SPECIAL ISSUE ON ADVANCED MATERIALS AND SENSING TECHNOLOGIES ON IoT APPLICATIONS: PART 4-2

PREFACE

In recent years, applications of advanced materials and sensing technologies in electronic and mechanical devices have become rapidly developing fields. Manufacturing is the economic lifeline of a country and has been regarded as a labor-intensive industry. Therefore, to cut production costs, devices for the internet of things (IoT) have been widely developed. IoT is 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 hope of attracting companies that manufacture high-value-added products in the fields of aerospace, automotive, IT molds, textiles, optoelectronics, watches, medical devices, defense, automation, energy, and semiconductor-related parts and components to drive the country's economy. Therefore, the key to maintaining a competitive advantage in domestic manufacturing in the future is still to rely on the development of advanced manufacturing and precision machinery-related technologies. The scope of this Special Issue, "Advanced Materials and Sensing Technologies on IoT Applications", covers fundamental 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, evaluation of various performance characteristics, and exploration of their broad applications to industry, environmental control, materials analyses, and so forth. Part 4-2 of this special issue selects 13 excellent papers about four categories of sensors and materials fields:

(1) Physical Mechanical Sensors: "Design of Automatic Test System for Dynamic Performance of Magnetic Head Based on Machine Vision" presented by Gao *et al*., "Computational Fluid Dynamics (CFD)-based Theoretical Study and *In Vitro* Experimental Evaluation with Sensors for Novel Maglev Nutation Blood Pump" presented by Chen *et al*., "Using Software to Simulate Effect of Stacking Order of High- and Low-refractive-index Materials on Properties of Distributed Bragg Reflector" presented by Chen *et al*., and "Cavitation of Flow Field in Gear Pump" presented by Lin *et al*.

(2) Materials: "Numerical Modeling of Guided Mode for Negative Curvature Hollow-core Fibers" presented by Chiang *et al*.

(3) Related Technologies: "Multi-objective Optimization of Lighting System Design for

Automatic Image Measurement and Inspection Machine" presented by Kuo, "Evaluation of Procurement of Environment Monitoring Equipment for Tunnel Construction" presented by Hsu *et al.*, "Basis for Deep Learning Model of Discrete Event System for Information Technology Course Design" presented by Fu *et al.*, "Design of Injection Molding of Side Mirror Cover" presented by Lo *et al.*, and "Emotional Feature Extraction from Texts by Support Vector Machine with Local Multiple Kernel Learning" presented by Han *et al.*

(4) Sensor Applications: "Telemedicine Medical Ultrasonic System Based on Robotic Arm" presented by Siao *et al.* and "Information Security in Wireless Water Flow and Leakage Alarm System" presented by Chang *et al.*, and "Millimeter-wave Passive Patch Antenna for Use in Wireless High-temperature Sensor" presented by Liao *et al.*

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