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The Hands-on XBEE Lab Manual: Experiments That Teach You XBEE Wireless Communications



Synopsis

Get the practical knowledge you need to set up and deploy XBee modules with this hands-on, step-by-step series of experiments. The Hands-on XBee Lab Manual takes the reader through a range of experiments, using a hands-on approach. Each section demonstrates module set up and configuration, explores module functions and capabilities, and, where applicable, introduces the necessary microcontrollers and software to control and communicate with the modules.

Experiments cover simple setup of modules, establishing a network of modules, identifying modules in the network, and some sensor-interface designs. This book explains, in practical terms, the basic capabilities and potential uses of XBee modules, and gives engineers the know-how that they need to apply the technology to their networks and embedded systems. Jon Titus (KZ1G) is a Freelance technical writer, editor, and designer based in Herriman, Utah, USA and previously editorial director at Test & Measurement World magazine and EDN magazine. Titus is the inventor of the first personal-computer kit, the Mark-8, now in the collection at the Smithsonian Institution. The only book to cover XBee in practical fashion; enables you to get up and running quickly with step-by-step tutorials. Provides insight into the product data sheets, saving you time and helping you get straight to the information you need. Includes troubleshooting and testing information, plus downloadable configuration files and fully-documented source code to illustrate and explain operations.

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Customer Reviews

This book describes 22 experiments in (literally) step by step detail on how to understand and use XBee RF modules from the very simplest configurations through to networks of unknown size. Mr Titus takes meticulous care that no-one should be left behind with detailed descriptions of how to set up each experiment. I liked his approach of adding incidental information to broaden the knowledge of the reader, like describing a switch debounce circuit and why you need it. Also in the earlier chapters he poses questions throughout the text, like a mentor might be asking his "mentee" on a one-to-one level. Answers are provided at the end of the chapter and not the end of the book, which is also a nice touch. The topics start off with experiments of connecting an XBee module to a PC and the XBee module to XBee while illuminating the student on topics of digital inputs and output as well as UARTs, analog to digital conversion, and PWM and digital to analog conversion. It then moves on to interfacing a microcontroller to an XBee module and communicating with a host PC or even other microcontrollers using the XBee network. This book is ideally suited to those folk who are developing with Arduinos moving into electronic applications and want to communicate by wireless. Those with an electronics background may be tempted to dismiss the book as being too simplistic. I would disagree, since it is easy to skim through the simpler parts of the chapter to grapple with the nitty-gritty of the XBee interface. If you have no experience with XBee, regardless of your electronics knowledge, you should be up to speed by the time you finish the book. My only quibble is that there is no discussion on the *raison d'être* of XBee and why it should be used instead of Bluetooth or Zigbee or any other RF protocol which inhabit the same RF spectrum. I highly recommend this book.

This book gets a five star rating ONLY if you are looking for the definitive text for XBee using the 802.15.4 standard. I mean it goes into the most minute detail regarding these amazing radios. Fortunately, if all you want to do is "plug-and-play" a pair of radios between a couple of Arduinos, you can do that without understanding every last thing in this book. And, if you are like me and enjoy reading tech manuals while eating your breakfast donut...this book is among the best. I have experimented with the Z7 protocol (which is robust, error correcting, and will do complex networks) as well but it is harder to configure for a simple network. I recommend the 802.15.4 standard for most wireless projects as it is easy and works REAL good. This book will give you as much as you need (and probably a lot more) to set up your stuff. It's a valuable reference book and a fine primer for hex code as well. But, you can be up and running with Arduino and XBee using the Arduino Serial library in a few minutes without even knowing what 0x00 even means. Have fun.

With all the glowing reviews I feel bad being the one who has to disagree but I'm afraid I'm going to have to. This book is in need of new edition. The new XCTU has a much different layout(easier too!) which makes this book harder to follow. In addition, the author uses terms like XMTR and RVCR when distinguishing between the different XBee's. XCTU configures the xbees as coordinator, router, AT or API, or and End device. So the book leaves you guessing as to when he's referring to XMTR does that mean Coordinator? when he's referring to RVCR is that router or End Device? Its all very confusing from the start. I think this book needs to be reedited and brought up to date with a new edition. There are not a lot of books to choose from in this area but I'd stay away from this one till they come out with a new edition.

This book is everything you need to get started with Xbee's, especially by experimenting with Arduino. Though the book is quite thorough, I still would have liked it to contain also more info on mesh networks, which Xbee excels in. If you're looking for a starting place with Xbee, buy this book.

It might not be my favorite way to present the material, but I am sure glad this book was there. The XBee documentation is downright horrendous, a good example on how not to do it. If it wasn't for this book, I wouldn't have understood the amazing capabilities of this little radio, and getting it to start working would have been a slow and frustrating read of a very bad doc. But after reading this, you can get something going quickly and the doc suddenly makes sense. And off you can go on your own. Presenting the features little nibble by little nibble in "lab classes" exploring every step in a "do this, then do that" form not my favorite way of presenting things though. Might be fine for taking the beginner by the hand but is terribly annoying, slow, and inefficient for engineers. It also covers only the basics, for advanced stuff you'll have to go back to the doc. But I suspect for most amateur tinkerers this book is just what they need. For others, just read quickly and use as a stepping stone. The company that makes the XBee should give the author a medal and a few stock options for doing a job they should have done instead... So I will give the author 5 stars instead.

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