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Smart sensors and 3D IC technology

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Full integration of all blocks and functions of a smart sensor into a single chip with current technologies is a challenging task. In addition to the sensor unit numerous blocks including interface unit, Analog to Digital Converter (ADC), processing unit and wireless communication element are needed to implement a smart sensor. Innovative technologies from diverse disciplines such as microelectromechanical systems (MEMS) and photonics bring new possibilities for integration of smart sensors while further raising the challenges of integration. 3D and 2.5D fabrication technologies are well suited for integration of smart sensors containing elements from various technology disciplines such as MEMS, microelectronics. This work presents the integration techniques in 3D IC technology to achieve low power and high performance smart sensors.

Biography

Rashid Rashidzadeh received BSEE degree from Sharif University of Technology, Tehran, Iran, and MSc and PhD degrees in Electrical Engineering from University of Windsor, ON, Canada in 2003 and 2007 respectively. He has a track record of successful collaboration with industry and has supervised many industrial projects. The industry systems designed by his research team have entered the market successfully. He is currently Manager of Research Centre for Integrated Microsystems (RCIM) and Adjunct Professor with the Electrical and Computer Engineering Department at the University of Windsor. His research focuses on design and test methodologies for analog/RF cores, Radio Frequency Identification (RFID) and wireless sensor networks for distributed sensing. He is the chair of IEEE circuits and systems and computer joint society's chapter in Windsor section and is the recipient of Excellence in Scholarship, Research & Creative Activity award at the University of Windsor in 2015.

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