
Beaglebone Robotic Projects Grimmert Richard

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*Beaglebone
Robotic
Projects
Grimmert
Richard*

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MAXIMILLIAN

*Beginning Robotics
with Raspberry Pi and
Arduino Apress*

Start building amazing
projects with the
Raspberry Pi right out

of the box About This Book Explore the vast range of opportunities provided by Raspberry Pi and other hardware components such as a webcam, the Pi camera, and sensors Get hands-on experience with coding, networking, and hardware with the Raspberry Pi platform Learn through ample screenshots that offer a play-by-play account of how to implement Raspberry-Pi-based real-life projects Who This Book Is For What's the best way to learn how to use your Raspberry Pi? By example! If you want something exciting to do whilst getting to grips with what your Pi can offer, this is the book for you. With both simple and complex projects, you'll create a wide variety of cool

toys and functions with your Raspberry Pi - all with minimal coding experience necessary. What You Will Learn Set up your Raspberry Pi and get it ready for some interesting real-life projects Work with images, videos, webcams, and the Pi camera and create amazing time-lapse videos Explore the amazing world of Minecraft Pi Get to know how to use PiGlow for GPIO programming Interface your Pi with Grove Sensors and implement IoT applications Build your own cluster with Raspberry Pi Understand the networking and network programming fundamentals In Detail Want to put your Raspberry Pi through its paces right out of the box? This tutorial

guide is designed to get you learning all the tricks of the Raspberry Pi through building complete, hands-on hardware projects. Speed through the basics and then dive right in to development! Discover that you can do almost anything with your Raspberry Pi with a taste of almost everything. Get started with Pi Gaming as you learn how to set up Minecraft, and then program your own game with the help of Pygame. Turn the Pi into your own home security system with complete guidance on setting up a webcam spy camera and OpenCV computer vision for image recognition capabilities. Get to grips with GPIO programming to make

a Pi-based glowing LED system, build a complete functioning motion tracker, and more. Finally, get ready to tackle projects that push your Pi to its limits. Construct a complete Internet of Things home automation system with the Raspberry Pi to control your house via Twitter; turn your Pi into a super-computer through linking multiple boards into a cluster and then add in advanced network capabilities for super speedy processing! Style and approach This step-by-step guide to building Raspberry-Pi-based projects is explained in a conversational and easy-to-follow style. Each topic is explained sequentially in the process of creating real-life projects, and

detailed explanations of the basic and advanced features of various Python libraries are also included.

BeagleBone Robotic Projects - Second Edition Apress

Exciting new capabilities to enable even easier DIY robotics with BeagleBone Blue About 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 devices 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. 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. In Detail BeagleBone 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 approach 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 Blue. Birds of the Indian Subcontinent John Wiley & Sons 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. Bad to the Bone Packt Publishing Ltd 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.

Raspberry Pi Robotic Projects Packt

Publishing Ltd

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.

Raspberry Pi By Example Packt Publishing Ltd

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.

Learning BeagleBone Python Programming Packt Publishing Ltd

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.

Raspberry Pi Cookbook Packt Publishing Ltd

A field guide to all the bird species found in India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives. This

comprehensive and definitive guide is the successor to the bestselling Pocket Guide to the Birds of the Indian Subcontinent by the same authors. 1375 species are illustrated and described, including all residents, migrants and vagrants. The plates, text and maps have been extensively revised. The 226 colour plates face concise descriptions and maps for quick at-a-glance reference. Many of the plates, depicting every species and many distinct plumages and races, have been repainted for this edition and a number of new species added. This guide also provides tables, summarising identification features of particularly difficult

groups such as nightjars, warblers and rosefinches. This is the ideal companion for anyone birding in the region.

MQTT Essentials - A Lightweight IoT Protocol Oxford University Press

This book aims to further build capacity in the conservation community to use drones for conservation and inspire others to adapt emerging technologies for conservation.

Learning Robotics

Using Python MDPI

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. Mastering BeagleBone Robotics "O'Reilly Media, Inc." 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.

Mastering QlikView

Packt Publishing Ltd Whether you are a hobbyist or a professional, this book will get you fully equipped to resolve the most commonly occurring media-related challenges. If you want to expand your horizons beyond lighting an LED and push the limits of your board, this is just the book for you. Working knowledge of BeagleBone is assumed.

Robot projects Packt Publishing Ltd 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 through the 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.

Raspberry Pi Robotics Essentials

Packt Publishing Ltd
BeagleBone is an inexpensive web server, Linux desktop, and electronics hub that includes all the tools you need to

create your own projects—whether it's robotics, gaming, drones, or software-defined radio. If you're new to BeagleBone Black, or want to explore more of its capabilities, this cookbook provides scores of recipes for connecting and talking to the physical world with this credit-card-sized computer. All you need is minimal familiarity with computer programming and electronics. Each recipe includes clear and simple wiring diagrams and example code to get you started. If you don't know what BeagleBone Black is, you might decide to get one after scanning these recipes. Learn how to use BeagleBone to interact with the physical world

Connect force, light, and distance sensors
 Spin servo motors, stepper motors, and DC motors
 Flash single LEDs, strings of LEDs, and matrices of LEDs
 Manage real-time input/output (I/O)
 Work at the Linux I/O level with shell commands, Python, and C
 Compile and install Linux kernels
 Work at a high level with JavaScript and the BoneScript library
 Expand BeagleBone's functionality by adding capes
 Explore the Internet of Things
Mastering Qlik Sense
 "O'Reilly Media, Inc."

"With futuristic homes on the rise, learn to control and automate the living space with intriguing IoT projects."
 About This Book
 Build exciting (six) end-to-end home automation

projects with Raspberry Pi 3,
 Seamlessly communicate and control your existing devices and build your own home automation system,
 Automate tasks in your home through projects that are reliable and fun
 Who This Book Is For
 This book is for all those who are excited about building home automation systems with Raspberry Pi 3. It's also for electronic hobbyists and developers with some knowledge of electronics and programming.
 What You Will Learn
 Integrate different embedded microcontrollers and development boards like Arduino, ESP8266, Particle Photon and Raspberry Pi 3,
 creating real life

solutions for day to day tasks and home automation Create your own magic mirror that lights up with useful information as you walk up to it Create a system that intelligently decides when to water your garden and then goes ahead and waters it for you Use the Wi-fi enabled Adafruit ESP8266 Huzzah to create your own networked festive display lights Create a simple machine learning application and build a parking automation system using Raspberry Pi Learn how to work with AWS cloud services and connect your home automation to the cloud Learn how to work with Windows IoT in Raspberry Pi 3 and build your own Windows IoT Face

Recognition door locking system In Detail Raspberry Pi 3 Home Automation Projects addresses the challenge of applying real-world projects to automate your house using Raspberry Pi 3 and Arduino. You will learn how to customize and program the Raspberry Pi 3 and Arduino-based boards in several home automation projects around your house, in order to develop home devices that will really rejuvenate your home. This book aims to help you integrate different microcontrollers like Arduino, ESP8266 Wi-Fi module, Particle Photon and Raspberry Pi 3 into the real world, taking the best of these boards to develop some exciting home automation projects. You will be

able to use these projects in everyday tasks, thus making life easier and comfortable. We will start with an interesting project creating a Raspberry Pi-Powered smart mirror and move on to Automated Gardening System, which will help you build a simple smart gardening system with plant-sensor devices and Arduino to keep your garden healthy with minimal effort. You will also learn to build projects such as CheerLights into a holiday display, a project to erase parking headaches with OpenCV and Raspberry Pi 3, create Netflix's "The Switch" for the living room and lock down your house like Fort Knox with a Windows IoT face

recognition-based door lock system. By the end of the book, you will be able to build and automate the living space with intriguing IoT projects and bring a new degree of interconnectivity to your world. Style and approach End to end home automation projects with Raspberry Pi 3.

BeagleBone Media Center

Packt Publishing Ltd
Learn how to use a Raspberry Pi in conjunction with an Arduino to build a basic robot with advanced capabilities. Getting started in robotics does not have to be difficult. This book is an insightful and rewarding introduction to robotics and a catalyst for further directed study. You'll

be led step by step through the process of building a robot that uses the power of a Linux based computer paired with the simplicity of Arduino. You'll learn why the Raspberry Pi is a great choice for a robotics platform; its strengths as well as its shortcomings; how to overcome these limitations by implementing an Arduino; and the basics of the Python programming language as well as some of the more powerful features. With the Raspberry Pi you can give your project the power of a Linux computer, while Arduino makes interacting with sensors and motors very easy. These two boards are complimentary in their

functions; where one falters the other performs admirably. The book also includes references to other great works to help further your growth in the exciting, and now accessible, field of smart robotics. As a bonus, the final chapter of the book demonstrates the real power of the Raspberry Pi by implementing a basic vision system. Using OpenCV and a standard USB web cam, you will build a robot that can chase a ball. What You'll Learn Install Raspbian, the operating system that drives the Raspberry Pi Drive motors through an I2C motor controller Read data through sensors attached to an Arduino Who This Book Is For Hobbyists and students looking for a rapid start in robotics.

It assumes no technical background. Readers are guided to pursue the areas that interest them in more detail as they learn.

Arduino Robotic Projects Packt

Publishing Ltd

If you are a developer with BeagleBone experience and want to learn how to use it to set up a network and file server, then this book is ideal for you. To make the most of this book, you should be comfortable with the Linux operating system and know how to install software from the Internet, but you do not have to be a network guru.

Building Smart Drones with ESP8266 and Arduino Maker Media, Inc.

Computing: general.

Getting Started with BeagleBone No Starch

Press

Work through a mix of amazing robotic projects using the Raspberry Pi Zero or the Raspberry Pi 3 About This Book Easy to follow instructions, yet the ones that help you build powerful robots, and exclusive coverage of mobile robots with the Pi Zero Build robots that can run, swim and fly and the cutting-edge dimension of robotics that is possible with the Raspberry Pi Zero and Pi 3 Interact with your projects wirelessly and make sci-fi possible, right in your home Who This Book Is For This book is for hobbyists and programmers who are excited about using the Raspberry Pi 3 and Raspberry Pi Zero. It is for those who are taking their first steps

towards using these devices to control hardware and software and write simple programs that enable amazing projects. No programming experience is required, just a little computer and mechanical aptitude and the desire to build some interesting projects.

What You Will Learn

- Control a variety of different DC motors
- Add a USB webcam to see what your robot can see
- Attach a projector to project information
- Insert USB control hardware to control a complex robot with two legs
- Include speech recognition so that your projects can receive commands
- Add speech output to that the robot can communicate with the world around it
- Include

wireless communication so that you can see what the robot is seeing and control the robot from a distance

In Detail

This book will allow you to take full advantage of Raspberry Pi Zero and Raspberry Pi 3 by building both simple and complex robotic projects. The book takes a mission-critical approach to show you how to build amazing robots and helps you decide which board to use for which type of robot. The book puts a special emphasis on designing mobile (or movable) robots using the Raspberry Pi Zero. The projects will show inexpensive, yet powerful, ways to take full advantage. It will teach you how to program Raspberry Pi, control the movement of your robot, and add

features to your robots. Style and approach This fun and practical tutorial contain step-by-step instructions to get you hands-on building inexpensive projects. It contains mission-critical chapters and everything you need to know to get started.

BeagleBone Black Cookbook Packt Publishing Ltd

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.