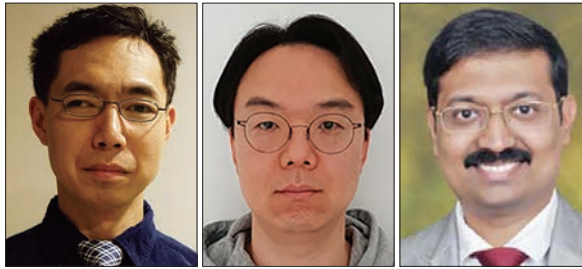


DESIGN AND IMPLEMENTATION OF DEVICES, CIRCUITS, AND SYSTEMS



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The Design and Implementation of Devices, Circuits, and Systems Series attracts original articles that cover different application areas in technological advances and developments of communication devices, circuits and systems. The Series welcomes contributions from various industrial sectors such as healthcare, automotive, energy, agriculture, smart manufacturing, consumer electronics, smart city, VR/AR/hologram, drone and consumer electronics.

Prospective authors are strongly encouraged to discuss their intended contribution with any one of the Series editors prior to submitting an article in order to ensure that the article will be appropriate for the Series. These articles are aimed at providing practical knowledge for developing and optimizing communication products and services with an academically rigorous style and are also suitable for industry professionals. One of the key features of these articles is to conclude with the “Lessons learned”, which contains important lessons from the design and implementation process and the key takeaways.

This Series welcomes articles that virtually cover any type of communication devices, circuits, systems, and applications. This issue features three articles mainly about design and implementation of communications systems surrounding the context of smart city infrastructure.

The first article, “Novel System Design and Implementation for Smart City Vertical Market”, takes an in-depth look at the smart city vertical market from a communication system’s design and implementation perspective. It emphasizes the importance of economics, security and privacy in smart city development, which provides an important insight into the retail sector.

The second article, “Data Collection in MI-Assisted Wireless Powered Underground Sensor Networks: Directions, Recent Advances, and Challenges”, discusses the design and implementation of a wireless underground sensor network in an IoT case using an MI (magnetic induction) assisted approach. It provides a systematic description of the

data acquisition process from sensor deployment to multiple channel access control as well as frequency-selective routing.

The third article, “Index of Low Power Wide Area Networks: A Ranking solution toward Best Practice”, discusses the design of low power wide area networks (LPWANs) that are suitable for supporting many smart city use cases. It introduces the use of an LPWAN Index for quantitative comparison between various LPWAN implementation options that can be optimized for application-specific use cases.

BIOGRAPHIES

BERNARD FONG (bfong@ieee.org) received his B.Sc. degree in electronics from the University of Manchester Institute of Science and Technology in 1993, and a Ph.D. degree in health information systems from the University of New South Wales in 2005. He is a professor with Providence University and currently serves as a Series editor for *IEEE Communications Magazine*, Executive Editor for *IEEE Consumer Electronics Magazine*, associate editor for the *Archives of Emergency Medicine and Critical Care*, *Anaesthesia*, *Critical Care and Pain Management*; *Cyber-Physical Systems*, the *Journal of Advances in Information Technology* and *IEEE Transactions on Consumer Electronics*. He is the Chair of the System Biology and Biomedical Systems Technical Committee under the IEEE Systems Council; and he is an author of the book *Telemedicine Technologies 2/e* (Wiley, 2020).

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