Consumer Technologies for Smart Cities

Saraju P. Mohanty
Department of Computer Science and Engineering
University of North Texas, Denton, TX 76207, USA.
Homepage: http://www.smohanty.org/
Email: saraju.mohanty@unt.edu

Abstract:

The smart cities have been envisioned to mitigate the problems of rapid migration of human population in in both man-made and natural resources constraint. The smart cities use one or multiple smart systems including smart healthcare, smart transportation, smart agriculture, smart infrastructure, and smart grids, and hence in an essence is a system of systems. The systems of the smart cities are essentially cyber-physical systems or CPS which are built using Internet of Things (IoT). IoT is a configurable dynamic global network of networks has components like: The Things, Internet, LAN, and The Cloud. The IoT infrastructure consists of various elements including sensors, electronics, networks, middleware, firmware, and software, which are essentially consumer technologies. The objective of this talk is to analyze the consume technologies that built smart cities. In this keynote, the various components of the smart cities and the underneath consumer technologies will be elaborated. Specific technologies like Sensors for diverse smart cities applications, Unmanned Arial Vehicle (UAVs), Camera Technology, Blockchain, Physical Unclonable Functions (PUF), and Artificial Intelligence (AI) in the context of smart cities will be discussed. The audience will find answers to several questions on smart cities and corresponding consumer technologies, including the following: (1) What is a smart city? (2) What are the important components of smart cities? (3) What makes systems smart? (4) What are critical consumer technologies for smart cities? (5) What are the challenges of smart cities? (6) What are the research directions for the design and operation of efficient smart cities?

Speaker Biography:

Dr. Saraju P. Mohanty is a Professor at the University of North Texas. Prof. Mohanty's research is in "Smart Electronic Systems" which has been funded by National Science Foundations, Semiconductor Research Corporation, US Air Force, IUSSTF, and Mission Innovation Global Alliance. He has authored 300 research articles, 4 books, and invented 4 US patents. His Google Scholar h-index is 30 and i10-index is 100. He has received 6 best paper awards and has delivered multiple keynote talks at various International Conferences. He serves on the Board of Governors (BoG) of IEEE Consumer Electronics Society since 2019. He received IEEE-CS-TCVLSI Distinguished Leadership Award in 2018 for services to the IEEE, and to the VLSI research community. He has been recognized as an IEEE Distinguished Lecturer by the Consumer Electronics Society (CESoc) during 2017-2018. He received Society for Technical Communication (STC) 2017 Award of Merit for his outstanding contributions to IEEE Consumer Electronics Magazine. He was the recipient of 2016 PROSE Award for best Textbook in Physical Sciences & Mathematics from the Association of American Publishers for his Mixed-Signal System Design book published by McGraw-Hill in 2015. He was conferred 2016-17 UNT Toulouse Scholars Award for sustained excellent scholarship and teaching achievements. He is the Editor-in-Chief (EiC) of the IEEE Consumer Electronics Magazine (CEM). He served as the Chair of Technical Committee on VLSI, IEEE Computer Society during 2014-2018. More about his biography, research, education, and outreach activities can be obtained from his website: http://www.smohanty.org.