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KEY=LABVIEW - CASSANDRA ALISSON

Programming Arduino with LabVIEW

Packt Publishing Ltd If you already have some experience with LabVIEW and want to apply your skills to control physical objects and make measurements using the Arduino sensor, this book is for you. Prior knowledge of Arduino and LabVIEW is essential to fully understand the projects detailed in this book.

LabVIEW

A Flexible Environment for Modeling and Daily Laboratory Use

BoD - Books on Demand The LabVIEW software environment from National Instruments is used by engineers and scientists worldwide for a variety of applications. This book examines many of these applications, including modeling, data acquisition, monitoring electrical networks, studying the structural response of buildings to earthquakes, and more.

ICASI 2019

Proceedings of The 2nd International Conference On Advance And Scientific Innovation, ICASI 2019, 18 July, Banda Aceh, Indonesia

European Alliance for Innovation As an annual event, THE 2ND INTERNATIONAL CONFERENCE ON ADVANCE & SCIENTIFIC INNOVATION 2019 continued the agenda to bring together researcher, academics, experts and professionals in examining about Scientific Innovation in technology, education, management, accounting and many aspect area. In 2019, this event held in 18 July 2019 at Politeknik Kutaraja, Banda Aceh, Indonesia. This ICASI Proceeding 2019 are published along with article from ICASI 2018 and each contributed paper was refereed before being accepted for publication. The double-blind peer reviewed was used in the paper selection.

BUKU PETUNJUK PRAKTIKUM MIKROKONTROLER ARDUINO

SCOPINDO MEDIA PUSTAKA Buku Petunjuk Praktikum Mikrokontroler ini yang berisi 20 modul materi yang terdiri dari LED, Push button, Buzzer, LCD 16X2, Seven Segment, ADC dan PWM, Keypad, Sensor suhu, sensor jarak, Pengaturan motor DC, modul Relay, Motor Servo, RTC, Traffic Light, Infrared Remote Control, Motor Stepper, Dot matrix, Bluetooth, Modul Wifi, dan Modul SIM800L. Semoga dengan buku petunjuk ini dapat memberikan pengetahuan kepada pembaca dan dapat menambah pengetahuan tentang praktik Mikrokontroler Arduino khususnya Mega2560. Masih banyak kekurangan dari buku petunjuk ini, semoga para pembaca dan pemakai buku ini berkenan memberikan saran dan kritik terhadap isi buku ini agar dapat disempurnakan kembali menjadi lebih baik.

Integrating PHP Projects with Jenkins

"O'Reilly Media, Inc." Most web applications are changed and adapted quite frequently and quickly. Their environment, for example the size and the behavior of the user base, are constantly changing. What was sufficient yesterday can be insufficient today. Especially in a web environment it is important to monitor and continuously improve the internal quality not only when developing, but also when maintaining the software. Jenkins is the leading open-source continuous integration server. Thanks to its thriving plugin ecosystem, it supports building and testing virtually any project. This book explains how you can leverage Jenkins to monitor the various aspects of software quality in a PHP software project.

Arduino BLINK Blueprints

Packt Publishing Ltd Get the most out of your Arduino to develop exciting and creative LED-based projects About This Book Learn to control TV backlighting using an IR remote Get introduced to sound visualization so you are able to use sound-controlled LEDs Build an exciting persistence of vision wand Who This Book Is For Anyone with a basic computer knowledge should be able to get the most out of this book. Although familiarity with some of the electronics would be helpful, it is not a must. What You Will Learn Set up Arduino boards to run a basic 'Hello World' program Develop a mood lamp and expand it to become an LED night lamp Control TV backlight color and intensity using an IR remote Develop an IR-controlled 4*4 LED cube Use sound visualization to develop a sound-controlled LED Christmas tree See a fun way to create interesting long exposure photographs and light displays using persistence of vision (POV) wands In Detail Arduino is an open-source prototyping platform based on easy-to-use hardware and software. Arduino has been used in thousands of different projects and applications by a wide range of programmers and artists, and their contributions have added up to an incredible amount of accessible knowledge that can be of great help to novices and experts alike. Want to build exciting LED projects with Arduino? This book will be your companion to bring out the creative genius in you. To begin with, you will get introduced to the maker movement and the open source hardware development Arduino boards. You will then move on to develop a mood lamp and a remote-controlled TV backlight. As you progress through the book, you will develop an LED cube and will learn to use sound visualization to develop a sound-controlled LED Christmas tree. You will then move on to build a persistence of vision wand. At the end of each chapter, you'll see some common problems, their solutions, and some workarounds. Style and approach This book takes a project based approach to building LED-based projects with Arduino.

Beginning NFC

Near Field Communication with Arduino, Android, and PhoneGap

"O'Reilly Media, Inc." Jump into the world of Near Field Communications (NFC), the fast-growing technology that lets devices in close proximity exchange data, using radio signals. With lots of examples, sample code, exercises, and step-by-step projects, this hands-on guide shows you how to build NFC applications for Android, the Arduino microcontroller, and embedded Linux devices. You'll learn how to write apps using the NFC Data Exchange Format (NDEF) in PhoneGap, Arduino, and node.js that help devices read messages from passive NFC tags and exchange data with other NFC-enabled devices. If you know HTML and JavaScript, you're ready to start with NFC. Dig into NFC's architecture, and learn how it's related to RFID Write sample apps for Android with PhoneGap and its NFC plugin Dive into NDEF: examine existing tag-writer apps and build your own Listen for and filter NDEF messages, using PhoneGap event listeners Build a full Android app to control lights and music in your home Create a hotel registration app with Arduino, from check-in to door lock Write peer-to-peer NFC messages between two Android devices Explore embedded Linux applications, using examples on Raspberry Pi and BeagleBone

Data Science from Scratch

First Principles with Python

"O'Reilly Media, Inc." Data science libraries, frameworks, modules, and toolkits are great for doing data science, but they're also a good way to dive into the discipline without actually understanding data science. In this book, you'll learn how many of the most fundamental data science tools and algorithms work by implementing them from scratch. If you have an aptitude for mathematics and some programming skills, author Joel Grus will help you get comfortable with the math and statistics at the core of data science, and with hacking skills you need to get started as a data scientist. Today's messy glut of data holds answers to questions no one's even thought to ask. This book provides you with the know-how to dig those answers out. Get a crash course in Python Learn the basics of linear algebra, statistics, and probability—and understand how and when they're used in data science Collect, explore, clean, munge, and manipulate data Dive into the fundamentals of machine learning Implement models such as k-nearest Neighbors, Naive Bayes, linear and logistic regression, decision trees, neural networks, and clustering Explore recommender systems, natural language processing, network analysis, MapReduce, and databases

Arduino Home Automation Projects

Packt Publishing Ltd This book is divided into projects that are explained in a step-by-step format, with practical instructions that are easy to follow. If you want to build your own home automation systems wirelessly using the Arduino platform, this is the book for you. You will need to have some basic experience in Arduino and general programming languages, such as C and C++ to understand the projects in this book.

Building Applications with iBeacon

Proximity and Location Services with Bluetooth Low Energy

"O'Reilly Media, Inc." High-precision location information is increasingly useful for mobile application developers, since it allows devices to interact with the world around them. This practical book shows you how to achieve arm's reach accuracy with iBeacons, simple transmitters that enable your applications to react to nearby surroundings and then deliver timely, relevant information—especially indoors, where GPS and cell service are inaccurate. Whether you're enabling a map, giving users directions, creating a game, recommending purchases, letting users check in, or creating an immersive experience, you'll learn how iBeacons provide precise location information, empowering your applications to engage and interact with users nearby. Get examples of several application types you can build with iBeacons Learn how iBeacons provide applications with proximity information Set up, activate, and test iBeacons on both specialized and general-purpose hardware Explore the APIs and tools you need to develop location-aware mobile applications Use built-in iOS features to interact with iBeacons, including Passbook Build networks to help shoppers, travelers, conference attendees, and others find what they're looking for

Test Driven Development in Ruby

A Practical Introduction to TDD Using Problem and Solution Domain Analysis

Apress Learn the basics of test driven development (TDD) using Ruby. You will carry out problem domain analysis, solution domain analysis, designing test cases, and writing tests first. These fundamental concepts will give you a solid TDD foundation to build upon. Test Driven Development in Ruby is written by a developer for developers. The concepts are first explained, then a coding demo illustrates how to apply the theory in practice. At the end of each chapter an exercise is given to reinforce the material. Complete with working files and code samples, you'll be able to work alongside the author, a trainer, by following the material in this book. What You Will Learn Carry out problem domain analysis, solution domain analysis, designing test cases, and writing tests first Use assertions Discover the structure of a test and the TDD cycle Gain an understanding of minimal implementation, starter test, story test, and next test Handle refactoring using Ruby Hide implementation details Test precisely and concretely Make your code robust Who This Book Is For Experienced Ruby programmers or web developers with some prior experience with Ruby.

Building Arduino PLCs

The essential techniques you need to develop Arduino-based PLCs

Apress Learn the fundamentals of PLCs and how to control them using Arduino software to create your first Arduino PLC. You will learn how to draw Ladder Logic diagrams to represent PLC designs for a wide variety of automated applications and to convert the diagrams to Arduino sketches. A comprehensive shopping guide includes the hardware and software components you need in your tool box. You will learn to use Arduino UNO, Arduino Ethernet shield, and Arduino WiFi shield. Building Arduino PLCs shows you how to build and test a simple Arduino UNO-based 5V DC logic level PLC with Grove Base shield by connecting simple sensors and actuators. You will also learn how to build industry-grade PLCs with the help of ArduiBox. What You'll Learn Build ModBus-enabled PLCs Map Arduino PLCs into the cloud using NearBus cloud connector to control the PLC through the Internet Use do-it-yourself light platforms such as IFTTT Enhance your PLC by adding Relay shields for connecting heavy loads Who This Book Is For Engineers, designers, crafters, and makers. Basic knowledge in electronics and Arduino programming or any other programming language is recommended.

The LabVIEW Style Book

Pearson Education This is the eBook version of the print title. The illustrations are in color for this eBook version. Drawing on the experiences of a world-class LabVIEW development organization, The LabVIEW Style Book is the definitive guide to best practices in LabVIEW development. Leading LabVIEW development manager Peter A. Blume presents practical guidelines or "rules" for optimizing every facet of your applications: ease of use, efficiency, readability, simplicity, performance, maintainability, and robustness. Blume explains each style rule thoroughly, presenting realistic examples and illustrations. He even presents "nonconforming" examples that show what not to do—and why not. While the illustrations in the print book are in black and white, you can download full-color versions from the publisher web site for free.

Arduino-Based Embedded Systems

Interfacing, Simulation, and LabVIEW GUI

CRC Press Arduino is an open-source electronics platform based on easy-to-use hardware and software while LabVIEW is a graphical programming telling how to connect functions and work with a variety of datatypes when constructing applications. This book will help beginners to get started with Arduino-based embedded systems including essential know-how of the programming and interfacing of the devices. Book includes programming and simulation of Arduino-based projects and interfacing with LabVIEW, based on practical case studies. The book comprises of total twenty five chapters with description, working model of LabVIEW and programming with Arduino IDE.

Beginning Arduino Programming

Apress Beginning Arduino Programming allows you to quickly and intuitively develop your programming skills through sketching in code. This clear introduction provides you with an understanding of the basic framework for developing Arduino code, including the structure, syntax, functions, and libraries needed to create future projects. You will also learn how to program your Arduino interface board to sense the physical world, to control light, movement, and sound, and to create objects with interesting behavior. With Beginning Arduino Programming, you'll get the knowledge you need to master the fundamental aspects of writing code on the Arduino platform, even if you have never before written code. It will have you ready to take the next step: to explore new project ideas, new kinds of hardware, contribute back to the open source community, and even take on more programming languages.

Using Docker

Developing and Deploying Software with Containers

"O'Reilly Media, Inc." Docker containers offer simpler, faster, and more robust methods for developing, distributing, and running software than previously available. With this hands-on guide, you'll learn why containers are so important, what you'll gain by adopting Docker, and how to make it part of your development process. Ideal for developers, operations engineers, and system administrators—especially those keen to embrace a DevOps approach—Using Docker will take you from Docker and container basics to running dozens of containers on a multi-host system with networking and scheduling. The core of the book walks you through the steps needed to develop, test, and deploy a web application with Docker. Get started with Docker by building and deploying a simple web application Use Continuous Deployment techniques to push your application to production multiple times a day Learn various options and techniques for logging and monitoring multiple containers Examine networking and service discovery: how do containers find each other and how do you connect them? Orchestrate and cluster containers to address load-balancing, scaling, failover, and scheduling Secure your system by following the principles of defense-in-depth and least privilege

Arduino Android Blueprints

Packt Publishing Ltd This book is for those who want to learn how to build exciting Arduino projects by interfacing it with Android. You will need to have some basic experience in electronics and programming. However, you don't need to have any previous experience with the Arduino or Android platforms.

Smart Sensors Networks

Communication Technologies and Intelligent Applications

Academic Press Smart Sensors Networks: Communication Technologies and Intelligent Applications explores the latest sensor and sensor networks techniques and applications, showing how networked wireless sensors are used to monitor and gather intelligence from our surrounding environment. It provides a systematic look at the unique characteristics of wireless sensor networks through their usage in a broad range of areas, including healthcare for the elderly, energy consumption, industrial automation, intelligent transportation systems, smart homes and cities, and more. The book shows how sensor-networks work and how they are applied to monitor our surrounding environment. It explores the most important aspects of modern sensors technologies, providing insights on the newest technologies and the systems needed to operate them. Readers will find the book to be an entry point for understanding the fundamental differences between the various sensor technologies and their use in for different scenarios. Indexing: The books of this series are submitted to EI-Compendex and SCOPUS Presents numerous specific use-cases throughout, showing practical applications of concepts Contains contributions from leading experts around the globe Collects, in one place, the latest thinking on an emerging topic Addresses the security and privacy issues inherent in sensor deployment

LabVIEW Graphical Programming, Fifth Edition

McGraw Hill Professional LabVIEW programming techniques, tips, and practices Learn to build effective LabVIEW programs using the detailed information contained in this thoroughly revised resource. This edition updates all content to align with the latest version and adds new chapters that clearly explain object-oriented programming methods, and programming in teams using the cloud. LabVIEW Graphical Programming, Fifth Edition begins with basics for beginners and quickly progresses to intermediate and advanced programming techniques. Written by a pair of LabVIEW experts, this hands-on guide shows how to work with data types, start building your own applications, handle I/O, and use the DAQmix library. You will also find out how to build applications that communicate with enterprise message brokers and with Amazon Web Services' Internet of Things (IoT) message broker. Coverage includes: The origin and evolution of LabVIEW LabVIEW programming fundamentals Data acquisition Object-oriented programming in LabVIEW Frameworks, including the Delacor Queued Message Handler (DQMH®) and Actor Framework Unit testing Enterprise and IoT messaging Programming in teams using the cloud

Beginning Arduino

Apress In Beginning Arduino, you will learn all about the popular Arduino microcontroller by working your way through an amazing set of 50 cool projects. You'll progress from a complete beginner regarding Arduino programming and electronics knowledge to intermediate skills and the confidence to create your own amazing Arduino projects. Absolutely no experience in programming or electronics required! Rather than requiring you to wade through pages of theory before you start making things, this book has a hands-on approach. You will dive into making projects right from the start, learning how to use various electronic components and how to program the Arduino to control or communicate with those components. Each project is designed to build upon the knowledge learned in earlier projects and to further your knowledge in programming as well as skills with electronics. By the end of the book you will be able create your own projects confidently and with creativity. Please note: the print version of this title is black & white; the eBook is full color. You can download the color diagrams in the book from <http://www.apress.com/9781430232407>

Practical Arduino

Cool Projects for Open Source Hardware

Apress Create your own Arduino-based designs, gain in-depth knowledge of the architecture of Arduino, and learn the user-friendly Arduino language all in the context of practical projects that you can build yourself at home. Get hands-on experience using a variety of projects and recipes for everything from home automation to test equipment. Arduino has taken off as an incredibly popular building block among ubicomp (ubiquitous computing) enthusiasts, robotics hobbyists, and DIY home automation developers. Authors Jonathan Ozer and Hugh Blemings provide detailed instructions for building a wide range of both practical and fun Arduino-related projects, covering areas such as hobbies, automotive, communications, home automation, and instrumentation. Take Arduino beyond "blink" to a wide variety of projects from simple to challenging Hands-on recipes for everything from home automation to interfacing with your car engine management system Explanations of techniques and references to handy resources for ubiquitous computing projects Supplementary material includes a circuit schematic reference, introductions to a range of electronic engineering principles and general hints & tips. These combine with the projects themselves to make Practical Arduino: Cool Projects for Open Source Hardware an invaluable reference for Arduino users of all levels. You'll learn a wide variety of techniques that can be applied to your own projects.

Programming Arduino Next Steps: Going Further with Sketches

McGraw Hill Professional "In this practical guide, electronics guru Simon Monk takes you under the hood of Arduino and reveals professional programming secrets. Featuring coverage of the Arduino Uno, Leonardo, and Due boards, Programming Arduino Next Steps: Going Further with Sketches shows you how to use interrupts, manage memory, program for the Internet, maximize serial communications, perform digital signal processing, and much more. All of the 75+ example sketches featured in the book are available for download"--

C Programming for Arduino

Packt Publishing Ltd Written as a practical Packt book brimming with engaging examples, C Programming for Arduino will help those new to the amazing open source electronic platform so that they can start developing some great projects from the very start. This book is great for people who want to learn how to design & build their own electronic devices. From interaction design art school students to the do-it-yourself hobbyist, or even simply people who want to learn electronics, this book will help by adding a new way to design autonomous but connected devices.

Arduino Essentials

Packt Publishing Ltd If you are a hobbyist who wants to develop projects based on Arduino as the main microcontroller platform or an engineer interested in finding out what the Arduino platform offers, then this book is ideal for you. Some prior knowledge of the C programming language is required.

Arduino Networking

Packt Publishing Ltd This book is intended for those who want to build their own network-connected projects using the Arduino platform. You will be able to build exciting projects that connect to your local network and the Web. You will need to have some basic experience in electronics and web programming languages. You will also need to know the basics of the Arduino platform as the projects mainly deal with the networking aspects of the Arduino Ethernet shield.

Arduino Programming with .NET and Sketch

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

Python Programming for Arduino

Packt Publishing Ltd 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.

Arduino Development Cookbook

Packt Publishing Ltd If you want to build programming and electronics projects that interact with the environment, this book will offer you dozens of recipes to guide you through all the major applications of the Arduino platform. It is intended for programming or electronics enthusiasts who want to combine the best of both worlds to build interactive projects.

Arduino Sketches

Tools and Techniques for Programming Wizardry

John Wiley & Sons Master programming Arduino with this hands-on guide *Arduino Sketches* is a practical guide to programming the increasingly popular microcontroller that brings gadgets to life. Accessible to tech-lovers at any level, this book provides expert instruction on Arduino programming and hands-on practice to test your skills. You'll find coverage of the various Arduino boards, detailed explanations of each standard library, and guidance on creating libraries from scratch - plus practical examples that demonstrate the everyday use of the skills you're learning. Work on increasingly advanced programming projects, and gain more control as you learn about hardware-specific libraries and how to build your own. Take full advantage of the Arduino API, and learn the tips and tricks that will broaden your skillset. The Arduino development board comes with an embedded processor and sockets that allow you to quickly attach peripherals without tools or solders. It's easy to build, easy to program, and requires no specialized hardware. For the hobbyist, it's a dream come true - especially as the popularity of this open-source project inspires even the major tech companies to develop compatible products. *Arduino Sketches* is a practical, comprehensive guide to getting the most out of your Arduino setup. You'll learn to: Communicate through Ethernet, WiFi, USB, Firmata, and XBee. Find, import, and update user libraries, and learn to create your own. Master the Arduino Due, Esplora, Yun, and Robot boards for enhanced communication, signal-sending, and peripherals. Play audio files, send keystrokes to a computer, control LED and cursor movement, and more. This book presents the Arduino fundamentals in a way that helps you apply future additions to the Arduino language, providing a great foundation in this rapidly-growing project. If you're looking to explore Arduino programming, *Arduino Sketches* is the toolbox you need to get started.

Arduino Project Handbook

25 Practical Projects to Get You Started

No Starch Press *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.

Biomedical Sensors Data Acquisition with LabVIEW

BPB Publications Explore and work with tools for Biomedical Data Acquisition and Signal Processing

Key Features

- Get familiar with the working of Biomedical Sensors
- Learn how to program Arduino with LabVIEW with ease
- Get familiar with the process of interfacing of analog sensors with Arduino Mega
- Use LabVIEW to build an ECG Patient Monitoring System
- Learn how to interface a simple GSM Module to Arduino

Description

Biomedical sensor data acquisition with LabVIEW provides a platform for engineering students to get acquainted with Arduino and LabVIEW programming. Arduino based projects would help to improve the standards of patient care and monitoring in hospitals and the standard of living in cities by implementing a variety of innovative ideas more directly. The goal of this book is to explore and illustrate the programming and interfacing of Arduino with biomedical sensors, communication modules, and LabVIEW GUI. The book begins with essential knowledge and gradually progresses towards the advanced level of comprehension. It starts with a Biomedical sensor-based project with a working model of LabVIEW GUI. It also gives a detailed overview of programming with Arduino IDE and LabVIEW. It covers Interface for Arduino (LIFA), which is a unique contribution that aids in the understanding of embedded systems. This book is for high-level students who need application-based knowledge for developing some real-time patient monitoring systems using Arduino and LabVIEW.

What will you learn?

- Learn about the interfacing of Biomedical Sensors
- Understand how to create GUI with LabVIEW
- Learn about digital and analog sensor interfacing with Arduino
- Learn how to load the LabVIEW Interface for Arduino without Firmware
- Learn how to Interface LabVIEW with Arduino Board using Firmware

Who this book is for

This book is for Students/Professionals looking for a career in the growing field of Biomedical Sensors. This book is also for those who want to get familiar with the basics of E-Healthcare systems.

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About the Authors

Anshuman Prakash has completed his M.Tech in Embedded systems specialization in wearable technology from University of Petroleum and Energy Studies, Dehradun, India. Dr. Lovi Raj Gupta is the Executive Dean, Faculty of Technology & Sciences, Lovely Professional University. He is a leading light in the field of Technical and Higher education in the country. Dr. Rajesh Singh is currently associated with Lovely Professional University as Professor with more than Sixteen years of experience in academics. He has been awarded as gold medalist in M.Tech from RGPV, Bhopal (M.P) India and honors in his B.E from Dr. B.R. Ambedkar University, Agra (U.P), India. Dr. Anita Gehlot is currently associated with Lovely Professional University as Associate Professor with more than twelve years of experience in academics. Her area of expertise includes embedded systems, wireless sensor networks and Internet of Things. Rydhm Beri is working as an Assistant Professor in BBK DAV College for Women, Amritsar, since last three years and has 5 years of experience in the field of education.

Arduino for Musicians

A Complete Guide to Arduino and Teensy Microcontrollers

Oxford University Press "Presents relevant concepts, including basic circuitry and programming, in a building-block format that is accessible to musicians and other individuals who enjoy using music technology. In addition to comprehensive coverage of music-related concepts including direct digital synthesis, audio input and output, and the Music Instrument Digital Interface (MIDI), the book concludes with four projects that build on the concepts presented throughout the book. The projects, which will be of interest to many electronic musicians, include a MIDI breath controller with pitch and modulation joystick, 'retro' step sequencer, custom digital/analog synthesizer, and an expressive MIDI hand drum."-- Provided by publisher.

Arduino Programming in 24 Hours, Sams Teach Yourself

Pearson Education Annotation In just 24 sessions of one hour or less, "Sams Teach Yourself Arduino Programming in 24 Hours" teaches you C programming on Arduino, so you can start creating inspired "DIY" hardware projects of your own. Using this book's straightforward, step-by-step approach, you'll walk through everything from setting up your programming environment to mastering C syntax and features, interfacing your Arduino to performing full-fledged prototyping. Every hands-on lesson and example builds on what you've already learned, giving you a rock-solid foundation for real-world success. "Step-by-step instructions carefully walk you through the most common Arduino programming tasks. Quizzes at the end of each chapter help you test your knowledge. By the Way notes present interesting information related to the discussion. Did You Know? tips offer advice or show you easier ways to perform tasks. Watch Out cautions alert you to possible problems and give you advice on how to avoid them. Learn how to ... Get the right Arduino hardware and accessories for your needs. Download the Arduino IDE, install it, and link it to your Arduino. Quickly create, compile, upload, and run your first Arduino program. Master C syntax, decision control, strings, data structures, and functions. Use pointers to work with memory--and avoid common mistakes. Store data on your Arduino's EEPROM or an external SD card. Use existing hardware libraries, or create your own. Send output and read input from analog devices or digital interfaces. Create and handle interrupts in software and hardware. Communicate with devices via the SPI interface and I2C protocol. Work with analog and digital sensors. Write Arduino C programs that control motors. Connect an LCD to your Arduino, and code the output. Install an Ethernet shield, configure an Ethernet connection, and write networking programs. Create prototyping environments, use prototyping shields, and interface electronics to your Arduino.

Learning C for Arduino

Packt Publishing Ltd Ultimate guide for programming Arduino with C About This Book Get hands-on experience with the Arduino board and learn to control it with your programming skills. Learn the essential concepts of C such as variables, data structures, functions, loops, and pointers. Work with electronic devices such as LEDs, switches, and motors and connect them to Arduino using C. Who This Book Is For This book is for hobbyists who have no knowledge about programming and microcontrollers, but are keen to learn C programming using a very affordable hardware device. What You Will Learn Play with mathematical operations using C. Use logical operations and loops to play with LEDs and the Arduino board. Create custom functions using C and connect an SD card to the Arduino. Use Object-oriented Programming to connect a GSM module to the Arduino board. Play with an LCD board and Servo using standard Arduino libraries. Build projects using Arduino such as a LED cube, a smart weather system, and home security. Identify and fix common errors on an Arduino board. In Detail This book will start with the fundamentals of C programming and programming topics, such as data types, functions, decision making, program loops, pointers, and structures, with the help of an Arduino board. Then you will get acquainted with Arduino interactions with sensors, LEDs, and autonomous systems and setting up the Arduino environment. Moving on you will also learn how to work on the digital and analog I/O, establish serial communications with autonomous systems, and integrate with electronic devices. By the end of the book, you will be able to make basic projects such as LED cube and smart weather system that leverages C. Style and approach This comprehensive step-by-step guide starts with the basic concepts of C for your Arduino board. It will teach you how to leverage C to explore the capabilities of Arduino.

Building a Home Security System with Arduino

Design, build and maintain a home security system with Arduino Uno About This Book • Learn what a security system is, how it works and create one for yourself • Develop a security system by setting up security cameras and motion detector systems • Manage and analyze all the data collected by the sensors from the security system, using a graphical application Who This Book Is For This book is for novice programmers and hobbyists who want to understand how Arduino can be used to program a home security system as well as to those who want to delve deeper into the world of Arduino. What You Will Learn • Run cables and electricity to support home security infrastructure • Connect Arduino to your programming environment • Learn to interact with output devices - alarms, locks, shutters • Understand different parts of electronics circuit (MOSFET, resistor, capacitor) • Integrate home monitoring and security notifications with monitoring systems • Use logical level shifter with Arduino to send and receive data to and from Raspberry Pi In Detail Arduino is an open source micro-controller built on a single circuit board that is capable of receiving sensory input from the environment and controlling interactive physical objects. It is also a development environment that allows the writing of software to the board, and is programmed in the Arduino programming language. It is used for a variety of different purposes and projects, from simple projects such as building a thermostat, to more advanced ones such as robotics, web servers, seismographs, home security systems and synthesizers. This book will demonstrate how the Arduino can be used to develop a highly connected home security system by mobilizing a network of sensors which can feed alerts back to an Arduino when alarms are triggered. You will know the current state of security systems, well supported by the designs that fit best for your environment. Also, we will see some current technologies such as NFC, Wi-Fi and Bluetooth, and will finally create a complete web interface that will allow us to remotely manage our system, and even send daily bulletins with the summary of activity. Towards the end, we'll develop a wireless home security system by setting up security cameras and motion detectors (door and gate trips, temperature sensors). We will then set up a centralized remote access hub (powered by the Arduino) that allows sensors to connect to the wireless home network that can be viewed and interacted by the user. Style and approach A step-by-step guide with numerous examples focusing on providing the practical skills required to build home security applications using Arduino.

Arduino by Example

Packt Publishing Ltd Design and build fantastic projects and devices using the Arduino platform About This Book Explore the different sensors that can be used to improve the functionality of the Arduino projects Program networking modules in conjunction with Arduino to make smarter and more communicable devices A practical guide that shows you how to utilize Arduino to create practical, useful projects Who This Book Is For This book is an ideal choice for hobbyists or professionals who want to create quick and easy projects with Arduino. As a prerequisite, readers must have a working Arduino system and some programming background, ideally in C/C++. Basic knowledge of Arduino is helpful but not required to follow along with this book. What You Will Learn Understand and utilize the capabilities of the Arduino Integrate sensors to gather environmental data and display this information in meaningful ways Add modules such as Bluetooth and Wi-Fi that allow the Arduino to communicate and send data between devices Create simple servers to allow communication to occur Build automated projects including robots while learning complex algorithms to mimic biological locomotion Implement error handling to make programs easier to debug and look more professional Integrate powerful programming tools and software such as Python and Processing to broaden the scope of what the Arduino can achieve Practice and learn basic programming etiquette In Detail Arduino an open source physical computing platform based on a simple microcontroller board, and a development environment for writing software for the board. The open source Arduino software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open source software. With the growing interest in home-made, weekend projects among students and hobbyists alike, Arduino offers an innovative and feasible platform to create projects that promote creativity and technological tinkering. Arduino by Example is a project-oriented guide to help you fully utilize the power of one of the world's most powerful open source platforms, Arduino. This book demonstrates three projects ranging from a home automation project involving your lighting system to a simple robotic project to a touch sensor project. You will first learn the basic concepts such as how to get started with the Arduino, and as you start building the project, you will develop the practical skills needed to successfully build Arduino powered projects that have real-life implications. The complexity of the book slowly increases as you complete a project and move on to the next. By the end of this book, you will be able to create basic projects and utilize the elements used in the examples to construct your own devices. Style and approach This book follows a project-oriented approach, with multiple images and plenty of code to help you build your projects easily. The book uses a tutorial-based methodology where the concepts are first explained and then implemented to help you develop the projects.

Arduino Electronics Blueprints

Packt Publishing Ltd Arduino is an open source electronics prototyping platform for building a multitude of smart devices and gadgets. Developers can benefit from using Arduino in their projects because of the ease of coding, allowing you to build cool and amazing devices supported by numerous hardware resources such as shields in no time at all. Whether you're a seasoned developer or brand new to Arduino, this book will provide you with the knowledge and skill to build amazing smart electronic devices and gadgets. First, you will learn how to build a sound effects generator using recorded audio-wave files you've made or obtained from the Internet. Next, you will build DC motor controllers operated by a web page, a slide switch, or a touch sensor. Finally, the book will explain how to build an electronic operating status display for an FM radio circuit using Arduino.

Advanced Topics on Computer Vision, Control and Robotics in Mechatronics

Springer The field of mechatronics (which is the synergistic combination of precision mechanical engineering, electronic control and systems thinking in the design of products and manufacturing processes) is gaining much attention in industries and academics. It was detected that the topics of computer vision, control and robotics are imperative for the successful of mechatronics systems. This book includes several chapters which report successful study cases about computer vision, control and robotics. The readers will have the latest information related to mechatronics, that contains the details of implementation, and the description of the test scenarios.

Raspberry Pi LED Blueprints

Packt Publishing Ltd 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 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.

Arduino Wearables

Apress You've probably seen LED-decorated t-shirts and hats, and maybe even other electronic gadgets embedded in clothing, but with Arduino Wearables you can learn to make your own wearable electronic creations. This book is an introduction to wearable computing, prototyping, and smart materials using the Arduino platform. Every chapter takes you all the way from idea to finished project. Even if you have no experience with Arduino, this book will get you set up with all the materials, software, and hardware you need; you'll complete simple projects first, and then build on your growing expertise to make more complex projects. By the end of the book, you'll have learned: Electronics basics How to prototype successfully Arduino programming How to design and build your own wearable Arduino creations Along the way you'll create fun and inspiring wearables, such as: An LED bracelet: learn the basics of wearable electronics A synthesizer tie: accept user input and create output in response A solar-powered glow in the dark bag: create self-sufficient wearables A shape memory flower: store state and manipulate your wearables An EL wire dress: add designer touches to your wearables A beatbox hoodie: use a voice-activated sequencer and skin resistance to create the coolest of urban wearables Arduino Wearables is the complete guide to getting started with Arduino and wearable computing. The 10 inspiring projects to make, learn from, and build upon will equip you for creating your own projects; the only limit is your imagination.