

Make A Raspberry Pi Controlled Robot Building A Rover With Python Linux Motors And Sensors

Make a Raspberry Pi-Controlled Robot Beginning Robotics with Raspberry Pi and Arduino Raspberry Pi LED Blueprints Raspberry Pi Robotic Blueprints Mastering Media with the Raspberry Pi Make: Sensors Programming the Raspberry Pi: Getting Started with Python Raspberry Pi User Guide Learn Robotics Programming Raspberry Pi Cookbook Raspberry Pi Projects for the Evil Genius Learn Electronics with Raspberry Pi Science and Computing with Raspberry Pi Learning Python with Raspberry Pi Hands-On Robotics Programming with C++ Make a Raspberry Pi-Controlled Robot Exploring Raspberry Pi Python Programming with Raspberry Pi Beginning Artificial Intelligence with the Raspberry Pi Raspberry Pi Cookbook for Python Programmers Raspberry Pi Home Automation with Arduino Getting Started with Processing.py Raspberry Pi 3 Projects for Java Programmers The NEW Official Raspberry Pi Beginner's Guide Internet of Things Programming Projects Raspberry Pi for Python Programmers Cookbook Raspberry Pi For Dummies Raspberry Pi Robotic Projects Raspberry Pi Projects for Kids - Second Edition Smart Home Automation with Linux Raspberry Pi Robotics Projects - Second Edition Raspberry Pi Hacks Building a Virtual Assistant for Raspberry Pi 20 Easy Raspberry Pi Projects Learn Raspberry Pi Programming with Python Building Smart Homes with Raspberry Pi Zero Learn Robotics with Raspberry Pi Raspberry Pi Projects Motors for Makers Raspberry Pi Projects For Dummies

Make a Raspberry Pi-Controlled Robot

Design, build, and test LED-based projects using the Raspberry Pi About This Book Implement real LED-based projects for Raspberry Pi Learn to interface various LED modules such as LEDs, 7-segment, 4-digits 7 segment, and dot matrix to Raspberry Pi Get hands-on experience by exploring real-time LEDs with this project-based book Who This Book Is For This book is for those who want to learn how to build Raspberry Pi projects utilising LEDs, 7 segment, 4-digits 7 segment, and dot matrix modules. You also will learn to implement those modules in real applications, including interfacing with wireless modules and the Android mobile app. However, you don't need to have any previous experience with the Raspberry Pi or Android platforms. What You Will Learn Control LEDs, 7 segments, and 4-digits 7 segment from a Raspberry Pi Expand Raspberry Pi's GPIO Build a countdown timer Build a digital clock display Display numbers and characters on dot matrix displays Build a traffic light controller Build a remote home light control with a Bluetooth low energy module and Android Build mobile Internet-controlled lamps with a wireless module and Android In Detail Blinking LED is a popular application when getting started in embedded development. By customizing and utilising LED-based modules into the Raspberry Pi board, exciting projects can be obtained. A countdown timer, a digital clock, a traffic light controller, and a remote light controller are a list of LED-based inspired project samples for Raspberry Pi. An LED is a simple actuator device that displays

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lighting and can be controlled easily from a Raspberry Pi. This book will provide you with the ability to control LEDs from Raspberry Pi, starting from describing an idea through designing and implementing several projects based on LEDs, such as, 7-segments, 4-digits 7 segment, and dot matrix displays. Beginning with step-by-step instructions on installation and configuration, this book can either be read from cover to cover or treated as an essential reference companion to your Raspberry Pi. Samples for the project application are provided such as a countdown timer, a digital clock, a traffic light controller, a remote light controller, and an LED-based Internet of Things, so you get more practice in the art of Raspberry Pi development. Raspberry Pi LED Blueprints is an essential reference guide full of practical solutions to help you build LED-based applications. Style and approach This book follows a step-by-step approach to LED-based development for Raspberry Pi, explained in a conversational and easy-to-follow style. Each topic is explained sequentially in the process of building an application, and detailed explanations of the basic and advanced features are included.

Beginning Robotics with Raspberry Pi and Arduino

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 LED Blueprints

This book is for enthusiasts who want to use Raspberry Pi to build complex robotics projects. However, some programming background is recommended. With the aid of the step-by-step instructions in this book, you can construct complex robotics projects that can move, talk, listen, see, swim, or fly. Raspberry Pi Robotic Projects is an easy-to-follow, step-by-step projects guide packed full of examples of actual robotics projects. Each topic is explained in detail to make it easy to replicate the projects described.

Raspberry Pi Robotic Blueprints

This book is for enthusiasts who want to use the Raspberry Pi to build complex robotics projects. With the aid of the step-by-step instructions in this book, you can construct complex robotics projects that can move, talk, listen, see, swim, or fly. No previous Raspberry Pi robotics experience is assumed, but even experts will find unexpected and interesting information in this invaluable guide.

Mastering Media with the Raspberry Pi

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.

Make: Sensors

Over 60 recipes that harness the power of the Raspberry Pi together with Python programming and create enthralling and captivating projects About This Book Install your first operating system, share files over the network, and run programs remotely Construct robots and interface with your own circuits and purpose built add-ons, as well as adapt off-the-shelf household devices using this pragmatic guide Packed with clear, step-by-step recipes to walk you through the capabilities of Raspberry Pi Who This Book Is For Readers are expected to be familiar with programming concepts and Python (where possible Python 3 is used), although beginners should manage with the help of a good Python reference book and background reading. No prior knowledge of the Raspberry Pi or electronics is required; however, for the hardware sections

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you will need some basic electronic components/household tools to build some of the projects. What You Will Learn Get the Raspberry Pi set up and running for the first time Remotely connect to the Raspberry Pi and use your PC/laptop instead of a separate screen/keyboard Get to grips with text, files and creating quick menus using Python Develop desktop applications; handle images and process files with ease Make use of graphics and user control to develop your own exciting games Use the Raspberry Pi's powerful GPU to create 3D worlds Take control of the real world and interface with physical hardware, combining hardware and software for your own needs Measure and control processes, respond to real events and monitor through the Internet Learn about the Raspberry Pi hardware inputs/outputs, starting with the basics and beyond Expand the capabilities of the Raspberry Pi with hardware expansion / add-on modules (use analogue inputs, drive servos and motors, and use SPI/I2C) Create your own Pi-Rover or Pi-Hexpod driven by the Raspberry Pi Make use of existing hardware by modifying and interfacing with it using the Raspberry Pi In Detail Raspberry Pi cookbook for Python Programmers is a practical guide for getting the most out of this little computer. This book begins by guiding you through setting up the Raspberry Pi, performing tasks using Python 3 and introduces the first steps to interface with electronics. As you work through each chapter you will build up your skills and knowledge and apply them as you progress throughout the book, delving further and further into the unique abilities and features of the Raspberry Pi. Later, you will learn how to automate tasks by accessing files, build applications using the popular Tkinter library and create games by controlling graphics on screen. You will harness the power of the built-in graphics processor by using Pi3D to generate your own high quality 3D graphics and environments. Connect directly to the Raspberry Pi's hardware pins to control electronics from switching on LEDs and responding to push buttons right through to driving motors and servos. Learn how to monitor sensors to gather real life data and to use it to control other devices, and view the results over the Internet. Apply what you have learnt by creating your own Pi-Rover or Pi-Hexpod robots. Finally, we will explore using many of the purpose built add-ons available for the Raspberry Pi, as well as interfacing with common household devices in new ways. Style and approach Written in a cookbook style, the book contains a series of recipes on various topics, ranging from simple to complex. It is an easy-to-follow and step-by-step guide with examples of various feature integration suitable for any search application.

Programming the Raspberry Pi: Getting Started with Python

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.

Raspberry Pi User Guide

Raspberry Pi Cookbook for Python Programmers is written in a Cookbook format, presenting examples in the style of

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recipes. This allows you to go directly to your topic of interest, or follow topics throughout a chapter to gain a thorough in-depth knowledge. The aim of this book is to bring you a broad range of Python 3 examples and practical ideas which you can develop to suit your own requirements. By modifying and combining the examples to create your own projects you learn far more effectively with a much greater understanding. Each chapter is designed to become a foundation for further experimentation and discovery of the topic, providing you with the tools and information to jump right in. Readers are expected to be familiar with programming concepts and Python (where possible Python 3 is used), although beginners should manage with the help of a good Python reference book and background reading. No prior knowledge of the Raspberry Pi or electronics is required; however for the hardware sections you will need some basic electronic components/household tools to build some of the projects.

Learn Robotics Programming

Gain a gentle introduction to the world of Artificial Intelligence (AI) using the Raspberry Pi as the computing platform. Most of the major AI topics will be explored, including expert systems, machine learning both shallow and deep, fuzzy logic control, and more! AI in action will be demonstrated using the Python language on the Raspberry Pi. The Prolog language will also be introduced and used to demonstrate fundamental AI concepts. In addition, the Wolfram language will be used as part of the deep machine learning demonstrations. A series of projects will walk you through how to implement AI concepts with the Raspberry Pi. Minimal expense is needed for the projects as only a few sensors and actuators will be required. Beginners and hobbyists can jump right in to creating AI projects with the Raspberry Pi using this book. What You'll Learn

- What AI is and—as importantly—what it is not
- Inference and expert systems
- Machine learning both shallow and deep
- Fuzzy logic and how to apply to an actual control system
- When AI might be appropriate to include in a system
- Constraints and limitations of the Raspberry Pi AI implementation

Who This Book Is For Hobbyists, makers, engineers involved in designing autonomous systems and wanting to gain an education in fundamental AI concepts, and non-technical readers who want to understand what AI is and how it might affect their lives.

Raspberry Pi Cookbook

Learn the art of building enticing projects by unleashing the potential of Raspberry Pi 3 using Java About This Book Explore the small yet powerful mini computer in order to run java applications Leverage Java libraries to build exciting projects on home automation, IoT, and Robotics by leveraging Java libraries Get acquainted with connecting electronic sensors to your Raspberry Pi 3 using Java APIs. Who This Book Is For The book is aimed at Java programmers who are eager to get their hands-on Raspberry Pi and build interesting projects using java. They have a very basic knowledge of Raspberry Pi. What You Will Learn Use presence detection using the integrated bluetooth chip Automatic light switch using presence detection

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Use a centralized IoT service to publish data using RPC Control a robot by driving motors using PWM Create a small web service capable of performing actions on the Raspberry Pi and supply readings Image capture using Java together with the OpenCV framework In Detail Raspberry Pi is a small, low cost and yet very powerful development platform. It is used to interact with attached electronics by the use of it's GPIO pins for multiple use cases, mainly Home Automation and Robotics. Our book is a project-based guide that will show you how to utilize the Raspberry Pi's GPIO with Java and how you can leverage this utilization with your knowledge of Java. You will start with installing and setting up the necessary hardware to create a seamless development platform. You will then straightaway start by building a project that will utilize light for presence detection. Next, you will program the application, capable of handling real time data using MQTT and utilize RPC to publish data to adafruit.io. Further, you will build a wireless robot on top of the zuma chassis with the Raspberry Pi as the main controller. Lastly, you will end the book with advanced projects that will help you to create a multi-purpose IoT controller along with building a security camera that will perform image capture and recognize faces with the help of notifications. By the end of the book, you will be able to build your own real world usable projects not limited to Home Automation, IoT and/or Robotics utilizing logic, user and web interfaces. Style and approach The book will contain projects that ensure a java programmer gets started with building interesting projects using the small yet powerful Raspberry Pi 3. We will start with brushing up your Raspberry Pi skills followed by building 5-6 projects

Raspberry Pi Projects for the Evil Genius

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.

Learn Electronics with Raspberry Pi

Create and maintain Raspberry Pi-based entertainment systems in a comprehensive and fun manner. Instead of front-loading a bunch of theory and minutia, this book takes a more practical approach of showing what's needed when it's needed. You'll first explore the possibilities and options available. Then you'll learn the hardware and software requirements based on various builds and projects. Finally, you'll be guided through building media centers, music players, recording studios, etc. Mastering Media with the Raspberry Pi presents all of this and more in an easy-to-understand-and-accomplish way, in plain English. What you'll learn: Choose the right Pi model for your project Enhance your media center with peripherals and add ons Get the most from your music and other media Understand the various major media formats out

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there and how to work with each Who this book is for Students and hobbyists interested in building media centers out of their Raspberry Pis.

Science and Computing with Raspberry Pi

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!

Learning Python with Raspberry Pi

The NEW Official Raspberry Pi Beginner's Guide: updated for Raspberry Pi 4

Hands-On Robotics Programming with C++

Explains how to leverage the revolutionary Raspberry Pi computer in order to learn the versatile Python programming language. Original.

Make a Raspberry Pi-Controlled Robot

Build a voice-controlled virtual assistant using speech-to-text engines, text-to-speech engines, and conversation modules. This book shows you how to program the virtual assistant to gather data from the internet (weather data, data from Wikipedia, data mining); play music; and take notes. Each chapter covers building a mini project/module to make the virtual assistant better. You'll develop the software on Linux or OS X before transferring it to your Raspberry Pi, ready for deploying in your own home-automation or Internet of Things applications. Building a Virtual Assistant for Raspberry Pi walks you through various STTs and TTSs and the implementation of these components with the help of Python. After that you will start implementing logic for handling user queries and commands, so that the user can have conversations with Melissa. You will then work to improve logic handling to detect what the user wants Melissa to do. You will also work on building some useful applications/modules for Melissa, which will allow you to gain interesting information from Melissa such as the time, weather information, and data from Wikipedia. You will develop a music playing application as well as a note taking application for Melissa, laying the foundations for how Melissa can be further extended. Finally, you will learn how to deploy

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this software to your Raspberry Pi and how you can further scale Melissa to make her more intelligent, interactive and how you can use her in other projects such as home automation as well. What You'll Learn Design the workflow and discover the concepts of building a voice controlled assistant Develop modules for having conversations with the assistant Enable the assistant to retrieve information from the internet Build utilities like a music player and a note taking application for the virtual assistant Integrate this software with a Raspberry Pi Who This Book Is For Anyone who has built a home automation project with Raspberry Pi and now want to enhance it by making it voice-controlled. The book would also interest students from computer science or related disciplines.

Exploring Raspberry Pi

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

Python Programming with Raspberry Pi

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

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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.

Beginning Artificial Intelligence with the Raspberry Pi

The First Maker-Friendly Guide to Electric Motors! Makers can do amazing things with motors. Yes, they're more complicated than some other circuit elements, but with this book, you can completely master them. Once you do, incredible new projects become possible. Unlike other books, Motors for Makers is 100% focused on what you can do. Not theory. Making. First, Matthew Scarpino explains how electric motors work and what you need to know about each major type: stepper, servo, induction, and linear motors. Next, he presents detailed instructions and working code for interfacing with and controlling servomotors with Arduino Mega, Raspberry Pi, and BeagleBone Black. All source code and design files are available for you to download from motorsformakers.com. From start to finish, you'll learn through practical examples, crystal-clear explanations, and photos. If you've ever dreamed of what you could do with electric motors, stop dreaming and start making! Understand why electric motors are so versatile and how they work Choose the right motor for any project Build the circuits needed to control each type of motor Program motor control with Arduino Mega, Raspberry Pi, or BeagleBone Black Use gearmotors to get the right amount of torque Use linear motors to improve speed and precision Design a fully functional electronic speed control (ESC) circuit Design your own quadcopter Discover how electric motors work in modern electric vehicles--with a fascinating inside look at Tesla's patents for motor design and control!

Raspberry Pi Cookbook for Python Programmers

Enhance your programming skills to build exciting robotic projects Key Features Build an intelligent robot that can detect and avoid obstacles and respond to voice commands Detect and track objects and faces using OpenCV Control your robot with a GUI button designed using Qt5 Book Description C++ is one of the most popular legacy programming languages for robotics, and a combination of C++ and robotics hardware is used in many leading industries. This book will bridge the gap between Raspberry Pi and C/C++ programming and enable you to develop applications for Raspberry Pi. To follow along with the projects covered in the book, you can implement C programs in Raspberry Pi with the wiringPi library. With this book, you'll develop a fully functional car robot and write programs to move it in different directions. You'll then create an obstacle - avoiding robot using an ultrasonic sensor. Furthermore, you'll find out how to control the robot wirelessly using your PC/Mac. This book will also help you work with object detection and tracking using OpenCV, and guide you through

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exploring face detection techniques. Finally, you will create an Android app and control the robot wirelessly with an Android smartphone. By the end of this book, you will have gained experience in developing a robot using Raspberry Pi and C/C++ programming. What you will learn Install software in Raspberry Pi compatible with C++ programming Program the Raspberry Pi in C++ to run a motor Control RPi-powered robot wirelessly with your laptop or PC Program an RPi camera using OpenCV Control a Raspberry Pi robot with voice commands Implement face and object detection with Raspberry Pi Who this book is for This book is for developers, programmers, and robotics enthusiasts interested in leveraging C++ to build exciting robotics applications. Prior knowledge of C++ is necessary to understand the projects covered in this book.

Raspberry Pi Home Automation with Arduino

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

Getting Started with Processing.py

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

Raspberry Pi 3 Projects for Java Programmers

Get your slice of Raspberry Pi With the invention of the unique credit card-sized single-board computer comes a new wave of hardware geeks, hackers, and hobbyists who are excited about the possibilities with the Raspberry Pi—and this is the perfect guide to get you started. With this down-to-earth book, you'll quickly discover why the Raspberry Pi is in high demand! There's a reason the Raspberry Pi sold a million units in its first year, and you're about to find out why! In

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Raspberry Pi For Dummies, 3rd Edition veteran tech authors Sean McManus and Mike Cook make it easier than ever to get you up and running on your Raspberry Pi, from setting it up, downloading the operating system, and using the desktop environment to editing photos, playing music and videos, and programming with Scratch—and everything in between. Covers connecting the Pi to other devices such as a keyboard, mouse, monitor, and more Teaches you basic Linux System Admin Explores creating simple hardware projects Shows you how to create web pages Raspberry Pi For Dummies, 3rd Edition makes computing as easy as pie!

The NEW Official Raspberry Pi Beginner's Guide

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.

Internet of Things Programming 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

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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.

Raspberry Pi for Python Programmers Cookbook

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.

Raspberry Pi For Dummies

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 Robotic Projects

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.

Raspberry Pi Projects for Kids - Second Edition

The world of single-board computing puts powerful coding tools in the palm of your hand. The portable Raspberry Pi

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computing platform with the power of Linux yields an exciting exploratory tool for beginning scientific computing. Science and Computing with Raspberry Pi takes the enterprising researcher, student, or hobbyist through explorations in a variety of computing exercises with the physical sciences. The book has tutorials and exercises for a wide range of scientific computing problems while guiding the user through: * Configuring your Raspberry Pi and Linux operating system * Understanding the software requirements while using the Pi for scientific computing * Computing exercises in physics, astronomy, chaos theory, and machine learning

Smart Home Automation with Linux

"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)."

Raspberry Pi Robotics Projects - Second Edition

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

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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!

Raspberry Pi Hacks

A practical project-based guide to help you build and control your IoT projects Key Features Leverage the full potential of IoT with the combination of Raspberry Pi 3 and Python Build complex Python-based applications with IoT Work on various IoT projects and understand the basics of electronics Book Description The Internet of Things (IOT) has managed to attract the attention of researchers and tech enthusiasts, since it powerfully combines classical networks with instruments and devices. In Internet of Things Programming Projects, we unleash the power of Raspberry Pi and Python to create engaging projects. In the first part of the book, you'll be introduced to the Raspberry Pi, learn how to set it up, and then jump right into Python programming. Then, you'll dive into real-world computing by creating a "Hello World" app using flash LEDs. As you make your way through the chapters, you'll go back to an age when analog needle meters ruled the world of data display. You'll learn to retrieve weather data from a web service and display it on an analog needle meter, and build a home security system using the Raspberry Pi. The next project has a modern twist, where we employ the Raspberry Pi to send a signal to a web service that will send you a text when someone is at the door. In the final project, you take what you've learned from the previous two projects and create an IoT robot car that you can use to monitor what your pets are up to when you are away. By the end of this book, you will be well versed in almost every possible way to make your IoT projects stand out. What you will learn Install and set up a Raspberry Pi for IoT development Learn how to use a servo motor as an analog needle meter to read data Build a home security dashboard using an infrared motion detector Communicate with a web service that sends you a message when the doorbell rings Receive data and display it with an actuator connected to the Raspberry Pi Build an IoT robot car that is controlled through the internet Who this book is for Internet of Things Programming Projects is for Python developers and programmers who are interested in building their own IoT applications and IoT-based projects. It is also targeted at IoT programmers and developers who are looking to build exciting projects with Python.

Building a Virtual Assistant for Raspberry Pi

Learn how to program your nifty new \$35 computer to make a web spider, a weather station, a media server, and more.

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This book explores how to make a variety of fun and even useful projects, from a web bot to search and download files to a toy to drive your pets insane. Even if you're completely new to programming in general, you'll see how easy it is to create a home security system, an underwater photography system, an RC plane with a camera, and even a near-space weather balloon with a camera. You'll learn how to use Pi with Arduino as well as Pi with Gertboard, an expansion board with an onboard ATmega microcontroller. Learn Raspberry Pi Programming with Python has been fully updated in this new edition to cover the features of the new boards. You'll learn how to program in Python on your Raspberry Pi with hands-on examples and fun projects. What You'll Learn Set up your new Raspberry Pi Build unique projects across a range of interests Program basic functions and processes using Python Who This Book Is For Readers who want to learn Python on a fun platform like the Pi and pick up some electronics skills along the way. No programming or Linux skill required, but a little experience with Linux will be helpful. Readers familiar with the 1st edition will enjoy the updated information in this new edition.

20 Easy Raspberry Pi Projects

Utilize the powerful ingredients of Raspberry Pi to bring to life your amazing robots that can act, draw, and have fun with laser tags About This Book Learn to implement a number of features offered by Raspberry Pi to build your own amazing robots Understand how to add vision and voice to your robots. This fast-paced practical guide comprises a number of creative projects to take your Raspberry Pi knowledge to the next level Who This Book Is For This all-encompassing guide was created for anyone who is interested in expanding their knowledge in applying the peripherals of Raspberry Pi. If you have a fancy for building complex-looking robots with simple, inexpensive, and readily available hardware, then this book is ideal for you. Prior understanding of Raspberry Pi with simple mechanical systems is recommended. What You Will Learn Add sensors to your robot so that it can sense the world around it Know everything there is to know about accessing motors and servos to provide movement to the robotic platform Explore the feature of adding vision to your robot so it can “see” the world around it Refine your robot with the skill of speech recognition so that it can receive commands Polish your robot by adding speech output so it can communicate with the world around it Maximize the use of servos in Raspberry Pi to create a drawing robot Strengthen your robot by adding wireless communication skills so you can see what the robot is seeing and control it from a distance Build an unbelievable autonomous hexcopter controlled by Raspberry Pi In Detail The Raspberry Pi is a series of credit card-sized single-board computers developed in the UK by the Raspberry Pi Foundation with the intention of promoting the teaching of basic computer science in schools. The Raspberry Pi is known as a tiny computer built on a single circuit board. It runs a Linux operating system, and has connection ports for various peripherals so that it can be hooked up to sensors, motors, cameras, and more. Raspberry Pi has been hugely popular among hardware hobbyists for various projects, including robotics. This book gives you an insight into implementing several creative projects using the peripherals provided by Raspberry Pi. To start, we'll walk through the basic robotics concepts that the world of

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Raspberry Pi offers us, implementing wireless communication to control your robot from a distance. Next, we demonstrate how to build a sensible and a visionary robot, maximizing the use of sensors and step controllers. After that, we focus on building a wheeled robot that can draw and play hockey. To finish with a bang, we'll build an autonomous hexcopter, that is, a flying robot controlled by Raspberry Pi. By the end of this book, you will be a maestro in applying an array of different technologies to create almost any imaginable robot. Style and approach This book is an easy-to-follow, project-based guide that throws you directly into the action of creating almost any imaginable robot through blueprints. It is full of step by step instructions and screenshots to help you build amazing robots in no time at all.

Learn Raspberry Pi Programming with Python

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

Building Smart Homes with Raspberry Pi Zero

Become a master of Python programming using the small yet powerful Raspberry Pi Zero About This Book This is the first book on the market that teaches Python programming with Raspberry Pi Zero Develop exciting applications such as a mobile robot and home automation controller using Python This step-by-step guide helps you make the most out of Raspberry Pi Zero using Python programming Who This Book Is For This book is aimed at hobbyists and programmers who want to learn Python programming and develop applications using the Pi Zero. They should have basic familiarity with electronics. What You Will Learn Configure Raspberry Pi using Python Control loops to blink an LED using simple arithmetic operations Understand how interface sensors, actuators, and LED displays work Get to grips with every aspect of Python programming using practical examples Explore machine vision, data visualization, and scientific computations Build a mobile robot using the Raspberry Pi as the controller Build a voice-activated home automation controller In Detail Raspberry

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Pi Zero is a super-small and super-affordable product from Raspberry Pi that is packed with a plethora of features and has grabbed the notice of programmers, especially those who use Python. This step-by-step guide will get you developing practical applications in Python using a Raspberry Pi Zero. It will become a valuable resource as you learn the essential details of interfacing sensors and actuators to a Raspberry Pi, as well as acquiring and displaying data. You will get started by writing a Python program that blinks an LED at 1-second intervals. Then you will learn to write simple logic to execute tasks based upon sensor data (for example, to control a motor) and retrieve data from the web (such as to check e-mails to provide a visual alert). Finally, you will learn to build a home automation system with Python where different appliances are controlled using the Raspberry Pi. The examples discussed in each chapter of this book culminate in a project that help improve the quality of people's lives. Style and approach This will be a learning, step-by-step guide to teach Python programming using the famous Raspberry Pi Zero. The book is packed with practical examples at every step along with tips and tricks for the Raspberry Pi fans

Learn Robotics with Raspberry Pi

This book is for kids who wish to develop games and applications using the Raspberry Pi. No prior experience in programming is necessary; you need only a Raspberry Pi and the required peripherals.

Raspberry Pi Projects

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.

Motors for Makers

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Gain experience of building a next-generation collaboration robot Key Features Get up and running with the fundamentals of robotic programming Program a robot using Python and the Raspberry Pi 3 Learn to build a smart robot with interactive and AI-enabled behaviors Book Description We live in an age where the most difficult human tasks are now automated. Smart and intelligent robots, which will perform different tasks precisely and efficiently, are the requirement of the hour. A combination of Raspberry Pi and Python works perfectly when making these kinds of robots. Learn Robotics Programming starts by introducing you to the basic structure of a robot, along with how to plan, build, and program it. As you make your way through the book, you will gradually progress to adding different outputs and sensors, learning new building skills, and writing code for interesting behaviors with sensors. You'll also be able to update your robot, and set up web, phone, and Wi-Fi connectivity in order to control it. By the end of the book, you will have built a clever robot that can perform basic artificial intelligence (AI) operations. What you will learn Configure a Raspberry Pi for use in a robot Interface motors and sensors with a Raspberry Pi Implement code to make interesting and intelligent robot behaviors Understand the first steps in AI behavior such as speech recognition visual processing Control AI robots using Wi-Fi Plan the budget for requirements of robots while choosing parts Who this book is for Learn Robotics Programming is for programmers, developers, and enthusiasts interested in robotics and developing a fully functional robot. No major experience required just some programming knowledge would be sufficient.

Raspberry Pi Projects For Dummies

Processing opened up the world of programming to artists, designers, educators, and beginners. The Processing.py Python implementation of Processing reinterprets it for today's web. This short book gently introduces the core concepts of computer programming and working with Processing. Written by the co-founders of the Processing project, Reas and Fry, along with co-author Allison Parrish, Getting Started with Processing.py is your fast track to using Python's Processing mode.

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