Smart Technologies: The Key for Sustainable Smart Cities

By Saraju P. Mohanty

It reminds me the kind help of emeritus EiC Dr. Peter Corcoran who made Smart Cities article authored by me as the cover article in July 2016 issue of CE magazine. Then from the October 2016 issue I started functioning as the EiC to driver the EiC to next level which had a strong start by Dr. Peter Corcoran. The smart cities article in July 2016 titled "Everything You wanted to Know about Smart Cities" has been very influential on the global community as evident from 5500 download till date in IEEE Xplore. That motivated me to deliver my IEEE distinguished lecture (broadcasted as CE society webinar) on the Smart Cities that I also made available in linkedin which as viewed 2500 times. Based on the above facts, I dedicate this issue cover theme to smart technologies which are needed to realize sustainable smart cities. I sincerely hope the January 2018 issue which has been dedicated to smart healthcare, an important component of smart cities, will be a good reading. As discussed in the smart cities article Internet-of-Things (IoT) is the backbone of smart cities which provides instrumentation (I), interconnection (I) and intelligence (I) capabilities to the smart cities. While IoT is the technology that makes smart cities possible, the associated or related technologies such as physical infrastructure, electrical infrastructure, electronics, communication infrastructure, information technology infrastructure, and software, make the smart cities happen. It is a matter of design and operation cost tradeoffs to have a proper mix of the smart technologies so that the smart cities are not over smart, rather sufficiently smart to be sustainable for years and years.

SOCIETY NEWS
IEEE Brain Initiative 2017 Challenges and Competitions Brain-signal Data Bank (BDB) Visualization & Analytics: This article presents the details of IEEE Brain Initiative 2017 Challenges which was held in St. Petersburg, Russia.

Hong Kong Chapter organizes successful Smart City Workshop: This article reports a one-day workshop on smart cities which was conducted by the IEEE CE Society Hong Kong Chapter.

Consumer Centric Internet of Things: Driving the Digital Transformations: This article discusses the invited lecture session of the CE Society Malaysia Chapter which was held at Manipal International University, Malaysia.

Young Professionals Event at GCCE 2017 - Synergy of Automotive and Consumer Electronics: This article reports the young professional (YP) event at the 6th Global Conference on Consumer Electronics (GCCE) which held in Nagoya, Japan during October 2017.

CONFERENCES REPORTS
IEEE International Conference on Consumer Electronics – Taiwan (ICCE-TW 2017) VR/AR Consumer Electronics - From Dreams to Reality: This article reports the details of the IEEE International Conference on Consumer Electronics - Taiwan (ICCE-TW) which was held in National Taipei University of Technology during June 2017.

FUTURE DIRECTIONS
The Blockchain - A Decentralize Security Framework: This articles presents a simplified brief introduction of blockchain which has been getting lots of attention for various smart city applications.

FEATURE ARTICLES
Sensing the Health State of a City - Structural monitoring system by IoT wireless sensing devices: This article presents a IoT based framework for structural health monitoring in smart cities. This can be of important use in realizing smart infrastructure for smart cities.

Multi-Agent Systems for Energy Management in Self-Sustainable Buildings: This article presents a method for energy management in smart buildings which is a component of smart cities.
Towards Sustainable IoT using an Energy Efficient Routing and Low Power Sensors: It is desired that the IoT framework which is deployed in smart cities consume minimal energy to reduce the operational cost of the smart cities. This article proposes such a IoT framework for sustainability.

Processing of Data acquired by DRONE using GIS: This article presents an efficient method to automatically visualize, analyze and measure through an unmanned aerial (UAV) which can have diverse applications of smart cities including smart agriculture and emergency response systems.

Merging Deep Neural Networks to Accelerate Edge AI in CE Devices & Systems: Artificial Intelligence techniques encompassing machine learning, and deep learning is a driver of IoT and smart cities. These techniques can collect better information (which is intelligence) from the generated data and facilitate better response in smart cities. This article presents the details of deep neural network (DNN) with selected examples for better understanding.

REGULAR COLUMNS
Bits Vs. Electrons -- Progressive Web Apps: This article discusses progressive web apps or installable web apps which use both HTML5 and JavaScripts and can have impact on IoT technology.

Storage -- Digital Storage in Smart Phones and Wearables: This article discusses the memory used in the smart phones and wearables.

Hardware Matters -- Functionally Locked IP Core in CE Hardware for Shielding against Reverse Engineering Attacks: This article discusses a method to prevent reverse engineering this discouraging fake hardware which are potentially unsafe. It may be noted that fake or counterfeit hardware costs estimated $300B to the semiconductor market.

Market Analysis Corner -- Put in in a box, wrap it with a bow: This article suggests that both design and packaging are important for a product.

Product Safety Perspectives -- Tim VanGoethem explores the road to self-driving cars. He says that automakers and CE technologists need to look beyond connected services and take a thoughtful approach to the holistic self-driving user experience inside the car.

IMPACTS
They Sow, They Reap -- How Humans are Becoming Algorithm Chow: This article presents a perspective of how human generated data is used for business purposes.

What can we learn about vacuum cleaners from vampires? This article present privacy issues of consumer electronics appliances with specific example to vacuum cleaners.

SPECIAL SECTION
This special section titled "Advanced Interaction and Virtual/Augmented Reality" presents selected articles in this area. I would like to thank the Guest Editor for all the hard work for this strong special section which will be a good reading for our readers. It may be noted that this technology can be used in various smart city applications including smart healthcare for therapy and surgery, tourism for recreating history, and making movies.

PRODUCT AND BOOK REVIEWS
Stefan Mozar presents the review of the book titled "Electrical Product Compliance and Safety Engineering".

LOOKING FORWARD
I sincerely hope that this issue dedicated to smart technologies in smart cities will find wider set of readers and can help to drive their research in this important area of smart cities which is a necessity to sustain the urban population growth which is expected to cover 70% of total population by 2050.