

1. Record Nr.	UNINA9910734822903321
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Titolo	Design and Implementation of Sensory Solutions for Industrial Environment [[electronic resource] ] : Utilizing 1-wire® Technology in Industrial Solutions / / by Juraj uák, Gabriel Gašpar
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-30152-8
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (228 pages)
Collana	Signals and Communication Technology, , 1860-4870
Altri autori (Persone)	GasparGabriel
Disciplina	621.381
Soggetti	Electronics Telecommunication Electronic circuits Electronics and Microelectronics, Instrumentation Communications Engineering, Networks Electronic Circuits and Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1- Communication protocols -- Chapter 2- Hardware modules of the sensory system -- Chapter 3- Software modules of the sensory system -- Chapter 4- Practical use-case of proposed measurement system.
Sommario/riassunto	This book presents applicable guidance into sensor system hardware and software design, extensions, and integration aimed at utilization of 1-wire networks. The content is structured from the design of the sensor system architecture—hardware and software—through the implementation and optimization of the solution to the practical verification. The hardware part consists of the design of specific solutions for sensor data collection and the design and integration of standard and special sensors into these solutions. The development of the hardware solutions is focused on integration with 32-bit microcontrollers with ARM Cortex M0 to Cortex M4 cores. For the sensor solutions, the focus is on design versatility and miniaturization of dimensions with respect to the availability of the technology in the

physical design. The focus is on minimizing power consumption to the design of power independent modules. The presented solution includes the design and implementation of the software layer, which includes control software for direct communication with the sensor modules as well as an information system for continuous data storage and remote access. The book presents an extensive case study that describes the design and development of a 1-wire bus controller hardware module solution with proprietary modifications that achieve improvements to the maximum 1-wire bus length. The study also includes the design and implementation of a universal and power independent 1-wire bus device. Using this module, almost any sensor can be connected to the 1-wire bus. Provides a comprehensive look at the use of 1-wire networks, from the design of custom hardware to software solutions Describes 1-wire driver design issues such as the bus timing required to maintain compatibility with protocol structure Offers insight into practical applications implemented in several types of installation environments .

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