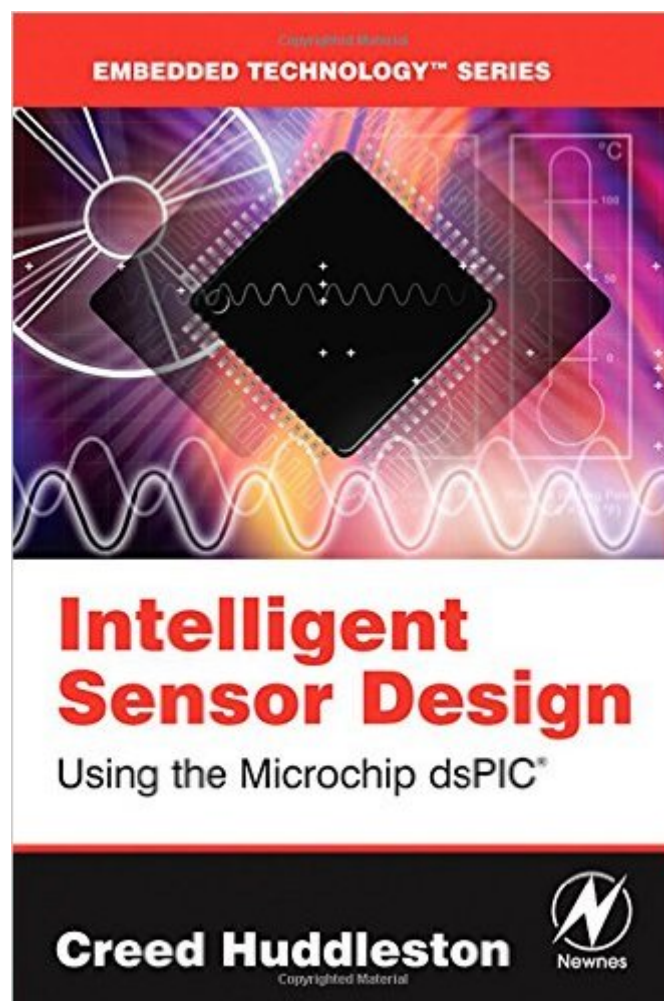


The book was found

# Intelligent Sensor Design Using The Microchip DsPIC (Embedded Technology)



## Synopsis

Intelligent sensors are revolutionizing the world of system design in everything from sports cars to assembly lines. These new sensors have abilities that leave their predecessors in the dust! They not only measure parameters efficiently and precisely, but they also have the ability to enhance and interrupt those measurements, thereby transforming raw data into truly useful information. Unlike many embedded systems books that confine themselves strictly to firmware and software, this book also delves into the supporting electronic hardware, providing the reader with a complete understanding of the issues involved when interfacing to specific types of sensor and offering insight into the real-world problems designers will face. Meaningful software examples are implemented in both C and assembly language, and the source code is included on the accompanying CD. The examples provide a complete, easily extensible code framework for sensor-based applications as well as basic support routines that are often ignored or treated superficially. The goal throughout is to make readers truly productive as quickly as possible while providing the thorough understanding necessary to design robust systems. Readers will gain in-depth, real-world design information that will help them be more productive and get up to speed on sensor design skills more quickly. The book provides designers and students a leg up in a relatively new design area, imparting knowledge about a new microcontroller that offers some of the functionality of a DSP chip. Quickly teaches the reader to design the new wave in sensor technology, "intelligent" sensors. In-depth design techniques, real-world examples, detailed figures and usable code. Application chapters thoroughly exploring temperature, pressure and load, and flow sensors. A FREE CD that provides a toolkit of software models in both C and assembly language.

## Book Information

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## Customer Reviews

This is an Excellent Book for the dsPIC Enthusiast Interested in Intelligent Sensor Design. The book really does deserve 5 stars. The reason I rated the book 4 stars is that there are a few errors that, once corrected will go a long way to a 5 star rating. I sometimes get frustrated with an author that makes errors. This book is not riddled with errors like some I've read. In this case, the errors are forgivable as it is obvious that they were made in the effort to get this book to print. The first error has to do with the Nyquist theorem. The author states, "As one can easily see, a problem arises when the highest frequency component in the original signal is greater than twice the sampling frequency, a sample rate known as the Nyquist rate." Opps; the maximum frequency in an analog signal,  $f_1$ , is often referred to as the 'Nyquist frequency'. The minimum sampling rate ( $2 * f_1$  samples per second) at which a signal can be recovered is known as the 'Nyquist rate'. The 'folding frequency', which is one-half the sampling frequency used, is the highest frequency which can be recovered according to the Sampling Theorem (See Lynn and Fuerst, "Introductory to Digital Signal Processing, 2nd ed., p11). Hence, I believe the author meant to say, "As one can easily see, a problem arises when the highest frequency component in the original signal is greater than one-half the sampling frequency, a sample rate known as the Nyquist rate." The other factual error I found was stating that the dsPICDEM Demo board has a temperature sensor with SPI. The board I believe the author is referring to (dsPICDEM 1.1) has a TC1047A which is an analog sensor, not SPI. Neither error is worth rating a book lower, I just wanted to point out two errors that may, at first, puzzle a reader.

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