Special Issue on Advanced Materials and Sensing Technologies on IoT Applications: Part 1-2

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 Internet of Things (IoT) have been widely developed. IoT is composed of the 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 to attract 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 of 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 1-2 of this special issue selects 11 excellent papers about three categories of sensors and materials fields:

(1) Physical/Mechanical Sensors: "Adaptive Variable-speed Control for Enhancing the Performance of a Mine Counter-rotating Fan System" presented by Ai *et al*.

(2) Related Technologies: "Three-dimensional Printing of Product Design Models Using Continuous-fiber-reinforced Composites" presented by Cheng, "Algorithm to Merge Images to Increase Browsing Speed of Smart Video Surveillance System" presented by Zhang *et al*., "Simple Global Thresholding Neural Network for Shadow Detection" presented by Li *et al*., "Optimized and Improved Methods of Image Style Transfer for Local Reinforcement" presented by Li *et al*., "Vision-based Fuzzy Proportional–Integral–Derivative Tracking Control Scheme for Gantry Crane System" presented by Zheng *et al*., and "Effective Maintenance of Components in T700 Engine Using Backpropagation Neural Network" presented by Qiao *et al*.

(3) Sensor Applications: “Route Planning and Monitoring Design of Unmanned Aerial Vehicles Based on Global Particle Algorithm” presented by Ding and Li, “Parameter Matching for 3D Images by a Real 3D Display System with Sensors” presented by Zeng *et al*., “Development of Smart Residential Environment Control System” presented by Hsu *et al*., and “Evaluation System for Game Playability Using Emotion Sensor Based on AI” presented by Deng *et al*.

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