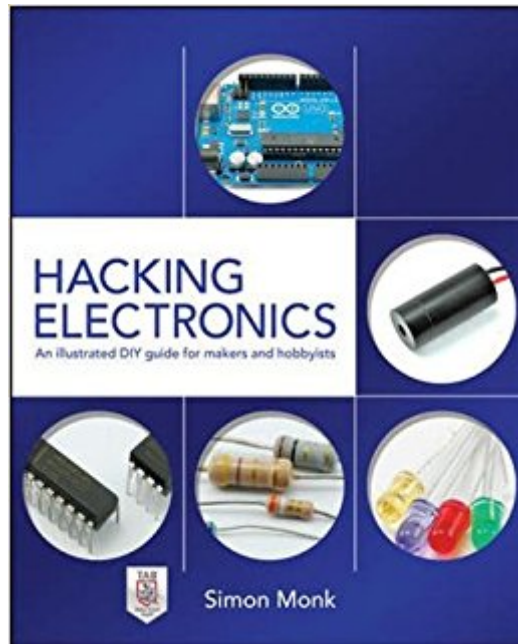


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# Hacking Electronics: An Illustrated DIY Guide For Makers And Hobbyists



## Synopsis

Bring your electronic inventions to life! "This full-color book is impressive...there are some really fun projects!" -GeekDad, Wired.com Who needs an electrical engineering degree? This intuitive guide shows how to wire, disassemble, tweak, and re-purpose everyday devices quickly and easily. Packed with full-color illustrations, photos, and diagrams, Hacking Electronics teaches by doing--each topic features fun, easy-to-follow projects. Discover how to hack sensors, accelerometers, remote controllers, ultrasonic rangefinders, motors, stereo equipment, microphones, and FM transmitters. The final chapter contains useful information on getting the most out of cheap or free bench and software tools. Safely solder, join wires, and connect switches Identify components and read schematic diagrams Understand the how and why of electronics theory Work with transistors, LEDs, and laser diode modules Power your devices with a/c supplies, batteries, or solar panels Get up and running on Arduino boards and pre-made modules Use sensors to detect everything from noxious gas to acceleration Build and modify audio amps, microphones, and transmitters Fix gadgets and scavenge useful parts from dead equipment

## Book Information

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## Customer Reviews

Dr. Simon Monk has a degree in Cybernetics and Computer Science and a PhD in Software Engineering. He spent several years as an academic before he returned to industry, co-founding the mobile software company Momote Ltd. Dr. Monk has been an active electronics hobbyist since his

early teens and is a full-time writer on hobby electronics and open source hardware. He is the author of numerous electronics books, including 30 Arduino Projects for the Evil Genius and Arduino + Android Projects for the Evil Genius, as well as co-author of Practical Electronics for Inventors, Third Edition.

Hacking Electronics is a newly released, modern, and inexpensive 'how to' electronics workbook. The rather abrasive word "hacking" might suggest many things to different people, however, in this 275 page paperback it means, practical teaching by doing. Each topic features easy-to-follow projects. You don't need a degree in engineering to create or modify something electronic. Traditional electronic textbooks can be terrifying, unless one has a good grounding in complex mathematics. This easy to read intuitive guide teaches about micro-controllers, sensors, FM Transmitters, working with modules, and other simple to construct devices. Hacking Electronics is a full-colour exceptional publication, organised into 11 chapters, a Parts Appendix, and a very informative index. Perhaps the following brief description of each chapter, will provide a useful summary of the book's content.

Chapter 1, Getting Started. This instructional book starts with advice on where to buy equipment and components. This first chapter also deals with the basics of soldering and describes how to use an old computer fan to make a fume extractor for use while soldering.

Chapter 2, Theory and Practice. This particular chapter identifies and explains the variety and use of electronic components. It also introduces a small amount of helpful and essential theory.

Chapter 3, Basic Hacks. This chapter introduces transistors with example projects. It includes a "push light" which automatically turns on at night, and 'how to' control a motor, using power MOSFETs.

Chapter 4, LEDs. Besides discussing regular LEDs, 'how to' use them, and making them flash, etc. This chapter also looks at using constant current drivers for LEDs and laser diode modules.

Chapter 5, Batteries and Power. The focal point in this chapter turns to batteries, both single use and rechargeable. It shows 'how to' charge Lead-Acid, NiMH, and Lithium Polymer batteries. Automatic battery back-up, voltage regulation, and solar-panel charging circuits are also included here.

Chapter 6, Hacking Arduino. The Arduino has become the popular low-cost micro-controller board of choice for global electronic enthusiasts. Micro-controllers are essentially low-powered computers, on a chip. The open-source hardware design makes using such a complex device very simple. The chapter begins with the Arduino, and includes a few simple how to's, like controlling a relay, playing sounds, and controlling servo motors. Readers are also introduced to the large range of available plug-in shields, all of which, have added greatly to the success of the Arduino Board.

Chapter 7, Hacking With Modules. Modules exist for all types of things, from wireless

remotes to motor drivers. When constructing something, there is often a ready-made module available to use, for at least some part of the project. Chapter 8, Hacking With Sensors. Sensor ICs and modules are available for sensing everything from gas to acceleration. This chapter explores and explains how to use a range of sensors, which includes connecting some of them to the Arduino micro-controller board. Chapter 9, Audio Hacks. This chapter has a number of excellent 'how to' designs, all relating to electronics and sound. It includes making and adapting audio leads, audio amplifiers, and the use of microphones. Chapter 10, Mending and Breaking Electronics. Mending and scavenging useful parts from dead electronic equipment can be a worthy activity. This chapter explains 'how to' take things apart, and sometimes put them back together again. Chapter 11, Tools. The final chapter is a basic reference and explanation about 'how to' use and get the most out of tools, such as multimeters and Lab power supplies. Hacking Electronics is indeed a superb 'how to' electronics book, highly recommended for all makers and hobbyists, who will no doubt, enjoy the full-colour illustrations, and the do-it-yourself guides. There is a great feeling of personal satisfaction in building something physical, or modifying a device of your own choosing. Be warned, however, once you start reading this brightly presented new release electronics manual, you might find it difficult to put down. Reviewed by: Blair Bowler - VK4BBX (August 2013).

Great book for beginners. I am using this book to teach my daughter about electronics. My only complaint is the heavy reliance on arduino shields.

I enjoyed reading this book. I have both EE and CS degrees, so it was not technically challenging. This book got me interested in programming the Arduino. The Arduino uses C language programming that I used in graduate school years ago. Relearning C should not be difficult even for an old timer like me.

A good book, for basic electronics. Very much intended for diy tinkerer.

The book was written for beginners, it explains in terms a non tech person can understand, very well. I would recommend it for beginners, keeping mind it has info ,for others also. Good read

Excellent basic electronics book for a person who likes to get projects done fast and easy, half of the book dedicated to Arduino projects, it also gives you tips on what software will simulate your circuits and what software will help you designs your PCB's. If you like electronics projects done

easy this is a must have book.

Great book for getting started in hacking electronics. I highly recommend... this book will serve you well in the electronics field.

Much has already been said about how good this book is. I'm somewhat technical but it was not a requirement. The writing is very approachable and i found myself picking it up and putting it down over and over for months as i dug into the lessons.

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