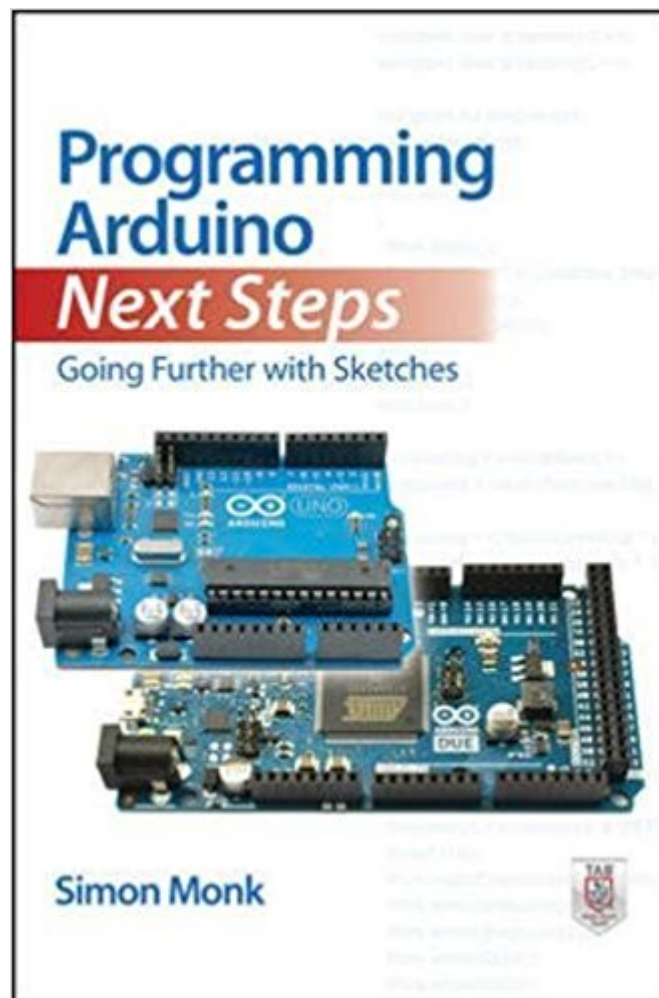




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# Programming Arduino Next Steps: Going Further With Sketches (Electronics)



## Synopsis

Take your Arduino skills to the next level! In this practical guide, electronics guru Simon Monk takes you under the hood of Arduino and reveals professional programming secrets. Featuring coverage of the Arduino Uno, Leonardo, and Due boards, *Programming Arduino Next Steps: Going Further with Sketches* shows you how to use interrupts, manage memory, program for the Internet, maximize serial communications, perform digital signal processing, and much more. All of the 75+ example sketches featured in the book are available for download. Learn advanced Arduino programming techniques, including how to:

- Use hardware and timer interrupts
- Boost performance and speed by writing time-efficient sketches
- Minimize power consumption and memory usage
- Interface with different types of serial busses, including I2C, 1-Wire, SPI, and TTL Serial
- Use Arduino with USB, including the keyboard and mouse emulation features of the Leonardo and Due boards
- Program Arduino for the Internet
- Perform digital signal processing
- Accomplish more than one task at a time without multi-threading
- Create and release your own code library

## 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 Programming the Raspberry Pi: Getting Started with Python; Programming Arduino: Getting Started with Sketches; 30 Arduino Projects for the Evil Genius; Arduino + Android Projects for the Evil Genius, and Practical Electronics for Inventors, Third Edition (co-author).

First of all this book will teach you how to setup a programming environment and write code for an Arduino. There are diverse examples, all worth reading, and a few were extremely interesting to me. There is very good coverage of the UART, 1-wire, I2C, and SPI bus protocols. One of the stumbling blocks with new technology for me is simply understanding the context of a device like an Arduino. There are thousands of different types of computer boards and chips, why use this one? Is an Arduino the board or the chip? (Actually the Arduino is a brand with various types of boards, for example the Uno that has an ATmega chip.) The book has a chapter with photos of the various members of the Arduino family of boards, including the main one, the Uno, and what are the particular strengths of each board. Although I wanted to start building right away, this background information was extremely helpful in making a decision about with which board to start. I wouldn't have thought to ask for this information, but it was well worth reading. I want to emphasize that the photos and history is only one chapter in the book, about 7% of the book. Mostly the book is filled with very interesting projects. This is the only book I have read on Arduino boards. I did buy an Arduino Uno on , and I am already doing interesting things.

I bought this book after reading his earlier book on Arduino programming. This book goes into much greater detail about exploiting the Arduino capabilities (power management, integration with one-wire and other types of physical interfaces, WiFi shields and much more). It is a perfect compliment to his earlier book and answered quite a few questions that I had as my Arduino skills have advanced.

If you have read and worked with the examples in Simon Monk's first book "Programming Arduino Getting Started with Sketches", this book will be of invaluable importance for acquiring the skills needed to get to the next level of programming in Arduino Environment. It delves into highly complicated sketches while informing you of, and reviewing the information needed in order to understand and comprehend the new sketches. Simon has a knack for letting you know exactly what every part of the sketch means and what it's for, allowing for you to actually understand the programming. This is the second book I have purchased by Simon Monk, and I will not hesitate to

buy any book on this subject written by him. This is by far the easiest and best written book on Arduino that anyone of even higher levels of programming can use to either learn or improve their programming skills.

Covers a lot of clever information, although I'd say it was intermediate in scope rather than advanced like I was hoping. The problem is that it's very dated and only covers through the Due.

Once you've learned to write a simple Arduino program and load it on to your Arduino, the book "Programming Arduino Next Steps, Going Further with Sketches" is likely the only Arduino book you need to own. The author covers useful topics for enhancing the usability of the Arduino and its clones with just the right amount of detail. For me, he answered most of the questions I've had about the Arduino, but in one authoritative book instead of having to research innumerable answers of questionable authority on the internet. The amount of code he uses to illustrate a topic is sufficient so that you can see how to adapt it to your use easily without getting lost in the weeds. The topics he covers should appeal to a wide range of Arduino users. He covers using hardware and software interrupts and timers, reading and writing directly to hardware registers (with a huge performance increase) and how to improve memory usage efficiency. He also covers interfacing the Arduino to all sorts of hardware using common electronic interface standards such as I2C and SPI. There's also information about how to write software libraries, and how to write your programs directly to the microcontroller without the overhead of the Arduino bootloader. Buy the book. You won't be sorry.

The title of this book is apt, for this book starts out where you're comfortable with setting up the Arduino and drawing some sketches on it. In a fast pace, it walks you through key aspects of how the Arduino CPU and I/O systems work, including the very useful interrupts, tricks for speed etc., and shows how to do projects and programming in a much more elegant fashion than one tends to do initially. This also teaches a lot about how general purpose computers work, and how good programming is structured. The final star would be given if the book had another 50 pages, giving more space to elaborate on each of these features.

After being through a number of books on the Arduino you notice that most Arduino books are introductory books. I therefore enjoyed this book since it is one of the few books that deals with mostly next level techniques. This becomes important if you want to move on from tinkering with

leds and sensors to producing a usable polished project. It covers dealing with timer and hardware interrupts, how to save power which becomes crucial when using battery power, optimize memory usage, speed up or down the processor, interfacing with different interface standards, and many more practical tricks to make your project production ready.

Excellent product. I think this book have a very good approach. Easy to read and if you haven't programmed microcontrollers in a while this book will help you out to refresh concepts and little tricks .I highly recommend it.This book is mostly for Arduino UNO and a bit (very little) of DUE.I'm looking forward to check later other books from this autor, and If somebody have a good book about how to deal with DUE please recommend it to me.Thank you very much!

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