Mastering BeagleBone Robotics

Master the power of the BeagleBone Black to maximize your robot-building skills and create awesome projects

Richard Grimmett

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Mastering Beaglebone Robotics:

Mastering BeagleBone Robotics Richard Grimmett,2014-12-22 If you want a simple guide to building complex robots then this book is for you You ll need some programming knowledge and experience working with mechanical systems

BeagleBone Robotic Projects Richard Grimmett,2017-06-13 Exciting new capabilities to enable even easier DIY robotics with BeagleBone Blue Key Features Build powerful robots with the all new BeagleBone Blue Communicate with your robot and teach it to detect and respond to its environment Control walking rolling swimming and flying robots with your iOS and Android mobile devices Book DescriptionBeagleBone Blue is effectively a small light cheap computer in a similar vein to Raspberry Pi and Arduino It has all of the extensibility of today s desktop machines but without the bulk expense or noise This project guide provides step by step instructions that enable anyone to use this new low cost platform in some fascinating robotics projects By the time you are finished your projects will be able to see speak listen detect their surroundings and move in a variety of amazing ways The book begins with unpacking and powering up the components This includes guidance on what to purchase and how to connect it all successfully and a primer on programming the BeagleBone Blue You will add additional software functionality available from the open source community including making the system see using a webcam hear using a microphone and speak using a speaker You will then learn to use the new hardware capability of the BeagleBone Blue to make your robots move as well as discover how to add sonar sensors to avoid or find objects Later you will learn to remotely control your robot through iOS and Android devices At the end of this book you will see how to integrate all of these functionalities to work together before developing the most impressive robotics projects Drone and Submarine What you will learn Power on and configure the BeagleBone Blue Get to know Simple programming techniques to enable the unique hardware capabilities of the BeagleBone Blue Connect standard hardware to enable your projects to see speak hear and move Build advanced capabilities into your projects such as GPS and sonar sensors Build complex projects that can fly or go under or on the water Who this book is for This book is for anyone who is curious about using new low cost hardware to create robotic projects and have previously been the domain of research labs major universities or defence departments Some programming experience would be useful but if you know how to use a personal computer you can use this book to construct far more complex systems than you would have thought possible **Learning BeagleBone Python Programming** Alexander Hiam,2015-07-14 BeagleBone is a barebone computer that can be configured and customized for different applications and is almost half the price of a standard computer This book will cover the basics of how BeagleBone Black s hardware interface subsystems work and can be controlled using two popular Python libraries for BeagleBone Black You will be introduced to BeagleBone Black s GPIO PWM ADC UART SPI I2C and eQEP subsystems We will then dive deep into more complex built in peripherals demonstrating different ways to receive input from a user including buttons potentiometers and rotary encoders with the eQEP module We will also learn about interfacing with external devices this will

be demonstrated using the serial modules to interface with external devices such as temperature sensors and accelerometers Towards the end of the book we will present a couple of real world problems and demonstrate how to solve them with the skills you ve acquired *Programming the BeagleBone* Yogesh Chavan,2016-01-28 Master BeagleBone programming by doing simple electronics and Internet of Things projects About This Book Quickly develop electronics projects that interact with Internet applications using JavaScript and Python Learn about electronics components such as sensors and motors and how to communicate with them by writing programs A step by step guide to explore the exciting world of BeagleBone from connecting BeagleBone to doing electronics projects and creating IoT applications Who This Book Is For If you want to learn programming on embedded systems with BeagleBone by doing simple electronics projects this book is for you This book is also helpful to BeagleBone owners who want to quickly implement small scale home automation solutions It is assumed that you have familiarity with C and Python programming Some familiarity with electronics is helpful but not essential What You Will Learn Connect your BeagleBone to a computer in different ways and get the Cloud9 IDE running to quick start programming on the BeagleBone Get to know about BeagleBone extension pins such as GPIO and how to connect various electronics components with BeagleBone Read and write to various electronics components such as LED Push button sensors and motors Grasp in depth theory on Analog PWM and BUS programming and the electronics components used in programs Handle data to and from various BUS supporting modules such as UART I2C and SPI using the Adafruit BBIO Python library Write real life IoT applications in JavaScript and Python such as shooting an e mail on overheat and controlling a servo motor remotely Make use of online free cloud services to store and analyze sensor data collected on the BeagleBone Discover what else can be done using the BeagleBone Get to grips with embedded system BUS communication In Detail The whole world is moving from desktop computers to smartphones and embedded systems We are moving towards utilizing Internet of Things IoT An exponential rise in the demand for embedded systems and programming in the last few years is driving programmers to use embedded development boards such as Beaglebone BeagleBone is an ultra small cost effective computer that comes with a powerful hardware It runs a full fledged Debian Linux OS and provides numerous electronics solutions BeagleBone is open source and comes with an Ethernet port which allows you to deploy IoT projects without any additions to the board It provides plenty of GPIO Anlaog pins and UART I2C SPI pins which makes it the right choice to perform electronics projects This gives you all the benefits of Linux kernel such as multitasking multiusers and extensive device driver support This allows you to do programming in many languages including high level languages such as JavaScript and Python This book aims to exploit the hardware and software capabilities of BeagleBone to create real life electronics and IoT applications quickly It is divided into two parts The first part covers JavaScript programs The second part provides electronics projects and IoT applications in Python First you will learn to use BeagleBone as tool to write useful applications on embedded systems Starting with the basics needed to set up BeagleBone and the Cloud9 IDE this book covers interfacing with various

electronics components via simple programs The electronics theory related to these components is then explained in depth before you use them in a program Finally the book helps you create some real life IoT applications Style and approach An easy to follow guide full of real world electronics programs and quick troubleshooting tips using BeagleBone All the required electronics concepts are explained in detail before using them in a program and all programs are explained in depth Most of the theory is covered in the first part while the second part gives you some quick programs **BeagleBone Home Automation Blueprints** Rodolfo Giometti,2016-02-03 Automate and control your home using the power of the BeagleBone Black with practical home automation projects About This Book Build set up and develop your circuits via step by step tutorial of practical examples from initial board setup to device driver management Get access to several kinds of computer peripherals to monitor and control your domestic environment using this guide This book is spread across 10 chapters all focused on one practical home automation project Who This Book Is For This book is for developers who know how to use BeagleBone and are just above the beginner level If you want to learn to use embedded machine learning capabilities you should have some experience of creating simple home automation projects What You Will Learn Build a CO and other gas sensor with a buzzer LED alarm to signal high concentrations Log environment data and plot it in a fancy manner Develop a simple web interface with a LAMP platform Prepare complex web interfaces in JavaScript and get to know how to stream video data from a webcam Use APIs to get access to a Google Docs account or a WhatsApp Facebook account to manage a home automation system Add custom device drivers to manage an LED with different blinking frequencies Discover how to work with electronic components to build small circuits Use an NFS temperature sensor relays and other peripherals to monitor and control your surroundings In Detail BeagleBone is a microboard PC that runs Linux It can connect to the Internet and can run OSes such as Android and Ubuntu BeagleBone is used for a variety of different purposes and projects from simple projects such as building a thermostat to more advanced ones such as home security systems Packed with real world examples this book will provide you with examples of how to connect several sensors and an actuator to the BeagleBone Black You ll learn how to give access to them in order to realize simple to complex monitoring and controlling systems that will help you take control of the house You will also find software examples of implementing web interfaces using the classical PHP HTML pair with JavaScript using complex APIs to interact with a Google Docs account WhatsApp or Facebook This guide is an invaluable tutorial if you are planning to use a BeagleBone Black in a home automation project Style and approach This step by step guide contains several home automation examples that can be used as base projects for tons of other home automation and control systems Through clear concise examples based on real life situations you will quickly get to grips with the core concepts needed to develop home automation applications with the BeagleBone Black using both the C language and high level scripting languages such as PHP Python and JavaScript   BeagleBone: Creative Projects for Hobbyists Charles Hamilton,2017   **Towards Autonomous Robotic Systems** Yang Gao,Saber Fallah,Yaochu

Jin,Constantina Lekakou,2017-07-19 This book constitutes the refereed proceedings of the 18th Annual Conference on Towards Autonomous Robotics TAROS 2017 held in Guildford UK in July 2017 The 43 revised full papers presented together with 13 short papers were carefully reviewed and selected from 66 submissions The papers discuss robotics research drawn from a wide and diverse range of topics such as swarm and multi robotic systems human robot interaction robotic learning and imitation robot navigation planning and safety humanoid and bio inspired robots mobile robots and vehicles robot testing and design detection and recognition learning and adaptive behaviours interaction soft and reconfigurable robots and service and industrial robots **BeagleBone Robotic Projects** Richard Grimmett,2013-12-26 Develop practical example projects with detailed explanations combine the projects in a vast number of ways to create different robot designs or work through them in sequence to discover the full capability of the BeagleBone Black This book is for anyone who is curious about using new low cost hardware to create robotic projects that have previously been the domain of research labs major universities or Defence departments Some programming experience would be useful but if you know how to use a personal computer you can use this book to construct far more complex systems than you would have thought possible **BeagleBone: Creative Projects for Hobbyists** Charles Hamilton,Rodolfo Giometti,Richard Grimmett,2017-07-20 Learn to build amazing robotic projects using the powerful BeagleBone Black About This Book Push your creativity to the limit through complex diverse and fascinating projects Develop applications with the BeagleBone Black and open source Linux software Sharpen your expertise in making sophisticated electronic devices Who This Book Is For This Learning Path is aimed at hobbyists who want to do creative projects that make their life easier and also push the boundaries of what can be done with the BeagleBone Black This Learning Path s projects are for the aspiring maker casual programmer and budding engineer or tinkerer You ll need some programming knowledge and experience of working with mechanical systems to get the complete experience from this Learning Path What You Will Learn Set up and run the BeagleBone Black for the first time Get to know the basics of microcomputing and Linux using the command line and easy kernel mods Develop a simple web interface with a LAMP platform Prepare complex web interfaces in JavaScript and get to know how to stream video data from a webcam Find out how to use a GPS to determine where your sailboat is and then get the bearing and distance to a new waypoint Use a wind sensor to sail your boat effectively both with and against the wind Build an underwater ROV to explore the underwater world See how to build an autonomous Quadcopter In Detail BeagleBone is a microboard PC that runs Linux It can connect to the Internet and run OSes such as Android and Ubuntu You can transform this tiny device into a brain for an embedded application or an endless variety of electronic inventions and prototypes This Learning Path starts off by teaching you how to program the BeagleBone You will create introductory projects to get yourselves acquainted with all the nitty gritty Then we ll focus on a series of projects that are aimed at hobbyists like you and encompass the areas of home automation and robotics With each project we ll teach you how to connect several sensors and an actuator to the BeagleBone Black We ll also create

robots for land sea and water Yes really The books used in this Learning Path are BeagleBone Black Cookbook BeagleBone Home Automation Blueprints Mastering BeagleBone Robotics Style and approach This practical guide transforms complex and confusing pieces of technology to become accessible with easy to succeed instructions Through clear concise examples you will quickly get to grips with the core concepts needed to develop home automation applications with the BeagleBone Black **Bad to the Bone** Steven Barrett,Jason Kridner,2022-06-01 BeagleBone Black is a low cost open hardware computer uniquely suited to interact with sensors and actuators directly and over the Web Introduced in April 2013 by BeagleBoard org a community of developers first established in early 2008 BeagleBone Black is used frequently to build vision enabled robots home automation systems artistic lighting systems and countless other do it yourself and professional projects BeagleBone variants include the original BeagleBone and the newer BeagleBone Black both hosting a powerful 32 bit super scalar ARM Cortex A8 processor capable of running numerous mobile and desktop capable operating systems typically variants of Linux including Debian Android and Ubuntu Yet BeagleBone is small enough to fit in a small mint tin box The Bone may be used in a wide variety of projects from middle school science fair projects to senior design projects to first prototypes of very complex systems Novice users may access the power of the Bone throughthe user friendly BoneScript software experienced through a Web browser in most major operating systems including Microsoft Windows Apple Mac OS X or the Linux operating systems Seasoned users may take full advantage of the Bone s power using the underlying Linux based operating system a host of feature extension boards Capes and a wide variety of Linux community open source libraries This book provides an introduction to this powerful computer and has been designed for a wide variety of users including the first time novice through the seasoned embedded system design professional The book contains background theory on system operation coupled with many well documented illustrative examples Examples for novice users are centered on motivational fun robot projects while advanced projects follow the theme of assistive technology and image processing applications **Mastering Robot design and programming** Cybellium, Unleash Creativity and Ingenuity in Robotics In the realm of technology and automation robots have become pivotal in reshaping industries and possibilities Mastering Robot Design and Programming is your definitive guide to understanding and harnessing the potential of robotics empowering you to create and program intelligent robots that push the boundaries of innovation and redefine the future About the Book As robotics technology evolves the ability to design and program robots becomes increasingly crucial Mastering Robot Design and Programming offers a comprehensive exploration of this dynamic field an essential toolkit for engineers enthusiasts and innovators This book caters to both newcomers and experienced learners aiming to excel in robot design customization and programming Key Features Robotics Fundamentals Begin by understanding the core principles of robotics Learn about robot components kinematics and dynamics that shape robot design Custom Robot Design Dive into custom robot design techniques Explore methods for selecting mechanical parts designing frames and ensuring stability and mobility

Programming Basics Grasp the art of robot programming Understand how to write and upload code for motion control sensors and autonomous behaviors Sensors and Perception Explore sensors and perception systems for robots Learn how to integrate cameras LiDAR proximity sensors and other devices for accurate environment awareness Autonomous Navigation Understand the significance of autonomous navigation Learn how to program robots to navigate through environments avoid obstacles and map surroundings Human Robot Interaction Delve into human robot interaction Explore techniques for creating interfaces and behaviors that enable robots to collaborate with humans effectively Robot Applications Grasp real world applications of robotics From manufacturing to healthcare discover the diverse applications of intelligent robots Ethics and Safety Gain insights into robotics ethics and safety considerations Learn how to design robots that adhere to ethical standards and ensure safe operations Why This Book Matters In an age of innovation and automation mastering robot design and programming offers a competitive edge Mastering Robot Design and Programming empowers engineers enthusiasts and technology innovators to leverage robotics technology enabling them to create intelligent robots that redefine industries and drive progress Shape the Future of Automation In the landscape of technology and automation robots are at the forefront of reshaping industries and possibilities Mastering Robot Design and Programming equips you with the knowledge needed to leverage robotics enabling you to create and program intelligent machines that redefine innovation and open doors to new horizons Whether you re a seasoned robotics enthusiast or new to the world of robot design this book will guide you in building a solid foundation for effective robot customization and programming Your journey to mastering robot design and programming starts here 2023 Cybellium Ltd All rights reserved www cybellium com   **Intelligent Manufacturing & Mechatronics** Mohd Hasnun Arif Hassan,2018-04-27 This book presents the proceedings of SympoSIMM 2018 the 1st edition of the Symposium on Intelligent Manufacturing and Mechatronics With the theme of Strengthening Innovations Towards Industry 4 0 the book comprises the studies towards the particularity of Industry 4 0 s current trends It is divided into five parts covering various scopes of manufacturing engineering and mechatronics stream namely Intelligent Manufacturing Robotics Artificial Intelligence Instrumentation and Modelling and Simulation It is hoped that this book will benefit the readers in embracing the new era of Industrial Revolution 4 0   **Mastering Embedded Linux Programming** Chris Simmonds,2015-12-29 Harness the power of Linux to create versatile and robust embedded solutions About This Book Create efficient and secure embedded devices using Linux Minimize project costs by using open source tools and programs Explore each component technology in depth using sample implementations as a guide Who This Book Is For This book is ideal for Linux developers and system programmers who are already familiar with embedded systems and who want to know how to create best in class devices A basic understanding of C programming and experience with systems programming is needed What You Will Learn Understand the role of the Linux kernel and select an appropriate role for your application Use Buildroot and Yocto to create embedded Linux systems quickly and efficiently Create customized bootloaders using U Boot

Employ perf and ftrace to identify performance bottlenecks Understand device trees and make changes to accommodate new hardware on your device Write applications that interact with Linux device drivers Design and write multi threaded applications using POSIX threads Measure real time latencies and tune the Linux kernel to minimize them In Detail Mastering Embedded Linux Programming takes you through the product cycle and gives you an in depth description of the components and options that are available at each stage You will begin by learning about toolchains bootloaders the Linux kernel and how to configure a root filesystem to create a basic working device You will then learn how to use the two most commonly used build systems Buildroot and Yocto to speed up and simplify the development process Building on this solid base the next section considers how to make best use of raw NAND NOR flash memory and managed flash eMMC chips including mechanisms for increasing the lifetime of the devices and to perform reliable in field updates Next you need to consider what techniques are best suited to writing applications for your device We will then see how functions are split between processes and the usage of POSIX threads which have a big impact on the responsiveness and performance of the final device The closing sections look at the techniques available to developers for profiling and tracing applications and kernel code using perf and ftrace Style and approach This book is an easy to follow and pragmatic guide consisting of an in depth analysis of the implementation of embedded devices Each topic has a logical approach to it this coupled with hints and best practices helps you understand embedded Linux better   Mastering Embedded Systems From Scratch keroles karam khalil khela shenouda,2023-04-26 Mastering Embedded Systems From Scratch is an all encompassing inspiring and captivating guide designed to elevate your engineering skills to new heights This comprehensive resource offers an in depth exploration of embedded systems engineering from foundational principles to cutting edge technologies and methodologies Spanning 14 chapters this exceptional book covers a wide range of topics including microcontrollers programming languages communication protocols software testing ARM fundamentals real time operating systems RTOS automotive protocols AUTOSAR Embedded Linux Adaptive AUTOSAR and the Robot Operating System ROS With its engaging content and practical examples this book will not only serve as a vital knowledge repository but also as an essential tool to catapult your career in embedded systems engineering Each chapter is meticulously crafted to ensure that engineers have a solid understanding of the subject matter and can readily apply the concepts learned to real world scenarios The book combines theoretical knowledge with practical case studies and hands on labs providing engineers with the confidence to tackle complex projects and make the most of powerful technologies Mastering Embedded Systems From Scratch is an indispensable resource for engineers seeking to broaden their expertise improve their skills and stay up to date with the latest advancements in the field of embedded systems Whether you are a seasoned professional or just starting your journey this book will serve as your ultimate guide to mastering embedded systems preparing you to tackle the challenges of the industry with ease and finesse Embark on this exciting journey and transform your engineering career with Mastering

Embedded Systems From Scratch today Mastering Embedded Systems From Scratch is your ultimate guide to becoming a professional embedded systems engineer Curated from 24 authoritative references this comprehensive book will fuel your passion and inspire success in the fast paced world of embedded systems Dive in and unleash your potential Here are the chapters Chapter 1 Introduction to Embedded System Chapter 2 C Programming Chapter 3 Embedded C Chapter 4 Data Structure SW Design Chapter 5 Microcontroller Fundamentals Chapter 6 MCU Essential Peripherals Chapter 7 MCU Interfacing Chapter 8 SW Testing Chapter 9 ARM Fundamentals Chapter 10 RTOS Chapter 11 Automotive Protocols Chapter 12 Introduction to AUTOSAR Chapter 13 Introduction to Embedded Linux Chapter 14 Advanced Topics **Mastering Swift 3 - Linux** Jon Hoffman,2017-01-02 Learn to build fast and robust applications on the Linux platform with Swift About This Book Create robust applications by building a strong foundation in the Swift Language Utilize Swift 3 on the embedded Linux platform for IoT and Robotic projects Build more flexible and high performing applications on desktop server and embedded Linux platforms Who This Book Is For This book is for Linux developers who are interested in quickly learning how to use Swift to create exciting applications on Linux platforms What You Will Learn Install Swift on the Linux platform Explore the power of the Swift language Get to know the proper design techniques Understand Swift s new Core Library Implement popular design patterns with Swift Integrate C libraries with Swift Using Swift on Single Board Computers Learn how to add concurrency to your application with Grand Central Dispatch Learn how to work with Swift Generics Learn how to use the Protocol Oriented design paradigm In Detail Swift is a modern fast and safe programming language created by Apple Writing Swift is interactive and fun the syntax is concise yet expressive and the code runs lightning fast Swift s move to open source has been embraced with open arms and has seen increased adoption in the Linux platform Our book will introduce you to the Swift language further delving into all the key concepts you need to create applications for desktop server and embedded Linux platforms We will teach you the best practices to design an application with Swift 3 via design patterns and Protocol Oriented Programming Further on you will learn how to catch and respond to errors within your application When you have gained a strong knowledge of using Swift in Linux we ll show you how to build IoT and robotic projects using Swift on single board computers By the end of the book you will have a solid understanding of the Swift Language with Linux and will be able to create your own applications with ease Style and approach This easy to follow code rich guide is filled with examples that demonstrate how to put the concepts into practice You ll also get design patterns and best practices to get you writing better applications on the Linux platform **JavaScript** Rheinwerk Publishing, Inc,Philip Ackermann,2024-09-18 Master JavaScript with this comprehensive guide covering everything from basics to advanced programming topics like asynchronous programming Node js and server side development Key Features Complete coverage of JavaScript from basics to advanced features Hands on web development and server side programming with Node js Specific focus on practical examples and asynchronous programming Book DescriptionThis book provides a comprehensive introduction to JavaScript

and web development starting with the basics of programming and progressing through advanced topics The initial chapters introduce JavaScript exploring its history its relationship with HTML and CSS and how to integrate it into web pages Readers will learn to create and manipulate variables data types and operators while controlling the flow of programs using loops and functions As the book advances it covers more complex concepts like working with objects arrays and strings and introduces modern web APIs such as Ajax Fetch API and browser storage methods Additional chapters focus on object oriented and functional programming emphasizing JavaScript s versatile capabilities Later sections explore asynchronous programming server based applications with Node js and creating mobile and desktop applications using frameworks like React Native and Electron There is also a focus on controlling microcontrollers using JavaScript automating tasks with Grunt and Gulp and managing source code through Git providing a full stack development approach with JavaScript at its core What you will learn Understand JavaScript basics Build dynamic web pages Use asynchronous programming Master object oriented programming Develop server side applications Create mobile and desktop apps Who this book is for This book is ideal for aspiring web developers software engineers and professionals looking to deepen their JavaScript knowledge Basic programming knowledge is helpful but the guide is also suitable for beginners eager to learn JavaScript and its practical applications   **BeagleBone Robotic Projects - Second Edition** Richard Grimmett,2017-06-13 Exciting new capabilities to enable even easier DIY robotics with BeagleBone BlueAbout This Book Build powerful robots with the all new BeagleBone Blue Communicate with your robot and teach it to detect and respond to its environment Control walking rolling swimming and flying robots with your iOS and Android mobile devicesWho This Book Is ForThis book is for anyone who is curious about using new low cost hardware to create robotic projects and have previously been the domain of research labs major universities or defence departments Some programming experience would be useful but if you know how to use a personal computer you can use this book to construct far more complex systems than you would have thought possible What You Will Learn Power on and configure the BeagleBone Blue Get to know Simple programming techniques to enable the unique hardware capabilities of the BeagleBone Blue Connect standard hardware to enable your projects to see speak hear and move Build advanced capabilities into your projects such as GPS and sonar sensors Build complex projects that can fly or go under or on the waterIn DetailBeagleBone Blue is effectively a small light cheap computer in a similar vein to Raspberry Pi and Arduino It has all of the extensibility of today s desktop machines but without the bulk expense or noise This project guide provides step by step instructions that enable anyone to use this new low cost platform in some fascinating robotics projects By the time you are finished your projects will be able to see speak listen detect their surroundings and move in a variety of amazing ways The book begins with unpacking and powering up the components This includes guidance on what to purchase and how to connect it all successfully and a primer on programming the BeagleBone Blue You will add additional software functionality available from the open source community including making the system see using a webcam hear

using a microphone and speak using a speaker You will then learn to use the new hardware capability of the BeagleBone Blue to make your robots move as well as discover how to add sonar sensors to avoid or find objects Later you will learn to remotely control your robot through iOS and Android devices At the end of this book you will see how to integrate all of these functionalities to work together before developing the most impressive robotics projects Drone and Submarine Style and approachDevelop practical example projects with detailed explanations combine the projects in a vast number of ways to create different robot designs or work through them in sequence to discover the full capability of the BeagleBone Blue

Mastering Arduino Jon Hoffman,2018-09-28 Mastering Arduino is a practical no nonsense guide that will teach you the electronics and programming skills that you need to create advanced Arduino projects Key FeaturesCovers enough electronics and code for users at any levelIncludes complete circuit diagrams for all projectsFinal robot project combines knowledge from all the chaptersBook Description Mastering Arduino is an all in one guide to getting the most out of your Arduino This practical no nonsense guide teaches you all of the electronics and programming skills that you need to create advanced Arduino projects This book is packed full of real world projects for you to practice on bringing all of the knowledge in the book together and giving you the skills to build your own robot from the examples in this book The final two chapters discuss wireless technologies and how they can be used in your projects The book begins with the basics of electronics making sure that you understand components circuits and prototyping before moving on It then performs the same function for code getting you into the Arduino IDE and showing you how to connect the Arduino to a computer and run simple projects on your Arduino Once the basics are out of the way the next 10 chapters of the book focus on small projects centered around particular components such as LCD displays stepper motors or voice synthesizers Each of these chapters will get you familiar with the technology involved how to build with it how to program it and how it can be used in your own projects What you will learnExplains the basics of electronics and circuits along with the Arduino IDE and basic C operationsUse sensors to build a mini weather stationControl LEDs using codePower a robot arm using stepper motorsRemotely control your Arduino using RF Bluetooth LE and Bluetooth ClassicMake a sound tone generator with buttonsWho this book is for Mastering Arduino is for anybody who wants to experiment with an Arduino board and build simple projects No prior knowledge is required as the fundamentals of electronics and coding are covered in this book as well as advance projects *Arduino Robotic Projects* Richard Grimmett,2014-08-14 This book is for anyone who has been curious about using Arduino to create robotic projects that were previously the domain of research labs of major universities or defense departments Some programming background is useful but if you know how to use a PC you can with the aid of the step by step instructions in this book construct complex robotic projects that can roll walk swim or fly **Arduino Robotic Projects** Richard Grimmett,2014-08-14 This book is for anyone who has been curious about using Arduino to create robotic projects that were previously the domain of research labs of major universities or defense departments Some programming background is

useful but if you know how to use a PC you can with the aid of the step by step instructions in this book construct complex robotic projects that can roll walk swim or fly

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Mastering Beaglebone Robotics Introduction

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