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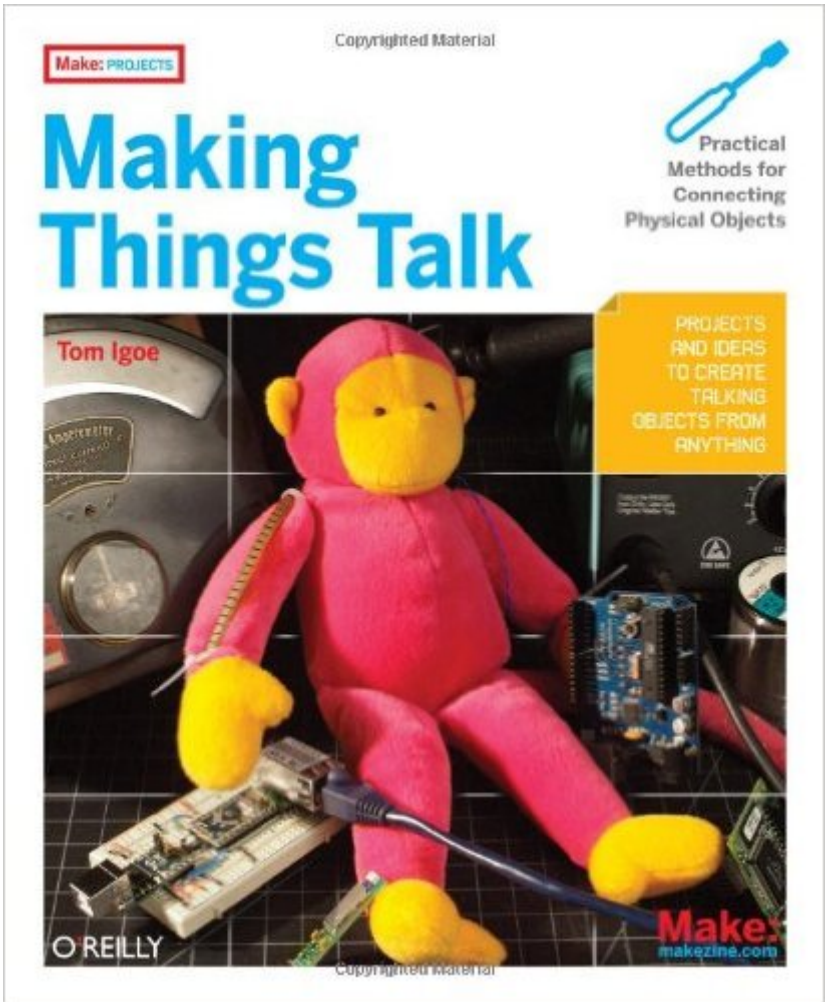
Making Things Talk: Practical Methods For Connecting Physical Objects



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Synopsis

Building electronic projects that interact with the physical world is good fun. But when devices that you've built start to talk to each other, things really start to get interesting. Through a series of simple projects, you'll learn how to get your creations to communicate with one another by forming networks of smart devices that carry on conversations with you and your environment. Whether you need to plug some sensors in your home to the Internet or create a device that can interact wirelessly with other creations, Making Things Talk explains exactly what you need.This book is perfect for people with little technical training but a lot of interest. Maybe you're a science teacher who wants to show students how to monitor weather conditions at several locations at once, or a sculptor who wants to stage a room of choreographed mechanical sculptures. Making Things Talk demonstrates that once you figure out how objects communicate -- whether they're microcontroller-powered devices, email programs, or networked databases -- you can get them to interact.Each chapter in contains instructions on how to build working projects that help you do just that. You will:Make your pet's bed send you emailMake your own seesaw game controller that communicates over the InternetLearn how to use ZigBee and Bluetooth radios to transmit sensor data wirelesslySet up communication between microcontrollers, personal computers, and web servers using three easy-to-program, open source environments: Arduino/Wiring, Processing, and PHP.Write programs to send data across the Internet based on physical activity in your home, office, or backyardAnd much moreWith a little electronics know-how, basic (not necessarily in BASIC) programming skills, a couple of inexpensive microcontroller kits and some network modules to make them communicate using Ethernet, ZigBee, and Bluetooth, you can get started on these projects right away. With Making Things Talk, the possibilities are practically endless.

Book Information

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Customer Reviews

When I first heard about this book, I assumed it was about projects for speech synthesis. When I read the details on the publisher’s site I was somewhat disappointed - talking meant communications in this case. However, I ordered it anyway and was quite delighted by the results. The book is well illustrated, well written, and contains 26 very interesting projects. If you are teaching networking to high schoolers or even to college students, these projects might make interesting case studies to drive home some of the points being studied.There is one thing I would caution you on though. Don’t expect the lead-you-by-the-hand electronics-heavy methodology of most other project books. This book - although apparently targeted at electronics hobbyists - goes into painstaking detail on hardware needed and assembly. However, it oddly assumes the reader doesn’t need much coaching on the Processing programming language or PHP. Of course, this book would be an unwieldy tome if tutoring on those subjects were included, but just be warned that you’ll need some outside sources if you are not already familiar with either of these languages. The following is the list of contents of the book along with the names and locations of the 26 included projects.1. The Simplest Tools2. The Simplest NetworkProject 1 - Monski PongProject 2 - Wireless Monski PongProject 3 - Negotiating in Bluetooth3. A More Complex NetworkProject 4 - A Networked Cat4. Look Ma! No ComputerProject 5 - Hello InternetProject 6 - Networked Air Quality Meter5. Communicating in (Near) Real TimeProject 7 - A Networked Game6. Wireless CommunicationProject 8 - Infrared Transmitter-Receiver PairProject 9 - Radio Transmitter-Receiver PairProject 10 - Duplex Radio TransmissionProject 11 - Bluetooth Receivers7. The ToolsProject 12 - Reporting Toxic Chemicals in the ShopProject 13 - Relaying Solar Data Wirelessly8. How to Locate (Almost) AnythingProject 14 - Infrared Distance Ranger ExampleProject 15 - Ultrasonic Distance Ranger ExampleProject 16 - Reading Received Signal Strength Using XBee RadiosProject 17 - Reading Received Signal Strength Using Bluetooth RadiosProject 18 - Reading the GPS Serial ProtocolProject 19 - Determining Heading Using a Digital CompassProject 20 - Using an Accelerometer9. IdentificationProject 21 - Color Recognition Using a WebcamProject 22 - 2D Barcode Recognition Using a WebcamProject 23 - Reading RFID Tags in ProcessingProject 24 - RFID Meets Home AutomationProject 25 - IP GeocodingProject 26 - Email from RFIDA. And Another ThingB. Where to Get StuffC. Program Listings

I don’t think I’ve ever seen a book on "networking" devices be quite this much fun (as well as practical and hands-on)... Making Things Talk: Practical Methods for Connecting Physical Objects by Tom Igoe. Once you’re done with this book, you’ll know more about communication protocols and networking than you thought possible, and you’ll know it well. And Spanky will be able to play pong, too...Contents:The Tools; The Simplest Network; A More Complex Network; Look Ma! No Computer; Communicating in (Near) Real Time; Wireless Communication; The Tools; How to Locate (Almost) Anything; Identification; And Another Thing; Where to Get Stuff; Program Listings; IndexMaking Things Talk does an outstanding job of blending two different approaches. Books on communication and networking are common, but they are often dry as dirt and deal in how things work "virtually". How-to books, like the Make magazines from O’Reilly, show how to build really cool off-beat stuff, but there’s only so much background you can get in a single article. Igoe is able to take the best of both those worlds and create a tutorial on how communications and networking protocols work, as well as how to build stuff that takes advantage of it. Through projects such as the networked CatCam, the Toxic Chemical Alarm, and my favorite, Monski Pong (a stuffed pong-playing monkey), you learn hardware, software, programming, protocols, troubleshooting, you name it. You could also make a course from this material, it’s that complete.While you’ll do best with a bit of background in hardware and software design skills, he is very clear on what items are needed. Instead of just saying you need to get a certain capacitor, he tells you the part number as listed on a few different sites. Couple that with very clear pictures and detailed code listings, and your chances of success are pretty good. Surprisingly, the detail doesn’t come across as handholding, either. It’s just solid information, clearly written for someone who is interested in the subject, with fun outcomes along the way from serial wired communications to wireless, bluetooth, RFID, etc...If you’re looking to learn theory with hands-on reality, this is it.

This book is awesome. It goes with the attitude that everything with a circuit is a tiny computer, so therefore, you should be able to program it. The author then proceeds to show how you can talk various items from around your house--combined with the right circuitry--turn into entirely new creations.The book begins with the tools of the trade--soldering irons, breadboards, and lots and lots of circuit parts. The author then shows how these simple items can be used to create fun and useful items you can use around the house.In one of the first projects, the authors show how to create a replacement mouse using one of your favorite stuffed animals. Once you get the basics down, they show how to do the same thing over Bluetooth. Other projects include a network

interface so your cat can send email, a wireless RSS component that you can hook up to your TV, a cymbal monkey toxic chemical sensor, and a lot of fun stuff with RFID tags.The projects in this book are fun to read, easy to follow, fun to build, and a great all around introduction to circuitry and circuit programming. The programs in this book will be easy for anyone with a familiarity with Java or a C-based language.Finally, the book shows where to get all the stuff you'll need to build these projects. The book lists addresses of hardware manufactures, listing of the software used in the book, and full listings of all the programs used.This is a great book, and a lot of fun for people who like to get their hands dirty with technology. It's well written, fun to read, and the final projects will impress your family and friends.

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