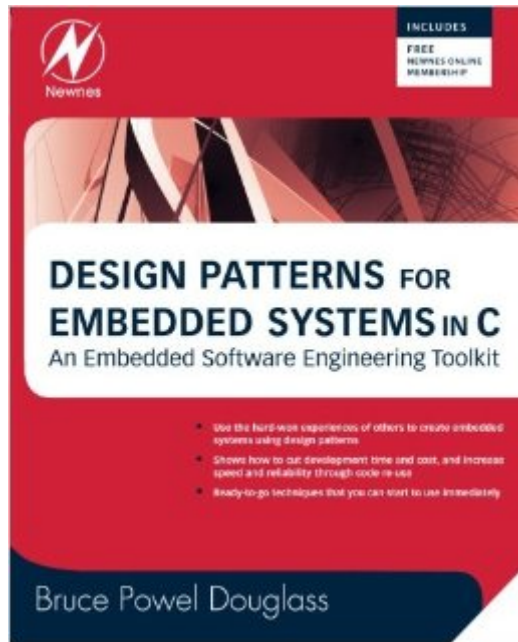# Design Patterns For Embedded Systems In C: An Embedded Software Engineering Toolkit

Synopsis

A recent survey stated that 52% of embedded projects are late by 4-5 months. This book can help get those projects in on-time with design patterns. The author carefully takes into account the special concerns found in designing and developing embedded applications specifically concurrency, communication, speed, and memory usage. Patterns are given in UML (Unified Modeling Language) with examples including ANSI C for direct and practical application to C code. A basic C knowledge is a prerequisite for the book while UML notation and terminology is included. General C programming books do not include discussion of the contraints found within embedded system design. The practical examples give the reader an understanding of the use of UML and OO (Object Oriented) designs in a resource-limited environment. Also included are two chapters on state machines. The beauty of this book is that it can help you today. . *Design Patterns within these pages are immediately applicable to your project*Addresses embedded system design concerns such as concurrency, communication, and memory usage*Examples are contain ANSI C for ease of use with C programming code

Book Information

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Customer Reviews

I've read only 120 pages so far and decided to already post my review anyway.The book performs a rather good job in presenting a catalogue of design patterns for embedded systems: each pattern is provided with C code examples, an UML diagram, some clever explanations about its benefits, hints

for its implementation, related patterns with which it can be combined, and other useful information.The author chose to structure his code as object-oriented whenever possible, even for the classes that will clearly never be instantiated more than once. This results in having in every function a parameter for the object on which it must be applied and a lot of pointer dereferencing that makes at my sense the code heavier to read.In addition, for a book about embedded systems, I would expect variables qualified as volatile when it is required, when accessing memory-mapped I/O for example (p. 83). The text has some typos (p. 81, "high-ugency" or "distribition") and some errors (p. 111, observer pattern: "the clients simply offer a subscription function that allows clients (...)".If I had to stop my review of the book at this point, I would probably give it 4 stars.Unfortunately I am not. I got rapidly annoyed of continuously reading so badly formatted code. The indentation and braces are set completely at random throughout the whole book. On page 29, the author shows the overall structure with some completely wrong pseudo code: "Switch", missing case statements, a strange "If {]" block... Moreover there are a lot of strange constructs and approximations in the code snippets: useless nested blocks {{ }} (p 56); for (p. 20), if (p.72) and while (p. 71) statements finished with a semi-colon; '/n' instead of '\n' (p.

The short: By all means, buy and work through Test Driven Development for Embedded C (Pragmatic Programmers) by James Grenning before you buy this book. You will not regret it.The long: Powell's book is full of extensive code examples, which is a good thing. But, to my surprise, the code downloads are in MS Word format. About the only advantage of this is, that you can relatively easily correlate the sample code to the book.The main drawback, however, is that this code in the you get it, has never been compiled, linked, or tested in any shape or form. Definitely, NEVER.The include file "mutex.h", in particular, is referenced dozens of times in example code. From what I can tell, it is Powell's own version of a mutex implementation, but there is NOTHING in the book or in the code, not even pseudocode or anything. Basically, this means that dozens of examples are impossible to compile unless you improvise your own mutex.h (easy), and they are impossible to link or test, unless you also design your own implementation of Powell's mutex.Up to this point, I would still have given the book 3 points, because it still contains a lot of useful stuff.Enter the publishers: Elsevier, "Addison-Wesley" and their likes. I would give them a minus-two rating, if it were possible. They are no longer reader-oriented, and delegate the real reader support to third-party sites, which leave to be desired as well. As for Elsevier, they seem to specialize in medical books, and little else. Why would they even want to publish this book?

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