BeagleBone Home Automation Blueprints

Rodolfo Giometti

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Key Features

- 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

Book Description

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.

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

About the Author

Rodolfo Giometti is an engineer, IT specialist, and GNU/Linux expert. He has over 15 years of experience working with platforms based on x86 (PC), ARM, MIPS, and PowerPC. He is the first author and a maintainer of the LinuxPPS project (Linux's pulse per second subsystem.) He actively contributes to the Linux source code with several patches and new device drivers for several devices. His areas of core expertise are in writing device drivers for new peripherals, realizing special Linux ports for several custom embedded boards, and developing control automation and remote monitoring systems. He is the cofounder of the Cosino Project, where he develops software for industry control automation systems. He is also the co-CEO at HCE Engineering S.r.l., a leading industrial embedded systems-based company.

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