Getting Started With Bluetooth Low Energy: Tools And Techniques For Low-Power Networking

Kevin Townsend, Carles Cufí, Akiba & Robert Davidson

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With Bluetooth Low Energy (BLE), smart devices are about to become even smarter. This practical guide demonstrates how this exciting wireless technology helps developers build mobile apps that share data with external hardware, and how hardware engineers can gain easy and reliable access to mobile operating systems. This book provides a solid, high-level overview of how devices use BLE to communicate with each other. You’ll learn useful low-cost tools for developing and testing BLE-enabled mobile apps and embedded firmware and get examples using various development platforms—including iOS and Android for app developers and embedded platforms for product designers and hardware engineers. Understand how data is organized and transferred by BLE devices; explore BLE’s concepts, key limitations, and network topology; dig into the protocol stack to grasp how and why BLE operates; learn how BLE devices discover each other and establish secure connections; set up the tools and infrastructure for BLE application development; get examples for connecting BLE to iPhones, iPads, Android devices, and sensors; develop code for a simple device that transmits heart rate data to a mobile device.

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Customer Reviews

Chances are if you are reading this review you already know more about Bluetooth Low Energy than I did when I received this book. I’ve been working on embedded firmware in software-defined radios for a number of years and wanted to know more about Bluetooth in general - I had no idea that something called "BLE" was a separate standard within Bluetooth with a completely separate
lineage, but I imagine that most people buying this book already know this, but maybe not. This is a pretty good book on the subject of BLE only - I don't think there is any information about "regular" Bluetooth except to say that devices that are compliant with Bluetooth 4.1 can talk to devices supporting either standard. BLE is really really low-bandwidth: it's theoretical upper limit is 1Mbps but as a practical matter packets have only about 20 bytes of user data transmitting at less than 16K/bytes per second. It's also very low power with a theoretical range of about 30 meters clear line-of-sight but more like 2 to 5 meters in actual use. I am a very impatient reader and kept wanting the book to tell me what this kind of capability could be used for - it's not until page 14 (page 14!) that it mentions applications such as transferring body temperature over BLE or beeping "if an item is forgotten when leaving the room". I would prefer that the book start with some of these example use cases, but again, I knew absolutely nothing about BLE when I got this book. The book describes a lot of development kits currently available with links to their webpages - for some reason it doesn't tell you how much these kits are - it wasn't until I started following some of these links that I got really excited about BLE.

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