Embedded systems exposed!

From operating our cars, to controlling the elevators we ride, to doing our laundry or cooking our dinner, the special computers we call embedded systems are quietly and unobtrusively doing their jobs. Embedded systems give us the ability to put increasingly large amounts of capability into ever-smaller devices. Embedded Systems: A Contemporary Design Tool introduces you to the theoretical and software foundations of these systems, and shows you how to apply embedded systems concepts to design practical applications that solve real-world challenges.

Taking the users problem and needs as your starting point, youll delve into each of the key theoretical and practical aspects to consider when designing an application. Author James Peckol walks you through the formal hardware and software development process, covering:

* How to break the problem down into major functional blocks
* Planning the digital and software architecture of the system
* Designing the physical world interface to external analog and digital signals
* Debugging and testing throughout the development cycle
* Improving performance
Stressing the importance of safety and reliability in the design and development of embedded systems and providing a balance treatment of both the hardware and software aspects of embedded systems, Embedded Systems gives you the right tools for developing safe, reliable, and robust solutions in a wide range of embedded applications.

My Personal Review:
I have used this text as reference to design and implement numerous embedded systems - from a simple numbers game to a wireless glove guitar.

The materials presented in this book walks you through the entire hardware/software thought process that is applicable to any engineering design. The book stresses the importance of developing a modular high-level design before any implementation - and to consider things such as use cases, extreme cases, scalability, performance, and safety. The book also goes over the importance of documentation - how to properly read and write design specifications/requirements, block diagrams, timing diagrams, etc.

In addition, the book covers the nitty-gritty details of digital implementation - from basic boolean algebra to complex kernel programming. The book also covers debugging/testing processes and common mistakes to avoid in embedded system development - backed with real-life examples. Finally, sample projects included in the book allow the reader to see and implement projects on their own.

The writing style makes the text an easy-read and the numerous diagrams and examples solidifies the concepts presented.

I highly recommend this book to any embedded systems engineer.

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