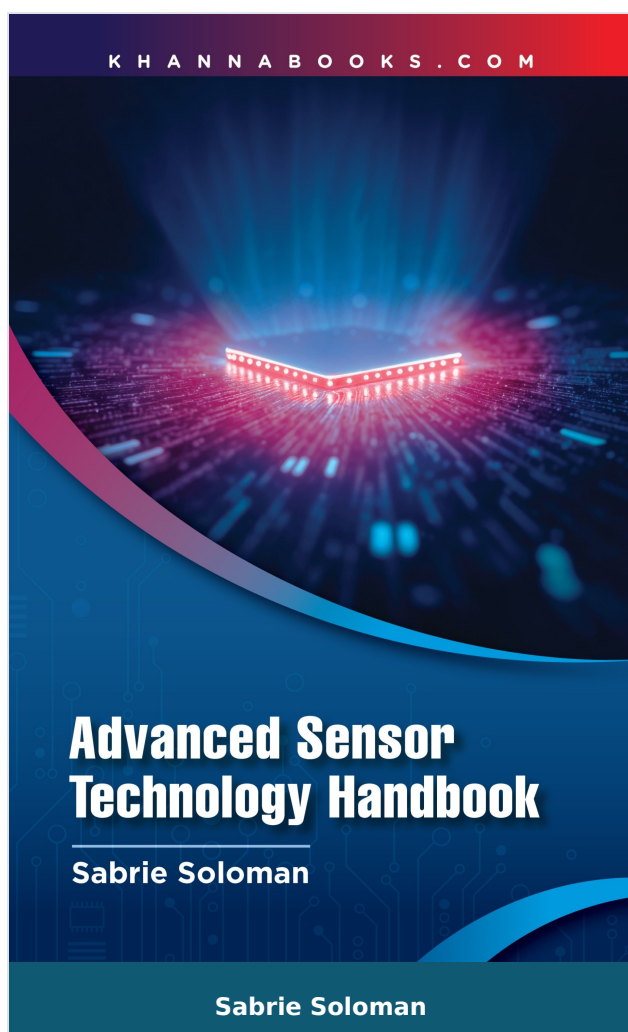




Advanced Sensor Technology Handbook

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ISBN 13 :	978-93-55389-49-7
ISBN 10 :	9355389493
E-ISBN 13 :	978-93-55389-49-7
Edition :	1
Pages :	1492
Type of book :	Physical
Year :	2026
Language :	English
Publisher :	Khanna Publishing House
M.R.P :	Rs 950.00
Categories :	Computer Science Engineering, Book Store, New Arrivals
Condition Type :	New
Country Origin :	India

Product Description

ADVANCED SENSOR TECHNOLOGY HANDBOOK

This handbook explores the transformative role of sensor technologies in industrial and medical sectors. It highlights their integration with AI, IoT, AR/VR, 3D printing, blockchain, and cybersecurity. From predictive maintenance in manufacturing to real-time health monitoring and 3D bio-printing in medicine, sensors enhance efficiency, safety, and innovation. The book also examines historical developments, ethical concerns, and future prospects, including their role in automation, data security, and smart systems. A valuable resource for understanding how sensor technologies are shaping modern industries and improving lives.

Table Of Contents

- Types and Classifications of Sensors and Control Systems 2. Fiber Optics in Sensors and Control Systems 3. Networking of Sensors and Control Systems in Manufacturing 4. The Role of Sensors and Control Technology in Computer-Integrated Manufacturing 5. Advanced Sensors Technology in Precision Manufacturing Applications 6. Industrial Sensors and Control 7. Sensors in Flexible Manufacturing Systems 8. Communications 9. MEMS Application in Energy Management 10. The NANO/MEMS Program 11. MEMS in The Medical Industry 12. MEMS: Current and Future Technology? 13. MEMS Advanced research and development 14. Functional integration of microsystems in silicon 15. automotive applications of microelectromechanical systems 16. A brief study of magnetism and magnetic sensors 17. The fundamentals and value of infrared thermometry 18. GMR: the next of magnetic field sensors 19. Smart civil structures, intelligent structural systems 20. True online color sensing and recognition 21. Fundamentals of solid-state presence –technologies 22. Design and application robust instrumentation sensors in Extreme Environments 23. Color machine vision 24. Monolithic integrated physical and chemical sensors in CMOS Technology 25. A research prototype of a networked smart sensor system 26. Sensors and transmitters powered by fiber optics 27. A portable object-oriented environment model (PEOM) for smA process for selecting a commercial sensor actuator bus as an industry interoperable standard 28. art sensors 29. New generation of high- temperature fiber-optic pressure sensors 30. Principles and applications of acoustic sensors used for gas temperature and flow measurement 31. Understanding and applying intrinsic safety 32. Application of acoustic, strain, and optical sensors to NDE of steel highway bridges 33. Long- term monitoring of bridge pier integrity with time domain reflectometry cables 34. Sensors and instrumentation for the detection and measurement of humidity 35. Thermal imaging for manufacturing process and quality control 36. Detection of ppb levels of hydrazine using fluorescence and chemiluminescence techniques 37. Molecular relaxation rate spectrometer detection theory 38. Current state of the Art in hydrazine sensing 39. Microfabricated sensors: taking blood testing out of the laboratory 40. Closed-loop control of flow rate for dry bulk solids..... ETC.

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Dr. Sabrie Soloman, Ph.D., Sc.D., MBA, PE - He is the Chairman & CEO of American SensoR x, In, USA; Founder of Advanced Manufacturing Post Graduate Studies at Columbia University, USA; Professor of Advanced Technology at Columbia, where he lectures on Sensors & Control Systems in Manufacturing, Affordable Automation, Computer Integrated Manufacturing (CIM), Flexible Manufacturing System (FMS), Design for Manufacturability, Introduction to Electromechanical Engineering, Modern Welding Technology, and 3D Printing/Bioprinting Technology. Dr. Soloman authored numbers of technical books published and translated worldwide: Sensors Handbook (2nd edition), Sensors and Control Systems in Manufacturing (2nd edition), Affordable Automation, Introduction to Electromechanical Engineering, Modern Welding Technology, to name a few. Dr. Soloman holds numerous Patents, Technical Awards, and several US Product Registrations. He is a Fellow of the Society of Manufacturing Engineers. USA. The Royal Society of Manufacturing Engineers (England), and L'Ores Des Ingenieurs Du Quebec (Canada), He received several awards from the American Society of Mechanical Engineers (ASME), the Society of Manufacturing Engineers (SME), and the American Management Association (AMA). Dr. Soloman is considered an international authority on advanced manufacturing technology, robotics, biomedical engineering, pharmaceuticals, and automation in the microelectronic, automotive, beef, pork, poultry industries. He has been and continues to be instrumental in developing and implementing several industrial and modernization programs through the United Nation to European, Asian, and African countries. He is the first to introduce and implement unmanned flexible synchronous/asynchronous manufacturing systems the microelectronic and meat industries, and the first to incorporate advanced vision technology in a wide array of robot/micro-robot manipulators. Dr. Soloman was selected to deliver the US Presidential closing address, "Innovative Remote Sensors Technologies," at the Universal Design

Conference, New York, USA