Arduino Sketch For Esp8266 Development Workshop E

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Arduino: A Technical Reference J. M. Hughes 2016-05-16 Rather than yet another project-based workbook, Arduino: A Technical Reference is a reference and handbook that thoroughly describes the electrical and performance aspects of an Arduino board and its software. This book brings together in one place all the information you need to get something done with Arduino. It will save you from endless web searches and digging through translations of datasheets or notes in project-based texts to find the information that corresponds to your own particular setup and question. Reference features include pinout diagrams, a discussion of the AVR microcontrollers used with Arduino boards, a look under the hood at the firmware and run-time libraries that make the Arduino unique, and extensive coverage of the various shields and add-on sensors that can be used with an Arduino. One chapter is devoted to creating a new shield from scratch. The book wraps up with detailed descriptions of three different projects: a programmable signal generator, a "smart" thermostat, and a programmable launch sequencer for model rockets. Each project highlights one or more topics that can be applied to other applications.

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

Microalgae for Environmental Biotechnology Pau Loke Show 2022-07-25 This is the first book to present the idea of using Industry 4.0 and smart manufacturing in the microalgae industry for environmental biotechnology. It provides the latest developments on microalgae for use in environmental biotechnology, explains process analysis from an engineering point of view, and discusses the transition to smart manufacturing and how state of the art technologies can be incorporated. It covers applications, technologies, challenges, and future perspectives. • Showcases how Industry 4.0 can be applied in algae industry • Covers new ideas generated from Industry 4.0 for Industrial Internet of Things (IIoT) • Demonstrates new technologies invented to cater to Industry 4.0 in microalgae • Features worked examples related to biological systems Aimed at

chemical engineers, bioengineers, and environmental engineers, this is an essential resource for researchers, academics, and industry professionals in the microalgae biotechnology field.

IoT Development for ESP32 and ESP8266 with JavaScript Peter Hoddie 2020-06-25 This book introduces a new approach to embedded development, grounded in modern, industry-standard JavaScript. Using the same language that powers web browsers and Node.js, the Moddable SDK empowers IoT developers to apply many of the same tools and techniques used to build sophisticated websites and mobile apps. The Moddable SDK enables you to unlock the full potential of inexpensive microcontrollers like the ESP32 and ESP8266. Coding for these microcontrollers in C or C++ with the ESP-IDF and Arduino SDKs works for building basic products but doesn't scale to handle the increasingly complex IoT products that customers expect. The Moddable SDK adds the lightweight XS JavaScript engine to those traditional environments, accelerating development with JavaScript while keeping the performance benefits of a native SDK. Building user interfaces and communicating over the network are two areas where JavaScript really shines. IoT Development for ESP32 and ESP8266 with JavaScript shows you how to build responsive touch screen user interfaces using the Piu framework. You'll learn how easy it is to securely send and receive JSON data over Wi-Fi with elegant JavaScript APIs for common IoT protocols, including HTTP/HTTPS, WebSocket, MQTT, and mDNS. You'll also learn how to integrate common sensors and actuators, Bluetooth Low Energy (BLE), file systems, and more into your projects, and you'll see firsthand how JavaScript makes it easier to combine these diverse technologies. If you're an embedded C or C++ developer who has never worked in JavaScript, don't worry. This book includes an introduction to the JavaScript language just for embedded developers experienced with C or C++. What You'll Learn Building, installing, and debugging JavaScript projects on the ESP32 and ESP8266 Using modern JavaScript for all aspects of embedded development with the Moddable SDK Developing IoT products with animated user interfaces, touch input, networking, BLE, sensors, actuators, and more Who This Book Is For Professional embedded developers who want the speed, flexibility, and power of web development in their embedded software work Makers who want a faster, easier way to build their hobby projects Web developers working in JavaScript who want to extend their skills to hardware products

Intelligent IoT Projects in 7 Days Agus Kurniawan 2017-09-11 Discover how to build your own Intelligent Internet of Things projects and bring a new degree of interconnectivity to your world. About This Book Build intelligent and unusual IoT projects in just 7 days, Create home automation, smart home, and robotic projects and allow your devices to do smart work Build IoT skills through enticing projects and leverage revolutionary computing hardware through the RPi and Arduino. Who This Book Is For If you're a developer, IoT enthusiast, or just someone curious about Internet of Things, then this book is for you. A basic understanding of electronic hardware, networking, and basic programming skills would do wonders. What You Will Learn Learn how to get started with intelligent IoT projects Explore various pattern recognition and machine learning algorithms to make IoT projects smarter. Make decisions on

which devices to use based on the kind of project to build. Create a simple machine learning application and implement decision system concepts Build a smart parking system using Arduino and Raspberry Pi Learn how to work with Amazon Echo and to build your own smart speaker machine Build multi-robot cooperation using swarm intelligence. In Detail Intelligent IoT Projects in 7 days is about creating smart IoT projects in just 7 days. This book will help you to overcome the challenge of analyzing data from physical devices. This book aims to help you put together some of the most exciting IoT projects in a short span of time. You'll be able to use these in achieving or automating everyday tasks—one project per day. We will start with a simple smart gardening system and move on to a smart parking system, and then we will make our own vending machine, a smart digital advertising dashboard, a smart speaker machine, an autonomous fire fighter robot, and finally look at a multi-robot cooperation using swarm intelligence Style and approach A clear step-by-step instruction guide to completing fully-fledged projects in just 7 days

ESP8266 Home Automation Projects Catalin Batrinu 2017-11-28 Unleash the power of the ESP8266 and build a complete home automation system with it. About This Book Harness the power of the ESP8266 Wi-Fi chip to build an effective Home Automation System Learn about the various ESP8266 modules Configuring the ESP8266 and making interesting home automation projects A step-by-step guide on the ESP8266 chip and how to convert your home into a smart home. Who This Book Is For This book is targeted at people who want to build connected and inexpensive home automation projects using the ESP8266 Wi-Fi chip, and to completely automate their homes. A basic understanding of the board would be an added advantage What You Will Learn Get, compile, install, and configure an MQTT server Use the Wi-Fi connectivity feature to control appliances remotely Control several home appliances using the ESP8266 Wi-Fi chip Control and monitor your home from the cloud using ESP8266 modules Stream real-time data from the ESP8266 to a server over WebSockets Create an Android mobile application for your project In Detail The ESP8266 is a low-cost yet powerful Wi-Fi chip that is becoming more popular at an alarming rate, and people have adopted it to create interesting projects. With this book, you will learn to create and program home automation projects using the ESP8266 Wi-Fi chip. You will learn how to build a thermostat to measure and adjust the temperature accordingly and how to build a security system using the ESP8266. Furthermore, you will design a complete home automation system from sensor to your own cloud. You will touch base on data monitoring, controlling appliances, and security aspects. By the end of the book, you will understand how to completely control and monitor your home from the cloud and from a mobile application. You will be familiar with the capabilities of the ESP8266 and will have successfully designed a complete ready-to-sell home automated system. Style and approach A practical book that will cover independent home automation projects.

Beginning Sensor Networks with XBee, Raspberry Pi, and Arduino Charles Bell 2020-06-25 Build sensor networks with Python and MicroPython using XBee radio modules, Raspberry Pi, and Arduino boards. This revised and updated edition will put all of these together to form a sensor network, and show you how to

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

Learn Esp32 Arduino Interfacing - A Step by Step Guide Janani Sathish 2021-04-04 The ESP32 development board, which was released as a successor to the ESP8266 chip, made a huge impact on the IoT industry as it integrated Bluetooth with WiFi and utilized a dual-core processor. ESP32-S3 is the latest addition to Espressif's microcontroller series, specifically designed for AIoT applications. In this video, we will look into the specifications of ESP32-S3 and its applications. Espressif announced the ESP32-S3 microctroller on 1st December 2020. It features a dual-core Xtensa LX7 CPU, while its previous iteration, the ESP32-S2, was based on a single-core Xtensa LX7 CPU. The S2 model was considered a bridge between the ESP8266 and ESP32 microcontrollers regarding performance and cost.Will guide you through making your first internet-connected electronics project using a Wi-Fi breakout ball that is available almost everywhere. You will study the complex workflow of hardware and software that makes smart objects successful through basic examples of step-by-step. We will take examples of the most common things you want to wake up, such as sensors or buttons that trigger email or tweet. We will also take examples of circuits that display FITCHETT information online and how to combine sample codes to build your project ideas. So whether you are a software engineer just dipping it at all into hardware or beginners who only have basic knowledge and Arduino, you will explore the Cloud service to quickly and easily link your DIY circuit with other Internet Things devices, social media websites and A more. The Internet of Things is now a trending topic, so I strongly recommend that you join this reason to get the knowledge you need to start as a freelancer IoT or just to start your career on the internet.

Learning AWS IoT Agus Kurniawan 2018-01-29 Learn to use AWS IoT services to build your connected applications with the help of this comprehensive guide.

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

MicroPython for ESP8266 Development Workshop Agus Kurniawan This book explores how to work with MicroPython development for ESP8266 modules and boards such as NodeMCU, SparkFun ESP8266 Thing and Adafruit Feather HUZZAH with ESP8266 WiFi. The following is highlight topics in this book * Preparing Development Environment * Setting Up MicroPython * GPIO Programming * PWM and Analog Input * Working with I2C * Working with UART * Working with SPI * Working with DHT Module

Building Smart Drones with ESP8266 and Arduino Syed Omar Faruk Towaha 2018-02-27 Leverage the WiFi chip to build exciting Quadcopters Key Features Learn to create a fully functional Drone with Arduino and ESP8266 and their modified versions of hardware. Enhance your drone's functionalities by implementing smart features. A project-based guide that will get you developing next-level drones to help you monitor a particular area with mobile-like devices. Book Description With the use of drones, DIY projects have taken off. Programmers are rapidly moving from traditional application programming to developing exciting multi-utility projects. This book will teach you to build industry-level drones with Arduino and ESP8266 and their modified versions of hardware. With this book, you will explore techniques for leveraging the tiny WiFi chip to enhance your drone and control it over a mobile phone. This book will start with teaching you how to solve problems while building your own WiFi

controlled Arduino based drone. You will also learn how to build a Quadcopter and a mission critical drone. Moving on you will learn how to build a prototype drone that will be given a mission to complete which it will do it itself. You will also learn to build various exciting projects such as gliding and racing drones. By the end of this book you will learn how to maintain and troubleshoot your drone. By the end of this book, you will have learned to build drones using ESP8266 and Arduino and leverage their functionalities to the fullest. What you will learn Includes a number of projects that utilize different ESP8266 and Arduino capabilities, while interfacing with external hardware Covers electrical engineering and programming concepts, interfacing with the World through analog and digital sensors, communicating with a computer and other devices, and internet connectivity Control and fly your quadcopter, taking into account weather conditions Build a drone that can follow the user wherever he/she goes Build a mission-control drone and learn how to use it effectively Maintain your vehicle as much as possible and repair it whenever required Who this book is for If you are a programmer or a DIY enthusiast and keen to create a fully functional drone with Arduino and ESP8266, then this book is for you. Basic skills in electronics and programming would be beneficial. This book is not for the beginners as it includes lots of ideas not detailed how you can do that. If you are a beginner, then you might get lost here. The prerequisites of the book include a good knowledge of Arduino, electronics, programming in C or C++ and lots of interest in creating things out of nothing.

Developing IoT Projects with ESP32 Vedat Ozan Oner 2021-09-13 Master the technique of using ESP32 as an edge device in any IoT application where wireless communication can make life easier Key FeaturesGain practical experience in working with ESP32Learn to interface various electronic devices such as sensors, integrated circuits (ICs), and displaysApply your knowledge to build real-world automation projectsBook Description Developing IoT Projects with ESP32 provides end-to-end coverage of secure data communication techniques from sensors to cloud platforms that will help you to develop production-grade IoT solutions by using the ESP32 SoC. You'll learn how to employ ESP32 in your IoT projects by interfacing with different sensors and actuators using different types of serial protocols. This book will show you how some projects require immediate output for end-users, and cover different display technologies as well as examples of driving different types of displays. The book features a dedicated chapter on cybersecurity packed with hands-on examples. As you progress, you'll get to grips with BLE technologies and BLE mesh networking and work on a complete smart home project where all nodes communicate over a BLE mesh. Later chapters will show you how IoT requires cloud connectivity most of the time and remote access to smart devices. You'll also see how cloud platforms and third-party integrations enable endless possibilities for your end-users, such as insights with big data analytics and predictive maintenance to minimize costs. By the end of this book, you'll have developed the skills you need to start using ESP32 in your next wireless IoT project and meet the project's requirements by building effective, efficient, and secure solutions. What you will learnExplore advanced use cases like UART

communication, sound and camera features, low-energy scenarios, and scheduling with an RTOSAdd different types of displays in your projects where immediate output to users is requiredConnect to Wi-Fi and Bluetooth for local network communicationConnect cloud platforms through different IoT messaging protocolsIntegrate ESP32 with third-party services such as voice assistants and IFTTTDiscover best practices for implementing IoT security features in a production-grade solutionWho this book is for If you are an embedded software developer, an IoT software architect or developer, a technologist, or anyone who wants to learn how to use ESP32 and its applications, this book is for you. A basic understanding of embedded systems, programming, networking, and cloud computing concepts is necessary to get started with the book.

Programming Arduino Getting Started with Sketches Simon Monk 2011-12-22 Program Arduino with ease! Using clear, easy-to-follow examples, Programming Arduino: Getting Started with Sketches reveals the software side of Arduino and explains how to write well-crafted sketches using the modified C language of Arduino. No prior programming experience is required! The downloadable sample programs featured in the book can be used as-is or modified to suit your purposes. Understand Arduino hardware fundamentals Install the software, power it up, and upload your first sketch Learn C language basics Write functions in Arduino sketches Structure data using arrays and strings Use Arduino's digital and analog inputs and outputs in your programs Work with the Standard Arduino Library Write sketches that can store data Program LCD displays Use an Ethernet shield to enable Arduino to function as a web server Write your own Arduino libraries In December 2011, Arduino 1.0 was released. This changed a few things that have caused two of the sketches in this book to break. The change that has caused trouble is that the classes 'Server' and 'Client' have been renamed to 'EthernetServer' and 'EthernetClient' respectively. To fix this: Edit sketches 10-01 and 10-02 to replace all occurrences of the word 'Server' with 'EthernetServer' and all occurrences of 'Client' with 'EthernetClient'. Alternatively, you can download the modified sketches for 10-01 and 10-02 from here: http://www.arduinobook.com/arduino-1-0 Make Great Stuff! TAB, an imprint of McGraw-Hill Professional, is a leading publisher of DIY technology books for makers, hackers, and electronics hobbyists.

Arduino Cookbook Michael Margolis 2011-12-12 Presents an introduction to the open-source electronics prototyping platform.

Electronics Projects with the ESP8266 and ESP32 Neil Cameron 2021-01-01 Discover the powerful ESP8266 and ESP32 microcontrollers and their Wi-Fi communication. The ESP32 microcontroller features Bluetooth and BLE communication in addition to Wi-Fi. The book emphasizes practical projects and readers are guided through Wi-Fi and Bluetooth communication, mobile app design and build, ESP-NOW and LoRa communication, and signal generation. Projects throughout the book utilize the Wi-Fi functionality and processing power of the ESP microcontrollers. Projects are built in the Arduino IDE, so you don't need to download other programming software. Mobile apps are now ubiquitous, making the app build projects of the book very relevant, as are the web page design

projects. In Electronics Projects with the ESP8266 and ESP32, you'll see how easy and practical it is to access information over the internet, develop web pages, build mobile apps to remotely control devices with speech recognition or incorporate Google Maps in a GPS route tracking app. You will · Build practical electronics projects with an ESP8266 or ESP32 microcontroller with Wi-Fi communication · Use the Wi-Fi function of the ESP8266 and ESP32 to update web pages · Communicate with your mobile phone or smart watch by Bluetooth Low Energy · Transmit and receive information to control remote devices over the internet · Understand the design and build of mobile apps for internet based applications · Apply your computer programming skills in C++, JavaScript, AJAX and JSON · Use WebSocket, MQTT brokers and IFTTT for fast two-way communication with webpages Who This Book Is For The target audience is for Makers and Tinkerers who want to build internet/intranet based applications with more powerful microcontrollers, such as the ESP8266 or ESP32. A level of C++ programming expertise with the Arduino IDE is assumed, although all sketches are fully described and comprehensively commented.

Arduino Programming with .NET and Sketch Agus Kurniawan 2017-03-13 Leverage .NET and Sketch in your Arduino development implementation and integrate it into your .NET program. There are many Arduino models and compatible shields that can be used in Arduino boards. Integrating between an Arduino platform and .NET technology or Sketch can produce more advantages. Arduino Programming using .NET and Sketch shows readers how to do so with practical Arduino projects, such as preparing a development environment, performing sensing and actuating with external devices, implementing Windows Remote Arduino and building a simple IoT program. Use this quick reference to learn the basics of the Arduino platform for multiple models and start your Arduino programming in .NET and Sketch today. What You'll Learn: Learn the basics of the Arduino platform Prepare and set up an Arduino development environment Develop an Arduino program using .NET and Sketch Implement Windows Remote Arduino Build a simple IoT program Who This Book Is For: .NET and Sketch developers who want to learn Arduino programming.

Programming with MicroPython Nicholas H. Tollervey 2017-09-25 It's an exciting time to get involved with MicroPython, the re-implementation of Python 3 for microcontrollers and embedded systems. This practical guide delivers the knowledge you need to roll up your sleeves and create exceptional embedded projects with this lean and efficient programming language. If you're familiar with Python as a programmer, educator, or maker, you're ready to learn—and have fun along the way. Author Nicholas Tollervey takes you on a journey from first steps to advanced projects. You'll explore the types of devices that run MicroPython, and examine how the language uses and interacts with hardware to process input, connect to the outside world, communicate wirelessly, make sounds and music, and drive robotics projects. Work with MicroPython on four typical devices: PyBoard, the micro:bit, Adafruit's Circuit Playground Express, and ESP8266/ESP32 boards Explore a framework that helps you generate, evaluate, and evolve embedded projects that solve real problems Dive into practical MicroPython examples: visual feedback, input and sensing, GPIO, networking,

sound and music, and robotics Learn how idiomatic MicroPython helps you express a lot with the minimum of resources Take the next step by getting involved with the Python community

Esp32 Programming for the Internet of Things Sever Spanulescu 2018-12-16 It is estimated that trillions of devices will be interconnected over the next decade through the Internet of Things, demanding a huge effort from developers. The emergence of low-cost Espressif microcontrollers, with WiFi connectivity, allows independent developers to quickly become part of this process. This book is not intended to comprehensively teach you the theory, but to give you practical and fully functional solutions, in the form of complete programs. Much of the theory is already known by some of the readers, or may be found in many other textbooks. However, the programs presented here include great effort and have many original solutions following one of the basic paradigms of programming: "Keep i(o)t simple". In addition, the most important thing for such a book — all the programs have already been verified by third parties, in this case students from Hyperion University, who have provided a very valuable feedback.

JavaScript Robotics Backstop Media 2015-04-13 JavaScript Robotics is on the rise. Rick Waldron, the lead author of this book and creator of the Johnny-Five platform, is at the forefront of this movement. Johnny-Five is an open source JavaScript Arduino programming framework for robotics. This book brings together fifteen innovative programmers, each creating a unique Johnny-Five robot step-by-step, and offering tips and tricks along the way. Experience with JavaScript is a prerequisite.

Arduino Cookbook Michael Margolis 2020-04-17 Want to create devices that interact with the physical world? This cookbook is perfect for anyone who wants to experiment with the popular Arduino microcontroller and programming environment. You'll find more than 200 tips and techniques for building a variety of objects and prototypes such as IoT solutions, environmental monitors, location and position-aware systems, and products that can respond to touch, sound, heat, and light. Updated for the Arduino 1.8 release, the recipes in this third edition include practical examples and guidance to help you begin, expand, and enhance your projects right away—whether you're an engineer, designer, artist, student, or hobbyist. Get up to speed on the Arduino board and essential software concepts quickly Learn basic techniques for reading digital and analog signals Use Arduino with a variety of popular input devices and sensors Drive visual displays, generate sound, and control several types of motors Connect Arduino to wired and wireless networks Learn techniques for handling time delays and time measurement Apply advanced coding and memory-handling techniques

Arduino Essentials Francis Perea 2015-02-24 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.

MicroPython for the Internet of Things Charles Bell 2017-11-24 Quickly learn to program for microcontrollers and IoT devices without a lot of study and expense. MicroPython and controllers that support it eliminate the need for programming in a C-like language, making the creation of IoT applications and devices easier and more accessible than ever. MicroPython for the Internet of Things is ideal for readers new to electronics and the world of IoT. Specific examples are provided covering a range of supported devices, sensors, and MicroPython boards such as Pycom's WiPy modules and MicroPython's pyboard. Never has programming for microcontrollers been easier. The book takes a practical and hands-on approach without a lot of detours into the depths of theory. The book: Shows a faster and easier way to program microcontrollers and IoT devices Teaches MicroPython, a variant of one of the most widely used scripting languages Is friendly and accessible to those new to electronics, with fun example projects What You'll Learn Program in MicroPython Understand sensors and basic electronics Develop your own IoT projects Build applications for popular boards such as WiPy and pyboard Load MicroPython on the ESP8266 and similar boards Interface with hardware breakout boards Connect hardware to software through MicroPython Explore the easy-to-use Adafruit IO connecting your microcontroller to the cloud Who This Book Is For Anyone interested in building IoT solutions without the heavy burden of programming in C++ or C. The book also appeals to those wanting an easier way to work with hardware than is provided by the Arduino and the Raspberry Pi platforms.

Arduino MKR WIFI 1010 Development Workshop Agus Kurniawan Arduino MKR WIFI 1010 is a new Arduino board with WiFi capability that enables to build IoT application. This book helps you to get started with Arduino MKR WIFI 1010. The following is a list of topics in this book. * Setting up Development Environment * Sketch Programming * Working with SPI * Working with I2C * Arduino WiFi Networking * Working with Internal RTC and Sleep Mode

Learn Esp32 with Arduino Janani Sathish 2021-07-25 I want to go over some of the reasons why, in my opinion, the ESP 32 is an incredible microcontroller and why you should use it in your IoT projects. For starters, the ESP 32 is very powerful. It contains a dual-core CPU that can be clocked at 8,160 or 240 megahertz. That's quite a lot of computing power in a reasonably small. It also has a ULP or ultra-low power coprocessor. And this is a much slower process, or they can be used to perform smaller tasks while the big dual-core CPU is in a night of sleep. Now, besides killer processors, the ESB 32 also has a ton of memory. It includes 512 kilobytes of on-chip SRM memory used for data and programs instructions. Besides this there's also support for external memory and depending on your board, that might be as much as four to eight megabytes. This means that the ESP 32 is also suitable for some heavier tasks, like connecting with cameras, recognizing speech streaming data from the internet. And. But the biggest reason why I think this chip is so good is that it has built-in wifi and Bluetooth. So no need for additional radio modules like you would see on most Arduino boards, the ESP 32 is just one chip with everything

in one package. The rest of the IO is pretty impressive as well.

The Official ESP32 Book Dogan Ibrahim 2017

NodeMCU Development Workshop Agus Kurniawan NodeMCU is the Development Kit based on ESP8266 with NodeMCU firmware. This book helps you to get started with NodeMCU v2 development. The following is highlight topic in this book: * Preparing Development Environment * Setting up NodeMCU * Lua Programming Language * GPIO Programming * PWM and Analog Input * Working with I2C * UART * SPI * Working with OLED Display * Connecting to a Network

MicroPython for ESP32 Development Workshop Agus Kurniawan ESP32 chip is famous chip to develop IoT application. This book explores how to work with ESP32 board using MicroPython. The following is highlight topics: * Preparing Development Environment * Setting Up MicroPython * GPIO Programming * PWM and Analog Input * Working with I2C * Working with UART * Working with SPI * Working with DHT Module * Working with WiFi

Kick-Start to MicroPython using ESP32 / ESP8266 Harish Kondoor 2021-08-07 MicroPython is the recreated version of Python 3 that runs in the memory-restricted microcontrollers with a minimum of 256KB of ROM and 16KB of RAM. MicroPython supports chips like ESP32, ESP8266, STM32, nRF52, W600, etc. MicroPython follows Python 3 syntax which makes it easy to programme for microcontrollers. The hardware APIs are capable of handling GPIO pins in microcontrollers. In this course, we discuss the ESP32 dev module as the main controller which has a high level of flexibility in connecting with sensors, on-chip capabilities with onboard WiFi. The ebook includes links to YouTube videos (only important videos) and a code bundle(link to google drive).

Virtual, Augmented and Mixed Reality Stephanie Lackey 2017-06-28 This book constitutes the refereed proceedings of the 9th International Conference on Virtual, Augmented and Mixed Reality, VAMR 2017, held as part of HCI International 2017 in Vancouver, BC, Canada. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The 45 papers presented in this volume were organized in topical sections named: developing virtual and augmented environments; interaction techniques in VAMR; VAMR in education and training; virtual worlds and games; user experience in VAMR; and health issues in VR.

ESP32 Simplified Luc Volders 2020-05-24 A book for the novice or seasoned electronics hobbyist who wants to learn about the Internet of Things. The book focusses on the ESP32 a powerfull and very popular and cheap micro-controller that offers many connections to sensors and has an open source programming environment. Combined these features make the ESP32 ideal for home automation. The book starts with explaining the programming language which is based on the popular Arduino language and describes how to attach and program a multitude of sensors. The ESP32's wifi capabilities make sure the sensor readings can be consulted from anywhere in the world.

Internet of Things with ESP8266 Marco Schwartz 2016-07-29 Build amazing
Internet of Things projects using the ESP8266 Wi-Fi chip About This Book Get to
know the powerful and low cost ESP8266 and build interesting projects in the
field of Internet of Things Configure your ESP8266 to the cloud and explore the
networkable modules that will be utilized in the IoT projects This step-by-step
guide teaches you the basics of IoT with ESP8266 and makes your life easier Who
This Book Is For This book is for those who want to build powerful and
inexpensive IoT projects using the ESP8266 WiFi chip, including those who are
new to IoT, or those who already have experience with other platforms such as
Arduino. What You Will Learn Control various devices from the cloud Interact
with web services, such as Twitter or Facebook Make two ESP8266 boards
communicate with each other via the cloud Send notifications to users of the
ESP8266, via email, text message, or push notifications Build a physical device
that indicates the current price of Bitcoin Build a simple home automation
system that can be controlled from the cloud Create your own cloud platform to
control ESP8266 devices In Detail The Internet of Things (IoT) is the network
of objects such as physical things embedded with electronics, software,
sensors, and connectivity, enabling data exchange. ESP8266 is a low cost WiFi
microcontroller chip that has the ability to empower IoT and helps the exchange
of information among various connected objects. ESP8266 consists of networkable
microcontroller modules, and with this low cost chip, IoT is booming. This book
will help deepen your knowledge of the ESP8266 WiFi chip platform and get you
building exciting projects. Kick-starting with an introduction to the ESP8266
chip, we will demonstrate how to build a simple LED using the ESP8266. You will
then learn how to read, send, and monitor data from the cloud. Next, you'll see
how to control your devices remotely from anywhere in the world. Furthermore,
you'll get to know how to use the ESP8266 to interact with web services such as
Twitter and Facebook. In order to make several ESP8266s interact and exchange
data without the need for human intervention, you will be introduced to the
concept of machine-to-machine communication. The latter part of the book
focuses more on projects, including a door lock controlled from the cloud,
building a physical Bitcoin ticker, and doing wireless gardening. You'll learn
how to build a cloud-based ESP8266 home automation system and a cloud-
controlled ESP8266 robot. Finally, you'll discover how to build your own cloud
platform to control ESP8266 devices. With this book, you will be able to create
and program Internet of Things projects using the ESP8266 WiFi chip. Style and
approach This is a step-by-step guide that provides great IOT projects with
ESP8266. All the key concepts are explained details with the help of examples
and demonstrations of the projects.

Zero to Hero: ESP8266 Manoj R. Thakur Super book for becoming super hero in
Internet of Things world. It takes you from zero to become master in ESP8266
programming using Arduino IDE. IoT is recent trend in market you can built
anything with help of this book, covers from basics to advance level. Includes
getting data to VB.net, drawing graphs, using google gadgets to show gauges,
hardware design aspects and much more.

Arduino Sketch for ESP8266 Development Workshop Agus Kurniawan This book helps

you to get started with Arduino Sketch development using ESP8266 boards. We explore I/O programming on ESP8266 boards. The following is a list of highlight topics in this book: * Preparing Development Environment * Setting Up ESP8266 Boards * GPIO Programming * Working with Serial Communication (UART) * PWM and Analog Input * Working with I2C * Working with SPI * Connecting to a Network * Working with EEPROM * Reading Temperature and Humidity with DHT Module

CircuitPython Development Workshop Agus Kurniawan CircuitPython is a development framework for embedded system based MicroPython. This book helps you to get started with CircuitPython development. This book uses Adafruit ItsyBitsy M0 Express board for development testing board. The following is a list of highlight topics in this book: * Preparing Development Environment * Setting Up CircuitPython * GPIO Programming * PWM and Analog Input * Working with I2C * Working with UART * Working with SPI * Working with DHT Module

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

Building Wireless Sensor Networks with ESP32 LoRa Agus Kurniawan 2019-01-20 This is a practical book how to implement a simple Wireless Sensor Networks (WSN) with ESP32 over LoRa network. The following is a list of highlight topics in this book. * Preparing Development Environment * Set up ESP32 LoRa * Sending and Receiving Data over ESP32 LoRa * Handling LoRa Receiver Interrupt * Broadcast Messages over LoRa Network * Building WSN Application Based ESP32 LoRa

Internet of Things Projects with ESP32 Agus Kurniawan 2019-03-30 Create and program Internet of Things projects using the Espressif ESP32. Key Features Getting to know the all new powerful EPS32 boards and build interesting Internet of Things projects Configure your ESP32 to the cloud technologies and explore the networkable modules that will be utilised in your IoT projects A step-by-step guide that teaches you the basic to advanced IoT concepts with ESP32 Book Description ESP32 is a low-cost MCU with integrated Wi-Fi and BLE. Various modules and development boards-based on ESP32 are available for

building IoT applications easily. Wi-Fi and BLE are a common network stack in the Internet of Things application. These network modules can leverage your business and projects needs for cost-effective benefits. This book will serve as a fundamental guide for developing an ESP32 program. We will start with GPIO programming involving some sensor devices. Then we will study ESP32 development by building a number of IoT projects, such as weather stations, sensor loggers, smart homes, Wi-Fi cams and Wi-Fi wardriving. Lastly, we will enable ESP32 boards to execute interactions with mobile applications and cloud servers such as AWS. By the end of this book, you will be up and running with various IoT project-based ESP32 chip. What you will learn Understand how to build a sensor monitoring logger Create a weather station to sense temperature and humidity using ESP32 Build your own W-iFi wardriving with ESP32. Use BLE to make interactions between ESP32 and Android Understand how to create connections to interact between ESP32 and mobile applications Learn how to interact between ESP32 boards and cloud servers Build an IoT Application-based ESP32 board Who this book is for This book is for those who want to build a powerful and inexpensive IoT projects using the ESP32.Also for those who are new to IoT, or those who already have experience with other platforms such as Arduino, ESP8266, and Raspberry Pi.

Arduino Workshop John Boxall 2013-05-13 The Arduino is a cheap, flexible, open source microcontroller platform designed to make it easy for hobbyists to use electronics in homemade projects. With an almost unlimited range of input and output add-ons, sensors, indicators, displays, motors, and more, the Arduino offers you countless ways to create devices that interact with the world around you. In Arduino Workshop, you'll learn how these add-ons work and how to integrate them into your own projects. You'll start off with an overview of the Arduino system but quickly move on to coverage of various electronic components and concepts. Hands-on projects throughout the book reinforce what you've learned and show you how to apply that knowledge. As your understanding grows, the projects increase in complexity and sophistication. Among the book's 65 projects are useful devices like: – A digital thermometer that charts temperature changes on an LCD –A GPS logger that records data from your travels, which can be displayed on Google Maps – A handy tester that lets you check the voltage of any single-cell battery – A keypad-controlled lock that requires a secret code to open You'll also learn to build Arduino toys and games like: – An electronic version of the classic six-sided die – A binary quiz game that challenges your number conversion skills – A motorized remote control tank with collision detection to keep it from crashing Arduino Workshop will teach you the tricks and design principles of a master craftsman. Whatever your skill level, you'll have fun as you learn to harness the power of the Arduino for your own DIY projects. Uses the Arduino Uno board

ESP8266 Robotics Projects Pradeeka Seneviratne 2017-11-30 Build simple yet amazing robotics projects using ESP8266 About This Book Get familiar with ESP8266 and its features. Build Wi-FI controlled robots using ESP8266 A project based book that will use the ESP8266 board and some of its popular variations to build robots. Who This Book Is For This book is targeted at enthusiasts who

are interested in developing low-cost robotics projects using ESP8266. A basic knowledge of programming will be useful but everything you need to know is are covered in the book. What You Will Learn Build a basic robot with the original ESP8266, Arduino UNO, and a motor driver board. Make a Mini Round Robot with ESP8266 HUZZAH Modify your Mini Round Robot by integrating encoders with motors Use the Zumo chassis kit to build a line-following robot by connecting line sensors Control your Romi Robot with Wiimote Build a Mini Robot Rover chassis with a gripper and control it through Wi-Fi Make a robot that can take pictures In Detail The ESP8266 Wi-Fi module is a self-contained SOC with an integrated TCP/IP protocol stack and can give any microcontroller access to your Wi-Fi network. It has a powerful processing and storage capability and also supports application hosting and Wi-Fi networking. This book is all about robotics projects based on the original ESP8266 microcontroller board and some variants of ESP8266 boards. It starts by showing all the necessary things that you need to build your development environment with basic hardware and software components. The book uses the original ESP8266 board and some variants such as the Adafruit HUZZAH ESP8266 and the Adafruit Feather HUZZAH ESP8266 . You will learn how to use different type of chassis kits, motors, motor drivers, power supplies, distribution boards, sensors, and actuators to build robotics projects that can be controlled via Wi-Fi. In addition, you will learn how to use line sensors, the ArduiCam, Wii Remote, wheel encoders, and the Gripper kit to build more specialized robots. By the end of this book, you will have built a Wi-Fi control robot using ESP8266. Style and approach A project-based guide that will help you build exciting robotics using ESP8266.

ESP8266: Programming NodeMCU Using Arduino IDE - Get Started with ESP8266
Upskill Learning 2016-06-22 Get Started with the Internet Of Things! Learn how to use the ESP8266 WiFi chip to build Internet of Things (IoT) projects! This book will teach you programming NodeMCU using Arduino IDE. If you want to learn about the world of IOT and how it changes the world we live in, this is a resource book to get started with. You will learn indepth details about ESP8266 Chip, Modules, Features & Benefits. This book will help you understand the basic concepts of IOT, its benefits, advantages and applications in various industries starting from Home Automation to Healthcare Monitoring to Industrial Transformation. What You'll Learn From This Book: Chapter 1: Introduction To Programming with NodeMCU using Arduino IDEChapter 2: Moving Toward A Smarter Internet - The Internet Of ThingsChapter 3: Getting Started With Esp8266* The Chip* The ModulesChapter 4: ESP8266 - Chip, Modules & Features* Understanding IOT* Designing an Internet of Things Solution * System & Application Requirements* Overcoming Limitations Using ESP8266* Features of ESP8266Chapter 5: Understanding NodeMCUChapter 6: Getting Started With NodeMCU* The 3 Ways To Program NodeMCUChapter 7: Role of ESP8266 and NodeMCU in IOTChapter 8: Programming NodeMCU * Hardware Requirements* Software RequirementsChapter 9: Step-by-Step Guide To Programming NodeMCUChapter 10: Creating Your 1st ProjectChapter 11: Creating Your 2nd ProjectChapter 12: Conclusion - Sculpting Your Career In IOT* How do YOU become an expert on IoT - Internet of Things?* The Internet Of Things Wants You* 10 New Jobs Created By The Internet Of ThingsUsing this step by step guide book, you will learn the complete details

about ESP8266, you will understand NodeMCU, the three different ways to programming NodeMCU, you will also learn to program NodeMCU using Arduino IDE. There are 2 different Projects given in this book so you can get started with your own IOT projects!