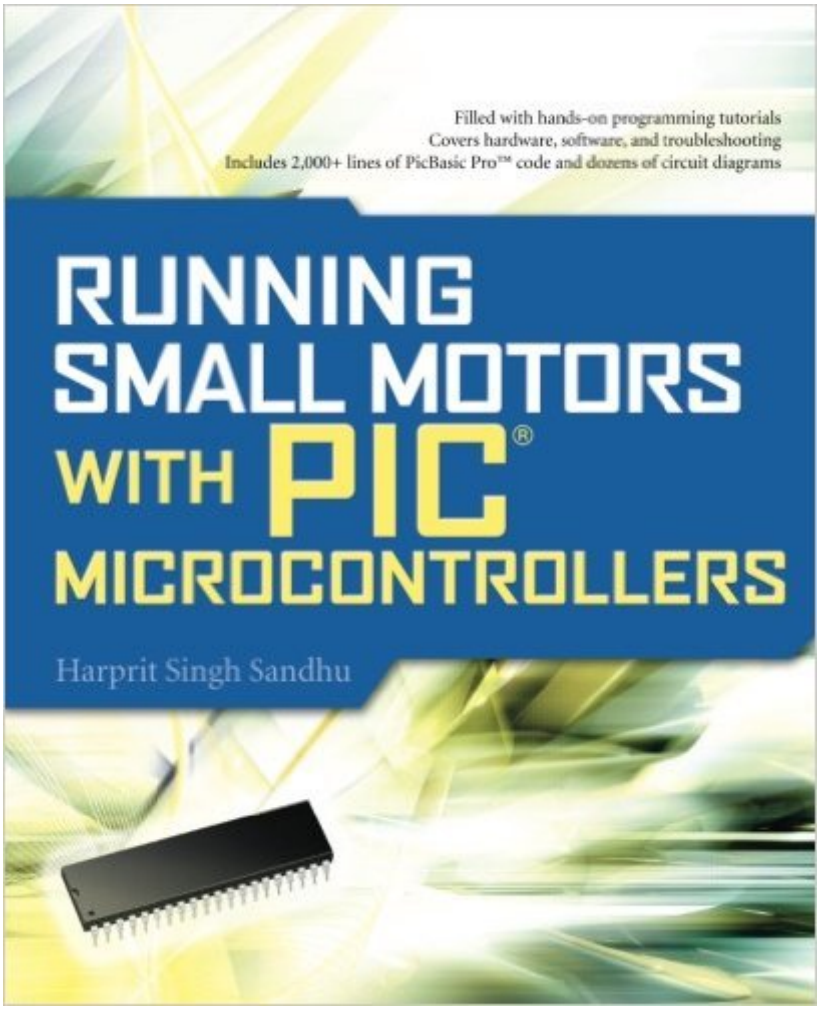
Running Small Motors With PIC Microcontrollers



Synopsis

Program PIC microcontrollers to drive small motorsGet your motors running in no time using this easy-to-follow guide. Detailed circuit diagrams and hands-on tutorials show you, step by step, how to program PIC microcontrollers to power a wide variety of small motors. You'll learn how to configure all the hardware and software components and test, troubleshoot, and debug your work. Running Small Motors with PIC Microcontrollers is filled with more than 2,000 lines of PicBasic Pro code you can use right away. Use PIC microcontrollers to control all kinds of small motors, including: Model aircraft R/C servosSmall DC motorsServo DC motors with quadrature encodersBipolar stepper motorsSmall AC motors, solenoids, and relays

Book Information

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Customer Reviews

This is a very good book for someone looking to get started with PIC mcu's. I will warn you up front, the book uses ~$500us in products to get you started driving small motors with PIC's. It uses the PIC BASIC PRO compiler, which is about ~$250us, and an experimenters board from the same company. You do not need to spend this much to get your systems up and running, but the BASIC language is geared for beginners. Microchip gives out their IDE, MPLAB, for free and lite versions of their C language compilers. The term "lite" refers only to the lack of code optimization, other than that they seem to be full featured. I personally use Mplab X, in Linux fedora, and it seems to work fine. Microchip actually sells a couple of inexpensive development tools, most notably the microstick

(~$25us), but they also have a new line of arduino compatible devices that can be reflashed to use as a pic platform. You can even breadboard a microcontroller, and just buy an Mplab compatible programmer. The PicKit2 is a very popular model, and somewhat open source, but it will not program Pic32 parts like the PicKit 3 will.... Now back to the book because that is really what reviews are all about.I got a lot of great information from reading this book. Even though I program in C, this book offers a great deal of insight as to the algorithms needed to design a motor control system. This book also gives great details about the internal layout of the PIC. I think it is a must read for anyone interested in learning about the PIC microcontroller. I would have easily given it 5 stars, but I do not like the fact it is written around the BASIC language. The C language is really easy to understand, and I think there may actually be less commands, but I could be slightly biased.

"Running Small Motors with PIC Microcontrollers" fills a void in the literature for those of us who don’t write embedded firmware for a living. Sandhu cuts through all the mystery surrounding the PIC, and uses an easy to understand compiler from Micro Engineering Labs called PIC Basic Pro. This makes it especially easy for non-C programmers to get projects up and running quickly. Although only unsigned integer math is supported, it is sufficient for many useful DC servo applications. I was especially interested in running DC motors with quadrature encoders attached to them, and I agree that there is a considerable mystique attached to running these "servo" motors with encoder feedback. What this really means is that a lot of the know-how for doing these things is locked up in trade secrets held by companies who depend on motion control to make a living. Sandhu gives us a rare glimpse into the inner workings of discrete-time (digital) DC servo control on a very practical level, and I for one really appreciate his willingness to share this hard-won knowledge."Running Small Motors with PIC Microcontrollers" packs more useful information into 334 pages than any other book I have seen on this subject. It is not overly theoretical, but instead gets right into the nuts and bolts of running PICs and interfacing them to the outside world, including motors. The book covers all the essential details for getting a project up and running, and presents the material in a very logical order, with one concept building on another as the book is read through. The reader follows along by actually doing each "mini-project" using the PIC Basic Pro compiler to run Sandhu’s programs on the Micro Engineering Labs "LAB-X1" hardware platform.

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