTESTING

A GUIDE TO ATTACKING EMBEDDED SYSTEMS AND PROTECTING THEM AGAINST THE MOST COMMON HARDWARE ATTACKS

Packt Publishing Ltd **Explore embedded systems pentesting by applying the most common attack techniques and patterns Key Features Learn various pentesting tools and techniques to attack and secure your hardware infrastructure Find the glitches in your hardware that can be a possible entry point for attacks Discover best practices for securely designing**

products Book Description Hardware pentesting involves leveraging hardware interfaces and communication channels to find vulnerabilities in a device. Practical Hardware Pentesting will help you to plan attacks, hack your embedded devices, and secure the hardware infrastructure. Throughout the book, you will see how a specific device works, explore the functional and security aspects, and learn how a system senses and communicates with the outside world. You will start by setting up your lab from scratch and then gradually work with an advanced hardware lab. The book will help you get to grips with the global architecture of an embedded system and sniff on-board traffic. You will also learn how to identify and formalize threats to the embedded system and understand its relationship with its ecosystem. Later, you will discover how to analyze your hardware and locate its possible system vulnerabilities before going on to explore firmware dumping, analysis, and exploitation. Finally, focusing on the reverse engineering process from an attacker point of view will allow you to understand how devices are attacked, how they are compromised, and how you can harden a device against the most common hardware attack vectors. By the end of this book, you will be well-versed with security best practices and understand how they can be implemented to secure your hardware. What you will learn Perform an embedded system test and identify security critical functionalities Locate critical security components and buses and learn how to attack them Discover how to dump and modify stored information Understand and exploit the relationship between the firmware and hardware Identify and attack the security functions supported by the functional blocks of the device Develop an attack lab to support advanced device analysis and attacks Who this book is for This book is for security professionals and researchers who want to get started with hardware security assessment but don't know where to start. Electrical engineers who want to understand how their devices can be attacked and how to protect against these attacks will also find this book useful.

FPGAS FOR SOFTWARE PROGRAMMERS

Springer **This book makes powerful Field Programmable Gate Array (FPGA) and reconfigurable technology accessible to software engineers by covering different state-of-the-art high-level synthesis approaches (e.g., OpenCL and several C-to-gates compilers). It introduces FPGA technology, its programming model, and how various applications can be implemented on FPGAs without going through low-level hardware design phases. Readers will get a realistic sense for problems that are suited for FPGAs and how to implement them from a software designer’s point of view. The authors demonstrate that FPGAs and their programming model reflect the needs of stream processing problems much better than traditional CPU or GPU architectures, making them well-suited for a wide variety of systems, from embedded systems performing sensor processing to large setups for Big Data number crunching. This book serves as an invaluable tool for software designers and FPGA design engineers who are interested in high design productivity through behavioural synthesis, domain-specific compilation, and FPGA overlays. Introduces FPGA technology to software developers by giving an overview of FPGA programming models and design tools, as well as various application examples; Provides a holistic analysis of the topic and enables developers to tackle the architectural needs for Big Data processing with FPGAs; Explains the reasons for the energy efficiency and performance benefits of FPGA processing; Provides a user-oriented approach and a sense for where and how to apply FPGA technology.**

THE HACKER'S HARDWARE TOOLKIT

133 GADGETS, 8 CATEGORIES

BEGINNING C FOR MICROCONTROLLERS

MAKING ELECTRONICS DANCE WITH SOFTWARE

Beginning C for Microcontrollers is written for those who have no prior programming experience in any language, but would like to learn the C programming language. While this book uses the free Arduino Integrated Development Environment (IDE) tools for its examples, the book can be used on any platform that supports a C compiler. Dr. Purdum, a retired Purdue University professor of Computer Technology, has an engaging style that walks the reader through the C programming language on a specific path that has been honed by over 40 years of teaching experience and 20 programming texts. He uses unique teaching methods, like The Backpack Analogy, The Five Programming Steps, and The Right-Left Rule, which enables the reader to avoid many of the stumbling blocks that new students often incur. His unique teaching methods lead to a more complete understanding of the more difficult elements of the C language (e.g., pointers). The book also provides help in understanding where to find compatible libraries to simplify your work and develop a better understanding of how to use those libraries.The reader is not limited to just the Arduino family (e.g., Uno, Nano, and ATMega2560) of microcontrollers. The learning experience may be used with other microcontrollers, including the STM32 (aka "Blue Pill"), ESP32, and the Teensy 4.0. All the software you need is free and download and install

instructions are included in the text. You will have your first program up and running at the end of Chapter 1!The book is written in a relaxed, yet informative, manner. Exercises at the end of the chapters helps you gauge your learning experience as you read the book. Dr. Purdum own his own software company for 17 years and the books narrative is laced with the lessons learned while running that company. The book offers a unique experience in being able to apply what you've learned.

THE INTERNET OF THINGS FOR EDUCATION

A NEW ACTOR ON THE STAGE

Springer Nature **This book is about the Internet of Things in the field of education. Specifically, it focuses on two major topics: IoT (Internet of Things) solutions to support distance education and new pedagogical approaches to support development of computational thinking with educational devices possessing the characteristics of IoT. As the educational landscape has dramatically changed in times of global pandemic, online resources and media, such as IoT, have become increasingly important. This situation compels all educational scholars, researchers and practitioners to search for new solutions, new educational pathways and new agents for knowledge development to support learning. This book presents the possibilities of IoT as both a catalyst and performance tool for education. The convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems can serve as tools for learning support and this book details exactly how these powerful tools can be utilized to best effect.**

EMBEDDED SYSTEMS WITH ARM CORTEX-M3 MICROCONTROLLERS IN ASSEMBLY LANGUAGE AND C

This book introduces basic programming of ARM Cortex chips in assembly language and the fundamentals of embedded system design. It presents data representations, assembly instruction syntax, implementing basic controls of C language at the assembly level, and instruction encoding and decoding. The book also covers many advanced components of embedded systems, such as software and hardware interrupts, general purpose I/O, LCD driver, keypad interaction, real-time clock, stepper motor control, PWM input and output, digital input capture, direct memory access (DMA), digital and analog conversion, and serial communication (USART, I2C, SPI, and USB). The book has the following features: Emphasis on structured programming and top-down modular design in assembly language Line-by-line translation between C and ARM assembly for most example codes Mixture of C and assembly languages, such as a C program calling assembly subroutines, and an assembly program calling C subroutines Implementation of context switch between multiple concurrently running tasks according to a round-robin scheduling algorithm"

ADVANCES IN SENSORS: REVIEWS, VOL. 3

Lulu.com **Sensors, Transducers, Signal Conditioning and Wireless (Book Series 'Advances in Sensors: Reviews', Vol. 3) is a premier sensor review source and contains 19 chapters with sensor related state-of-the-art reviews and descriptions of latest achievements written by 55 authors from academia and industry from 19 countries: Botswana, Canada, China, Finland, France, Germany, India, Jordan, Mexico, Portugal, Romania, Russia, Senegal, Serbia, South Africa, South Korea, UK, Ukraine and USA. Coverage includes current developments in physical sensors and transducers, chemical sensors, biosensors, sensing materials, signal conditioning energy harvesters and wireless sensor networks. This book ensures that readers will stay at the cutting edge of the field and get the right and effective start point and road map for the further researches and developments.**

SMART SENSORS AT THE IOT FRONTIER

Springer **This book describes technology used for effective sensing of our physical world and intelligent processing techniques for sensed information, which are essential to the success of Internet of Things (IoT). The authors provide a multidisciplinary view of sensor technology from materials, process, circuits, to big data domains and they showcase smart sensor systems in real applications including smart home, transportation, medical, environmental, agricultural, etc. Unlike earlier books on sensors, this book provides a “global” view on smart sensors covering abstraction levels from device, circuit, systems, and algorithms.**

EXPERIMENTAL METHODS IN RF DESIGN

Amer Radio Relay League

INTELLIGENT ROBOTICS AND APPLICATIONS

11TH INTERNATIONAL CONFERENCE, ICIRA 2018, NEWCASTLE, NSW, AUSTRALIA, AUGUST 9–11, 2018, PROCEEDINGS, PART I

Springer **The two volume set LNAI 10984 and LNAI 10985 constitutes the refereed proceedings of the 11th International Conference on Intelligent Robotics and Applications, ICIRA 2018, held in Newcastle, NSW, Australia, in August 2018. The 81 papers presented in the two volumes were carefully reviewed and selected from 129 submissions. The papers in the first volume of the set are organized in topical sections on multi-agent systems and distributed control; human-machine interaction; rehabilitation robotics; sensors and actuators; and industrial robot and robot manufacturing. The papers in the second volume of the set are organized in topical sections on robot grasping and control; mobile robotics and path planning; robotic vision, recognition and reconstruction; and robot intelligence and learning.**

EMBEDDED SYSTEMS WITH ARM CORTEX-M MICROCONTROLLERS IN ASSEMBLY LANGUAGE AND C: THIRD EDITION

This book introduces basic programming of ARM Cortex chips in assembly language and the fundamentals of embedded system design. It presents data representations, assembly instruction syntax, implementing basic controls of C language at the assembly level, and instruction encoding and decoding. The book also covers many advanced components of embedded systems, such as software and hardware interrupts, general purpose I/O, LCD driver, keypad interaction, real-time clock, stepper motor control, PWM input and output, digital input capture, direct memory access (DMA), digital and analog conversion, and serial communication (USART, I2C, SPI, and USB).

DIGITAL COMMUNICATION SYSTEMS ENGINEERING WITH SOFTWARE-DEFINED RADIO

Artech House **"This unique resource provides you with a practical approach to quickly learning the software-defined radio concepts you need to know for your work in the field. By prototyping and evaluating actual digital communication systems capable of performing "over-the-air" wireless data transmission and reception, this volume helps you attain a first-hand understanding of critical design trade-offs and issues. Moreover you gain a sense of the actual "real-world" operational behavior of these systems. With the purchase of the book, you gain access to several ready-made Simulink experiments at the publisher's website. This collection of laboratory experiments, along with several examples, enables you to successfully implement the designs discussed the book in a short period of time. These files can be executed using MATLAB version R2011b or later. "**

AMES RESEARCH CENTER

MOFFETT FIELD, CALIFORNIA

SOFTWARE DEFINED RADIO

ARCHITECTURES, SYSTEMS AND FUNCTIONS

John Wiley & Sons **Software defined radio (SDR) is a hot topic in the telecommunications field, with regard to wireless technology. It is one of the most important topics of research in the area of mobile and personal communications. SDR is viewed as the enabler of global roaming and a platform for the introduction of new technologies and services into existing live networks. It therefore gives networks a greater flexibility into mobile communications. It bridges the inter-disciplinary gap in the field as SDR covers two areas of development, namely software development and digital signal processing and the internet. It extends well beyond the simple re-configuration of air interface parameters to cover the whole system from the network to service creation and application development. Reconfigurability entails the pervasive use of software reconfiguration, empowering upgrades or patching of any element of the network and of the services and applications running on it. It cuts across the types of bearer radio systems (Paging to cellular, wireless local area network to microwave, terrestrial to satellite, personal communications to broadcasting) enable the integration of many of today's disparate systems in the same hardware platform. Also it cuts across generation (second to third to fourth). This volume complements the already published volumes 1 and 2 of the Wiley Series in Software Radio. The book discusses the requirements for reconfigurability and then introduces network architectures and functions for reconfigurable terminals. Finally it deals with reconfiguration in the network. The book also provides a comprehensive view on reconfigurability in three very active research projects as CAST, MOBIVAS and TRUST/SCOUT. Key features include: Presents new research in wireless communications Summarises the results of an extensive research program on software defined radios in Europe Provides a comprehensive view on**

reconfigurability in three very active research projects as CAST (Configurable radio with Advanced Sodftware Technology), MOBIVAS (Downloadable MOBIle Value Added Services through Software Radio and Switching Integrated Platforms), TRUST (Transparently Re-configurable Ubiquitous Terminal) and SCOUT (Smart User-Centric Communciation Environment).

RTL HARDWARE DESIGN USING VHDL

CODING FOR EFFICIENCY, PORTABILITY, AND SCALABILITY

John Wiley & Sons **The skills and guidance needed to master RTL hardware design This book teaches readers how to systematically design efficient,portable, and scalable Register Transfer Level (RTL) digitalcircuits using the VHDL hardware description language and synthesissoftware. Focusing on the module-level design, which is composed offunctional units, routing circuit, and storage, the bookillustrates the relationship between the VHDL constructs and theunderlying hardware components, and shows how to develop codes thatfaithfully reflect the module-level design and can be synthesizedinto efficient gate-level implementation. Several unique features distinguish the book: * Coding style that shows a clear relationship between VHDLconstructs and hardware components * Conceptual diagrams that illustrate the realization of VHDLcodes * Emphasis on the code reuse * Practical examples that demonstrate and reinforce designconcepts, procedures, and techniques * Two chapters on realizing sequential algorithms in hardware * Two chapters on scalable and parameterized designs andcoding * One chapter covering the synchronization and interface betweenmultiple clock domains Although the focus of the book is RTL synthesis, it also examinesthe synthesis task from the perspective of the overall developmentprocess. Readers learn good design practices and guidelines toensure that an RTL design can accommodate future simulation,verification, and testing needs, and can be easily incorporatedinto a larger system or reused. Discussion is independent oftechnology and can be applied to both ASIC and FPGA devices. With a balanced presentation of fundamentals and practicalexamples, this is an excellent textbook for upper-levelundergraduate or graduate courses in advanced digital logic.Engineers who need to make effective use of today's synthesissoftware and FPGA devices should also refer to this book.**

DIGITAL DESIGN (VERILOG)

AN EMBEDDED SYSTEMS APPROACH USING VERILOG

Elsevier **Digital Design: An Embedded Systems Approach Using Verilog provides a foundation in digital design for students in computer engineering, electrical engineering and computer science courses. It takes an up-to-date and modern approach of presenting digital logic design as an activity in a larger systems design context. Rather than focus on aspects of digital design that have little relevance in a realistic design context, this book concentrates on modern and evolving knowledge and design skills. Hardware description language (HDL)-based design and verification is emphasized--Verilog examples are used extensively throughout. By treating digital logic as part of embedded systems design, this book provides an understanding of the hardware needed in the analysis and design of systems comprising both hardware and software components. Includes a Web site with links to vendor tools, labs and tutorials. Presents digital logic design as an activity in a larger systems design context Features extensive use of Verilog examples to demonstrate HDL (hardware description language) usage at the abstract behavioural level and register transfer level, as well as for low-level verification and verification environments Includes worked examples throughout to enhance the reader's understanding and retention of the material Companion Web site includes links to tools for FPGA design from Synplicity, Mentor Graphics, and Xilinx, Verilog source code for all the examples in the book, lecture slides, laboratory projects, and solutions to exercises**

MULTITASKING WITH RASPBERRY PI

INSIDE RADIO: AN ATTACK AND DEFENSE GUIDE

Springer **This book discusses the security issues in a wide range of wireless devices and systems, such as RFID, Bluetooth, ZigBee, GSM, LTE, and GPS. It collects the findings of recent research by the UnicornTeam at 360 Technology, and reviews the state-of-the-art literature on wireless security. The book also offers detailed case studies and theoretical treatments – specifically it lists numerous laboratory procedures, results, plots, commands and screenshots from real-world experiments. It is a valuable reference guide for practitioners and researchers who want to learn more about the advanced research findings and use the off-the-shelf tools to explore the wireless world.**

CONTROLLER AREA NETWORK PROJECTS

The Controller Area Network (CAN) was originally developed to be used as a vehicle data bus system in passenger cars. Today, CAN controllers are available from over 20 manufacturers, and CAN is finding applications in other fields, such as medical, aerospace, process control, automation, and so on. This book is written for students, for practising engineers, for hobbyists, and for everyone else who may be interested to learn more about the CAN bus and its applications. The aim of this book is to teach you the basic principles of CAN networks and in addition the development of microcontroller based projects using the CAN bus. In summary, this book enables the reader to: Learn the theory of the CAN bus used in automotive industry; Learn the principles, operation, and programming of microcontrollers; Design complete microcontroller based projects using the C language; Develop complete real CAN bus projects using microcontrollers; Learn the principles of OBD systems used to debug vehicle electronics. You will learn how to design microcontroller based CAN bus nodes, build a CAN bus, develop high-level programs, and then exchange data in real-time over the bus. You will also learn how to build microcontroller hardware and interface it to LEDs, LCDs, and A/D converters. The book assumes that the reader has some knowledge on basic electronics. Knowledge of the C programming language will be useful in later chapters of the book, and familiarity with at least one member of the PIC series of microcontrollers will be an advantage, especially if the reader intends to develop microcontroller based projects using the CAN bus. The CD contains a special demo version of the mikroC compiler which supports the key microcontrollers including: PIC, dsPIC, PIC24, PIC32 and AVR. This special version additionally features an advanced CAN library of intuitive and simple-to-use functions to encourage programming with easy and comfortable development of CAN networks.

EMBEDDED SYSTEMS: WORLD CLASS DESIGNS

Newnes **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.**

ADVANCED TECHNOLOGIES FOR SECURITY APPLICATIONS

PROCEEDINGS OF THE NATO SCIENCE FOR PEACE AND SECURITY 'CLUSTER WORKSHOP ON ADVANCED TECHNOLOGIES', 17-18 SEPTEMBER 2019, LEUVEN, BELGIUM

Springer Nature **Technology has been the spark that ignited NATO’s interest and commitment to scientific advancement during its history. Since its creation, the Science for Peace and Security (SPS) Programme has been instrumental to NATO’s commitment to innovation, science and technological advancement. During the years, SPS has demonstrated a flexible and versatile approach to practical scientific cooperation, and has promoted knowledge-sharing, building capacity, and projected stability outside NATO territory. The priorities addressed by the SPS Programme are aligned with NATO’s strategic objectives, and aim to tackle emerging security challenges that require dynamic adaptation for the prevention and mitigation of risks. By addressing priorities such as advanced technologies, hybrid threats, and counter-terrorism, the Programme deals with new, contemporary challenges. On 17-18 September 2019, the SPS Programme gathered at the KU Leuven University a wide number of researchers from a selection of on-going and recently closed SPS projects in the field of security-related advanced technologies for a “Cluster Workshop on Advanced Technologies”. The workshop covered, in particular, the following scientific domains: communication systems, advanced materials, sensors and detectors, and unmanned and autonomous systems. This book provides an overview on how these projects have contributed to the development of new technologies and innovative solutions and recommendations for future actions in the NATO SPS programme.**

CIARCIA'S CIRCUIT CELLAR

Circuit Cellar

A SOFTWARE-DEFINED GPS AND GALILEO RECEIVER

A SINGLE-FREQUENCY APPROACH

Springer Science & Business Media **This book explore the use of new technologies in the area of satellite navigation receivers. In order to construct a reconfigurable receiver with a wide range of applications, the authors discuss receiver architecture based on software-defined radio techniques. The presentation unfolds in a user-friendly style and goes from the basics to cutting-edge research. The book is aimed at applied mathematicians, electrical engineers, geodesists, and graduate students. It may be used as a textbook in various GPS**

technology and signal processing courses, or as a self-study reference for anyone working with satellite navigation receivers.

BRATVA VOW

A FREE DARK MAFIA ROMANCE PREQUEL

Bell Press **Monsters aren't born, they are created. Katya. After spending years in hospitals, I can finally have a life. Then my mom abandons me to the care of the most breathtaking man I've ever seen. He's like the embodiment of Death, a Greek tragedy waiting to unfold. Can I break through the darkness that has a hold on him? Kristoff. My soul is black as tar. I'm a cold-hearted killer, the leader of my own Bratva. What mother in her right mind would leave a teenage daughter on my doorstep? A desperate one who's willing to make a deal with the devil. Note: This is the free prequel novella to the Bratva Royalty duet. Trigger warning: this book contains some traumas and scenes of violence. For fans of Natasha Knight, Julia Sykes, CD Reiss, Aleatha Romig, Skye Warren, Anna Zaires, Renee Rose, Carrie Ann Ryan, Penelope Ward, Lauren Blakely, Hannah Hill, Meghan March, Katee Robert. Topics: adult romance, alpha male, romantic suspense, romance series, bad boy romance, emotional read, contemporary romance, free romance books, mafia romance, novels for free romance, series books free, revenge romance, age gap romance, steamy romance books free.**

ARDUINO PROJECTS FOR AMATEUR RADIO

McGraw Hill Professional **BOOST YOUR HAM RADIO'S CAPABILITIES USING LOW-COST ARDUINO MICROCONTROLLER BOARDS! Do you want to increase the functionality and value of your ham radio without spending a lot of money? This book will show you how! Arduino Projects for Amateur Radio is filled with step-by-step microcontroller projects you can accomplish on your own--no programming experience necessary. After getting you set up on an Arduino board, veteran ham radio operators Jack Purdum (W8TEE) and Dennis Kidder (W6DQ) start with a simple LCD display and move up to projects that can add hundreds of dollars' worth of upgrades to existing equipment. This practical guide provides detailed instructions, helpful diagrams, lists of low-cost parts and suppliers, and hardware and software tips that make building your own equipment even more enjoyable. Downloadable code for all of the projects in the book is also available. Do-it-yourself projects include: LCD shield Station timer General purpose panel meter Dummy load and watt meter CW automatic keyer Morse code decoder PS2 keyboard CW encoder Universal relay shield Flexible sequencer Rotator controller Directional watt and SWR meter Simple frequency counter DDS VFO Portable solar power source**

CMOS

CIRCUIT DESIGN, LAYOUT, AND SIMULATION

John Wiley & Sons **This edition provides an important contemporary view of a wide range of analog/digital circuit blocks, the BSIM model, data converter architectures, and more. The authors develop design techniques for both long- and short-channel CMOS technologies and then compare the two.**

ARM MICROCONTROLLER INTERFACING

HARDWARE AND SOFTWARE

Elektor Electronics **Learn to interface and program hardware devices in a wide range of useful applications, using ARM7 microcontrollers and the C programming language. Examples covered in full detail include a simple LED to a multi-megabyte SD card running the FAT file system. Features of the book: Build prototype circuits on breadboard or Veroboard and interface to ARM microcontrollers; A 32-bit ARM7 microcontroller is used in interfacing and software examples; Interfacing principles apply to other ARM microcontrollers and other non-ARM microcontrollers as well; Example programs are written in the C programming language; Use only free or open source software; Download and install all programming tools from the Internet; Template project files are provided for easy project creation. Hardware -- Interface to LEDs, transistors, optocouplers, relays, solenoids, switches, keypads, LCD displays, seven segment displays, DC motors, stepper motors, external analogue signals using the ADC, RS-232, RS-485, TWI, USB, SPI and SD memory cards. Software -- Once hardware has been interfaced to a microcontroller, software must be written to control the hardware. You will learn how to write programs to operate externally interfaced hardware devices, use timers and interrupts. Also learn how to port FAT file system code for use with an SD memory card, program the PWM to produce an audio sine wave, program the PWM to speed control a DC motor and more. A chapter on more advanced ARM microcontrollers is included with an overview of some of the newest ARM microcontrollers and**

their features.

NUMERICAL COMPUTING WITH MATLAB

REVISED REPRINT

SIAM **A revised textbook for introductory courses in numerical methods, MATLAB and technical computing, which emphasises the use of mathematical software.**

DIGITALLY ASSISTED, FULLY INTEGRATED, WIDEBAND TRANSMITTERS FOR HIGH-SPEED MILLIMETER-WAVE WIRELESS COMMUNICATION LINKS

Springer **This book presents design methods and considerations for digitally-assisted wideband millimeter-wave transmitters. It addresses comprehensively both RF design and digital implementation simultaneously, in order to design energy- and cost-efficient high-performance transmitters for mm-wave high-speed communications. It covers the complete design flow, from link budget assessment to the transistor-level design of different RF front-end blocks, such as mixers and power amplifiers, presenting different alternatives and discussing the existing trade-offs. The authors also analyze the effect of the imperfections of these blocks in the overall performance, while describing techniques to correct and compensate for them digitally. Well-known techniques are revisited, and some new ones are described, giving examples of their applications and proving them in real integrated circuits.**

NAVIGATION SIGNAL PROCESSING FOR GNSS SOFTWARE RECEIVERS

Artech House **The advancement of software radio technology has provided an opportunity for the design of performance-enhanced GNSS receivers that are more flexible and easier to develop than their FPGA or ASIC based counterparts. Filling a gap in the current literature on the subject, this highly practical resource offers you an in-depth understanding of navigation signal detection and estimation algorithms and their implementation in a software radio. This unique book focuses on high precision applications for GNSS signals and an innovative RTK receiver concept based on difference correlators.You learn how to develop navigation receivers for top performance using basic algorithms, like correlation and tracking, which can be understood on an intuitive level. Additionally, the book provides you with a theoretical framework for signal estimation and detection that gives you the knowledge you need to make performance assessments without building a receiver. The theoretical treatment also gives you hints for choosing optimal algorithms for your projects in the field.**

COMPLETE ESP32 PROJECTS GUIDE.

RASPBERRY PI FOR RADIO AMATEURS

PROGRAM AND BUILD RPI-BASED HAM STATION UTILITIES, TOOLS, AND INSTRUMENTS