Wireless Security Camera With The Arduino Yun

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Beginning Sensor Networks with Arduino and Raspberry Pi - Charles Bell 2014-01-23 Beginning Sensor Networks with Arduino and Raspberry Pi teaches you how to build sensor networks with Arduino, Raspberry Pi, and XBee radio modules, and even shows you how to turn your Raspberry Pi into a MySQL database server to store your sensor data! First you'll learn about the different types of sensors and sensor networks, including how to build a simple XBee network. Then you'll walk through building an Arduino-based temperature sensor and data collector, followed by building a Raspberry Pi-based sensor node. Next you'll learn different

ways to store sensor data, including writing to an SD card, sending data to the cloud, and setting up a Raspberry Pi MySQL server to host your data. You even learn how to connect to and interact with a MySQL database server directly from an Arduino! Finally you'll learn how to put it all together by connecting your Arduino sensor node to your new Raspberry Pi database server. If you want to see how well Arduino and Raspberry Pi can get along, especially to create a sensor network, then Beginning Sensor Networks with Arduino and Raspberry Pi is just the book you need.

Advanced Sensors for Real-Time Monitoring Applications - Olga Korostynska 2021-03-09 It is impossible to imagine the modern world without sensors, or without real-time information about almost everything—from local temperature to material composition and health parameters. We sense, measure, and process data and act accordingly all the time. In fact, real-time monitoring and information is key to a successful business, an assistant in life-saving decisions that healthcare professionals make, and a tool in research that could revolutionize the future. To ensure that sensors address the rapidly developing needs of various areas of our lives and activities, scientists, researchers, manufacturers, and end-users have established an efficient dialogue so that the newest technological achievements in all aspects of real-time sensing can be implemented for the benefit of the wider community. This book documents some of the results of such a dialogue and reports on advances in sensors and sensor systems for existing and emerging real-time monitoring applications.

Intelligent IoT Projects in 7 Days - Agus Kurniawan 2017-09-11 Discover how to build your own Intelligent Internet of Things projects and bring a new degree of interconnectivity to your world. About This Book Build intelligent and unusual IoT projects in just 7 days, Create home automation,

smart home, and robotic projects and allow your devices to do smart work Build IoT skills through enticing projects and leverage revolutionary computing hardware through the RPi and Arduino. Who This Book Is For If you're a developer, IoT enthusiast, or just someone curious about Internet of Things, then this book is for you. A basic understanding of electronic hardware, networking, and basic programming skills would do wonders. What You Will Learn Learn how to get started with intelligent IoT projects Explore various pattern recognition and machine learning algorithms to make IoT projects smarter. Make decisions on which devices to use based on the kind of project to build. Create a simple machine learning application and implement decision system concepts Build a smart parking system using Arduino and Raspberry Pi Learn how to work with Amazon Echo and to build your own smart speaker machine Build multi-robot cooperation using swarm intelligence. In Detail Intelligent IoT Projects in 7 days is about creating smart IoT projects in just 7 days. This book will help you to overcome the challenge of analyzing data from physical devices. This book aims to help you put together some of the most exciting IoT projects in a short span of time. You'll be able to use these in achieving or automating everyday tasks—one project per day. We will start with a simple smart gardening system and move on to a smart parking system, and then we will make our own vending machine, a smart digital advertising dashboard, a smart speaker machine, an autonomous fire fighter robot, and finally look at a multi-robot cooperation using swarm intelligence Style and approach A clear step-by-step instruction guide to completing fully-fledged projects in just 7 days

Building Arduino Projects for the Internet of Things - Adeel Javed 2016-06-11
Gain a strong foundation of Arduino-based device development, from which you can go in any direction according to your specific

development needs and desires. You'll build Arduino-powered devices for everyday use, and then connect those devices to the Internet. You'll be introduced to the building blocks of IoT, and then deploy those principles to by building a variety of useful projects. Projects in the books gradually introduce the reader to key topics such as internet connectivity with Arduino, common IoT protocols, custom web visualization, and Android apps that receive sensor data on-demand and in realtime. IoT device enthusiasts of all ages will want this book by their side when developing Android-based devices. If you're one of the many who have decided to build your own Arduino-powered devices for IoT applications, then Building Arduino Projects for the Internet of Things is exactly what you need. This book is your single resource--a guidebook for the eager-to-learn Arduino enthusiast--that teaches logically, methodically, and practically how the Arduino works and what you can build with it. Written by a software developer and solution architect who got tired of hunting and gathering various lessons for Arduino development as he taught himself all about the topic. For Arduino enthusiasts, this book not only opens up the world of IoT applications, you will also learn many techniques that likely would not be obvious if not for experience with such a diverse group of applications What You'll Learn Create an Arduino circuit that senses temperature Publish data collected from an Arduino to a server and to an MQTT broker Set up channels in Xively Using Node-RED to define complex flows Publish data visualization in a web app Report motion-sensor data through a mobile app Create a remote control for house lights Set up an app in IBM Bluematrix Who This Book Is For IoT device enthusiasts of all ages will want this book by their side when developing Android-based devices.

Arduino Android Blueprints - Marco Schwartz 2014-12-22
This book is for those who want to learn how to

build exciting Arduino projects by interfacing it with Android. You will need to have some basic experience in electronics and programming. However, you don't need to have any previous experience with the Arduino or Android platforms.

Internet of Things Programming with JavaScript - Ruben Oliva Ramos 2017-02-17
Learn the art of bringing the Internet of Things into your projects with the power of JavaScript About This Book This is a practical guide to help you configure and build a complete distributed IoT system from scratch using JavaScript Utilize the power of Node and HTML5 to develop web services and a centralized web server, enabling high-level communication between connected devices Control all your connected devices from the browser by setting up a common dashboard Who This Book Is For This book is for developers who are interested in learning how to communicate with connected devices in JavaScript to set up an IoT system. Some basic knowledge of JavaScript is expected. Hobbyists who want to explore the potential of IoT in JavaScript will also find this book useful. What You Will Learn Develop the skills to connected devices prepared the field to interact with the devices in a network system Internet of Things Find out how to connect sensors and actuators to the devices Send data to a web server connected devices Understand Internet of things using web services and database Configure a dashboard using HTML5 and JavaScript Control devices connected from a dashboard Monitor different devices from the dashboard Build an app for a smartphone to control different devices In Detail The Internet of Things (IoT) is an entirely new platform for developers and engineers, but one thing that remains consistent as we move into this new world, are the programming languages. JavaScript is the most widely used language over the Internet, and with IoT gaining momentum, you will learn how to harness the power of JavaScript to interact with

connected devices. This book will teach you how to interact with endpoint devices by developing web services in JavaScript and also set up an interface to control all connected devices. This book begins with setting up a centralized web server that serves as a hub for all connected devices. The book then progresses further towards building web services to facilitate high-level communication between connected devices. Using Arduino and Raspberry Pi Zero as endpoint devices, the book will show you how devices can communicate with each other, perform a wide range of tasks, and also be controlled from a centralized location using JavaScript. The book ends with creating a hybrid app to control the devices that can be run from a browser or installed on a smartphone. Style and approach This book offers step-by-step guidance on how to set up a distributed IoT system using JavaScript. It will teach you how to interact with endpoint devices by developing web services in JavaScript and also set up an interface for controlling all connected devices.

2nd INTERNATIONAL CONFERENCE ON TRENDS IN TECHNOLOGY AND ENGINEERING - 2015-04-29
International Conference on Trends in Technology and Engineering – ICTTE'15 is organized by in association with Arjun College of Technology and International Journal for Trends in Engineering & Technology (IJTET). . The conference theme concentrates to discover the latest technological innovation, trends in technology and engineering and that are experienced by the professionals with the present strict rules and to convert these complications into prospects. Authors are approved to post original research or system documents on any appropriate topics. These can either be frequent or brief documents.

Arduino Networking - Marco Schwartz 2014-08-21
This book is intended for those who want to build their own network-connected projects

using the Arduino platform. You will be able to build exciting projects that connect to your local network and the Web. You will need to have some basic experience in electronics and web programming languages. You will also need to know the basics of the Arduino platform as the projects mainly deal with the networking aspects of the Arduino Ethernet shield.

Internet of Things with Arduino Blueprints - Pradeeka Seneviratne 2015-10-27 Develop interactive Arduino-based Internet projects with Ethernet and WiFi About This Book Build Internet-based Arduino devices to make your home feel more secure Learn how to connect various sensors and actuators to the Arduino and access data from Internet A project-based guide filled with schematics and wiring diagrams to help you build projects incrementally Who This Book Is For This book is intended for those who want to learn more about Arduino and make Internet-based interactive projects with Arduino. If you are an experienced software developer who understands the basics of electronics, then you can quickly learn how to build the Arduino projects explained in this book. What You Will Learn Make a powerful Internet controlled relay with an embedded web server to monitor and control your home electrical appliances Build a portable Wi-Fi signal strength sensor to give haptic feedback about signal strength to the user Measure water flow speed and volume with liquid flow sensors and record real-time readings Secure your home with motion-activated Arduino security cameras and upload images to the cloud Implement real-time data logging of a solar panel voltage with Arduino cloud connectors Track locations with GPS and upload location data to the cloud Control a garage door light with your Twitter feed Control infrared enabled devices with IR remote and Arduino In Detail Arduino is a small single-chip computer board that can be used for a wide variety of creative hardware projects. The hardware consists of a simple microcontroller,

board, and chipset. It comes with a Java-based IDE to allow creators to program the board. Arduino is the ideal open hardware platform for experimenting with the world of the Internet of Things. This credit card sized Arduino board can be used via the Internet to make more useful and interactive Internet of things projects. Internet of Things with Arduino Blueprints is a project-based book that begins with projects based on IoT and cloud computing concepts. This book covers up to eight projects that will allow devices to communicate with each other, access information over the Internet, store and retrieve data, and interact with users—creating smart, pervasive, and always-connected environments. It explains how wired and wireless Internet connections can be used with projects and the use of various sensors and actuators. The main aim of this book is to teach you how Arduino can be used for Internet-related projects so that users are able to control actuators, gather data from various kinds of sensors, and send and receive data wirelessly across HTTP and TCP protocols. Finally, you can use these projects as blueprints for many other IoT projects and put them to good use. By the end of the book, you will be an expert in the use of IoT with Arduino to develop a set of projects that can relate very well to IoT applications in the real world. Style and approach Every chapter in this book clearly explains how to assemble components through easy-to-follow steps on while laying out important concepts, code snippets, and expected output results so that you can easily end up with a successful project where you can also enhance or modify the project according to your requirements.
Data Analytics and Applications of the Wearable Sensors in Healthcare - Shabbir Syed-Abdul 2020-06-17
This book provides a collection of comprehensive research articles on data analytics and applications of wearable devices in healthcare. This Special Issue presents 28 research studies

from 137 authors representing 37 institutions from 19 countries. To facilitate the understanding of the research articles, we have organized the book to show various aspects covered in this field, such as eHealth, technology-integrated research, prediction models, rehabilitation studies, prototype systems, community health studies, ergonomics design systems, technology acceptance model evaluation studies, telemonitoring systems, warning systems, application of sensors in sports studies, clinical systems, feasibility studies, geographical location based systems, tracking systems, observational studies, risk assessment studies, human activity recognition systems, impact measurement systems, and a systematic review. We would like to take this opportunity to invite high quality research articles for our next Special Issue entitled "Digital Health and Smart Sensors for Better Management of Cancer and Chronic Diseases" as a part of Sensors journal.

Programming Robots with ROS - Morgan Quigley 2015-11-16
Chapter 3. Topics; Publishing to a Topic; Checking That Everything Works as Expected; Subscribing to a Topic; Checking That Everything Works as Expected; Latched Topics; Defining Your Own Message Types; Defining a New Message; Using Your New Message; When Should You Make a New Message Type?; Mixing Publishers and Subscribers; Summary; Chapter 4. Services; Defining a Service; Implementing a Service; Checking That Everything Works as Expected; Other Ways of Returning Values from a Service; Using a Service; Checking That Everything Works as Expected; Other Ways to Call Services; Summary.

Arduino Programming with .NET and Sketch - Agus Kurniawan 2017-03-13
Leverage .NET and Sketch in your Arduino development implementation and integrate it into your .NET program. There are many Arduino models and compatible shields that can be used in Arduino boards. Integrating between

an Arduino platform and .NET technology or Sketch can produce more advantages. Arduino Programming using .NET and Sketch shows readers how to do so with practical Arduino projects, such as preparing a development environment, performing sensing and actuating with external devices, implementing Windows Remote Arduino and building a simple IoT program. Use this quick reference to learn the basics of the Arduino platform for multiple models and start your Arduino programming in .NET and Sketch today. What You'll Learn: Learn the basics of the Arduino platform Prepare and set up an Arduino development environment Develop an Arduino program using .NET and Sketch Implement Windows Remote Arduino Build a simple IoT program Who This Book Is For: .NET and Sketch developers who want to learn Arduino programming.

Python Programming for Arduino - Pratik Desai 2015-02-27
This is the book for you if you are a student, hobbyist, developer, or designer with little or no programming and hardware prototyping experience, and you want to develop IoT applications. If you are a software developer or a hardware designer and want to create connected devices applications, then this book will help you get started.

Low-power Wearable Healthcare Sensors - R. Simon Sherratt 2020-12-29
Advances in technology have produced a range of on-body sensors and smartwatches that can be used to monitor a wearer's health with the objective to keep the user healthy. However, the real potential of such devices not only lies in monitoring but also in interactive communication with expert-system-based cloud services to offer personalized and real-time healthcare advice that will enable the user to manage their health and, over time, to reduce expensive hospital admissions. To meet this goal, the research challenges for the next generation of wearable healthcare devices include the need

to offer a wide range of sensing, computing, communication, and human–computer interaction methods, all within a tiny device with limited resources and electrical power. This Special Issue presents a collection of six papers on a wide range of research developments that highlight the specific challenges in creating the next generation of low-power wearable healthcare sensors.

Encyclopedia of Information Science and Technology - Mehdi Khosrow-Pour 2009 "This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology"--Provided by publisher.

Next-Generation Greenhouses for Food Security - Redmond R. Shamshiri 2021-06-16 Modern greenhouse technology has revolutionized the food supply chain scenario over the past 40 years. Closed-field cultivation by means of agri-cubes, plant factories, vertical farming structures, and roof-top solar greenhouses has become the backbone of sustainable agriculture for producing all-year-round fresh fruits and vegetables. This book is an attempt to explore several profound questions such as how digital technology and simulation models have saved energy in commercial greenhouses, and why growers prefer LPWAN sensors and IoT monitoring devices over the traditional timer-based controllers? How artificial intelligence is capable of performing microclimate prediction and control, and what considerations should be taken into account for implementing desiccant evaporative cooling systems? With case-study examples and field experiments, each chapter highlights some of the most recent solutions and adaptation strategies toward improving the efficiency and sustainability of closed-field crop production systems.

Software Engineering Methods in Intelligent Algorithms - Radek Silhavy 2019-05-07

This book presents software engineering methods in the context of the intelligent systems. It discusses real-world problems and exploratory research describing novel approaches and applications of software engineering, software design and algorithms. The book constitutes the refereed proceedings of the Software Engineering Methods in Intelligent Algorithms Section of the 8th Computer Science On-line Conference 2019 (CSOC 2019), held online in April 2019.

Internet of Things with Arduino Cookbook - Marco Schwartz 2016-09-30
Over 60 recipes will help you build smart IoT solutions and surprise yourself with captivating IoT projects you thought only existed in Bond movies About This Book This book offers key solutions and advice to address the hiccups faced when working on Arduino-based IoT projects in the real world Take your existing skills and capabilities to the next level by building challenging IoT applications with ease.

Be the tech disruptor you always wanted to be with key recipes that help you solve Arduino IoT related problems smarter and faster. Put IoT to work through recipes on building Arduino-based devices that take control of your home, health, and life! Who This Book Is For This book is primarily for tech enthusiasts and early IoT adopters who would like to make the most of IoT and address the challenges encountered while developing IoT-based applications with Arduino. This book is also good for developers with basic electronics knowledge who need help to successfully build Arduino projects. What You Will Learn Monitor several Arduino boards simultaneously Tweet sensor data directly from your Arduino board Post updates on your Facebook wall directly from your Arduino board Create an automated access control with a fingerprint sensor Control your entire home from a single dashboard Make a GPS tracker that you can track in Google Maps Build a live camera that streams directly from your robot In

Detail Arduino is a powerful and very versatile platform used by millions of people around the world to create DIY electronics projects. It can be connected to a wide variety of sensors and other components, making it the ideal platform to build amazing Internet of Things (IoT) projects on—the next wave in the era of computing. This book takes a recipe-based approach, giving you precise examples on how to build IoT projects of all types using the Arduino platform. You will come across projects from several fields, including the popular robotics and home automation domains. Along with being introduced to several forms of interactions within IoT, including projects that directly interact with well-known web services such as Twitter, Facebook, and Dropbox we will also focus on Machine-to-Machine (M2M) interactions, where Arduino projects interact without any human intervention. You will learn to build a few quick and easy-to-make fun projects that will really expand your horizons in the world of IoT and Arduino. Each chapter ends with a troubleshooting recipe that will help you overcome any problems faced while building these projects. By the end of this book, you will not only know how to build these projects, but also have the skills necessary to build your own IoT projects in the future. Style and approach This book takes a recipe-based approach, giving you precise examples on how to build IoT projects using the Arduino platform. You will learn to build fun and easy projects through a task-oriented approach.

Arduino Cookbook - Michael Margolis 2012 Presents an introduction to the open-source electronics prototyping platform.

Multimedia Security - Frank Y. Shih 2017-12-19 Multimedia Security: Watermarking, Steganography, and Forensics outlines essential principles, technical information, and expert insights on multimedia security technology used to prove that content is authentic and has not been altered. Illustrating the need for improved

content security as the Internet and digital multimedia applications rapidly evolve, this book presents a wealth of everyday protection application examples in fields including multimedia mining and classification, digital watermarking, steganography, and digital forensics. Giving readers an in-depth overview of different aspects of information security mechanisms and methods, this resource also serves as an instructional tool on how to use the fundamental theoretical framework required for the development of extensive advanced techniques. The presentation of several robust algorithms illustrates this framework, helping readers to quickly master and apply fundamental principles. Presented case studies cover: The execution (and feasibility) of techniques used to discover hidden knowledge by applying multimedia duplicate mining methods to large multimedia content Different types of image steganographic schemes based on vector quantization Techniques used to detect changes in human motion behavior and to classify different types of small-group motion behavior Useful for students, researchers, and professionals, this book consists of a variety of technical tutorials that offer an abundance of graphs and examples to powerfully convey the principles of multimedia security and steganography. Imparting the extensive experience of the contributors, this approach simplifies problems, helping readers more easily understand even the most complicated theories. It also enables them to uncover novel concepts involved in the implementation of algorithms, which can lead to the discovery of new problems and new means of solving them.
Building Smart Homes with Raspberry Pi Zero - Marco Schwartz 2016-12-30
Build revolutionary and incredibly useful home automation projects with the all new Pi ZeroAbout This Book* Create and program home automation projects using the Raspberry Pi Zero board* Connect your Raspberry Pi Zero to a

cloud API, and then build a cloud dashboard to control your devices* Integrate all the projects into a complex project to automate key aspects of your home: data monitoring, devices control, and securityWho This Book Is ForThis book is for enthusiasts and programmers who want to build powerful and inexpensive home automation projects using the Raspberry Pi zero, and to transform their home into a smart home. It is for those who are new to the field of home automation, or who already have experience with other platforms such as Arduino.What you will learn* Learn how to measure and store data using the Raspberry Pi Zero board* Control LED lights, lamps, and other electrical applications* Send automated notifications by e-mail, SMS, or push notifications* Connect motion detectors, cameras, and alarms* Create automated alerts using Raspberry Pi Zero boards* Control devices using cloud-based services* Build a complete home automation system using Pi ZeroIn DetailThe release of the Raspberry Pi Zero has completely amazed the tech community. With the price, form factor, and being high on utility-the Raspberry Pi Zero is the perfect companion to support home automation projects and makes IoT even more accessible.With this book, you will be able to create and program home automation projects using the Raspberry Pi Zero board. The book will teach you how to build a thermostat that will automatically regulate the temperature in your home. Another important topic in home automation is controlling electrical appliances, and you will learn how to control LED Lights, lamps, and other electrical applications.Moving on, we will build a smart energy meter that can measure the power of the appliance, and you'll learn how to switch it on and off. You'll also see how to build simple security system, composed of alarms, a security camera, and motion detectors. At the end, you will integrate everything what you learned so far into a more complex project to automate the key aspects of your home.By the end, you will have

deepened your knowledge of the Raspberry Pi Zero, and will know how to build autonomous home automation projects.

Mobile Phone Programming - Frank H. P. Fitzek 2007-06-25
This book provides a solid overview of mobile phone programming for readers in both academia and industry. Coverage includes all commercial realizations of the Symbian, Windows Mobile and Linux platforms. The text introduces each programming language (JAVA, Python, C/C++) and offers a set of development environments "step by step," to help familiarize developers with limitations, pitfalls, and challenges.

Futuristic Communication and Network Technologies - A. Sivasubramanian 2021-10-11
This book presents select proceedings of the International Conference on Futuristic Communication and Network Technologies (CFCNT 2020) conducted at Vellore Institute of Technology, Chennai. It covers various domains in communication engineering and networking technologies. This volume comprises of recent research in areas like optical communication, optical networks, optics and optical computing, emerging trends in photonics, MEMS and sensors, active and passive RF components and devices, antenna systems and applications, RF devices and antennas for microwave emerging technologies, wireless communication for future networks, signal and image processing, machine learning/AI for networks, internet of intelligent things, network security and blockchain technologies. This book will be useful for researchers, professionals, and engineers working in the core areas of electronics and communication.

Building Smart Homes with Raspberry Pi Zero - Marco Schwartz 2016-10-26
Build revolutionary and incredibly useful home automation projects with the all-new Pi Zero About This Book Create and program home automation projects using the Raspberry Pi Zero

board Connect your Raspberry Pi Zero to a cloud API, and then build a cloud dashboard to control your devices Integrate all the projects into a complex project to automate key aspects of your home: data monitoring, devices control, and security Who This Book Is For This book is for enthusiasts and programmers who want to build powerful and inexpensive home automation projects using the Raspberry Pi zero, and to transform their home into a smart home. It is for those who are new to the field of home automation, or who already have experience with other platforms such as Arduino. What You Will Learn Learn how to measure and store data using the Raspberry Pi Zero board Control LED lights, lamps, and other electrical applications Send automated notifications by e-mail, SMS, or push notifications Connect motion detectors, cameras, and alarms Create automated alerts using Raspberry Pi Zero boards Control devices using cloud-based services Build a complete home automation system using Pi Zero In Detail

The release of the Raspberry Pi Zero has completely amazed the tech community. With the price, form factor, and being high on utility—the Raspberry Pi Zero is the perfect companion to support home automation projects and makes IoT even more accessible. With this book, you will be able to create and program home automation projects using the Raspberry Pi Zero board. The book will teach you how to build a thermostat that will automatically regulate the temperature in your home. Another important topic in home automation is controlling electrical appliances, and you will learn how to control LED Lights, lamps, and other electrical applications. Moving on, we will build a smart energy meter that can measure the power of the appliance, and you'll learn how to switch it on and off. You'll also see how to build simple security system, composed of alarms, a security camera, and motion detectors. At the end, you will integrate everything what you learned so far into a more complex project to

automate the key aspects of your home. By the end, you will have deepened your knowledge of the Raspberry Pi Zero, and will know how to build autonomous home automation projects. Style and approach This book takes a step-by-step approach to automate your home like never before!

Smart Monitoring and Control in the Future Internet of Things - Antonio Guerrieri 2020

Innovations in Information and Communication Technologies (IICT-2020) - Pradeep Kumar Singh 2021-07-15 This edited book is comprised of original research that focuses on technological advancements for effective teaching with an emphasis on learning outcomes, ICT trends in higher education, sustainable developments and digital ecosystem in education, management and industries. The contents of the book are classified as; (i) Emerging ICT Trends in Education, Management and Innovations (ii) Digital Technologies for advancements in education, management and IT (iii) Emerging Technologies for Industries and Education, and (iv) ICT Technologies for Intelligent Applications. The book represents a useful tool for academics, researchers, industry professionals and policymakers to share and learn about the latest teaching and learning practices supported by ICT. It also covers innovative concepts applied in education, management and industries using ICT tools.

Getting Started with Arduino - Massimo Banzi 2011-09-13 Presents an introduction to the open-source electronics prototyping platform.

Photoplethysmography - Panicos A. Kyriacou 2021-11-03 Photoplethysmography: Technology, Signal Analysis, and Applications is the first comprehensive volume on the theory, principles, and technology (sensors and electronics) of photoplethysmography (PPG). It provides a

detailed description of the current state-of-the-art technologies/optical components enabling the extreme miniaturization of such sensors, as well as comprehensive coverage of PPG signal analysis techniques including machine learning and artificial intelligence. The book also outlines the huge range of PPG applications in healthcare, with a strong focus on the contribution of PPG in wearable sensors and PPG for cardiovascular assessment. Presents the underlying principles and technology surrounding PPG Includes applications for healthcare and wellbeing Focuses on PPG in wearable sensors and devices Presents advanced signal analysis techniques Includes cutting-edge research, applications and future directions

Hands-On Internet of Things with Blynk - Pradeeka Seneviratne 2018-05-28 Connect things to create amazing IoT applications in minutes Key Features Use Blynk cloud and Blynk server to connect devices Build IoT applications on Android and iOS platforms A practical guide that will show how to connect devices using Blynk and Raspberry Pi 3 Book Description Blynk, known as the most user-friendly IoT platform, provides a way to build mobile applications in minutes. With the Blynk drag-n-drop mobile app builder, anyone can build amazing IoT applications with minimal resources and effort, on hardware ranging from prototyping platforms such as Arduino and Raspberry Pi 3 to industrial-grade ESP8266, Intel, Sierra Wireless, Particle, Texas Instruments, and a few others. This book uses Raspberry Pi as the main hardware platform and C/C++ to write sketches to build projects. The first part of this book shows how to set up a development environment with various hardware combinations and required software. Then you will build your first IoT application with Blynk using various hardware combinations and connectivity types such as Ethernet and Wi-Fi. Then you'll use and configure various widgets (control, display, notification, interface, time

input, and some advanced widgets) with Blynk App Builder to build applications. Towards the end, you will learn how to connect with and use built-in sensors on Android and iOS mobile devices. Finally you will learn how to build a robot that can be controlled with a Blynk app through the Blynk cloud and personal server. By the end of this book, you will have hands-on experience building IoT applications using Blynk. What you will learn Build devices using Raspberry Pi and various sensors and actuators Use Blynk cloud to connect and control devices through the Blynk app builder Connect devices to Blynk cloud and server through Ethernet and Wi-Fi Make applications using Blynk app builder on Android and iOS platforms Run Blynk personal server on the Windows, MAC, and Raspberry Pi platforms Who this book is for This book is targeted at any stakeholder working in the IoT sector who wants to understand how Blynk works and build exciting IoT projects. Prior understanding of Raspberry Pi, C/C++,

and electronics is a must.
Arduino: A Quick-Start Guide - Maik Schmidt 2015-01-20
Arduino is an open-source platform that makes DIY electronics projects easier than ever. Gone are the days when you had to learn electronics theory and arcane programming languages before you could even get an LED to blink. Now, with this new edition of the bestsellingArduino: A Quick-Start Guide, readers with no electronics experience can create their first gadgets quickly. This book is up-to-date for the new Arduino Zero board, with step-by-step instructions for building a universal remote, a motion-sensing game controller, and many other fun, useful projects. This Quick-Start Guide is packed with fun, useful devices to create, with step-by-step instructions and photos throughout. You'll learn how to connect your Arduino to the Internet and program both client and server applications. You'll build projects such as your own motion-sensing game controller with a three-axis

accelerometer, create a universal remote with an Arduino and a few cheap parts, build your own burglar alarm that emails you whenever someone's moving in your living room, build binary dice, and learn how to solder. In one of several new projects in this edition, you'll create your own video game console that you can connect to your TV set. This book is completely updated for the new Arduino Zero board and the latest advances in supporting software and tools for the Arduino. Sidebars throughout the book point you to exciting real-world projects using the Arduino, exercises extend your skills, and "What If It Doesn't Work" sections help you troubleshoot common problems. With this book, beginners can quickly join the worldwide community of hobbyists and professionals who use the Arduino to prototype and develop fun, useful inventions. What You Need: This is the full list of all parts you'd need for all projects in the book; some of these are provided as part of various kits that are available on the web, or you can purchase individually. Sources include adafruit.com, makershed.com, radioshack.com, sparkfun.com, and mouser.com. Please note we do not support or endorse any of these vendors, but we list them here as aconvenience for you. Arduino Zero (or Uno or Duemilanove or Diecimila) board USB cable Half-size breadboard Pack of LEDs (at least 3, 10 or more is a good idea) Pack of 100 ohm, 10k ohm, and 1k ohm resistors Four pushbuttons Breadboard jumper wire / connector wire Parallax Ping))) sensor Passive Infrared sensor An infrared LED A 5V servo motor Analog Devices TMP36 temperature sensor ADXL335 accelerometer breakout board 6 pin 0.1" standard header (might be included with the ADXL335) Nintendo Nunchuk Controller Arduino Ethernet shield Arduino Proto shield and a tiny breadboard (optional but recommended) Piezo speaker/buzzer (optional) Tilt sensor (optional) A 25-30 Watts soldering iron with a tip (preferrably 1/16") A soldering stand and a sponge A standard 60/40 solder

(rosin-core) spool for electronics work
Sensors and Actuators in Smart Cities - Mohammad Hammoudeh 2018-05-04 This book is a printed edition of the Special Issue "Sensors and Actuators in Smart Cities" that was published in JSAN
Exploring Zynq Mpsoc - Louise H Crockett 2019-04-11 This book introduces the Zynq MPSoC (Multi-Processor System-on-Chip), an embedded device from Xilinx. The Zynq MPSoC combines a sophisticated processing system that includes ARM Cortex-A53 applications and ARM Cortex-R5 real-time processors, with FPGA programmable logic. As well as guiding the reader through the architecture of the device, design tools and methods are also covered in detail: both the conventional hardware/software co-design approach, and the newer software-defined methodology using Xilinx's SDx development environment. Featured aspects of Zynq MPSoC design include hardware and software development, multiprocessing, safety, security and platform management, and system booting. There are also special features on PYNQ, the Python-based framework for Zynq devices, and machine learning applications. This book should serve as a useful guide for those working with Zynq MPSoC, and equally as a reference for technical managers wishing to gain familiarity with the device and its associated design methodologies.

IoT System Design - Alice James 2021-09-25 This book presents a step by step design approach to develop and implement an IoT system starting from sensor, interfacing to embedded processor, wireless communication, uploading measured data to cloud including data visualization along with machine learnings and artificial intelligence. The book will be extremely useful towards a hands-on approach of designing and fabricating an IoT system especially for upper undergraduate, master and PhD students, researchers, engineers and practitioners.

Applications in Electronics Pervading Industry, Environment and Society - Sergio Saponara 2021-01-25
This book provides a thorough overview of cutting-edge research on electronics applications relevant to industry, the environment, and society at large. It covers a broad spectrum of application domains, from automotive to space and from health to security, while devoting special attention to the use of embedded devices and sensors for imaging, communication and control. The book is based on the 2020 ApplePies Conference, held online in November 2020, which brought together researchers and stakeholders to consider the most significant current trends in the field of applied electronics and to debate visions for the future. Areas addressed by the conference included information communication technology; biotechnology and biomedical imaging; space; secure, clean and efficient energy; the environment; and smart, green and integrated transport. As electronics technology continues to develop apace, constantly meeting previously unthinkable targets, further attention needs to be directed toward the electronics applications and the development of systems that facilitate human activities. This book, written by industrial and academic professionals, represents a valuable contribution in this endeavor.

Universal Access in Human–Computer Interaction. Human and Technological Environments - Margherita Antona 2017-05-17
The three-volume set LNCS 10277-10279 constitutes the refereed proceedings of the11th International Conference on Universal Access in Human-Computer Interaction, UAHCI 2017, held as part of the 19th International Conference on Human-Computer Interaction, HCII 2017, in Vancouver, BC, Canada in July 2017, jointly with 14 other thematically similar conferences. The total of 1228 papers presented at the HCII 2017 conferences were carefully reviewed and selected from 4340 submissions. The papers

included in the three UAHCI 2017 volumes address the following major topics: Design for All Methods and Practice; Accessibility and Usability Guidelines and Evaluation; User and Context Modelling and Monitoring and Interaction Adaptation; Design for Children; Sign Language Processing; Universal Access to Virtual and Augmented Reality; Non Visual and Tactile Interaction; Gesture and Gaze-Based Interaction; Universal Access to Health and Rehabilitation; Universal Access to Education and Learning; Universal Access to Mobility; Universal Access to Information and Media; and Design for Quality of Life Technologies.

Sams Teach Yourself Arduino Programming in 24 Hours - Richard Blum 2014
In just 24 sessions of one hour or less, Sams Teach Yourself Arduino Programming in 24 Hours teaches you C programmingon Arduino, so you can start creating inspired "DIY" hardwareprojects of your own! Using this book's straightforward, step-by-stepapproach, you'll walk through everything from setting up yourprogramming environment to mastering C syntax and features, interfacing your Arduino to performing full-fledged prototyping.Every hands-on lesson and example builds on what you've alreadylearned, giving you a rock-solid foundation for real-world success! Step-by-step instructions carefully walk you through the most common Arduino programming tasks. Quizzes at the end of each chapter help you test your knowledge. By the Way notes present interesting information related to the discussion. Did You Know? tips offer advice or show you easier ways to perform tasks. Watch Out! cautions alert you to possible problems and give you advice on how to avoid them. Learn how to... Get the right Arduino hardware and accessories for your needs Download the Arduino IDE, install it, and link it to your Arduino Quickly create, compile, upload, and run your first Arduino program Master C syntax, decision control, strings, data structures, and functions Use pointers to work

with memory—and avoid common mistakes Store data on your Arduino's EEPROM or an external SD card Use existing hardware libraries, or create your own Send output and read input from analog devices or digital interfaces Create and handle interrupts in software and hardware Communicate with devices via the SPI interface and I2C protocol Work with analog and digital sensors Write Arduino C programs that control motors Connect an LCD to your Arduino, and code the output Install an Ethernet shield, configure an Ethernet connection, and write networking programs Create prototyping environments, use prototyping shields, and interface electronics to your Arduino

TinyML - Pete Warden 2019-12-16
Deep learning networks are getting smaller. Much smaller. The Google Assistant team can detect words with a model just 14 kilobytes in size—small enough to run on a microcontroller. With this practical book you'll enter the field of TinyML, where deep learning and embedded systems combine to make astounding things possible with tiny devices. Pete Warden and Daniel Situnayake explain how you can train models small enough to fit into any environment. Ideal for software and hardware developers who want to build embedded systems using machine learning, this guide walks you through creating a series of TinyML projects, step-by-step. No machine learning or microcontroller experience is necessary. Build a speech recognizer, a camera that detects people, and a magic wand that responds to gestures Work with Arduino and ultra-low-power microcontrollers Learn the essentials of ML and how to train your own models Train models to understand audio, image, and accelerometer data Explore TensorFlow Lite for Microcontrollers, Google's toolkit for TinyML Debug applications and provide safeguards for privacy and security Optimize latency, energy usage, and model and binary size

Learning AWS IoT - Agus Kurniawan
2018-01-29
Learn to use AWS IoT services to build your connected applications with the help of this comprehensive guide. Key Features Gets you started with AWS IoT and its functionalities Learn different modules of AWS IoT with practical use cases. Learn to secure your IoT communication Book Description The Internet of Things market increased a lot in the past few years and IoT development and its adoption have showed an upward trend. Analysis and predictions say that Enterprise IoT platforms are the future of IoT. AWS IoT is currently leading the market with its wide range of device support SDKs and versatile management console. This book initially introduces you to the IoT platforms, and how it makes our IoT development easy. It then covers the complete AWS IoT Suite and how it can be used to develop secure communication between internet-connected things such as sensors, actuators, embedded devices, smart applications, and so on. The book also covers the various modules of AWS: AWS Greengrass, AWS device SDKs, AWS IoT Platform, AWS Button, AWS Management consoles, AWS-related CLI, and API references, all with practical use cases. Near the end, the book supplies security-related best practices to make bi-directional communication more secure. When you've finished this book, you'll be up-and-running with the AWS IoT Suite, and building IoT projects. What you will learn Implement AWS IoT on IoT projects Learn the technical capabilities of AWS IoT and IoT devices Create IoT-based AWS IoT projects Choose IoT devices and AWS IoT platforms to use based on the kind of project you need to build Deploy AWS Greengrass and AWS Lambda Develop program for AWS IoT Button Visualize IoT AWS data Build predictive analytics using AWS IoT and AWS Machine Learning Who this book is for This book is for anyone who wants to get started with the AWS IoT Suite and implement it with

practical use cases. This book acts as an extensive guide, on completion of which you will be in a position to start building IoT projects using AWS IoT platform and using cloud services for your projects.

Universal Access in Human–Computer Interaction. Human and Technological Environments - Margherita Antona 2017-06-28 The three-volume set LNCS 10277-10279 constitutes the refereed proceedings of the11th International Conference on Universal Access in Human-Computer Interaction, UAHCI 2017, held as part of the 19th International Conference on Human-Computer Interaction, HCII 2017, in Vancouver, BC, Canada in July 2017, jointly with 14 other thematically similar conferences. The total of 1228 papers presented at the HCII 2017 conferences were carefully reviewed and selected from 4340 submissions. The papers included in the three UAHCI 2017 volumes address the following major topics: Design for All Methods and Practice; Accessibility and Usability Guidelines and Evaluation; User and Context Modelling and Monitoring and Interaction Adaptation; Design for Children; Sign Language Processing; Universal Access to Virtual and Augmented Reality; Non Visual and Tactile Interaction; Gesture and Gaze-Based Interaction; Universal Access to Health and Rehabilitation; Universal Access to Education and Learning; Universal Access to Mobility; Universal Access to Information and Media; and Design for Quality of Life Technologies.

Open-Source Electronics Platforms - Trung Dung Ngo 2019-05-20 Open-source electronics are becoming very popular, and are integrated with our daily educational and developmental activities. At present, the use open-source electronics for teaching science, technology, engineering, and mathematics (STEM) has become a global trend. Off-the-shelf embedded electronics such as Arduino- and Raspberry-compatible modules have been widely used for various applications,

from do-it-yourself (DIY) to industrial projects. In addition to the growth of open-source software platforms, open-source electronics play an important role in narrowing the gap between prototyping and product development. Indeed, the technological and social impacts of open-source electronics in teaching, research, and innovation have been widely recognized.