Special Issue on Applications of Novel Sensors and Related Technologies for Internet of Things: Part 4-1

Preface

In recent years, applications of novel sensing and related technologies to electronic and mechanical devices have become very popular fields. The booming economic development in Asia, particularly the leading manufacturing industries from automobile, machinery, computer, communication, consumer products, and flat-panel displays to semiconductor and micro/nano applications have attracted intense attention from universities, research institutions and many industrial corporations. Manufacturing is the economic lifeline of a country and has been regarded as a labor- intensive industry. In order to cut production costs, devices for the Internet of Things have been widely developed. The Internet of Things is composed of 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 aerospace, automotive, IT mold, textiles, optoelectronic, watches, medical device, automation, energy, and semiconductor-related parts and components fields Therefore, the key to maintaining a competitive advantage in domestic manufacturing in the future is to continue to rely on the development of novel manufacturing and precision machinery-related technologies.

The scope of this Special Issue, entitled “Applications of Novel Sensors and Related Technologies for Internet of Things”, 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 wide-ranging applications in areas such as industry, environmental control, and materials analyses. In part 4-1 of this special issue, 14 excellent papers in three categories of sensors and materials fields have been selected.

(1) Materials: “Thermal Responses of the Properties of Cathode and Anode during Hydrogen Production and Performance of Reversible Solid Oxide Cell” by Leu *et al.*

(2) Related Technologies: “Design of Deep-reinforcement-learning-based Automatic Vehicle Parking Algorithm” by Qiu *et al.*, and “One Improved Small-object Detection You-only-look-once Network for Strip-steel Surfaces” by Qiu *et al.*, and “Design of Turn and Brake Lights of Bicycles Using Advanced Wireless Transmission” by Liao *et al.*, and “Integrated Machine-learning Force Prediction Model of H-shaped Steel during Hot-rolling Manufacturing with

Measurements via Sensors" by Wu *et al.*, and "Digital Integration of Data and Information into System Model of Aerospace Equipment" by Yuan *et al.*, and "Fault Diagnosis of Gear Lubrication Systems Using Sensor Measurements and Data-driven Machine Learning: A Case Study of a Nuclear Power Plant" by Zhang *et al.*, and "Real-time Obstacle Avoidance Control and Path Planning with Verification for Autonomous Vehicles Using Sensor Measurements" by Chen *et al.*, and "High-precision Defect Detection of Glass for Thin-film Transistor Liquid Crystal Display Using YOLO Algorithms" by Tan *et al.*, and "Design of a Monitoring System for a Burn-in Furnace with Heat Dissipation and Temperature Control" by Lu *et al.*, and "Fabrication of a Dual-axis Auto Solar Tracking System" by Chen *et al.*, and "Rice Seed Varieties Classified Using Diffusion Convolutional Neural Networks at Various GPS Locations" by Khin and Lee.

(3) Sensor Applications: "Online Recognition of Human Gait Based on Smartphone Sensors" by Li *et al.*, and "Proactive and Adaptive Elderly-centered Governance Framework through Synergistic Integration of the Internet of Things and Multi-agent Systems" by Chen *et al.*

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

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

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