

Z Wave Basics Remote Control In Smart Homes

Z-Wave is the leading international standard for wireless communication in Smart Homes. Different products from different vendors work together and interoperate in one single network to provide intelligent lighting, safety, security and energy efficiency. This book describes all you need to know about Z-Wave: The radio layer standardized by the international ITU organization, the networking between the device to realize a stable communication and finally the device specific application functions that ensure the interoperability between the different devices. Practical guidance for the installation and trouble shooting of wireless networks is provided as well.

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Exploit and defend against the latest wireless network attacks
Learn to exploit weaknesses in wireless network environments using the innovative techniques in this thoroughly updated guide. Inside, you'll find concise technical overviews, the latest attack methods, and ready-to-deploy countermeasures. Find out how to leverage wireless

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eavesdropping, break encryption systems, deliver remote exploits, and manipulate 802.11 clients, and learn how attackers impersonate cellular networks. Hacking Exposed Wireless, Third Edition features expert coverage of ever-expanding threats that affect leading-edge technologies, including Bluetooth Low Energy, Software Defined Radio (SDR), ZigBee, and Z-Wave. Assemble a wireless attack toolkit and master the hacker's weapons Effectively scan and enumerate WiFi networks and client devices Leverage advanced wireless attack tools, including Wifite, Scapy, Pyrit, Metasploit, KillerBee, and the Aircrack-ng suite Develop and launch client-side attacks using Ettercap and the WiFi Pineapple Hack cellular networks with Airprobe, Kraken, Pytacle, and YateBTS Exploit holes in WPA and WPA2 personal and enterprise security schemes Leverage rogue hotspots to deliver remote access software through fraudulent software updates Eavesdrop on Bluetooth Classic and Bluetooth Low Energy traffic Capture and evaluate proprietary wireless technology with Software Defined Radio tools Explore vulnerabilities in ZigBee and Z-Wave-connected smart homes and offices Attack remote wireless networks using compromised Windows systems and built-in tools Telecommunication Services provides a holistic approach to understand telecommunications systems by addressing the emergence and domination of new digital services, consumer and economic dynamics, and the creation of content by service providers. Includes services, underlying technologies, and internal capabilities for social network advertising Covers market dynamics that determine the successes and failures of service offerings Discusses the impact of smartphones (iPhone launch) on the telecommunications and mobile device industry

The "Red Book" presents a background to conventional foundation analysis and design. The text is not intended to

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replace the much more comprehensive 'standard' textbooks, but rather to support and augment these in a few important areas, supplying methods applicable to practical cases handled daily by practising engineers and providing the basic soil mechanics background to those methods. It concentrates on the static design for stationary foundation conditions. Although the topic is far from exhaustively treated, it does intend to present most of the basic material needed for a practising engineer involved in routine geotechnical design, as well as provide the tools for an engineering student to approach and solve common geotechnical design problems. How the Internet of Things will change your life: all you need to know, in plain English! The Internet of Things (IoT) won't just connect people: It will connect "smart" homes, appliances, cars, offices, factories, cities... the world. You need to know what's coming: It might just transform your life. Now, the world's #1 author of beginning technology books has written the perfect introduction to IoT for everyone. Michael Miller shows how connected smart devices will help people do more, do it smarter, do it faster. He also reveals the potential risks—to your privacy, your freedom, and maybe your life. Make no mistake: IoT is coming quickly. Miller explains why you care, helps you use what's already here, and prepares you for the world that's hurtling toward you. --What is IoT? How does it work? How will it affect me? --What's realistic, and what's just hype? --How smart is my "smart TV" really? (And, is it watching me?) --Can smart IoT devices make me healthier? --Will smart appliances ever be useful? --How much energy could I save with a smart home? --What's the future of wearable tech? --When will I have a self-driving car? --When will I have a nearly self-driving car? (Hint: Surprisingly soon.) --Is IoT already changing the way I shop? --What's the future of drones, at war and in my neighborhood? --Could smart cities lower my taxes? --Who

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gets the data my devices are collecting? --How can I profit from the Internet of Things? --What happens when the whole world is connected? --Will I have any privacy left at all? The most trustworthy source of information available today on savings and investments, taxes, money management, home ownership and many other personal finance topics.

This book outlines the background and overall vision for the Internet of Things (IoT) and Machine-to-Machine (M2M) communications and services, including major standards. Key technologies are described, and include everything from physical instrumentation of devices to the cloud infrastructures used to collect data. Also included is how to derive information and knowledge, and how to integrate it into enterprise processes, as well as system architectures and regulatory requirements. Real-world service use case studies provide the hands-on knowledge needed to successfully develop and implement M2M and IoT technologies sustainably and profitably. Finally, the future vision for M2M technologies is described, including prospective changes in relevant standards. This book is written by experts in the technology and business aspects of Machine-to-Machine and Internet of Things, and who have experience in implementing solutions. Standards included: ETSI M2M, IEEE 802.15.4, 3GPP (GPRS, 3G, 4G), Bluetooth Low Energy/Smart, IETF 6LoWPAN, IETF CoAP, IETF RPL, Power Line Communication, Open Geospatial Consortium (OGC) Sensor Web

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Enablement (SWE), ZigBee, 802.11, Broadband Forum TR-069, Open Mobile Alliance (OMA) Device Management (DM), ISA100.11a, WirelessHART, M-BUS, Wireless M-BUS, KNX, RFID, Object Management Group (OMG) Business Process Modelling Notation (BPMN) Key technologies for M2M and IoT covered: Embedded systems hardware and software, devices and gateways, capillary and M2M area networks, local and wide area networking, M2M Service Enablement, IoT data management and data warehousing, data analytics and big data, complex event processing and stream analytics, knowledge discovery and management, business process and enterprise integration, Software as a Service and cloud computing Combines both technical explanations together with design features of M2M/IoT and use cases. Together, these descriptions will assist you to develop solutions that will work in the real world Detailed description of the network architectures and technologies that form the basis of M2M and IoT Clear guidelines and examples of M2M and IoT use cases from real-world implementations such as Smart Grid, Smart Buildings, Smart Cities, Participatory Sensing, and Industrial Automation A description of the vision for M2M and its evolution towards IoT

Z-Wave Basics Remote Control in Smart Homes
From Internet of Things to Smart Cities: Enabling

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Technologies explores the information and communication technologies (ICT) needed to enable real-time responses to current environmental, technological, societal, and economic challenges. ICT technologies can be utilized to help with reducing carbon emissions, improving resource utilization efficiency, promoting active engagement of citizens, and more. This book aims to introduce the latest ICT technologies and to promote international collaborations across the scientific community, and eventually, the general public. It consists of three tightly coupled parts. The first part explores the involvement of enabling technologies from basic machine-to-machine communications to Internet of Things technologies. The second part of the book focuses on state of the art data analytics and security techniques, and the last part of the book discusses the design of human-machine interfaces, including smart home and cities. Features Provides an extended literature review of relevant technologies, in addition to detailed comparison diagrams, making new readers be easier to grasp fundamental and wide knowledge Contains the most recent research results in the field of communications, signal processing and computing sciences for facilitating smart homes, buildings, and cities Includes future research directions in Internet of Things, smart homes, smart buildings, smart grid, and smart cities Presents real examples of applying

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these enabling technologies to smart homes, transportation systems and cities With contributions from leading experts, the book follows an easy structure that not only presents timely research topics in-depth, but also integrates them into real world applications to help readers to better understand them.

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

Provides directions for installing and setting up a home automation system, allowing users to control appliances, lighting, devices, home security, and other household systems from anywhere.

Learn to build amazing robotic projects using the powerful BeagleBone Black. About This Book Push your creativity to the limit through complex, diverse, and fascinating projects Develop applications with the BeagleBone Black and open source Linux software Sharpen your expertise in making sophisticated electronic devices Who This Book Is For This Learning Path is aimed at hobbyists who want to do creative projects that make their life easier and also push the boundaries of what can be done with the BeagleBone Black. This Learning Path's projects are for the aspiring maker, casual

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programmer, and budding engineer or tinkerer. You'll need some programming knowledge, and experience of working with mechanical systems to get the complete experience from this Learning Path.

What You Will Learn

- Set up and run the BeagleBone Black for the first time
- Get to know the basics of microcomputing and Linux using the command line and easy kernel mods
- Develop a simple web interface with a LAMP platform
- Prepare complex web interfaces in JavaScript and get to know how to stream video data from a webcam
- Find out how to use a GPS to determine where your sailboat is, and then get the bearing and distance to a new waypoint
- Use a wind sensor to sail your boat effectively both with and against the wind
- Build an underwater ROV to explore the underwater world
- See how to build an autonomous Quadcopter

In Detail BeagleBone is a microboard PC that runs Linux. It can connect to the Internet and run OSes such as Android and Ubuntu. You can transform this tiny device into a brain for an embedded application or an endless variety of electronic inventions and prototypes. This Learning Path starts off by teaching you how to program the BeagleBone. You will create introductory projects to get yourselves acquainted with all the nitty gritty. Then we'll focus on a series of projects that are aimed at hobbyists like you and encompass the areas of home automation and robotics. With each project, we'll teach you how to connect several

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sensors and an actuator to the BeagleBone Black. We'll also create robots for land, sea, and water. Yes, really! The books used in this Learning Path are: BeagleBone Black Cookbook BeagleBone Home Automation Blueprints Mastering BeagleBone Robotics Style and approach This practical guide transforms complex and confusing pieces of technology to become accessible with easy- to-succeed instructions. Through clear, concise examples, you will quickly get to grips with the core concepts needed to develop home automation applications with the BeagleBone Black.

Advice and ideas on how to get started on your road to reducing your home's heat use.

Maximum PC is the magazine that every computer fanatic, PC gamer or content creator must read. Each and every issue is packed with punishing product reviews, insightful and innovative how-to stories and the illuminating technical articles that enthusiasts crave.

How to Save Money on Your Energy Bills is a unique publication designed to give homeowners expert advice on the best ways to make their home energy efficient, generate their own energy and benefit from Government incentives. Aimed at the homeowner looking to carry out long term investments as well as short-term quick fixes, this brilliant guide is the ultimate companion to reducing your energy bills for good.

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LEARN MORE ABOUT FOUNDATIONAL AND ADVANCED TOPICS IN INTERNET OF THINGS TECHNOLOGY WITH THIS ALL-IN-ONE GUIDE

Enabling the Internet of Things: Fundamentals, Design, and Applications delivers a comprehensive starting point for anyone hoping to understand the fundamentals and design of Internet of Things (IoT) systems. The book's distinguished academics and authors offer readers an opportunity to understand IoT concepts via programming in an abstract way. Readers will learn about IoT fundamentals, hardware and software components, IoT protocol stacks, security, IoT applications and implementations, as well as the challenges, and potential solutions, that lie ahead. Readers will learn about the social aspects of IoT systems, as well as receive an introduction to the Blockly Programming Language, IoT Microcontrollers, IoT Microprocessors, systems on a chip and IoT Gateway Architecture. The book also provides implementation of simple code examples in Packet Tracer, increasing the usefulness and practicality of the book. Enabling the Internet of Things examines a wide variety of other essential topics, including: The fundamentals of IoT, including its evolution, distinctions, definitions, vision, enabling technologies, and building blocks An elaboration of the sensing principles of IoT and the essentials of wireless sensor networks A detailed examination of the IoT protocol stack for

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communications An analysis of the security challenges and threats faced by users of IoT devices, as well as the countermeasures that can be used to fight them, from the perception layer to the application layer Perfect as a supplementary text for undergraduate students taking computer science or electrical engineering courses, Enabling the Internet of Things also belongs on the bookshelves of industry professionals and researchers who regularly work with and on the Internet of Things and who seek a better understanding of its foundational and advanced topics.

This book describes a unique approach to bring robotic technology into elders' daily lives. Low cost components and low cost robotic assistants are effectively combined to offer high quality services to elders and people in need. The book presents in a comprehensive way how technology can be used for developing a new healthcare paradigm where high quality services are offered at home, thus reducing the ever-increasing hospitalization cost of the elders and the people with chronic diseases.

This multi-contributed handbook focuses on the latest workings of IoT (internet of Things) and Big Data. As the resources are limited, it's the endeavor of the authors to support and bring the information into one resource. The book is divided into 4 sections that covers IoT and technologies, the future of Big Data, algorithms, and case studies showing

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IoT and Big Data in various fields such as health care, manufacturing and automation. Features Focuses on the latest workings of IoT and Big Data Discusses the emerging role of technologies and the fast-growing market of Big Data Covers the movement toward automation with hardware, software, and sensors, and trying to save on energy resources Offers the latest technology on IoT Presents the future horizons on Big Data Smart grid (SG), also called intelligent grid, is a modern improvement of the traditional power grid that will revolutionize the way electricity is produced, delivered, and consumed. Studying key concepts such as advanced metering infrastructure, distribution management systems, and energy management systems will support the design of a cost-effective, reliable, and efficient supply system, and will create a real-time bidirectional communication means and information exchange between the consumer and the grid operator of electric power. Optimizing and Measuring Smart Grid Operation and Control is a critical reference source that presents recent research on the operation, control, and optimization of smart grids. Covering topics that include phase measurement units, smart metering, and synchrophasor technologies, this book examines all aspects of modern smart grid measurement and control. It is designed for engineers, researchers, academicians, and students.

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PCMag.com is a leading authority on technology, delivering Labs-based, independent reviews of the latest products and services. Our expert industry analysis and practical solutions help you make better buying decisions and get more from technology.

The internet of things (IoT) has massive potential to transform current business models and enhance human lifestyles. With the current pace of research, IoT will soon find many new horizons to touch. IoT is now providing a base of technological advancement in various realms such as pervasive healthcare, smart homes, smart cities, connected logistics, automated supply chain, manufacturing units, and many more. IoT is also paving the path for the emergence of the digital revolution in industrial technology, termed Industry 4.0. Transforming the Internet of Things for Next-Generation Smart Systems focuses on the internet of things (IoT) and how it is involved in modern day technologies in a variety of domains. The chapters cover IoT in sectors such as agriculture, education, business and management, and computer science applications. The multi-disciplinary view of IoT provided within this book makes it an ideal reference work for IT specialists, technologists, engineers, developers, practitioners, researchers, academicians, and students interested in how IoT will be implemented in the next generation of smart systems and play an integral role in advancing technology in the future.

This book provides a comprehensive overview of the fundamental security of Industrial Control Systems (ICSs), including Supervisory Control and Data Acquisition (SCADA) systems and touching on cyber-physical systems in general. Careful attention is given to providing the reader with clear and comprehensive background and reference material for each topic pertinent to ICS security. This book offers answers

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to such questions as: Which specific operating and security issues may lead to a loss of efficiency and operation? What methods can be used to monitor and protect my system? How can I design my system to reduce threats? This book offers chapters on ICS cyber threats, attacks, metrics, risk, situational awareness, intrusion detection, and security testing, providing an advantageous reference set for current system owners who wish to securely configure and operate their ICSs. This book is appropriate for non-specialists as well. Tutorial information is provided in two initial chapters and in the beginnings of other chapters as needed. The book concludes with advanced topics on ICS governance, responses to attacks on ICS, and future security of the Internet of Things.

Absolutely no experience needed! Make your home smarter, safer, and more fun—and save money, too! Home automation is finally practical, useful, and easy! Now, you can control your home exactly the way you want to, without paying monthly fees. This book shows how to do it all yourself, with today's simpler, more reliable, less expensive technologies. Dennis C. Brewer first makes sure you're comfortable with wiring basics and safety, and then guides you through installing, setting up, and using today's best home automation software. Next, he walks you through several great DIY projects you can complete in just hours. Before you know it, you'll be controlling appliances, lighting, devices, home security, energy consumption, heating/cooling, and even your home entertainment center. Brewer covers phone interfaces, opportunities to expand, and even offerings from your phone and Internet service providers. When it comes to home automation, the future is here—and it works! · Pick the right products and services, without overspending · Control your home from anywhere, with Android, iPhone, iPad, or your computer · Go green, save energy, all year long · Make

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your home safer, more secure, and more comfortable ·
Overcome personal mobility challenges · Get more fun out of
your TV and music system

S'il existe depuis près de trente ans, ce n'est que récemment, et grâce aux évolutions technologiques notamment (miniaturisation, baisse des prix, apparition des smartphones et tablettes...), que le monde de la domotique est devenu accessible au plus grand nombre – tant dans son coût que dans son installation. LE GUIDE DE RÉFÉRENCE DE LA MAISON CONNECTÉE Que vous habitiez dans un appartement ou une maison, des dizaines d'objets connectés se proposent aujourd'hui d'entrer dans vos foyers pour faciliter vos tâches du quotidien : un thermostat intelligent augmentera ou baissera la température en fonction de vos allées et venues, des automatismes permettront de fermer votre store automatiquement à une certaine heure, un robot pourra tondre la pelouse ou passer l'aspirateur, des ampoules connectées, commandées par votre smartphone, changeront la couleur des lumières de votre salon, ou encore simuleront une présence pour dissuader les cambrioleurs... Tout ceci n'est pas de la science-fiction, le matériel existe bel et bien à des prix abordables, et surtout, il est simple d'installation et d'utilisation. Pourquoi parler d'objets connectés et de domotique dans un même ouvrage ? La raison est simple : la domotique est l'ensemble des objets connectés rendant la maison elle-même connectée, ou communicante. On parle même parfois de maison intelligente, ces différents objets connectés permettant à la maison de réagir automatiquement en fonction d'événements (fermer les volets en cas tempête, passer en mode éco du chauffage lors d'une absence imprévue...). L'objectif de cet ouvrage, illustré et pratique, est de faire le point sur ce que propose aujourd'hui le marché en termes de domotique et d'objets connectés. Il vous accompagnera

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dans le choix d'une solution adaptée à vos besoins et vous permettra de combiner économies d'énergies, confort et sécurité. Issu d'une formation financière, Cédric Locqueneux a été contrôleur de gestion, puis responsable informatique pendant huit ans. Passionné de nouvelles technologies, il a lancé un blog sur la domotique alors qu'il construisait sa propre maison, il y a huit ans. Son blog (www.maison-et-domotique.com) est devenu un webzine de référence dans le domaine, avec plus de 300 000 visiteurs uniques et plus d'un million de pages vues chaque mois. Cédric Locqueneux est également aujourd'hui l'un des administrateurs de la Fédération française de domotique, et travaille chez Domadoo, une société revendant de l'équipement domotique. À qui s'adresse cet ouvrage ? Au grand public qui souhaite rendre sa maison ou son appartement « intelligent » À celles et ceux qui veulent simplement améliorer la sécurité de leur logement À celles et ceux qui désirent gagner en confort, pour eux ou leurs proches Et enfin à tous ceux qui souhaitent réaliser des économies grâce à la domotique

Building a next generation Home Automation system is not as difficult as you think! This home automation book teaches takes you through a step-by-step process on how to build a system to control your Home Lighting, Thermostats, Window Dressing, IP Cameras, Music, Garden, Kitchen, Fire and Security Alarm on your Smartphone or Tablet device. With this new book, Gerard de-mystifies Smart Homes by using easy-to-understand language this book walks you through the process of setting up your own next generation smart Home automation system. Each chapter includes technical illustrations, examples of how smart homes are helping people and insights from Gerard.

Basic Transesophageal and Critical Care Ultrasound provides an overview of transesophageal ultrasound of the heart, lung,

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and upper abdomen as well as basic ultrasound of the brain, lung, heart, abdomen, and vascular system. Ultrasound-guided procedures commonly used in critically ill patients are also covered. With more than 400 clinical images, this well-illustrated text and its accompanying videos demonstrate new developments and challenges for those interested in mastering basic transesophageal echocardiography (TEE) and bedside surface ultrasound. Each chapter is presented in an easy-to-read format that includes color diagrams and ultrasound images which optimize interactive learning for both novice and experienced clinicians. The book is divided into two parts. The first is dedicated to basic TEE while the second provides focused coverage of bedside ultrasound. The book also includes chapters on extra-cardiac TEE and ultrasound of the brain—unconventional areas that will become more important in the future as clinicians evaluate not only the etiology of hemodynamic instability but also the impact on multiple organs and systems such as the kidney, liver, splanchnic perfusion, and brain. This text is an invaluable resource to those preparing for the National Board of Echocardiography's Examination of Special Competence in Basic Perioperative Transesophageal Echocardiography (PTEeXAM) and its equivalents outside the USA and Canada. In addition, it prepares physicians for the American College of Chest Physician's critical care ultrasound certification. The contents follow the syllabus of the TEE basic echo exam to ensure complete coverage of a trainee's requirements. It also includes sample questions and two helpful mock exams. Written by a multidisciplinary team of experts in TEE, the book is a must-have for those in training and in practice.

Written by a leading expert in the utility field, this practical resource guides professionals in the evolution of the Smart Grid and offers insight into distribution automation, storage,

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and microgrid. This book highlights the journey to a transformed electric utility, provides solid examples, and includes real-world case studies. Readers find guidance on new energy storage solutions and electric value chain disruptors. Professionals learn how to overcome challenges related to integrating supply and demand diversity. The book highlights how new technologies impact the day-to-day operations of a utility and how these technologies can transform the normal functioning of the utility. Discussions are provided about how a transformed utility can be a springboard to a smart city. Professionals will be able to apply the strategies of technologies in this resource to guide them to success in the field. This book defines the roadmap to the utility of the future and provides a vision for how utilities can thrive in their new environment.

Internet of Things: Technologies and Applications for a New Age of Intelligence outlines the background and overall vision for the Internet of Things (IoT) and Cyber-Physical Systems (CPS), as well as associated emerging technologies. Key technologies are described including device communication and interactions, connectivity of devices to cloud-based infrastructures, distributed and edge computing, data collection, and methods to derive information and knowledge from connected devices and systems using artificial intelligence and machine learning. Also included are system architectures and ways to integrate these with enterprise architectures, and considerations on potential business impacts and regulatory requirements. Presents a comprehensive overview of the end-to-end system requirements for successful IoT solutions Provides a robust framework for analyzing the technology and market requirements for a

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broad variety of IoT solutions Covers in-depth security solutions for IoT systems Includes a detailed set of use cases that give examples of real-world implementation Automate and control your home using the power of the BeagleBone Black with practical home automation projects About This Book Build, set up, and develop your circuits via step-by-step tutorial of practical examples, from initial board setup to device driver management Get access to several kinds of computer peripherals to monitor and control your domestic environment using this guide This book is spread across 10 chapters all focused on one practical home automation project Who This Book Is For This book is for developers who know how to use BeagleBone and are just above the “beginner” level. If you want to learn to use embedded machine learning capabilities, you should have some experience of creating simple home automation projects. What You Will Learn Build a CO (and other gas) sensor with a buzzer/LED alarm to signal high concentrations Log environment data and plot it in a fancy manner Develop a simple web interface with a LAMP platform Prepare complex web interfaces in JavaScript and get to know how to stream video data from a webcam Use APIs to get access to a Google Docs account or a WhatsApp/Facebook account to manage a home automation system Add custom device drivers to manage an LED with different blinking frequencies Discover how to work with electronic components to build small circuits Use an NFS, temperature sensor, relays, and other peripherals to monitor and control your surroundings In Detail BeagleBone is a microboard PC

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that runs Linux. It can connect to the Internet and can run OSes such as Android and Ubuntu. BeagleBone is used for a variety of different purposes and projects, from simple projects such as building a thermostat to more advanced ones such as home security systems. Packed with real-world examples, this book will provide you with examples of how to connect several sensors and an actuator to the BeagleBone Black. You'll learn how to give access to them, in order to realize simple-to-complex monitoring and controlling systems that will help you take control of the house. You will also find software examples of implementing web interfaces using the classical PHP/HTML pair with JavaScript, using complex APIs to interact with a Google Docs account, WhatsApp, or Facebook. This guide is an invaluable tutorial if you are planning to use a BeagleBone Black in a home automation project. Style and approach This step-by-step guide contains several home automation examples that can be used as base projects for tons of other home automation and control systems. Through clear, concise examples based on real-life situations, you will quickly get to grips with the core concepts needed to develop home automation applications with the BeagleBone Black using both the C language and high-level scripting languages such as PHP, Python, and JavaScript. The First Practical Guide to Advanced Wireless Development with ZigBee Technologies Supported by more than a hundred companies, the new ZigBee standard enables powerful new wireless applications for safety, security, and control, ranging from smart energy to home automation and medical care to advanced

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remote control. ZigBee Wireless Sensor and Control Network brings together all the knowledge professionals need to start building effective ZigBee solutions. The only simple, concise guide to ZigBee architecture, concepts, networking, and applications, this book thoroughly explains the entire ZigBee protocol stack and covers issues ranging from routing to security. It also presents detailed, practical coverage of ZigBee features for home automation, smart energy networking, and consumer electronics. Topics include

- Fundamental wireless concepts: OSI Model, error detection, the ISM Band, modulation, WLAN, FHSS, DSSS, Wireless MANs, Bluetooth, and more
- ZigBee essentials: applications, characteristics, device types, topologies, protocol architecture, and expanded ZigBee PRO features
- Physical layer: includes frequency bands, data rate, channels, data/management services, transmitter power, and receiver sensitivity
- MAC layer: data/management services, MAC layer information base, access methods, and frames
- Network layer: data entities, NIB, device configuration, starting network, addressing, discovery, channel scanning, and more
- Application support sublayer and application layer: includes profiles, cluster format, attributes, device discovery, and binding
- ZigBee network security: includes encryption, trust center, security modes, and security management primitives
- Address assignment and routing techniques
- Alternative technologies: 6lowpan, WirelessHART, and Z-wave

Artificial Intelligence to Solve Pervasive Internet of Things Issues discusses standards and technologies and

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wide-ranging technology areas and their applications and challenges, including discussions on architectures, frameworks, applications, best practices, methods and techniques required for integrating AI to resolve IoT issues. Chapters also provide step-by-step measures, practices and solutions to tackle vital decision-making and practical issues affecting IoT technology, including autonomous devices and computerized systems. Such issues range from adopting, mitigating, maintaining, modernizing and protecting AI and IoT infrastructure components such as scalability, sustainability, latency, system decentralization and maintainability. The book enables readers to explore, discover and implement new solutions for integrating AI to solve IoT issues. Resolving these issues will help readers address many real-world applications in areas such as scientific research, healthcare, defense, aeronautics, engineering, social media, and many others. Discusses intelligent techniques for the implementation of Artificial Intelligence in Internet of Things Prepared for researchers and specialists who are interested in the use and integration of IoT and Artificial Intelligence technologies

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