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RASPBERRY PI USER GUIDE

John Wiley & Sons *Make the most out of the world's first truly compact computer It's the size of a credit card, it can be charged like a smartphone, it runs on open-source Linux, and it holds the promise of bringing programming and playing to millions at low cost. And now you can learn how to use this amazing computer from its co-creator, Eben Upton, in Raspberry Pi User Guide. Cowritten with Gareth Halfacree, this guide gets you up and running on Raspberry Pi, whether you're an educator, hacker, hobbyist, or kid. Learn how to connect your Pi to other hardware, install software, write basic programs, and set it up to run robots, multimedia centers, and more. Gets you up and running on Raspberry Pi, a high-tech computer the size of a credit card Helps educators teach students how to program Covers connecting Raspberry Pi to other hardware, such as monitors and keyboards, how to install software, and how to configure Raspberry Pi Shows you how to set up Raspberry Pi as a simple productivity computer, write basic programs in Python, connect to servos and sensors, and drive a robot or multimedia center Adults, kids, and devoted hardware hackers, now that you've got a Raspberry Pi, get the very most out of it with Raspberry Pi User Guide.*

THE OFFICIAL RASPBERRY PI BEGINNER'S GUIDE

HOW TO USE YOUR NEW COMPUTER

RASPBERRY PI USER GUIDE

John Wiley & Sons *Learn the Raspberry Pi 3 from the experts! Raspberry Pi User Guide, 4th Edition is the "unofficial official" guide to everything Raspberry Pi 3. Written by the Pi's creator and a leading Pi guru, this book goes straight to the source to bring you the ultimate Raspberry Pi 3 manual. This new fourth edition has been updated to cover the Raspberry Pi 3 board and software, with detailed discussion on its wide array of configurations, languages, and applications. You'll learn how to take full advantage of the mighty Pi's full capabilities, and then expand those capabilities even more with add-on technologies. You'll write productivity and multimedia programs, and learn flexible programming languages that allow you to shape your Raspberry Pi into whatever you want it to be. If you're ready to jump right in, this book gets you started with clear, step-by-step instruction from software installation to system customization. The Raspberry Pi's tremendous popularity has spawned an entire industry of add-ons, parts, hacks, ideas, and inventions. The movement is growing, and pushing the boundaries of possibility along with it—are you ready to be a part of it? This book is your ideal companion for claiming your piece of the Pi. Get all set up with software, and connect to other devices Understand Linux System Admin nomenclature and conventions Write your own programs using Python and Scratch Extend the Pi's capabilities with add-ons like Wi-Fi dongles, a touch screen, and more The credit-card sized Raspberry Pi has become a global phenomenon. Created by the Raspberry Pi Foundation to get kids interested in programming, this tiny computer kick-started a movement of tinkerers, thinkers, experimenters, and inventors. Where will your Raspberry Pi 3 take you? The Raspberry Pi User Guide, 3rd Edition is your ultimate roadmap to discovery.*

RASPBERRY PI USER GUIDE

John Wiley & Sons *Learn the Raspberry Pi 3 from the experts! Raspberry Pi User Guide, 4th Edition is the "unofficial official" guide to everything Raspberry Pi 3. Written by the Pi's creator and a leading Pi guru, this book goes straight to the source to bring you the ultimate Raspberry Pi 3 manual. This new fourth edition has been updated to cover the Raspberry Pi 3 board and software, with detailed discussion on its wide array of configurations, languages, and applications. You'll learn how to take full advantage of the mighty Pi's full capabilities, and then expand those capabilities even more with add-on technologies. You'll write productivity and multimedia programs, and learn flexible programming languages that allow you to shape your Raspberry Pi into whatever you want it to be. If you're*

ready to jump right in, this book gets you started with clear, step-by-step instruction from software installation to system customization. The Raspberry Pi's tremendous popularity has spawned an entire industry of add-ons, parts, hacks, ideas, and inventions. The movement is growing, and pushing the boundaries of possibility along with it—are you ready to be a part of it? This book is your ideal companion for claiming your piece of the Pi. Get all set up with software, and connect to other devices Understand Linux System Admin nomenclature and conventions Write your own programs using Python and Scratch Extend the Pi's capabilities with add-ons like Wi-Fi dongles, a touch screen, and more The credit-card sized Raspberry Pi has become a global phenomenon. Created by the Raspberry Pi Foundation to get kids interested in programming, this tiny computer kick-started a movement of tinkerers, thinkers, experimenters, and inventors. Where will your Raspberry Pi 3 take you? The Raspberry Pi User Guide, 3rd Edition is your ultimate roadmap to discovery.

MASTERING THE RASPBERRY PI

Apress You probably already know that the Raspberry Pi is an excellent teaching tool. If you want to teach Linux basics or Python programming or basic electronics, it's a great place to start. But what if you are an electronics engineer or a Linux systems administrator or a very experienced maker? You want to know all of the details and inner working of the Raspberry Pi -- how to (figuratively or maybe even literally) make it get up and dance without wading through basics and introductory material. If you want to get right into the pro-level guts of the Raspberry Pi, complete with schematics, detailed hardware explanations, messing around with runlevels, reporting voltages and temperatures, and recompiling the kernel, then Mastering the Raspberry Pi is just the book you need. Along with all of the thorough explanations of hardware and operating system, you'll also get a variety of project examples and explanations that you can tune for your own project ideas. You'll find yourself turning to Mastering the Raspberry Pi over and over again for both inspiration and reference. Whether you're an electronics professional, an entrepreneurial maker, or just looking for more detailed information on the Raspberry Pi, this is exactly the book for you.

RASPBERRY PI HARDWARE REFERENCE

Apress The Raspberry Pi is deceptively simple. Plug it in, boot it up, and use it as a personal computer, or attach a million gizmos and modules and invent something new and amazing. Either way, what it can actually do is not simple, and you should know exactly what the Raspberry Pi hardware is all about. Raspberry Pi Hardware Reference, from Mastering the Raspberry Pi, is the hardware guide you need on your desk or workbench. Every detail is covered: from power to memory, from the CPU to working with USB. You'll find all the details about working with both wired and wireless Ethernet, SD cards, and the UART interface. The GPIO chapter is invaluable, covering power budgeting, access, and even small but important details like the correct usage of sudo when working with GPIO pins. You'll also find details about the 1-Wire driver, the I2C bus, and the SPI bus. If you need to know anything about your Raspberry Pi's hardware, you will find it here, in Raspberry Pi Hardware Reference.

HACKING RASPBERRY PI

Que Publishing DIY hardware hacking...easy as Pi ®! Raspberry Pi is taking off like a rocket! You can use this amazing, dirt-cheap, credit card-sized computer to learn powerful hardware hacking techniques as you build incredibly creative and useful projects! This complete, full-color guide requires absolutely no experience with either hardware hacking or computer programming. Colorful photos guide you through each project, and the step-by-step instructions are stunningly clear and easy! 1. Start with the absolute basics: Discover why millions of people are so passionate about the Pi! Tour the hardware, including storage, connections, and networking Install and run Raspbian, Raspberry Pi's Linux-based operating system Manage devices and configuration files Network Raspberry Pi and add Wi-Fi Program Raspberry Pi using Python, Scratch, XHTML, PHP, and MySQL 2. Next, build all these great projects: Media Center Retro Console Video Game Station Minecraft Server Web Server Portable Webcam Security & Privacy Device 3. Then, master all these cutting-edge techniques: Overclock Raspberry Pi for better performance Link Raspberry Pi to the Arduino and Arduino clones, including the AlaMode and the Gertboard Use the Pi to build electronics prototypes using a breadboard

MISSION-ORIENTED SENSOR NETWORKS AND SYSTEMS: ART AND SCIENCE

VOLUME 2: ADVANCES

Springer Nature This book presents a broad range of deep-learning applications related to vision, natural language processing, gene expression, arbitrary object recognition, driverless cars, semantic image segmentation, deep visual residual abstraction, brain-computer interfaces, big data processing, hierarchical deep learning networks as game-playing artefacts using regret matching, and building GPU-accelerated deep learning frameworks. Deep learning, an advanced level of machine learning technique that combines class of learning algorithms with the use of many layers of nonlinear units, has gained considerable attention in recent times. Unlike other books on the market, this volume addresses the challenges of deep learning implementation, computation time, and the complexity of reasoning and modeling different type of data. As such, it is a valuable and comprehensive resource for engineers, researchers, graduate students and Ph.D. scholars.

INTERNATIONAL CONFERENCE ON ADVANCES IN ENGINEERING AND TECHNOLOGY ,HYDERABAD

INTERNATIONAL ASSOCIATION OF ENGINEERING & TECHNOLOGY FOR SKILL DEVELOPMENT

RASPBERRY PI

A PRACTICAL GUIDE TO THE REVOLUTIONARY SMALL COMPUTER

Haynes Publishing UK *The Haynes Raspberry Pi Manual is the perfect introduction to the affordable small computer. Printed in full color throughout, this manual is aimed at those switching on their Pi for the first time, guiding them through the full process of setup and configuration. The book then introduces various aspects of computing and programming – subjects that have been sadly absent from the school curriculum for many years – and provides a variety of recipes to demonstrate the acclaimed versatility of the Raspberry Pi's hardware and software. With authorship from an expert close to the project and the trademark Haynes 'how to' approach, this is the manual everyone needs to get started with their Raspberry Pi, whether at home or in the classroom.*

RASPBERRY PI PROJECTS FOR DUMMIES

John Wiley & Sons *Join the Raspberry revolution with these fun and easy Pi projects The Raspberry Pi has opened up a whole new world of innovation for everyone from hardware hackers and programmers to students, hobbyists, engineers, and beyond. Featuring a variety of hands-on projects, this easy-to-understand guide walks you through every step of the design process and will have you creating like a Raspberry Pi pro in no time. You'll learn how to prepare your workspace, assemble the necessary tools, work with test equipment, and find your way around the Raspberry Pi before moving on to a series of fun, lively projects that brings some power to your plain ol' Pi. Introduces Raspberry Pi basics and gives you a solid understanding of all the essentials you'll need to take on your first project Includes an array of fun and useful projects that show you how to do everything from creating a magic light wand to enhancing your designs with Lego sensors, installing and writing games for the RISC OS, building a transistor tester, and more Provides an easy, hands-on approach to learning more about electronics, programming, and interaction design for Makers and innovators of all ages Bring the power of Pi to your next cool creation with Raspberry Pi Projects For Dummies!*

RASPBERRY PI COMPUTER ARCHITECTURE ESSENTIALS

Packt Publishing Ltd *Explore Raspberry Pi's architecture through innovative and fun projects About This Book Explore Raspberry Pi 2's hardware through the Assembly, C/C++, and Python programming languages Experiment with connecting electronics up to your Raspberry Pi 2 and interacting with them through software Learn about the Raspberry Pi 2 architecture and Raspbian operating system through innovative projects Who This Book Is For Raspberry Pi Computer Architecture Essentials is for those who are new and those who are familiar with the Raspberry Pi. Each topic builds upon earlier ones to provide you with a guide to Raspberry Pi's architecture. From the novice to the expert, there is something for everyone. A basic knowledge of programming and Linux would be helpful but is not required. What You Will Learn Set up your Raspberry Pi 2 and learn about its hardware Write basic programs in Assembly Language to learn about the ARM architecture Use C and C++ to interact with electronic components Find out about the Python language and how to use it to build web applications Interact with third-party microcontrollers Experiment with graphics and audio programming Expand Raspberry Pi 2's storage mechanism by using external devices Discover Raspberry Pi 2's GPIO pins and how to interact with them In Detail With the release of the Raspberry Pi 2, a new series of the popular compact computer is available for you to build cheap, exciting projects and learn about programming. In this book, we explore Raspberry Pi 2's hardware through a number of projects in a variety of programming languages. We will start by exploring the various hardware components in detail, which will provide a base for the programming projects and guide you through setting up the tools for Assembler, C/C++, and Python. We will then learn how to write multi-threaded applications and Raspberry Pi 2's multi-core processor. Moving on, you'll get hands on by expanding the storage options of the Raspberry Pi beyond the SD card and interacting with the graphics hardware. Furthermore, you will be introduced to the basics of sound programming while expanding upon your knowledge of Python to build a web server. Finally, you will learn to interact with the third-party microcontrollers. From writing your first Assembly Language application to programming graphics, this title guides you through the essentials. Style and approach This book takes a step-by-step approach to exploring Raspberry Pi's architecture through projects that build upon each other. Each project provides you with new information on how to interact with an aspect of the Raspberry Pi and Raspbian operating system, providing a well-rounded guide.*

EXPANDING YOUR RASPBERRY PI

STORAGE, PRINTING, PERIPHERALS, AND NETWORK CONNECTIONS FOR YOUR RASPBERRY PI

Apress Gain a deeper understanding of how Raspberry Pi works to get the results you want right in the palm of your hand. This book helps you understand the right connections and software to drive your Raspberry Pi into opening the worlds of programming, electronic experiments, system control, digital imaging, and the Internet of Things to you. You'll discover how to expand your Pi's storage for bigger programs, use its onboard connections to interface with cameras and control devices, printers and scanners. You'll also see how to share information with Windows and Apple computers and mobile devices, and use it away from AC power. You'll be able to turn any HDTV into a media player; stream and share files from desktop and mobile devices; use your Pi for image capture via camera or scanner; and more! Expanding Your Raspberry Pi is your guide to doing almost anything a bigger computer can do - if you're ready for the challenge. What You'll Learn Connect, use, and manage mass storage devices for greater versatility Link with desktop, laptop, and mobile devices using the Pi's built-in Wi-Fi and Bluetooth features Share resources from your Pi with desktop and mobile devices Capture video and still photos with your Pi Who This Book Is For Network administrators: Connect Raspberry Pi devices to other devices on a wired or wireless network for media streaming, file serving, or print serving Teachers: Use Raspberry Pi to teach students how to connect different types of computers and operating systems with each other. IT workers: Use Raspberry Pi with your existing printers, scanners, webcams, and home network

MEET THE RASPBERRY PI

John Wiley & Sons The essential preview guide to getting started with Raspberry Pi® computing and programming Originally conceived of as a fun, easy way for kids (and curious adults) to learn computer programming, the Raspberry Pi quickly evolved into a remarkably robust, credit-card-size computer that can be used for everything from playing HD videos and hacking around with hardware to learning to program! Co-authored by one of the creators of the Raspberry Pi, this special preview eBook fills you in on everything you need to know to get up and running on your Raspberry Pi in no time, including how to: • Connect to a keyboard, mouse, monitor and other peripherals • Install software • Master basic Linux system administration • Configure your Raspberry Pi • Connect to wired or wireless networks • Diagnose and troubleshoot common problems • Use the GPIO port to flash an LED or read a button Meet the Raspberry Pi provides a sneak peek preview of how to make the most out of the world's first truly compact computer.

RASPBERRY PI PROJECTS

John Wiley & Sons Learn to build software and hardware projects featuring the Raspberry Pi! Congratulations on becoming a proud owner of a Raspberry Pi! Following primers on getting your Pi up and running and programming with Python, the authors walk you through 16 fun projects of increasing sophistication that let you develop your Raspberry Pi skills. Among other things you will: Write simple programs, including a tic-tac-toe game Re-create vintage games similar to Pong and Pac-Man Construct a networked alarm system with door sensors and webcams Build Pi-controlled gadgets including a slot car racetrack and a door lock Create a reaction timer and an electronic harmonograph Construct a Facebook-enabled Etch A Sketch-type gadget and a Twittering toy Raspberry Pi Projects is an excellent way to dig deeper into the capabilities of the Pi and to have great fun while doing it.

GETTING STARTED WITH RASPBERRY PI ZERO

Packt Publishing Ltd Get started with the smallest, cheapest, and highest-utility Pi ever—Raspberry Pi Zero About This Book Get started with Raspberry Pi Zero and put all of its exciting features to use Create fun games and programs with little or no programming experience Learn to use this super-tiny PC to control hardware and software for work, play, and everything else Who This Book Is For This book is for hobbyists and programmers who are taking their first steps toward using Raspberry Pi Zero. No programming experience is required, although some Python programming experience might be useful. What You Will Learn Understand how to initially download the operating system and set up Raspberry Pi Zero Find out how to control the GPIO pins of Raspberry Pi Zero to control LED circuits Get to grips with adding hardware to the GPIO to control more complex hardware such as motors Add USB control hardware to control a complex robot with 12 servos Include speech recognition so that projects can receive commands Enable the robot to communicate with the world around it by adding speech output Control the robot from a distance and see what the robot is seeing by adding wireless communication Discover how to build a Robotic hand and a Quadcopter In Detail Raspberry Pi Zero is half the size of Raspberry Pi A, only with twice the utility. At just three centimeters wide, it packs in every utility required for full-fledged computing tasks. This practical tutorial will help you quickly get up and running with Raspberry Pi Zero to control hardware and software and write simple programs and games. You will learn to build creative programs and exciting games with little or no programming experience. We cover all the features of Raspberry Pi Zero as you discover how to configure software and hardware, and control external devices. You will find out how to navigate your way in Raspbian, write simple Python scripts, and create simple DIY programs. Style and approach This is a practical and fun ?getting started? tutorial that will guide you through everything new that the Raspberry Pi has to offer.

RASPBERRY PI TECHNOLOGY

MDPI *This book is a printed edition of the Special Issue "Raspberry Pi Technology" that was published in Electronics*

SMART HOME AUTOMATION WITH LINUX AND RASPBERRY PI

Apress *Shows you how to automate your lights, curtains, music, and more, and control everything via a laptop or mobile phone.*

RASPBERRY PI COOKBOOK

"O'Reilly Media, Inc." *The world of Raspberry Pi is evolving quickly, with many new interface boards and software libraries becoming available all the time. In this cookbook, prolific hacker and author Simon Monk provides more than 200 practical recipes for running this tiny low-cost computer with Linux, programming it with Python, and hooking up sensors, motors, and other hardware—including Arduino. You'll also learn basic principles to help you use new technologies with Raspberry Pi as its ecosystem develops. Python and other code examples from the book are available on GitHub. This cookbook is ideal for programmers and hobbyists familiar with the Pi through resources such as Getting Started with Raspberry Pi (O'Reilly). Set up and manage your Raspberry Pi Connect the Pi to a network Work with its Linux-based operating system Use the Pi's ready-made software Program Raspberry Pi with Python Control hardware through the GPIO connector Use Raspberry Pi to run different types of motors Work with switches, keypads, and other digital inputs Hook up sensors for taking various measurements Attach different displays, such as an LED matrix Create dynamic projects with Raspberry Pi and Arduino Make sure to check out 10 of the over 60 video recipes for this book at: <http://razzpisampler.oreilly.com/> You can purchase all recipes at:*

PROCEEDINGS OF THE FUTURE TECHNOLOGIES CONFERENCE (FTC) 2020, VOLUME 1

Springer Nature *This book provides the state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of the future research. The fifth 2020 Future Technologies Conference was organized virtually and received a total of 590 submissions from academic pioneering researchers, scientists, industrial engineers, and students from all over the world. The submitted papers covered a wide range of important topics including but not limited to computing, electronics, artificial intelligence, robotics, security and communications and their applications to the real world. After a double-blind peer review process, 210 submissions (including 6 poster papers) have been selected to be included in these proceedings. One of the meaningful and valuable dimensions of this conference is the way it brings together a large group of technology geniuses in one venue to not only present breakthrough research in future technologies, but also to promote discussions and debate of relevant issues, challenges, opportunities and research findings. The authors hope that readers find the book interesting, exciting and inspiring*

BIOMETRIC SYSTEMS

MDPI *Because of the accelerating progress in biometrics research and the latest nation-state threats to security, this book's publication is not only timely but also much needed. This volume contains seventeen peer-reviewed chapters reporting the state of the art in biometrics research: security issues, signature verification, fingerprint identification, wrist vascular biometrics, ear detection, face detection and identification (including a new survey of face recognition), person re-identification, electrocardiogram (ECT) recognition, and several multi-modal systems. This book will be a valuable resource for graduate students, engineers, and researchers interested in understanding and investigating this important field of study.*

RASPBERRY PI FOR DUMMIES

John Wiley & Sons *Get your slice of Raspberry Pi With the invention of the unique credit card-sized single-board computer comes a new wave of hardware geeks, hackers, and hobbyists who are excited about the possibilities with the Raspberry Pi—and this is the perfect guide to get you started. With this down-to-earth book, you'll quickly discover why the Raspberry Pi is in high demand! There's a reason the Raspberry Pi sold a million units in its first year, and you're about to find out why! In Raspberry Pi For Dummies, 3rd Edition veteran tech authors Sean McManus and Mike Cook make it easier than ever to get you up and running on your Raspberry Pi, from setting it up, downloading the operating system, and using the desktop environment to editing photos, playing music and videos, and programming with Scratch—and everything in between. Covers connecting the Pi to other devices such as a keyboard, mouse, monitor, and more Teaches you basic Linux System Admin Explores creating simple hardware projects Shows you how to create web pages Raspberry Pi For Dummies, 3rd Edition makes computing as easy as pie!*

RASPBERRY PI ZERO W WIRELESS PROJECTS

Packt Publishing Ltd *Build DIY wireless projects using the Raspberry Pi Zero W board About This Book Explore the functionalities of the Raspberry Pi Zero W with exciting projects Master the wireless*

features (and extend the use cases) of this \$10 chip A project-based guide that will teach you to build simple yet exciting projects using the Raspberry Pi Zero W board Who This Book Is For If you are a hobbyist or an enthusiast and want to get your hands on the latest Raspberry Pi Zero W to build exciting wireless projects, then this book is for you. Some prior programming knowledge, with some experience in electronics, would be useful. What You Will Learn Set up a router and connect Raspberry Pi Zero W to the internet Create a two-wheel mobile robot and control it from your Android device Build an automated home bot assistant device Host your personal website with the help of Raspberry Pi Zero W Connect Raspberry Pi Zero to speakers to play your favorite music Set up a web camera connected to the Raspberry Pi Zero W and add another security layer to your home automation In Detail The Raspberry Pi has always been the go-to, lightweight ARM-based computer. The recent launch of the Pi Zero W has not disappointed its audience with its \$10 release. "W" here stands for Wireless, denoting that the Raspberry Pi is solely focused on the recent trends for wireless tools and the relevant use cases. This is where our book—Raspberry Pi Zero W Wireless Projects—comes into its own. Each chapter will help you design and build a few DIY projects using the Raspberry Pi Zero W board. First, you will learn how to create a wireless decentralized chat service (client-client) using the Raspberry Pi's features?. Then you will make a simple two-wheel mobile robot and control it via your Android device over your local Wi-Fi network. Further, you will use the board to design a home bot that can be connected to plenty of devices in your home. The next two projects build a simple web streaming security layer using a web camera and portable speakers that will adjust the playlist according to your mood. You will also build a home server to host files and websites using the board. Towards the end, you will create free Alexa voice recognition software and an FPV Pi Camera, which can be used to monitor a system, watch a movie, spy on something, remotely control a drone, and more. By the end of this book, you will have developed the skills required to build exciting and complex projects with Raspberry Pi Zero W. Style and approach A step-by-step guide that will help you design and create simple yet exciting projects using the Raspberry Pi Zero W board.

THE OFFICIAL RASPBERRY PI CAMERA GUIDE

FOR CAMERA MODULE & HIGH QUALITY CAMERA

BEGINNING ARTIFICIAL INTELLIGENCE WITH THE RASPBERRY PI

Apress Gain a gentle introduction to the world of Artificial Intelligence (AI) using the Raspberry Pi as the computing platform. Most of the major AI topics will be explored, including expert systems, machine learning both shallow and deep, fuzzy logic control, and more! AI in action will be demonstrated using the Python language on the Raspberry Pi. The Prolog language will also be introduced and used to demonstrate fundamental AI concepts. In addition, the Wolfram language will be used as part of the deep machine learning demonstrations. A series of projects will walk you through how to implement AI concepts with the Raspberry Pi. Minimal expense is needed for the projects as only a few sensors and actuators will be required. Beginners and hobbyists can jump right in to creating AI projects with the Raspberry Pi using this book. What You'll Learn What AI is and—as importantly—what it is not Inference and expert systems Machine learning both shallow and deep Fuzzy logic and how to apply to an actual control system When AI might be appropriate to include in a system Constraints and limitations of the Raspberry Pi AI implementation Who This Book Is For Hobbyists, makers, engineers involved in designing autonomous systems and wanting to gain an education in fundamental AI concepts, and non-technical readers who want to understand what AI is and how it might affect their lives.

EXPLORING RASPBERRY PI

INTERFACING TO THE REAL WORLD WITH EMBEDDED LINUX

John Wiley & Sons Expand Raspberry Pi capabilities with fundamental engineering principles Exploring Raspberry Pi is the innovators guide to bringing Raspberry Pi to life. This book favors engineering principles over a 'recipe' approach to give you the skills you need to design and build your own projects. You'll understand the fundamental principles in a way that transfers to any type of electronics, electronic modules, or external peripherals, using a "learning by doing" approach that caters to both beginners and experts. The book begins with basic Linux and programming skills, and helps you stock your inventory with common parts and supplies. Next, you'll learn how to make parts work together to achieve the goals of your project, no matter what type of components you use. The companion website provides a full repository that structures all of the code and scripts, along with links to video tutorials and supplementary content that takes you deeper into your project. The Raspberry Pi's most famous feature is its adaptability. It can be used for thousands of electronic applications, and using the Linux OS expands the functionality even more. This book helps you get the most from your Raspberry Pi, but it also gives you the fundamental engineering skills you need to incorporate any electronics into any project. Develop the Linux and programming skills you need to build basic applications Build your inventory of parts so you can always "make it work" Understand interfacing, controlling, and communicating with almost any component Explore advanced applications with video, audio, real-world interactions, and more Be free to adapt and create with Exploring Raspberry Pi.

MOBILE AND WIRELESS TECHNOLOGIES 2017

ICMWT 2017

Springer This book gathers the proceedings of the 4th International Conference on Mobile and Wireless Technology (ICMWT), held in Kuala Lumpur, Malaysia in June 2017, an event that provides researchers and practitioners from both academia and industry with a platform to keep them abreast of cutting-edge developments in the field. The peer-reviewed and accepted papers presented here address topics in a number of major areas: Mobile, Wireless Networks and Applications; Security in Mobile and Wireless; Mobile Data Management and Applications; Mobile Software; Multimedia Communications; Wireless Communications; and Services, Application and Business.

EMBEDDED AND REAL-TIME OPERATING SYSTEMS

Springer This book covers the basic concepts and principles of operating systems, showing how to apply them to the design and implementation of complete operating systems for embedded and real-time systems. It includes all the foundational and background information on ARM architecture, ARM instructions and programming, toolchain for developing programs, virtual machines for software implementation and testing, program execution image, function call conventions, run-time stack usage and link C programs with assembly code. It describes the design and implementation of a complete OS for embedded systems in incremental steps, explaining the design principles and implementation techniques. For Symmetric Multiprocessing (SMP) embedded systems, the author examines the ARM MPcore processors, which include the SCU and GIC for interrupts routing and interprocessor communication and synchronization by Software Generated Interrupts (SGIs). Throughout the book, complete working sample systems demonstrate the design principles and implementation techniques. The content is suitable for advanced-level and graduate students working in software engineering, programming, and systems theory.

RASPBERRY PI SUPERCOMPUTING AND SCIENTIFIC PROGRAMMING

MPI4PY, NUMPY, AND SCIPY FOR ENTHUSIASTS

Apress Build an inexpensive cluster of multiple Raspberry Pi computers and install all the required libraries to write parallel and scientific programs in Python 3. This book covers setting up your Raspberry Pis, installing the necessary software, and making a cluster of multiple Pis. Once the cluster is built, its power has to be exploited by means of programs to run on it. So, Raspberry Pi Supercomputing and Scientific Programming teaches you to code the cluster with the MPI4PY library of Python 3. Along the way, you will learn the concepts of the Message Passing Interface (MPI) standards and will explore the fundamentals of parallel programming on your inexpensive cluster. This will make this book a great starting point for supercomputing enthusiasts who want to get started with parallel programming. The book finishes with details of symbolic mathematics and scientific and numerical programming in Python, using SymPi, SciPy, NumPy, and Matplotlib. You'll see how to process signals and images, carry out calculations using linear algebra, and visualize your results, all using Python code. With the power of a Raspberry Pi supercomputer at your fingertips, data-intensive scientific programming becomes a reality at home. **What You Will Learn** Discover the essentials of supercomputing Build a low-cost cluster of Raspberry Pis at home Harness the power of parallel programming and the Message Passing Interface (MPI) Use your Raspberry Pi for symbolic, numerical, and scientific programming **Who This Book Is For** Python 3 developers who seek the knowledge of parallel programming, Raspberry Pi enthusiasts, researchers, and the scientific Python community.

SENSORS AND ACTUATORS IN SMART CITIES

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

INTELLIGENT SYSTEMS AND APPLICATIONS

PROCEEDINGS OF THE 2020 INTELLIGENT SYSTEMS CONFERENCE (INTELLISYS) VOLUME 3

Springer Nature The book Intelligent Systems and Applications - Proceedings of the 2020 Intelligent Systems Conference is a remarkable collection of chapters covering a wider range of topics in areas of intelligent systems and artificial intelligence and their applications to the real world. The Conference attracted a total of 545 submissions from many academic pioneering researchers, scientists, industrial engineers, students from all around the world. These submissions underwent a double-blind peer review process. Of those 545 submissions, 177 submissions have been selected to be included in these proceedings. As intelligent systems continue to replace and sometimes outperform human intelligence in decision-making processes, they have enabled a larger number of problems to be tackled more

effectively. This branching out of computational intelligence in several directions and use of intelligent systems in everyday applications have created the need for such an international conference which serves as a venue to report on up-to-the-minute innovations and developments. This book collects both theory and application based chapters on all aspects of artificial intelligence, from classical to intelligent scope. We hope that readers find the volume interesting and valuable; it provides the state of the art intelligent methods and techniques for solving real world problems along with a vision of the future research.

THE MAKER'S MANUAL

A PRACTICAL GUIDE TO THE NEW INDUSTRIAL REVOLUTION

Maker Media, Inc. *The Maker's Manual is a practical and comprehensive guide to becoming a hero of the new industrial revolution. It features dozens of color images, techniques to transform your ideas into physical projects, and must-have skills like electronics prototyping, 3d printing, and programming. This book's clear, precise explanations will help you unleash your creativity, make successful projects, and work toward a sustainable maker business. Written by the founders of Frankenstein Garage, which has organized courses since 2011 to help makers to realize their creations, The Maker's Manual answers your questions about the Maker Movement that is revolutionizing the way we design and produce things.*

INTERNATIONAL CONFERENCE ON MULTI DISCIPLINARY TECHNOLOGIES AND CHALLENGES IN INDUSTRY 4.0

Archers & Elevators Publishing House

RECENT ADVANCES IN MECHANICAL ENGINEERING

SELECT PROCEEDINGS OF RAME 2020

Springer Nature *This book presents the select proceedings of the second International Conference on Recent Advances in Mechanical Engineering (RAME 2020). The topics covered include aerodynamics and fluid mechanics, automation, automotive engineering, composites, ceramics and polymers processing, computational mechanics, failure and fracture mechanics, friction, tribology and surface engineering, heating and ventilation, air conditioning system, industrial engineering, IC engines, turbomachinery and alternative fuels, machinability and formability of materials, mechanisms and machines, metrology and computer-aided inspection, micro- and nano-mechanics, modelling, simulation and optimization, product design and development, rapid manufacturing technologies and prototyping, solid mechanics and structural mechanics, thermodynamics and heat transfer, traditional and non-traditional machining processes, vibration and acoustics. The book also discusses various energy-efficient renewable and non-renewable resources and technologies, strategies and technologies for sustainable development and energy & environmental interaction. The book is a valuable reference for beginners, researchers, and professionals interested in sustainable construction and allied fields.*

GET STARTED WITH MICROPYTHON ON RASPBERRY PI PICO

PRACTICAL RASPBERRY PI

Apress *Practical Raspberry Pi takes you quickly through the hardware and software basics of the Raspberry Pi. Author Brendan Horan then gets you started on a series of fun and practical projects, including a simple temperature sensor, a media center, a real-time clock, and even a security monitoring device, all of which require minimal programming experience. Along with these projects, you'll learn all about the Raspberry Pi hardware, including how it can be so powerful and still so small and inexpensive, why it's so suitable as a video player, and how you can customize it for different tasks, including running different operating systems on it, including Android and RISC OS. The Raspberry Pi is an inexpensive but relatively powerful little computer. It was designed to get kids interested in computing and programming, but it's also a great platform for hardware hackery. The projects in this book will get you deep into the hardware to show you what the Raspberry Pi can really do.*

ADVENTURES IN RASPBERRY PI

John Wiley & Sons *Coding for kids is cool with Raspberry Pi and this elementary guide Even if your kids don't have an ounce of computer geek in them, they can learn to code with Raspberry Pi and this wonderful book. Written for 11- to 15-year-olds and assuming no prior computing knowledge, this book uses the wildly successful, low-cost, credit-card-sized Raspberry Pi computer to explain fundamental computing concepts. Young people will enjoy going through the book's nine fun projects while they learn basic programming and system administration skills, starting with the very basics of how to plug in the board and turn it on. Each project includes a lively and informative video to reinforce the lessons. It's perfect for young, eager self-learners—your kids can jump in, set up their Raspberry Pi, and go*

through the lessons on their own. Written by Carrie Anne Philbin, a high school teacher of computing who advises the U.K. government on the revised ICT Curriculum Teaches 11- to 15-year-olds programming and system administration skills using Raspberry Pi Features 9 fun projects accompanied by lively and helpful videos Raspberry Pi is a \$35/£25 credit-card-sized computer created by the non-profit Raspberry Pi Foundation; over a million have been sold Help your children have fun and learn computing skills at the same time with Adventures in Raspberry Pi.

RASOBERRY PI

THE COMPLETE MANUAL : THE INDEPENDENT HANDBOOK FOR ALL RASPBERRY PI USERS

SELECTED PAPERS FROM THE 5TH INTERNATIONAL ELECTRONIC CONFERENCE ON SENSORS AND APPLICATIONS

MDPI This Special Issue comprises selected papers from the proceedings of the 5th International Electronic Conference on Sensors and Applications, held on 15–30 November 2018, on sciforum.net, an online platform for hosting scholarly e-conferences and discussion groups. In this 5th edition of the electronic conference, contributors were invited to provide papers and presentations from the field of sensors and applications at large, resulting in a wide variety of excellent submissions and topic areas. Papers which attracted the most interest on the web or that provided a particularly innovative contribution were selected for publication in this collection. These peer-reviewed papers are published with the aim of rapid and wide dissemination of research results, developments, and applications. We hope this conference series will grow rapidly in the future and become recognized as a new way and venue by which to (electronically) present new developments related to the field of sensors and their applications.

WEARABLE TECHNOLOGIES

BoD - Books on Demand This edited volume Wearable Technologies is a collection of reviewed and relevant research chapters, offering a comprehensive overview of recent developments in the field of computer engineering. The book comprises single chapters authored by various researchers and edited by an expert active in the computer engineering research area. All chapters are complete in themselves but united under a common research study topic. This publication aims at providing a thorough overview of the latest research efforts.