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Soggetti	Computer networks Electrical engineering Application software Big data Computer Communication Networks Communications Engineering, Networks Information Systems Applications (incl. Internet) Big Data
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I: Industrial Control Networks -- An Overview of Industrial Control Networks -- FlexRay Protocol: Objectives and Features -- Communication Using CAN Protocol -- Distributed Control System for Ship Engines Using Dual Field-Bus -- Implementing Modbus and CAN Bus Protocol Conversion Interface -- MIL-STD-1553 Protocol in High Data Rate Applications -- Research and Design of 1553B Protocol Bus Control Unit -- Part II: Industrial Wireless Sensor Networks -- An Overview of Wireless Sensor Networks -- Wireless Fieldbus for Industrial Networks -- Wireless Sensor Networks for Industrial Applications -- A Survey of MAC Protocols for Energy-Efficient Wireless Sensor Networks -- Cooperative Multi-Channel Access for Industrial Wireless Networks Based on the 802.11 Standard -- 802.11 Medium Access Control DCF and PCF: Performance Comparison -- An Overview of Ultra-Wideband Technology and its Applications -- Ultra-Wideband

Technology for the Military -- Part III: Industrial Internet of Things --
An Overview of Industrial Internet of Things -- Energy-Aware Real-
Time Routing for Large-Scale Industrial Internet of Things -- A 3D
Perception Framework for Stacked Containers on the Physical Internet
-- An Information Framework for Internet of Things Services on the
Physical Internet.

Sommario/riassunto

This informative text/reference presents a detailed review of the state of the art in industrial sensor and control networks. The book examines a broad range of applications, along with their design objectives and technical challenges. The coverage includes fieldbus technologies, wireless communication technologies, network architectures, and resource management and optimization for industrial networks. Discussions are also provided on industrial communication standards for both wired and wireless technologies, as well as for the Industrial Internet of Things (IIoT). Topics and features: Describes the FlexRay, CAN, and Modbus fieldbus protocols for industrial control networks, as well as the MIL-STD-1553 standard Proposes a dual fieldbus approach, incorporating both CAN and ModBus fieldbus technologies, for a ship engine distributed control system Reviews a range of industrial wireless sensor network (IWSN) applications, from environmental sensing and condition monitoring, to process automation Examines the wireless networking performance, design requirements, and technical limitations of IWSN applications Presents a survey of IWSN commercial solutions and service providers, and summarizes the emerging trends in this area Discusses the latest technologies and open challenges in realizing the vision of the IIoT, highlighting various applications of the IIoT in industrial domains Introduces a logistics paradigm for adopting IIoT technology on the Physical Internet This unique work will be of great value to all researchers involved in industrial sensor and control networks, wireless networking, and the Internet of Things. Prof. Dong-Seong Kim is Director of the KIT Convergence Research Institute and ICT Convergence Research Center (ITRC program), supported by the Korean government, at Kumoh National Institute of Technology, Gumi, South Korea. He is a senior member of the IEEE and ACM. Dr. Hoa Tran-Dang is a research professor, working in the NSL Laboratory, in the Department of ICT Convergence Engineering at Kumoh National Institute of Technology.
