

Arduino And Raspberry Pi Sensor Projects For The Evil Genius

Electronics Cookbook
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IOS Sensor Apps with Arduino
JavaScript Robotics
Beginning Sensor Networks with XBee, Raspberry Pi, and Arduino
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Python Programming for Arduino
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Raspberry Pi Projects
Hacking Electronics: Learning Electronics with Arduino and Raspberry Pi, Second Edition
Raspberry Pi Home Automation with Arduino
Arduino Project Handbook
Internet of Things Programming with JavaScript
A Hands-On Course in Sensors Using the Arduino and Raspberry Pi
IoT Machine Learning Applications in Telecom, Energy, and Agriculture
Building Wireless Sensor Networks
Raspberry Pi Hacks
Smart Home Automation with Linux
Learn Electronics with Raspberry Pi
30 Arduino Projects for the Evil Genius, Second Edition

Electronics Cookbook

To build electronic projects that can sense the physical world, you need to build circuits based around sensors: electronic components that react to physical phenomena by sending an electrical signal. Even with only basic electronic components, you can build useful and educational sensor projects. But if you incorporate Arduino or Raspberry Pi into your project, you can build much more sophisticated projects that can react in interesting ways and even connect to the Internet. This book starts by teaching you the basic electronic circuits to read and react to a sensor. It then goes on to show how to use Arduino to develop sensor systems, and wraps up by teaching you how to build sensor projects with the Linux-powered Raspberry Pi.

Make: Arduino Bots and Gadgets

In Learn Robotics with Raspberry Pi, you'll learn how to build and code your own robot projects with just the Raspberry Pi microcomputer and a few easy-to-get components - no prior experience necessary! Learn Robotics with Raspberry Pi will take you from inexperienced maker to robot builder. You'll start off building a two-wheeled robot powered by a Raspberry Pi minicomputer and then program it using Python, the world's most popular programming language. Gradually, you'll improve your robot by adding increasingly advanced functionality until it can follow lines, avoid obstacles, and even recognize objects of a certain size and color using computer vision. Learn how to: - Control your robot remotely using only a Wii remote - Teach your robot to use sensors to avoid obstacles - Program your robot to follow a line autonomously - Customize your robot with LEDs and speakers to make it light up and play sounds - See what your robot sees with a Pi Camera As you work through the book, you'll

learn fundamental electronics skills like how to wire up parts, use resistors and regulators, and determine how much power your robot needs. By the end, you'll have learned the basics of coding in Python and know enough about working with hardware like LEDs, motors, and sensors to expand your creations beyond simple robots.

IOS Sensor Apps with Arduino

Provides information on creating a variety of gadgets and controllers using Arduino.

JavaScript Robotics

“With futuristic homes on the rise, learn to control and automate the living space with intriguing IoT projects.” About This Book Build exciting (six) end-to-end home automation projects with Raspberry Pi 3, Seamlessly communicate and control your existing devices and build your own home automation system, Automate tasks in your home through projects that are reliable and fun Who This Book Is For This book is for all those who are excited about building home automation systems with Raspberry Pi 3. It's also for electronic hobbyists and developers with some knowledge of electronics and programming. What You Will Learn Integrate different embedded microcontrollers and development boards like Arduino, ESP8266, Particle Photon and Raspberry Pi 3, creating real life solutions for day to day tasks and home automation Create your own magic mirror that lights up with useful information as you walk up to it Create a system that intelligently decides when to water your garden and then goes ahead and waters it for you Use the Wi-fi enabled Adafruit ESP8266 Huzzah to create your own networked festive display lights Create a simple machine learning application and build a parking automation system using Raspberry Pi Learn how to work with AWS cloud services and connect your home automation to the cloud Learn how to work with Windows IoT in Raspberry Pi 3 and build your own Windows IoT Face Recognition door locking system In Detail Raspberry Pi 3 Home Automation Projects addresses the challenge of applying real-world projects to automate your house using Raspberry Pi 3 and Arduino. You will learn how to customize and program the Raspberry Pi 3 and Arduino-based boards in several home automation projects around your house, in order to develop home devices that will really rejuvenate your home. This book aims to help you integrate different microcontrollers like Arduino, ESP8266 Wi-Fi module, Particle Photon and Raspberry Pi 3 into the real world, taking the best of these boards to develop some exciting home automation projects. You will be able to use these projects in everyday tasks, thus making life easier and comfortable. We will start with an interesting project creating a Raspberry Pi-Powered smart mirror and move on to Automated Gardening System, which will help you build a simple smart gardening system with plant-sensor devices and Arduino to keep your garden healthy with minimal effort. You will also learn to build projects such as CheerLights into a holiday display, a project to erase parking headaches with OpenCV and Raspberry Pi 3, create Netflix's "The Switch" for the living room and lock down your house like Fort Knox with a Windows IoT face recognition-based door lock system. By the end of the book, you will be able to build and automate the living space with intriguing IoT projects and bring a new degree of interconnectivity to your world. Style and approach End to end home automation projects with Raspberry Pi 3.

Beginning Sensor Networks with XBee, Raspberry Pi, and Arduino

Build sensor networks with Python and MicroPython using XBee radio modules, Raspberry Pi, and Arduino boards. This revised and updated edition will put all of these together to form a

sensor network, and show you how to turn your Raspberry Pi into a MySQL database server to store your sensor data! You'll review the different types of sensors and sensor networks, along with new technology, including how to build a simple XBee network. You'll then walk through building an sensor nodes on the XBee, Raspberry Pi, and Arduino, and also learn how to collect data from multiple sensor nodes. The book also explores 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'll even learn how to connect to and interact with a MySQL database server directly from an Arduino! Finally you'll see how to put it all together by connecting your sensor nodes to your new Raspberry Pi database server. If you want to see how well XBee, Raspberry Pi, and Arduino can get along, especially to create a sensor network, then *Beginning Sensor Networks with XBee, Raspberry Pi, and Arduino* is just the book you need. What You'll Learn Code your sensor nodes with Python and MicroPython Work with new XBee 3 modules Host your data on Raspberry Pi Get started with MySQL Create sophisticated sensor networks Who This Book Is For Those interested in building or experimenting with sensor networks and IoT solutions, including those with little or no programming experience. A secondary target includes readers interested in using XBee modules with Raspberry Pi and Arduino, those interested in controlling XBee modules with MicroPython.

ROS Robotics By Example

Learn how to use a Raspberry Pi in conjunction with an Arduino to build a basic robot with advanced capabilities. Getting started in robotics does not have to be difficult. This book is an insightful and rewarding introduction to robotics and a catalyst for further directed study. You'll be led step by step through the process of building a robot that uses the power of a Linux based computer paired with the simplicity of Arduino. You'll learn why the Raspberry Pi is a great choice for a robotics platform; its strengths as well as its shortcomings; how to overcome these limitations by implementing an Arduino; and the basics of the Python programming language as well as some of the more powerful features. With the Raspberry Pi you can give your project the power of a Linux computer, while Arduino makes interacting with sensors and motors very easy. These two boards are complimentary in their functions; where one falters the other performs admirably. The book also includes references to other great works to help further your growth in the exciting, and now accessible, field of smart robotics. As a bonus, the final chapter of the book demonstrates the real power of the Raspberry Pi by implementing a basic vision system. Using OpenCV and a standard USB web cam, you will build a robot that can chase a ball. What You'll Learn Install Raspbian, the operating system that drives the Raspberry Pi Drive motors through an I2C motor controller Read data through sensors attached to an Arduino Who This Book Is For Hobbyists and students looking for a rapid start in robotics. It assumes no technical background. Readers are guided to pursue the areas that interest them in more detail as they learn.

Internet of Things with Raspberry Pi and Arduino

Linux users can now control their homes remotely! Are you a Linux user who has ever wanted to turn on the lights in your house, or open and close the curtains, while away on holiday? Want to be able to play the same music in every room, controlled from your laptop or mobile phone? Do you want to do these things without an expensive off-the-shelf kit? In *Smart Home Automation with Linux*, Steven Goodwin will show you how a house can be fully controlled by its occupants, all using open source software. From appliances to kettles to curtains, control your home remotely!

20 Easy Raspberry Pi Projects

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.

Arduino and Raspberry Pi Sensor Projects for the Evil Genius

This hands-on guide will teach you all you need to know to bring your electronic inventions to life! This fully updated guide shows, step-by-step, how to disassemble, tweak, and re-purpose everyday devices for use in your own electronics creations. Written in the clear, easy-to-follow style that Dr. Simon Monk is famous for, this expanded edition includes coverage of both Arduino AND Raspberry Pi. Hacking Electronics: Learning Electronics with Arduino and Raspberry Pi, Second Edition, demonstrates each technique through fun DIY projects. Packed with full-color illustrations, photos, and diagrams, the book gets you up and running on your own projects right away. You will discover how to hack sensors, accelerometers, remote controllers, ultrasonic rangefinders, motors, stereo equipment, FM transmitters, and more. • Contains start-to-finish hacks for both Arduino AND Raspberry Pi! • Features new coverage of ready-made modules available online • Offers tips on working with Simon's hacking electronics kit

Python Programming for Arduino

After a crash course to get you set up with your Raspberry Pi, you'll learn how to build interactive projects like a digital drum set; a WiFi controlled robot; a Pong game; an intruder alarm and more. Along the way, you'll work with core components like LCD screens, cameras, sensors, and even learn how to set up your own server. Each project provides step-by-step instructions, full-colour photos and circuit diagrams, and the complete code to bring your build to life. If you're ready to hit the ground running and make something interesting, let Raspberry Pi Project Handbook be your guide.

The Internet of Things: Do-It-Yourself at Home Projects for Arduino, Raspberry Pi and BeagleBone Black

Make a variety of cool projects using the Pi with programming languages like Scratch and Python, with no experience necessary. You'll learn how the Pi works, how to work with Raspbian Linux on the Pi, and how to design and create electronic circuits. Raspberry Pi is everywhere, it's inexpensive, and it's a wonderful tool for teaching about electronics and programming. This book shows you how to create projects like an arcade game, disco lights, and infrared transmitter, and an LCD display. You'll also learn how to control Minecraft's Steve with a joystick and how to build a Minecraft house with a Pi, and even how to control a LEGO train with a Pi. You'll even learn how to create your own robot, including how to solder and even design a printed circuit board! Learning electronics can be tremendous fun — your first flashing LED circuit is a reason to celebrate! But where do you go from there, and how can you move into more challenging projects without spending a lot of money on proprietary kits? Learn Electronics with Raspberry Pi shows you how to and a lot more. What You'll Learn Design and build electronic circuits Make fun projects like an arcade game, a robot, and a Minecraft controller Program the Pi with Scratch and Python Who This Book Is For Makers, students, and teachers who want to learn about electronics and programming with the fun and low-cost Raspberry Pi.

Raspberry Pi 3 Home Automation Projects

Build and program projects that tap into the Internet of Things (IoT) using Arduino, Raspberry Pi, and BeagleBone Black! This innovative guide gets you started right away working with the most popular processing platforms, wireless communication technologies, the Cloud, and a variety of sensors. You'll learn how to take advantage of the utility and versatility of the IoT and connect devices and systems to the Internet using sensors. Each project features a list of the tools and components, how-to explanations with photos and illustrations, and complete programming code. All projects can be modified and expanded, so you can build on your skills. The Internet of Things: DIY Projects with Arduino, Raspberry Pi, and BeagleBone Black Covers the basics of Java, C#, Python, JavaScript, and other programming languages used in the projects Shows you how to use IBM's Net Beans IDE and the Eclipse IDE Explains how to set up small-scale networks to connect the projects to the Internet Includes essential tips for setting up and using a MySQL database. The fun, DIY projects in the book include: Raspberry Pi home temperature measurements Raspberry Pi surveillance webcams Raspberry Pi home weather station Arduino garage door controller Arduino irrigation controller Arduino outdoor lighting controller Beaglebone message panel Beaglebone remote control SDR Machine-to-machine demonstration project

Make: Sensors

A Hands-On Course in Sensors using the Arduino and Raspberry Pi is the first book to give a practical and wide-ranging account of how to interface sensors and actuators with micro-controllers, Raspberry Pi and other control systems. The author describes the progression of raw signals through conditioning stages, digitization, data storage and presentation. The collection, processing, and understanding of sensor data plays a central role in industrial and scientific activities. This book builds simplified models of large industrial or scientific installations that contain hardware and other building blocks, including services for databases, web servers, control systems, and messaging brokers. A range of case studies are included within the book, including a weather station, geophones, a water-colour monitor, capacitance measurement, the profile of laser beam, and a remote-controlled and fire-seeking robot This book is suitable for advanced undergraduate and graduate students taking hands-on

laboratory courses in physics and engineering. Hobbyists in robotics clubs and other enthusiasts will also find this book of interest. Features: Includes practical, hands-on exercises that can be conducted in student labs, or even at home Covers the latest software and hardware, and all code featured in examples is discussed in detail All steps are illustrated with practical examples and case studies to enhance learning

Raspberry Pi Projects for the Evil Genius

A dozen fiendishly fun projects for the Raspberry Pi! This wickedly inventive guide shows you how to create all kinds of entertaining and practical projects with Raspberry Pi operating system and programming environment. In Raspberry Pi Projects for the Evil Genius, you'll learn how to build a Bluetooth-controlled robot, a weather station, home automation and security controllers, a universal remote, and even a minimalist website. You'll also find out how to establish communication between Android devices and the RasPi. Each fun, inexpensive Evil Genius project includes a detailed list of materials, sources for parts, schematics, and lots of clear, well-illustrated instructions for easy assembly. The larger workbook-style layout makes following the step-by-step instructions a breeze. Build these and other devious devices: LED blinker MP3 player Camera controller Bluetooth robot Earthquake detector Home automation controller Weather station Home security controller RFID door latch Remote power controller Radon detector Make Great Stuff! TAB, an imprint of McGraw-Hill Professional, is a leading publisher of DIY technology books for makers, hackers, and electronics hobbyists.

Raspberry Pi User Guide

Program your own MicroPython projects with ease—no prior programming experience necessary! This DIY guide provides a practical introduction to microcontroller programming with MicroPython. Written by an experienced electronics hobbyist, Python for Microcontrollers: Getting Started with MicroPython features eight start-to-finish projects with clear, easy-to-follow instructions for each. You will learn how to use sensors, store data, control motors and other devices, and work with expansion boards. From there, you'll discover how to design, build, and program all kinds of entertaining and practical projects of your own. • Learn MicroPython and object-oriented programming basics • Interface with a PC and load files, programs, and modules • Work with the LEDs, timers, and converters • Control external devices using serial interfaces and PWM • Build and program a let ball detector using the three-axis accelerometer • Install and program LCD and touch-sensor expansion boards • Record and play sounds using the AMP audio board

Programming the Raspberry Pi: Getting Started with Python

This book is perfect for hardware enthusiasts who want to develop amazing projects using Raspberry Pi. Some knowledge and experience working with Linux, C, and Python is a plus, but once you're set up to go, you'll be ready to push the creative capabilities of your Raspberry Pi even further.

Code the Classics Volume 1

Make: Sensors is the definitive introduction and guide to the sometimes-tricky world of using sensors to monitor the physical world. With dozens of projects and experiments for you to

build, this book shows you how to build sensor projects with both Arduino and Raspberry Pi. Use Arduino when you need a low-power, low-complexity brain for your sensor, and choose Raspberry Pi when you need to perform additional processing using the Linux operating system running on that device. You'll learn about touch sensors, light sensors, accelerometers, gyroscopes, magnetic sensors, as well as temperature, humidity, and gas sensors.

Beginning Sensor Networks with Arduino and Raspberry Pi

JavaScript Robotics is on the rise. Rick Waldron, the lead author of this book and creator of the Johnny-Five platform, is at the forefront of this movement. Johnny-Five is an open source JavaScript Arduino programming framework for robotics. This book brings together fifteen innovative programmers, each creating a unique Johnny-Five robot step-by-step, and offering tips and tricks along the way. Experience with JavaScript is a prerequisite.

Exploring Raspberry Pi

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.

Getting Started with Sensors

Apply machine learning using the Internet of Things (IoT) in the agriculture, telecom, and energy domains with case studies. This book begins by covering how to set up the software and hardware components including the various sensors to implement the case studies in Python. The case study section starts with an examination of call drop with IoT in the telecoms industry, followed by a case study on energy audit and predictive maintenance for an industrial machine, and finally covers techniques to predict cash crop failure in agribusiness. The last section covers pitfalls to avoid while implementing machine learning and IoT in these domains. After reading this book, you will know how IoT and machine learning are used in the example domains and have practical case studies to use and extend. You will be able to create enterprise-scale applications using Raspberry Pi 3 B+ and Arduino Mega 2560 with Python.

What You Will Learn

- Implement machine learning with IoT and solve problems in the telecom, agriculture, and energy sectors with Python
- Set up and use industrial-grade IoT products, such as Modbus RS485 protocol devices, in practical scenarios
- Develop solutions for commercial-grade IoT or IIoT projects
- Implement case studies in machine learning with IoT from scratch

Who This Book Is For

Raspberry Pi and Arduino enthusiasts and data science and machine learning professionals.

Raspberry Pi Cookbook

Arduino Project Handbook is a beginner-friendly collection of electronics projects using the low-cost Arduino board. With just a handful of components, an Arduino, and a computer, you'll learn to build and program everything from light shows to arcade games to an ultrasonic security system. First you'll get set up with an introduction to the Arduino and valuable advice on tools and components. Then you can work through the book in order or just jump to projects that catch your eye. Each project includes simple instructions, colorful photos and circuit diagrams, and all necessary code. Arduino Project Handbook is a fast and fun way to get started with microcontrollers that's perfect for beginners, hobbyists, parents, and educators. Uses the Arduino Uno board.

Make a Raspberry Pi-Controlled Robot

This do-it-yourself guide shows you how to program and build projects with the Arduino Uno and Leonardo boards and the Arduino 1.0 development environment. It gets you started right away with the simplified C programming you need to know and demonstrates how to take advantage of the latest Arduino capabilities. You'll learn how to attach an Arduino board to your computer, program it, and connect electronics to it to create your own devices. A bonus chapter uses the special USB keyboard/mouse-impersonation feature exclusive to the Arduino Leonardo--

Beginning Robotics with Raspberry Pi and Arduino

Program your own Raspberry Pi projects Create innovative programs and fun games on your tiny yet powerful Raspberry Pi. In this book, electronics guru Simon Monk explains the basics of Raspberry Pi application development, while providing hands-on examples and ready-to-use scripts. See how to set up hardware and software, write and debug applications, create user-friendly interfaces, and control external electronics. Do-it-yourself projects include a hangman game, an LED clock, and a software-controlled roving robot. Boot up and configure your Raspberry Pi Navigate files, folders, and menus Create Python programs using the IDLE editor Work with strings, lists, and functions Use and write your own libraries, modules, and classes Add Web features to your programs Develop interactive games with Pygame Interface with devices through the GPIO port Build a Raspberry Pi Robot and LED Clock Build professional-quality GUIs using Tkinter

Raspberry Pi Sensors

With more than 60 practical and creative hacks, this book helps you turn Raspberry Pi into the centerpiece of some cool electronics projects. Want to create a controller for a camera or a robot? Set up Linux distributions for media centers or PBX phone systems? That's just the beginning of what you'll find inside Raspberry Pi Hacks. If you're looking to build either a software or hardware project with more computing power than Arduino alone can provide, Raspberry Pi is just the ticket. And the hacks in this book will give you lots of great ideas. Use configuration hacks to get more out of your Pi Build your own web server or remote print server Take the Pi outdoors to monitor your garden or control holiday lights Connect with SETI or construct an awesome Halloween costume Hack the Pi's Linux OS to support more complex projects Decode audio/video formats or make your own music player Achieve a low-weight payload for aerial photography Build a Pi computer cluster or a solar-powered lab

Make: Action

Get ready to create distributed sensor systems and intelligent interactive devices using the ZigBee wireless networking protocol and Series 2 XBee radios. By the time you're halfway through this fast-paced, hands-on guide, you'll have built a series of useful projects, including a complete ZigBee wireless network that delivers remotely sensed data. Radio networking is creating revolutions in volcano monitoring, performance art, clean energy, and consumer electronics. As you follow the examples in each chapter, you'll learn how to tackle inspiring projects of your own. This practical guide is ideal for inventors, hackers, crafters, students, hobbyists, and scientists. Investigate an assortment of practical and intriguing project ideas Prep your ZigBee toolbox with an extensive shopping list of parts and programs Create a simple, working ZigBee network with XBee radios in less than two hours -- for under \$100 Use the Arduino open source electronics prototyping platform to build a series of increasingly complex projects Get familiar with XBee's API mode for creating sensor networks Build fully scalable sensing and actuation systems with inexpensive components Learn about power management, source routing, and other XBee technical nuances Make gateways that connect with neighboring networks, including the Internet

Raspberry Pi IoT Projects

Build your own Internet of Things (IoT) projects for prototyping and proof-of-concept purposes. This book contains the tools needed to build a prototype of your design, sense the environment, communicate with the Internet (over the Internet and Machine to Machine communications) and display the results. Raspberry Pi IoT Projects provides several IoT projects and designs are shown from the start to the finish including an IoT Heartbeat Monitor, an IoT Swarm, IoT Solar Powered Weather Station, an IoT iBeacon Application and a RFID (Radio Frequency Identification) IoT Inventory Tracking System. The software is presented as reusable libraries, primarily in Python and C with full source code available. Raspberry Pi IoT Projects: Prototyping Experiments for Makers is also a valuable learning resource for classrooms and learning labs. What You'll Learn build IOT projects with the Raspberry Pi Talk to sensors with the Raspberry Pi Use iBeacons with the IOT Raspberry Pi Communicate your IOT data to the Internet Build security into your IOT device Who This Book Is For Primary audience are those with some technical background, but not necessarily engineers. It will also appeal to technical people wanting to learn about the Raspberry Pi in a project-oriented method.

Raspberry Pi Electronics Projects for the Evil Genius

This book looks at how to integrate iOS devices into distributed sensors network, both to make use of its own on-board sensors in such networks, but also as a hub. Beyond the discussion of basic client-server architectures, and making use of the existing wireless capabilities, this book examines how to connect iOS devices to microcontroller platforms via serial connections.

Learn Robotics with Raspberry Pi

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.

Raspberry Pi Projects

Raspberry Pi Home Automation with Arduino is an easy-to-follow yet comprehensive guide for automating your home using the revolutionary ARM GNU/Linux board. Even if you have no prior experience with the Raspberry Pi or home automation you can pick up this book and develop these amazing projects. Full of detailed step-by-step instructions, diagrams, and images this essential guide allows you to revolutionize the way you interact with your home. If you don't know where to start, then this is the perfect book for you

Hacking Electronics: Learning Electronics with Arduino and Raspberry Pi, Second Edition

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 Home Automation with Arduino

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.

Arduino Project Handbook

If you're among the many hobbyists and designers who came to electronics through Arduino and Raspberry Pi, this cookbook will help you learn and apply the basics of electrical engineering without the need for an EE degree. Through a series of practical recipes, you'll learn how to solve specific problems while diving into as much or as little theory as you're comfortable with. Author Simon Monk (Raspberry Pi Cookbook) breaks down this complex subject into several topics, from using the right transistor to building and testing projects and prototypes. With this book, you can quickly search electronics topics and go straight to the recipe you need. It also serves as an ideal reference for experienced electronics makers. This cookbook includes: Theoretical concepts such as Ohm's law and the relationship between power, voltage, and current The fundamental use of resistors, capacitors and inductors, diodes, transistors and integrated circuits, and switches and relays Recipes on power, sensors and motors, integrated circuits, and radio frequency for designing electronic circuits and devices Advice on using Arduino and Raspberry Pi in electronics projects How to build and use tools, including multimeters, oscilloscopes, simulations software, and unsoldered prototypes

Internet of Things Programming with JavaScript

This book provides a platform to understand Internet of things with Raspberry Pi and the basic knowledge of the programming and interfacing of the devices and designed systems. It broadly covers introduction to Internet of Things and enabling technologies, interfacing with Raspberry Pi and Arduino and interfacing with Raspberry Pi GPIO. Internet of Things with Raspberry pi and Arduino is aimed at senior undergraduate, graduate students and professionals in electrical engineering, computer engineering including robotics.

A Hands-On Course in Sensors Using the Arduino and Raspberry Pi

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Fiendishly Clever Sensor Projects for Your Arduino and Raspberry Pi Learn to quickly build your own electronic gadgets that monitor, measure, and react to the real world—with no prior experience required! This easy-to-follow guide covers the programming and electronics essentials needed to build fun and educational sensor-based projects with both Arduino and Raspberry Pi. Arduino and Raspberry Pi Sensor Projects for the Evil Genius features step-by-step DIY projects that use inexpensive, readily available parts. You will discover how to use touch, temperature, moisture, light, sound, and motion sensors—even sensors that detect the presence of a human! Start-to-finish Arduino and Raspberry Pi projects include: • “Simon Says” game • Rotary encoder that controls an RGB LED • Reed switch door buzzer alarm • Fire alarm • Sound detector • Light clapper • Glass break alarm • Infrared motion detector • Distance sensor intruder alarm • Collision alarm • TFT color display screen • Door entry alarm with SD card logging • And many more

IoT Machine Learning Applications in Telecom, Energy, and Agriculture

Make a Raspberry-Pi Controlled Robot teaches you how to build a capable and upgradeable personal robot for around \$100. You'll learn how to control servos, respond to sensor input, and know where your bot is using GPS. You'll also learn many ways to connect to your robot and send it instructions, from an SSH connection to sending text messages from your phone.

Building Wireless Sensor Networks

Beginning with the basics and moving gradually to greater challenges, this book takes you step-by-step through experiments and projects that show you how to make your Arduino or Raspberry Pi create and control movement, light, and sound. In other words: action! The Arduino is a simple microcontroller with an easy-to-learn programming environment, while the Raspberry Pi is a tiny Linux-based computer. This book clearly explains the differences between the Arduino and Raspberry Pi, when to use them, and to which purposes each are best suited. Using these widely available and inexpensive platforms, you'll learn to control LEDs, motors of various types, solenoids, AC (alternating current) devices, heaters, coolers, displays, and sound. You'll even discover how to monitor and control these devices over the Internet. Working with solderless breadboards, you'll get up and running quickly, learning how to make projects that are as fun as they are informative. In Make: Action, you'll learn to: Build a can crusher using a linear actuator with your Arduino Have an Arduino water your plants Build a personal traffic signal using LEDs Make a random balloon popper with Arduino Cool down your beverages with a thermostatic drink cooler you build yourself Understand and use the PID control algorithm Use Raspberry Pi to create a puppet dance party that moves to your tweets!

Raspberry Pi Hacks

"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)."

Smart Home Automation with Linux

Bring life to your robot using ROS robotic applications About This Book This book will help you boost your knowledge of ROS and give you advanced practical experience you can apply to your ROS robot platforms This is the only book that offers you step-by-step instructions to solidify your ROS understanding and gain experience using ROS tools From eminent authors, this book offers you a plethora of fun-filled examples to make your own quadcopter, turtlebot, and two-armed robots Who This Book Is For If you are a robotics developer, whether a hobbyist, researchers or professional, and are interested in learning about ROS through a hands-on approach, then this book is for you. You are encouraged to have a working knowledge of GNU/Linux systems and Python. What You Will Learn Get to know the fundamentals of ROS and apply its concepts to real robot examples Control a mobile robot to navigate autonomously in an environment Model your robot designs using URDF and Xacro, and operate them in a ROS Gazebo simulation Control a 7 degree-of-freedom robot arm for visual servoing Fly a quadcopter to autonomous waypoints Gain working knowledge of ROS tools such as Gazebo, rviz, rqt, and Move-It Control robots with mobile devices and controller boards In Detail The visionaries who created ROS developed a framework for robotics centered on the commonality of robotic systems and exploited this commonality in ROS to expedite the development of future robotic systems. From the fundamental concepts to advanced practical experience, this book will provide you with an incremental knowledge of the ROS framework, the backbone of the robotics evolution. ROS standardizes many layers of robotics functionality from low-level device drivers to process control to message passing to software package management. This book provides step-by-step examples of mobile, armed, and flying robots, describing the ROS implementation as the basic model for other robots of these types. By controlling these robots, whether in simulation or in reality, you will use ROS to drive, move, and fly robots using ROS control. Style and approach This is an easy-to-follow guide with hands-on examples of ROS robots, both real and in simulation.

Learn Electronics with Raspberry Pi

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.

30 Arduino Projects for the Evil Genius, Second Edition

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