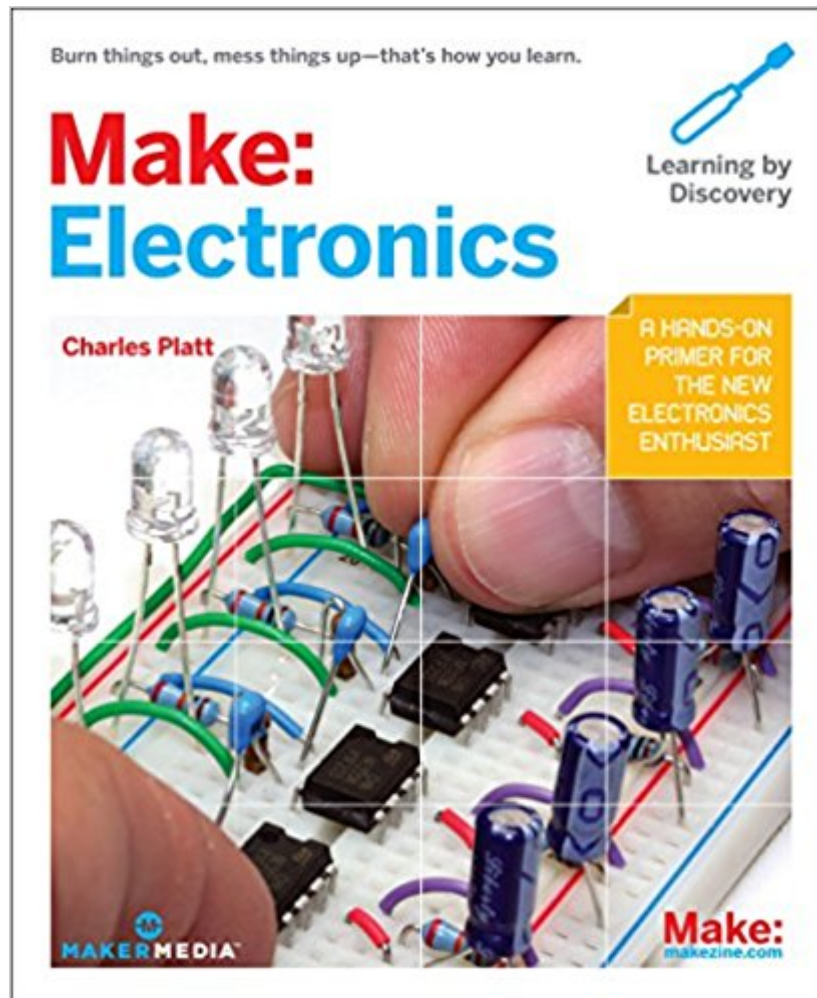




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Make: Electronics (Learning By Discovery)



Synopsis

"This is teaching at its best!" --Hans Camenzind, inventor of the 555 timer (the world's most successful integrated circuit), and author of *Much Ado About Almost Nothing: Man's Encounter with the Electron* (Booklocker.com) "A fabulous book: well written, well paced, fun, and informative. I also love the sense of humor. It's very good at disarming the fear. And it's gorgeous. I'll be recommending this book highly." --Tom Igoe, author of *Physical Computing and Making Things Talk*

Want to learn the fundamentals of electronics in a fun, hands-on way? With *Make: Electronics*, you'll start working on real projects as soon as you crack open the book. Explore all of the key components and essential principles through a series of fascinating experiments. You'll build the circuits first, then learn the theory behind them! Build working devices, from simple to complex. You'll start with the basics and then move on to more complicated projects. Go from switching circuits to integrated circuits, and from simple alarms to programmable microcontrollers. Step-by-step instructions and more than 500 full-color photographs and illustrations will help you use -- and understand -- electronics concepts and techniques.

Discover by breaking things: experiment with components and learn from failure. Set up a tricked-out project space: make a work area at home, equipped with the tools and parts you'll need. Learn about key electronic components and their functions within a circuit. Create an intrusion alarm, holiday lights, wearable electronic jewelry, audio processors, a reflex tester, and a combination lock. Build an autonomous robot cart that can sense its environment and avoid obstacles. Get clear, easy-to-understand explanations of what you're doing and why.

Book Information

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Customer Reviews

A "magnificent and rewarding book. . . . Every step of this structured instruction is expertly illustrated with photos and crisp diagrams. . . . This really is the best way to learn." --Kevin Kelly, in Cool Tools.

Burn things out, mess things up-that's how you learn.

I am about a third of the way through this book and I am loving it. This is the perfect introduction to hands-on electronics. I was an engineering student in college (although not electrical engineering) so I was always kind of upset that after spending countless nights of my life doing all sorts of crazy math problems with respect to circuits, I didn't know something as simple as how a relay works, or how to build anything except maybe a simple circuit with a lightbulb and a resistor. I could design and build an RC circuit and calculate its time-constant but why in God's name I would ever NEED to build an RC circuit was beyond me...No more. This book lets you know that its safe to rip open a relay and see exactly why it works. It will give you a circuit design and then have you build it. It will explain why something is or isn't working, and why. This won't make you an expert in electronics, it is definitely on the simple side of things (like algebraic simplifications of mathematical models that are actually rooted in calculus or differential equations), but that's exactly what I was looking for. This book will empower you to build things. I am reading it side by side with the Electricity & Magnetism chapters of my old Physics textbook so I can make the connections with the real theory and the nastier side of the math, but I really couldn't be happier. In spite of years of college, this book is just now making me feel like I know something about electronics. Also, I recommend buying the kit that's sold for this book because it will save you a little money and a LOT of time. has been out of stock of it forever, but I went to the closest Radioshack and they had it for \$75. Other than that, you will need to buy Digital Multimeter, a pair of wire strippers that can deal with 22-gauge wire, a pair of wire-cutters, a pair of needlenose pliers, and a set of precision screw drivers. Seems steep but if you plan on making use of your new-found knowledge for the foreseeable future, you will be using these tools well after you've worked through this book.

This is the book that taught me electronics and ignited my passion for a new hobby. It is a very easy

read and teaches everything through hands-on exercises. I would recommend this book without hesitation both to an adult wanting to learn fundamental electronics as well as for any parents who want their kids to learn electronics. It covers the fundamentals with just the right amount of theory and offers lots of practical advice for a beginner on things like soldering and setting up an electronics workshop. The projects that this book will have you build are a lot of fun and at the end of the book I found myself wishing there were more projects like these I could do (luckily now there are, in *Make: More Electronics*, by the same author). The kits available from Makershed to go along with this book are also a godsend because trying to order all the electronic components needed by this book from an electronic supplier like Mouser can be very intimidating for a beginner. I had a few nits to pick with the first edition of this book: namely the use of TTL (7400LS) logic chips, which I found very finicky, and regardless are not much used anymore. Fortunately, the author has taken reader feedback seriously and addressed my complaint and those of other readers in the second edition. Another change I agree with is the switch in focus from Basic Stamp and Picaxe to Arduino in the section on microcontrollers. Arduino has revolutionized the hobbyist microcontroller landscape and has taken the maker world by storm to the extent that it is now the de facto standard for anyone getting started with microcontrollers. Finally, I found the fact that the author explicitly mentions the feedback from his readers and integrates the lessons learned from the first edition into his text very refreshing. The fact that he has acknowledged that making good electronic circuits is a process, even for someone experienced as him, makes this book all the more accessible and educational.

This book is a great introduction to electronics. For me it provides the right amount of hands on circuit building work together with easy to understand explanations of why a circuit is being constructed in the way presented. The supporting diagrams are extremely helpful, providing a diagram showing a drawing of the components on the breadboard along with the corresponding schematic is a very good learning aid. The provided "shopping lists" for components and supplies helps the reader get organized in their pursuit to acquire a basic knowledge of electronics. Acquiring real knowledge of electronics and circuit theory does require the reader to additional resources, as the author himself indicates. But I think this is the best book around for those seeking a basic working knowledge of electronics.

The *Make:* series of books is simple, easy way to actually get some experience with electrical parts without killing yourself or burning down the house. Kudo's to Mr. Platt and the *Make:* team. They

actually tell you how to economically get parts and test equipment. They do not worry about the theory behind the set of exercises. Because you do not need to know. Just treat it like a cook book, and have fun. Actually do some things. That is a wonderful approach to building some stuff. Ok, it is for amateurs. Professional products are obviously not built this way any more. But this is similar to the approach to try out lots of options before spending a few million on the multi-layer board layout. That isn't that much fun anyway. And you can try some simple stuff such as programming the little controllers like an Arduino. (There I was upbeat, positive, and not sarcastic. I think that anybody who tries to be helpful and informative deserves an upbeat review. I won't get into why you would want to learn the theory behind all of this and maybe sit through a few college courses.)

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