

SPECIAL ISSUE ON INNOVATIONS OF SENSOR APPLICATIONS AND RELATED TECHNOLOGIES IN IOT PART 4-2

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 4-2 of this special issue selects 11 excellent papers about four categories of sensors and materials fields:

- (1) Physical Mechanical Sensors: "A Novel Integral Image Recognition Method and System with Verification Measurement by Sensors for Hot Steel-bar Stack Accident Detection" presented by Ren *et al.*, and "Numerical Analysis of Silencers Composed of Screw Tube,

Expansion Cone, Orifice Plate, and Perforated Tube by Finite Element Method” presented by Lan *et al.*, and “Development of Noncontact Microdistance-measurement Devices Based on Giant Magnetoresistance Sensors” presented by Tsai *et al.*, and “Comparative Analysis of Point Cloud Similarity Based on 3D Surface Reconstruction Using Mechanical Depth Sensor” presented by Chang *et al.*, and “Using COMSOL to Simulate the Effects of Different Parameters on the Sense Characteristics of Capacitive Single-Axis Accelerometers” presented by Ye *et al.*, and “Design of Linear Motor of Electrical Nail Gun Using Magnetic Array Approach” presented by Lin *et al.*

- (2) Related Materials: “Phyigital Design of an Innovative and Portable Autosampler Using Shape Memory Alloy-based Mini-actuator for River Quality Assessment” presented by Shukla *et al.*
- (3) Related Technologies: “Development of Disinformation Verification System with Criminal Record Based on Previous Systems” presented by Chen *et al.*, and “Digital Forensics According to International Organization for Standardization/International Organization for Standardization 27050 and Digital Evidence Forensics Standard Operating Procedure: Use of Sensor Technology” presented by Chao-Meng Lin and I-Long Lin, and “A Novel Design of a Small Adaptive Bionic Obstacle-crossing Vehicle” presented by Chen *et al.*
- (4) Sensor Applications: “Design and Analysis of a Novel Omnidirectional Step-climbing Robot” presented by Wei *et al.*

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