

Sending Data From Arduino To Mit App Inventor 2 Via Bluetooth

Arduino Cookbook"O'Reilly Media, Inc."

Digital Twin Development and Deployment in the Cloud: Developing Cloud-Friendly Dynamic Models Using Simulink®/Simscape™ and Amazon AWS promotes a physics-based approach to the field of digital twins. Through the use of multiphysics models running in the cloud, significant improvement to the diagnostics and prognostic of systems can be attained. The book draws a clear definition of digital twins, helping business leaders clearly identify the value it brings. In addition, it outlines the key elements needed for deployment, including the hardware and software tools needed. Special attention is paid to the process of developing and deploying the multi-physics models of the digital twins. Provides a high-level overview of digital twins and their underutilization in the field of asset management and maintenance Proposes a streamline process to create digital twins for a wide variety of applications using MATLAB® Simscape™ Deploys developed digital twins on Amazon Web Services Includes MATLAB and Simulink codes available for free download on MATLAB central Covers popular prototyping hardwares, such as Arduino and Raspberry Pi

The field of SMART technologies is an interdependent discipline. It involves the latest burning issues ranging from machine learning, cloud computing, optimisations, modelling techniques, Internet of Things, data analytics, and Smart Grids among others, that are all new fields. It is an applied and multi-disciplinary subject with a focus on Specific, Measurable, Achievable, Realistic & Timely system operations combined with Machine intelligence & Real-Time computing. It is not possible for any one person to comprehensively cover all aspects relevant to SMART Computing in a limited-extent work. Therefore, these conference proceedings address various issues through the deliberations by distinguished Professors and researchers. The SMARTCOM 2020 proceedings contain tracks dedicated to different areas of smart technologies such as Smart System and Future Internet, Machine Intelligence and Data Science, Real-Time and VLSI Systems, Communication and Automation Systems. The proceedings can be used as an advanced reference for research and for courses in smart technologies taught at graduate level.

This textbook provides the knowledge and skills needed for thorough understanding of the most important methods and ways of thinking in experimental physics. The reader learns to design, assemble, and debug apparatus, to use it to take meaningful data, and to think carefully about the story told by the data. Key Features: Efficiently helps students grow into independent experimentalists through a combination of structured yet thought-provoking and challenging exercises, student-designed experiments, and guided but open-ended exploration. Provides solid coverage of fundamental background information, explained clearly for undergraduates, such as ground loops, optical alignment techniques, scientific communication, and data acquisition using LabVIEW, Python, or Arduino. Features carefully designed lab experiences to teach fundamentals, including analog electronics and low noise measurements, digital electronics, microcontrollers, FPGAs, computer interfacing, optics, vacuum techniques, and particle detection methods. Offers a broad range of advanced experiments for each major area of physics, from condensed matter to particle physics. Also provides clear guidance for student development of projects not included here. Provides a detailed Instructor's Manual for every lab, so that the instructor can confidently teach labs outside their own research area.

Make microcontrollers, PCs, servers, and smartphones talk to each other. Building electronic projects that interact with the physical world is good fun. But when the devices you've built start to talk to each other, things really get interesting. With 33 easy-to-build projects, Making Things Talk shows you how to get your gadgets to communicate with you and your environment. It's perfect for people with little technical training but a lot of interest. Maybe you're a science teacher who wants to show students how to monitor the weather in several locations at once. Or a sculptor looking to stage a room of choreographed mechanical sculptures. In this expanded edition, you'll learn how to form networks of smart devices that share data and respond to commands. Call your home thermostat with a smartphone and change the temperature. Create your own game controllers that communicate over a network. Use ZigBee, Bluetooth, Infrared, and plain old radio to transmit sensor data wirelessly. Work with Arduino 1.0, Processing, and PHP—three easy-to-use, open source environments. Write programs to send data across the Internet, based on physical activity in your home, office, or backyard. Whether you want to connect simple home sensors to the Internet, or create a device that can interact wirelessly with other gadgets, this book explains exactly what you need.

Arduino for Musicians

Exploring Arduino

IOS Sensor Apps with Arduino

Tools and Techniques for Programming Wizardry

Making Interactive Graphics with Processing's Python Mode

Proceeding of the International Conference on Computer Networks, Big Data and IoT (ICCBi - 2018)

Teknika: Jurnal Sains dan Teknologi, Vol 17(2), Tahun 2021

"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.

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

We all hate to throw electronics away. Use your 5 volt Arduino and have fun with them instead! Raid your electronics junk box to build the Cestino (Arduino compatible) board and nine other electronics projects, from a logic probe to a microprocessor explorer, and learn some advanced, old-school techniques along the way. Don't have a well-stocked junk box? No problem. Nearly all the components used in these projects are still available (and cheap) at major electronic parts houses worldwide. Junk Box Arduino is the ultimate have-fun-while-challenging-your-skills guide for Arduino hackers who've gone beyond the basic tutorials and are ready for adventures in electronics. Bonus materials include all the example sketches, the Cestino core and bootloader source code, and links to suppliers for parts and tools. Bonus materials include extensions to the Cestino, Sourceforge links for updated code, and all the source-code for the projects.

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 to 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>

Create physical interfaces that interact with the Internet and web pages. With Arduino and JavaScript you can create interactive physical displays and connected devices that send data to or receive data from the web. You'll take advantage of the processes needed to set up electronic components, collect data, and create web pages able to interact with electronic components. Through exercises, projects, and explanations, this book will give you the core front end web development and electronics skills needed to create connected physical interfaces and build compelling visualizations with a range of JavaScript libraries. By the end of the book you will have developed fully working interactive prototypes capable of sending data to and receiving data from a physical interface. Most importantly, Connecting Arduino to the Web will give you a taste of what is possible and the knowledge to create your own connected physical interfaces and bring the web into your electronics projects. What You'll Learn Build an Internet of Things dashboard that updates with electronics attached to an Arduino Use components to interact with online 3D displays Create web pages with HTML and CSS Set up a Node.js server Use WebSockets to process live data Interact with scalable vector graphics (SVG) Who This Book Is For Technologists, developers, and enthusiasts looking to extend their skills, be able to develop physical prototypes with connected devices, and with an interest in getting started with IoT. Also, those excited by the possibilities of connecting the physical and the web.

Proceedings of the 1st International Conference on Smart Machine Intelligence and Real-Time Computing (SmartCom 2020), 26-27 June 2020, Pauri, Garhwal, Uttarakhand, India

TinyML

Beginning Sensor Networks with Arduino and Raspberry Pi

Arduino 101

Python Programming for Arduino

Selected Papers from iCITES 2020

Digital Electronics for Musicians

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 skill set. 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.

This book presents original contributions on the theories and practices of emerging Internet, data and Web technologies and their applicability in businesses, engineering and academia, focusing on advances in the life-cycle exploitation of data generated from the digital ecosystem data technologies that create value, e.g. for businesses, toward a collective intelligence approach. The Internet has become the most proliferative platform for emerging large-scale computing paradigms. Among these, data and web technologies are two of the most prominent paradigms and are found in a variety of forms, such as data centers, cloud computing, mobile cloud, and mobile Web services. These technologies together create a digital ecosystem whose cornerstone is the data cycle, from capturing to processing, analyzing and visualizing. The investigation of various research and development issues in this digital ecosystem are made more pressing by the ever-increasing requirements of real-world applications that are based on storing and processing large amounts of data. The book is a valuable resource for researchers, software developers, practitioners and students interested in the field of data and web technologies.

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

This book presents essentially a collection of proceedings that deliberate on the key challenges and recent trends on robotics, automation and data analytics which are the pillars of Industry 4.0. Solutions that are employed in the multitude spectra of innovative robotics & automation and data analytics are discussed. The readers are expected to gain an insightful view on the current trends, issues, mitigating factors as well as solutions from the book. This book consists of selected papers presented at the 2nd International Conference on Innovative Technology, Engineering and Sciences 2020 (iCITES) hosted virtually by Universiti Malaysia Pahang on 22nd December 2020. iCITES is a biennial conference, aimed at building a platform that allows relevant stakeholders to share and discuss their latest researches, ideas and survey reports from theoretical to a practical standpoint especially in the Innovative Robotics & Automation and Data Analytics tracks which was published in this book.

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

Learn Electronics by Making 10 Awesome Projects

The Arduino Inventor's Guide

Is Arduino Coding Easy?: Sending Binary Data From Arduino

Distributed Network Data

A Problem-Solution Approach

Tools and Techniques for Engineering Wizardry

Smart Medical Data Sensing and IoT Systems Design in Healthcare

Summary Arduino in Action is a hands-on guide to prototyping and building electronics using the Arduino platform. Suitable for both beginners and advanced users, this easy-to-follow book begins with the basics and then systematically guides you through projects ranging from your first blinking LED through connecting Arduino to devices like game controllers or your iPhone. About the Technology Arduino is an open source do-it-yourself electronics platform that supports a mind-boggling collection of sensors and actuators you can use to build anything you can imagine. Even if you've never attempted a hardware project, this easy-to-follow book will guide you from your first blinking LED through connecting Arduino to your iPhone. About this Book Arduino in Action is a hands-on guide to prototyping and building DIY electronics. You'll start with the basics - unpacking your board and using a simple program to make something happen. Then, you'll attempt progressively more complex projects as you connect Arduino to motors, LCD displays and Arduino. You'll explore input/output sensors, including ultrasound, infrared, and light, and then use them for tasks like robotic obstacle avoidance. Arduino programs look a lot like C or C++, so some programming skill is helpful. What's Inside Getting started with Arduino - no experience required! Writing programs for Arduino Sensing and responding to events Robots, flying vehicles, Twitter machines, LCD displays, and more! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Authors Martin Evans is a professional developer, a lifelong electronics enthusiast, and the creator of an Arduino-based underwater ROV. Joshua Noble is an author and creative technologist who works with smart spaces. Jordan Hochenbaum uses Arduino to explore musical expression and creative interaction. Table of Contents Part 1 Getting started Chapter 1 Hello Arduino Chapter 2 Digital input and output Chapter 3 Simple projects: input and output Part 2 Putting Arduino to work Chapter 4 Extending Arduino Chapter 5 Arduino in motion Chapter 6 Object detection Chapter 7 LCD displays Chapter 8 Communications Chapter 9 Game on Chapter 10 Integrating the Arduino with iOS Chapter 11 Making wearables Chapter 12 Adding shields Chapter 13 Software integration

This is the perfect book for musicians who want to dive into the world of computer music and physical computing. This book is aimed at adventurous musicians who want to learn about music programming with Arduino, sensors, and Pure Data, and how to make new interfaces and even new instruments with that knowledge. You'll learn the basics of the Pure Data and Arduino languages, how to incorporate sensors into your musical projects, and how to use embedded computers, like the Raspberry Pi, to create stand-alone projects. Along the way, you'll learn how to create a variety of innovative musical projects, including an interactive bow for stringed instruments, a MIDI clavier synthesizer, an interactive drum set, a patch-bay matrix synthesizer, a guitar looper, and even a DIY theremin. If you are a musician or tinkerer who wants to explore the world of electronic and electroacoustic music and musical interfaces with Arduino, sensors, and Pure Data, Digital Electronics for Musicians is the book for you. What You Will Learn Learn the basics of the Pure Data and the Arduino languages Learn more about the available sensors on the market, and how you can incorporate them into your musical projects Focus on physical computing by combining Arduino and Pure Data, bringing the physical world to the world of the computers Make use of additional libraries that extend the capabilities of the Arduino Make use of external objects in Pure Data that help achieve certain goals, depending on the project Learn how a Pure Data patch functions and be able to modify other people's work that fits your needs Learn how the Arduino language works, enabling the modification of already existing code, according to your needs Get insight on the serial communication between the Arduino and Pure Data Learn how to approach various programming challenges in different ways Who This is For Musicians who want to explore the world of electronic and electroacoustic music and musical interfaces with Arduino, sensors, and Pure Data.

With Arduino, you can build any hardware project you can imagine. This open-source platform is designed to help total beginners explore electronics, and with its easy-to-learn programming language, you can collect data about the world around you to make something truly interactive. The Arduino Inventor's Guide opens with an electronics primer filled with essential background knowledge for your DIY journey. From there, you'll learn your way around the Arduino through a classic hardware entry point - blinking LEDs. Over the course of the book, 11 hands-on projects will teach you how to: -Build a stop light with LEDs -Display the volume in a room on a warning dial -Design and build a desktop fan -Create a robot that draws with a motor and pens -Create a servo-controlled balance beam -Build your own playable mini piano -Make a drag race timer to race toy cars against your friends Each project focuses on a new set of skills, including breadboarding circuits; reading digital and analog inputs; reading magnetic, temperature, and other sensors; controlling servos and motors; and talking to your computer and the Web with an Arduino. At the end of every project, you'll also find tips on how to use it and how to mod it with additional hardware or code. What are you waiting for? Start making, and learn the skills you need to own your technology! Uses the Arduino Uno board or SparkFun RedBoard

Arduino is an incredibly powerful programming platform that can allow anyone from basic to advanced developers to create amazing projects using the platform. This book will give: Arduino Projects With Code And Circuit Diagram: Is Arduino Coding Easy? Arduino Nano Projects With Code: Arduino Projects For Beginners Projects Using Arduino With Code: How Do I Start An Arduino Project?

Long-awaited revision of this best-selling book on the Arduino electronics platform (50,000+ copies sold). Readers gain an in-depth understanding of the Arduino -- beyond just making simple projects. The Arduino is an inexpensive, flexible microcontroller platform that makes it easy for hobbyists to use electronics in DIY projects. With its wide range of input and output add-ons, sensors, indicators, displays, and motors, the Arduino offers you countless ways to create interactive devices. Through 65 hands-on projects, Arduino Workshop will teach you the tricks and design principles of a master craftsman. This edition has been updated for the latest version of the Arduino IDE and revised to reflect current hardware and technology. It includes coverage of general electronics concepts as well as schematic diagrams and detailed images of components. You'll experiment with touchscreens and LED displays, explore robotics, use sensors with wireless data links, and control devices remotely with a cell phone. Build projects like: An electronic version of the classic six-sided die A GPS logger that records and displays travel data A keypad-controlled lock that opens with a secret code A binary quiz game A motorized remote control car with collision detection Whatever your skill level, you're sure to have

fun as you learn to harness the power of the Arduino for your own DIY projects. NEW TO THIS EDITION: A chapter on creating your own Arduino libraries Updated robotic vehicle projects Newer shields that leverage GPS, 3G, and LoRa data transmission capabilities A chapter on MAX7219-based numeric LED displays and LED matrix modules Covers Arduino IDE 2.x

Experimental Physics

Ten Projects in Upcycled Electronics

The SparkFun Guide to Processing

Machine Learning with TensorFlow Lite on Arduino and Ultra-Low-Power Microcontrollers

Junk Box Arduino

Raspberry Pi Projects

Making Things Talk

Arduino 101 is an introduction to advanced guide to Arduino Programming, which provides you with all the basic to advanced knowledge you need to get started with writing Arduino microcontroller codes for several unique projects. This book is suitable for newbies and baked programmers as it is well detailed, with codes and images included, assisting readers with the step-by-step processes of different Arduino operations. This book is versatile, and covers various aspects related to programming with Arduino, starting from simplest operations to very complex ones. Some of the information you will get in this book include: How to Install the IDE Arduino board How to Set up the Arduino board How to Upload and Running a Blink Sketch on Arduino How to use a 32-bit Arduino Arduino Variables and functions How to Convert a String to a Number on Arduino Sending Information from Arduino the computer Sending Formatted Text and Numeric Data from Arduino Receiving Serial Data in Arduino Receiving Multiple Text Fields in a Single Message in Arduino Sending Binary Data from Arduino Receiving Binary Data from Arduino on a Computer Sending Binary Values from Processing to Arduino Sending the Value of Multiple Arduino Pins Logging Arduino Data to a File on Your Computer Sending Data to Two Serial Devices at the Same Time How to Use Arduino with Raspberry Pi 4 LED matrix through multiplexing How to Control Rotational position with a servo Controlling a Digital Camera with Arduino Connecting Arduino to an Ethernet network Using Arduino as a webserver Sending Twitter messages on Arduino Publishing Data to an MQTT broker on Arduino Using built-in Libraries on Arduino Installing a third-party library Uploading Sketches using a programmer on Arduino Replacing Arduino Bootloader And Lots More Get this book now by clicking on the BUY NOW WITH 1-CLICK BUTTON.

The bestselling beginner Arduino guide, updated with new projects! Exploring Arduino makes electrical engineering and embedded software accessible. Learn step by step everything you need to know about electrical engineering, programming, and human-computer interaction through a series of increasingly complex projects. Arduino guru Jeremy Blum walks you through each build, providing code snippets and schematics that will remain useful for future projects. Projects are accompanied by downloadable source code, tips and tricks, and video tutorials to help you master Arduino. You'll gain the skills you need to develop your own microcontroller projects! This new 2nd edition has been updated to cover the rapidly-expanding Arduino ecosystem, and includes new full-color graphics for easier reference. Servo motors and stepper motors are covered in richer detail, and you'll find more excerpts about technical details behind the topics covered in the book. Wireless connectivity and the Internet-of-Things are now more prominently featured in the advanced projects to reflect Arduino's growing capabilities. You'll learn how Arduino compares to its competition, and how to determine which board is right for your project. If you're ready to start creating, this book is your ultimate guide! Get up to date on the evolving Arduino hardware, software, and capabilities Build projects that interface with other devices—wirelessly! Learn the basics of electrical engineering and programming Access downloadable materials and source code for every project Whether you're a first-timer just starting out in electronics, or a pro looking to mock-up more complex builds, Arduino is a fantastic tool for building a variety of devices. This book offers a comprehensive tour of the hardware itself, plus in-depth introduction to the various peripherals, tools, and techniques used to turn your little Arduino device into something useful, artistic, and educational. Exploring Arduino is your roadmap to adventure—start your journey today!

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.

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.

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.

Getting Started with Processing

A Hands-on Introduction with 65 Projects

From Hardware to Data to Visualization

Advances in Internet, Data & Web Technologies

Advanced Computing and Intelligent Technologies

Advances in Robotics, Automation and Data Analytics

Wearable Technologies for Costuming, Cosplay, and Everyday

Smart healthcare technology improves the diagnosis and treatment of patients, provides easy access to medical facilities and emergency care services, and minimizes the gaps between patients and healthcare providers. While clinical data protection remains a major challenge, innovations such as the internet of medical things and smart healthcare systems increase the efficiency and quality of patient care. Healthcare technology can only become faster, more profitable, and more flexible as additional research on its advancements is conducted and collected. Smart Medical Data Sensing and IoT Systems Design in Healthcare is an essential reference source that focuses on robust and easy solutions for the delivery of medical information from patients to doctors and explores low-cost, high-performance, highly efficient, deployable IoT system options in healthcare systems. Featuring research on topics such as hospital management systems, electronic health records, and bio-signals, this book is ideally designed for technologists, engineers, scientists, clinicians, biomedical engineers, hospital directors, doctors, nurses, healthcare practitioners, telemedical agents, students, and academicians seeking coverage on the latest technological developments in medical data analysis and connectivity.

Processing is a free, beginner-friendly programming language designed to help non-programmers create interactive art with code. The SparkFun Guide to Processing, the first in the SparkFun Electronics series, will show you how to craft digital artwork and even combine that artwork with hardware so that it reacts to the world around you. Start with the basics of programming and animation as you draw colorful shapes and make them bounce around the screen. Then move on to a series of hands-on, step-by-step projects that will show you how to: –Make detailed pixel art and scale it to epic proportions –Write a maze game and build a MaKey MaKey controller with fruit buttons –Play, record, and sample audio to create your own soundboard –Fetch weather data from the Web and build a custom weather dashboard –Create visualizations that change based on sound, light, and temperature readings With a little imagination and Processing as your paintbrush, you'll be on your way to coding your own gallery of digital art in no time! Put on your artist's hat, and begin your DIY journey by learning some basic programming and making your first masterpiece with The SparkFun Guide to Processing. The code in this book is compatible with Processing 2 and Processing 3.

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

JavaScript is the most widely used language over the Internet, and with IoT gaining momentum, you will learn how to harness the power of JavaScript to interact with connected devices. This book will teach you how to interact with endpoint devices by developing web services in JavaScript and also set up an interface to control all connected devices. This book begins with setting up a centralized web server that serves as a hub for all connected devices. The book then progresses further towards building web services to facilitate high-level communication between connected devices. Using Arduino and Raspberry Pi Zero as endpoint devices, the book will show you how devices can communicate with each other, perform a wide range of tasks, and also be controlled from a centralized location using JavaScript. The book ends with creating a hybrid app to control the devices that can be run from a browser or installed on a smartphone.

Style and approach This book offers step-by-step guidance on how to set up a distributed IoT system using JavaScript. It will teach you how to interact with endpoint devices by developing web services in JavaScript and also set up an interface for controlling all connected devices.

Learn the code to write algorithms, numerical computations, data analysis and much more using the Python language: look up and re-use the recipes for your own Python coding. This book is your handy code cookbook reference. Whether you're a maker, game developer, cloud computing programmer and more, this is a must-have reference for your library. Python Recipes Handbook gives you the most common and contemporary code snippets, using pandas (Python Data Analysis Library), NumPy, and other numerical Python packages. What You'll Learn Code with the pandas (Python Data Analysis Library) Work with the various Python algorithms useful for today's big data analytics and cloud applications Use NumPy and other numerical Python packages and code for doing various kinds of analysis Discover Python's new popular modules, packages, extensions and templates library Who This Book Is For This handy reference is for those with some experience with Python.

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

Digital Twin Development and Deployment on the Cloud

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Intelligent IoT Projects in 7 Days

The 6th International Conference on Emerging Internet, Data & Web Technologies (EIDWT-2018)

Getting Started with Processing.py

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, 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

Digital Twin Development and Deployment on the Cloud

Arduino Cookbook

Create Interactive Art with Code

Arduino Sketches

Intelligent IoT Projects in 7 Days

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This valuable little book offers a thorough introduction to the open-source electronics prototyping platform that's taking the design and hobbyist world by storm. Getting Started with Arduino gives you lots of ideas for Arduino projects and helps you get going to putting the final touches on your prototype, all the information you need is right in the book. Inside, you'll learn about: Interaction design and physical computing The Arduino hardware and software development environment Basics of electricity and electronics Drawing a schematic diagram And more. With inexpensive hardware and open-source software components that you can download free, getting started with Arduino is a snap. To use the introductory examples in this book, all you need is a USB Arduino, USB cable, and a computer. Thousands of hobbyists who have discovered this incredible (and educational) platform. Written by the co-founder of the Arduino project, with illustrations by Elisa Canducci, Getting Started with Arduino gets you in on the fun! This 128-page book is a great short PDF that's available on the Arduino website.

This book gathers selected high-quality research papers presented at International Conference on Advanced Computing and Intelligent Technologies (ICACIT 2021) held at NCR New Delhi, India, during March 20–21, 2021, jointly organized by Galgotias University, Information Engineering and Mathematics Università Di Siena, Italy. It discusses emerging topics pertaining to advanced computing, intelligent technologies, and networks including AI and machine learning, data mining, big data analytics, high-performance computing, and the Internet of things networks, wireless sensor networks, and others. The book offers a valuable asset for researchers from both academia and industries involved in advanced studies.

This book presents the proceedings of the International Conference on Computer Networks, Big Data and IoT (ICCBI-2018), held on December 19–20, 2018 in Madurai, India. In recent years, advances in information and communication technologies [ICT] have led to the evolution of internet applications. In this context, increasing the ubiquity of emerging internet applications with an enhanced capability to communicate in a distributed environment has become a major need for existing networking models and applications. This book has been developed to facilitate a smart interconnection and information exchange among modern objects – which plays an essential role in every aspect of our lives. Due to their pervasive nature, computer networks and IoT can easily connect and engage with each other. A network continuously generates data from heterogeneous devices, creating a need to utilize big data, which provides new and unprecedented opportunities to process these huge volumes of data. This International Conference on Computer Networks, Big Data and IoT brings together state-of-the-art research work, which briefly describes advanced IoT applications in the era of big data. As such, it offers valuable insights for researchers and scientists involved in developing next-generation, big-data-driven IoT applications to address smartly connected environment.

Big Data: Concepts, Methodologies, Tools, and Applications

Connecting Arduino to the Web

Principles and Practice for the Laboratory

A Technical Reference to Setup and Program Arduino Zero, Nano, Due, Mega and Uno Projects

Wiring the iPhone and iPad Into the Internet of Things

Proceedings of ICACIT 2021

Arduino in Action

Beginning Sensor Networks with Arduino and Raspberry Pi teaches you how to build sensor networks with Arduino, Raspberry Pi, and XBee radio modules, and even shows you how to turn your Raspberry Pi into a MySQL database server to store your sensor data! First you'll learn about the different types of sensors and sensor networks, including how to build a simple XBee network. Then you'll walk through building an Arduino-based temperature sensor and data collector, followed by building a Raspberry Pi-based sensor node. Next you'll learn different ways to store sensor data, including writing to an SD card, sending data to the cloud, and setting up a Raspberry Pi MySQL server to host your data. You even learn how to connect to and interact with a MySQL database server directly from an Arduino! Finally you'll learn how to put it all together by connecting your Arduino sensor node to your new Raspberry Pi database server. If you want to see how well Arduino and Raspberry Pi can get along, especially to create a sensor network, then Beginning Sensor Networks with Arduino and Raspberry Pi is just the book you need.

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. Big Data: Concepts, Methodologies, Tools, and Applications is a multi-volume compendium of research-based perspectives and solutions within the realm of large-scale and complex data sets. Taking a multidisciplinary approach, this publication presents exhaustive coverage of crucial topics in the field of big data including diverse applications, storage solutions, analysis techniques, and methods for searching and transferring large data sets, in addition to security issues. Emphasizing essential research in the field of data science, this publication is an ideal reference source for data analysts, IT professionals, researchers, and academics.

Build your own distributed sensor network to collect, analyze, and visualize real-time data about our human environment—including noise level, temperature, and people flow. With this hands-on book, you'll learn how to turn your project idea into working hardware, using the easy-to-learn Arduino microcontroller and off-the-shelf sensors. Authors Alasdair Allan and Kipp Bradford walk you through the entire process, from prototyping a simple sensor node to performing real-time analysis on data captured by a deployed multi-sensor network. Demonstrated at recent O'Reilly Strata Conferences, the future of distributed data is already here. If you have programming experience, you can get started immediately. Wire up a circuit on a breadboard, and use the Arduino to read values from a sensor Add a microphone and infrared motion detector to your circuit Move from breadboard to prototype with Fritzing, a program that converts your circuit design into a graphical representation Simplify your design: learn use cases and

limitations for using Arduino pins for power and grounding Build wireless networks with XBee radios and request data from multiple sensor platforms Visualize data from your sensor network with Processing or LabVIEW

Presents an introduction to the open-source electronics prototyping platform.

Processing opened up the world of programming to artists, designers, educators, and beginners. 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, Getting Started with Processing shows you how easy it is to make software and systems with interactive graphics. If you're an artist looking to develop interactive graphics programs or a programmer on your way to becoming an artist, this book will take you where you want to go. Updated with new material on graphics manipulation, data, and for the latest version of Processing.

Beginning Arduino

A Complete Guide to Arduino and Teensy Microcontrollers

Using Sensors, Networks, and Arduino to see, hear, and feel your world

Python Recipes Handbook

Arduino Programming in 24 Hours, Sams Teach Yourself

Arduino Workshop, 2nd Edition

Internet of Things Programming with JavaScript

Pull back the curtain on making fun and innovative costumes and accessories incorporating technologies like low-cost microprocessors, sensors and programmable LEDs. Fashion tech can require skills in design, pattern-making, sewing, electronics, and maybe 3D printing. Besides the costume or accessory also requires knowledge of the intangibles of what makes a good costume. This book is a collaboration between two technologists and a veteran teacher, costumer, and choreographer. Regardless of whether you are coming at this from the theater costume authors will help you get started with the other skills you need. More than just a book of projects (although it has those too), Practical Fashion Tech teaches why things are done a certain way to impart the authors' collective wealth of experience. Whether you need a book for want to get started making fantastic costumes and wearables on your own, Practical Fashion Tech will get you there. What you will learn: The fundamentals of both the sewing and the technology aspects of wearable tech for fashion How to make a memorable costume that rea

Ideas for using this book as a textbook Who this is for: Electronics enthusiasts, hipsters, costume designers, teachers, and students who want to learn how to make fashion or cosplay wearables. Cosplay fans wanting to incorporate sensors and more into their costumes.

Sams Teach Yourself Arduino Programming in 24 Hours

Concepts, Methodologies, Tools, and Applications

Front End Development Using JavaScript

Practical Fashion Tech

Arduino Projects With Code And Circuit Diagram

A Hands-On Introduction to Making Interactive Graphics

Smart Computing