

Smart Electronic Systems - Myths and Realities

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Abstract:

We often observe the word “smart” being used with many devices, systems, and bigger physical entities. For example, smart phone, smart car, smart healthcare, smart city, are being used in various contexts. So, question arise what is “smart”? Does smart mean compact? Does smart mean efficient? Does smart mean fast? Does smart mean intelligent? What is it? Probably the adjective “smart” being used in various contexts for various reasons? The objective of this talk to discuss “smartness” with specific emphasis to consumer electronics which are essentially electronic systems. A combination of various forms of hardware, system software, and applications software, make the realization of such a smart electronic system possible. What additional components an electronic system should have to be called “smart”? What characteristics an electronic system should have to be called “smart”? These aspects of electronic system will be discussed in this talk. In a specific thought, smart electronic systems are envisioned to be Energy-Smart, Security-Smart, and Response-Smart. Energy-Smart ensures that energy consumption of electronics is optimal for longer battery life and smaller energy bills. Security-Smart handles the security, privacy, or protection of electronic systems as well as that of the data or media that these systems capture, process, or store. Response-Smart refers to accurate sensing, intelligent processing to retrieve knowledge or information from the data, and fast actuation or response based on the information. There is a need for new hardware, firmware, middleware, and software research that interacts with each other for efficient realization of smart electronic systems.

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, and Indo-US Technology Forum. He received IEEE-CS-TCVLSI Distinguished Leadership Award in 2018 for outstanding services to the IEEE, and to the VLSI research community. He has been recognized as a IEEE Distinguished Lecturer by the Consumer Electronics Society (CESoc) in 2017. He was conferred the Glorious India Award in 2017 for his exemplary contributions to the discipline. 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 EiC of the IEEE Consumer Electronics Magazine (CEM). He serves as the Chair of Technical Committee on VLSI, IEEE Computer Society. He has received 4 best paper awards and has delivered multiple keynote talks at various International Conferences. He authored 280 research articles, 3 books, and invented 4 US patents. His Google Scholar h-index is 29 and i10-index is 89. More about his biography, research, education, and outreach activities can be obtained from his website: <http://www.smohanty.org>.