

Contents

Part I Electromagnetic Sensors

Modern CMOS Hall Sensors with Integrated Magnetic Concentrators ... 3
Christian Schott and Samuel Huber

Commercial Magnetic Sensors (Hall and Anisotropic Magnetoresistors) .. 23
Michael J. Haji-Sheikh

Improving the Accuracy of Magnetic Sensors 45
Pavel Ripka

Modelling Electromagnetic Field Sensors 61
Ian Woodhead

Dielectric Characterization of Biological Tissues: Constraints Related to Ex Vivo Measurements 75
Mustapha Nadi

Estimation of Property of Sheep Skin to Modify the Tanning Process Using Interdigital Sensors 91
V. Kasturi and S. C. Mukhopadhyay

Part II Fiber Optic/Optical Fibre Sensors

Fiber Bragg Gratings Evanescent Wave Sensors: A View Back and Recent Advancements 113
Andrea Cusano, Antonello Cutolo and Michele Giordano

Optical Fibre Humidity Sensors Using Nano-films 153
Jesus M. Corres, Ignacio R. Matias and Francisco J. Arregui

Overview of the OPTO-EMI-SENSE Project: Optical Fibre Sensor Network for Automotive Emission Monitoring	179
E. Lewis, G. Dooly, E. Hawe, C. Fitzpatrick, P. Chambers, J. Clifford, W.Z. Zhao, T. Sun, K.T.V. Grattan, J. Lucas, M. Degner, H. Ewald, S. Lochmann, G. Bramann, F. Gili, and E. Merlone-Borla	
Part III Wireless Sensors	
Wireless Sensor Networks and Applications	199
Yueh-Min Huang, Meng-Yen Hsieh and Frode Eika Sandnes	
Wireless Sensor Network Transport Layer: State of the Art	221
Md. Abdur Rahman, Abdulmotaleb El Saddik and Wail Gueaieb	
Part IV Sensors for Tracking and Navigation	
Real Time Tracking and Monitoring of Human Behavior in an Indoor Environment	249
Maki K. Habib	
Dynamic VRML-Based Navigable 3D Map for Indoor Location-Aware Systems	269
Wan-Young Chung and Chi-Shian Yang	
Part V Ultrasonic Sensor	
Ultrasonic Sensing: Fundamentals and its Applications to Nondestructive Evaluation	287
Ikuo Ihara	
Part VI Image Sensor	
Multimodal Image Sensor Fusion Using Independent Component Analysis	309
Nedeljko Cvejic, Nishan C. Canagarajah and David R. Bull	
Part VII Vision Sensing	
Fast Image Capture and Vision Processing For Robotic Applications	329
Gourab Sen Gupta and Donald Bailey	
Part VIII Sensors Based on Human Parameter	
Affection Based Multi-robot Team Work	355
Sajal Chandra Banik, Keigo Watanabe, Maki K. Habib and Kiyotaka Izumi	

Part IX Displacement Sensor

Displacement Sensor Using Magnetostrictive Wire and Decrease of its Hysteresis Error 379
Hiroyuki Wakiwaka

Part X THZ Sensor

Submillimeter-Wave Coherent and Incoherent Sensors for Space Applications 387
Goutam Chattopadhyay

Index 415