Record Nr. UNINA9910877417603321 Titolo Smart sensor systems / / edited by Gerard C.M. Meijer Chichester, U.K., : J. Wiley & Sons, 2008 Pubbl/distr/stampa **ISBN** 1-282-00220-1 9786612002205 0-470-86693-4 0-470-86692-6 Edizione [1st edition] Descrizione fisica 1 online resource (405 p.) Classificazione ZQ 3120 Altri autori (Persone) MeijerG. C. M (Gerard C. M.) Disciplina 681 681.25 681/.25 Detectors - Design and construction Soggetti **Detectors - Industrial applications** Microcontrollers Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto SMART SENSORSYSTEMS; Contents; Preface; About the Authors; 1 Smart Sensor Systems: Why? Where? How?; 1.1 Third Industrial Revolution; 1.2 Definitions for Several Kinds of Sensors: 1.2.1 Definition of Sensors: 1.2.2 Definition of Smart Sensors; 1.2.3 Definition of Integrated Smart Sensors; 1.2.4 Definition of Integrated Smart Sensor Systems; 1.3 Automated Production Machines: 1.4 Automated Consumer Products: 1.4.1 Smart Cars; 1.4.2 Smart Homes; 1.4.3 Smart Domestic Appliances; 1.4.4 Smart Toys; 1.5 Conclusion; References 2 Interface Electronics and Measurement Techniques for Smart Sensor Systems2.1 Introduction; 2.2 Object-oriented Design of Sensor Systems; 2.3 Sensing Elements and Their Parasitic Effects; 2.3.1 Compatibility of Packaging; 2.3.2 Effect of Cable and Wire Impedances: 2.3.3 Parasitic and Cross-effects in Sensing Elements; 2.3.4 Excitation Signals for Sensing Elements; 2.4 Analog-to-digital Conversion; 2.5 High Accuracy Over a Wide Dynamic Range; 2.5.1 Systematic, Random and Multi-path Errors; 2.5.2 Advanced Chopping Techniques; 2.5.3

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Sommario/riassunto

Information processing systems need sensors to acquire the physical, mechanical and chemical information to be able to function. For extended use of sensors in industrial production tools and consumer components, such as smart cars and smart homes, the reliability of the sensors should be improved and the cost dramatically reduced. The improvement of reliability, together with a reduction of cost, can only be achieved with smart sensor systems. These systems combine the functions of sensors and interfaces, including sensors, signal conditioning A-D (analog to digital) conversion, and bus int