

SPECIAL ISSUE ON INNOVATIONS OF SENSOR APPLICATIONS AND RELATED TECHNOLOGIES IN IOT: PART 1-2

PREFACE



In recent years, applications of novel sensors and related technologies in electronic and mechanical devices have become rapidly developing fields. The booming economic development in Asia, particularly in leading manufacturing industries such as automobiles, machinery, computers, communications, flat panel displays, semiconductors, and micro/nanoscale technologies, has attracted intense attention among universities, research institutions, and many industrial corporations. Manufacturing is the economic lifeline of a country and has been regarded as a labor intensive industry. To cut production costs, devices for the Internet of Things (IoT) have been widely developed. IoT systems can be composed of most integrated end devices and facilities, such as intelligent sensors for internal control, industrial systems, mobile terminal systems, floor control systems, and home intelligent facilities. Smart devices and external control information are utilized with the aim of attracting companies that manufacture high-value-added products in the fields of aerospace, automotive, IT molds, textiles, optoelectronics, watches, medical devices, automation, energy, and semiconductor-related parts and components to drive a country's economy. Therefore, the key to maintaining a competitive advantage in domestic manufacturing in the future is still to promote the development of novel manufacturing and precision-machinery-related technologies.

The scope of this Special Issue, "Innovations of Sensor Applications and Related Technologies in IoT," covers fundamental sensors and materials used in electronic, mechanical, and electrical engineering including their synthesis and integration with many elements; the design of electronic and optical devices; sensing technologies; the evaluation of various performance characteristics; and the exploration of their broad applications to industry, environmental control, materials analyses, and so forth. The part 1(2) of this special issue selects 9 excellent papers about three categories of sensors and materials fields:

(1) Physical Mechanical Sensors: "Analyses of Full-load, Modal, and Fatigue Life of Electric Motorcycle Frame Using Finite Element Software ANSYS" presented by Dai *et al.*

(2) Bio/Chemical Sensors: “Optical Properties of Nitride Cylindrical Quantum Dots as Biosensor Transducer” presented by Zheng *et al.*, “Application of Al-decorated ZnO Nanorods as Gas Sensor to Detect H₂ and CO” presented by Chien *et al.*, and “Use of Concave Sapphire Substrate to Synthesize ZnO Nanorod Arrays and Application of a Cu-decorated ZnO Nanorod Array Gas Sensor” presented by Han *et al.*

(3) Related Technologies: “A Novel Design Optimization Methodology for Machine Tools Based on Computer-assisted Engineering and Sensor-based Measurement Techniques” presented by Ma *et al.*, “Design of Light-emitting Diode Device Considering Sensor Technology Using Analytical Hierarchical Procedure” presented by Lin *et al.*, “Fixed-time Stabilized Adaptive Sliding Mode Control for Synchronizations of Neuro-cell Circuit Systems” presented by Liang *et al.*, “Acceptance and Use of Sensor Technology in Diagnosis of Gender Dysphoria” presented by Shih *et al.*, and “Importance of Sensor Technology in Evaluation of Smart Monitoring System of Nursing Home” presented by Hsu *et al.*

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Teen-Hang Meen
Distinguished Professor, Department of Electronic Engineering
National Formosa University, Taiwan

Wenbing Zhao
Professor, Department of Electrical Engineering and Computer Science
Cleveland State University, USA

Cheng-Fu Yang
Professor, Department of Chemical and Materials Engineering
National University of Kaohsiung, Taiwan