Special Issue on Novel Sensors and Related Technologies on IoT Applications: Part 3-1

Preface

In recent years, applications of novel sensors and related 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, 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 novel manufacturing and precision machinery-related technologies. The scope of this special issue, "Novel Sensors and Related Technologies on IoT Applications" 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, evaluation of various performance characteristics, and exploration of their broad applications to industry, environmental control, materials analyses, and so forth. Part 3-1 of this special issue selects nine excellent papers about four categories of sensors and materials fields:

(1) Physical Mechanical Sensors: "Using ANSYS Fluent Finite Element Method to Simulate Effect of Opening Angle of Argon Inlet Channel in Polysilicon Directional Solidification System" presented by Zhang *et al*.

(2) Related Technologies: "Use of Sensor Data of Aircraft Turbine Engine for Education of Aircraft Maintenance" presented by Wu andd Meen, "Fuzzy Risk Evaluator for Collision Avoidance Design of Vessels Based on Automatic Identification System" presented by Chen *et al*., "Vector Deep Fuzzy Neural Network for Breast Cancer Classification" presented by Lin *et*

al., and "Algorithm of Mask-region-based Convolution Neural Networks for Detection of Tire Sidewall Cracks" presented by Cheng and Xiao.

(3) Sensor Applications: "Using iBeacon Components to Design and Fabricate Low-energy and Simple Indoor Positioning Method" presented by Chen *et al*., "Simulation for Non-line-of-sight Collision Avoidance Warning System Based on 5G Mobile Car Communication Network" presented by Guo *et al*., "Application of Unmanned Aerial Vehicle 3D Model to Comprehensive Supervision of Mining and Virtual Simulation Training and Teaching" presented by He *et al*., and "Navigation Control of Ackermann Steering Robot Using Fuzzy Logic Controller" presented by Lin *et al*.

The guest editors would like to thank the authors for their contributions to this special issue and all the reviewers for their constructive reviews. We are also grateful to Ms. Misako Sakano for her time and efforts on the publication of this special issue for *Sensors and Materials*.

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