Energy-efficient Design for Mobile Phone-Centered Wireless Body Area Networks

Abstract: As many of us carry mobile phones for a significant portion of our lives, mobile phones have been proposed to be the personal server of wireless body-area networks that bridges body-area devices with the cyber-infrastructure. The limitations in battery lifetime and heat dissipation on both mobile phones and body-area sensors have made energy efficiency a design objective of top priority. This tutorial employs Windows Mobile-based mobile phones and the Rice Orbit Bluetooth sensor platform to address the energy-efficient design of various aspects of mobile phone-centered wireless body-area networks. In particular, the tutorial will address the system energy characterization and management of mobile phones and wireless body-area devices. The specific topics include wireless data management and energy-efficient use of existing and emerging wireless standards, including 802.11 and Bluetooth/Wibree, system support for energy management, energy-efficient user interface design for health applications based on wireless body-area networks, and their implementation with Windows Mobile-based mobile phones and Bluetooth/Wibree body-area sensors.

Biography:

Lin Zhong received his B.S and M.S. from Tsinghua University in 1998 and 2000, respectively. He received his Ph.D. from Princeton University in September 2005, under Prof. Niraj K. Jha. He was with NEC Labs, America, for the summer of 2003 and with Microsoft Research for the summers of 2004 and 2005. He joined the Dept. of Electrical & Computer Engineering, Rice University as an assistant professor in September 2005. At Rice, he lead the Efficient Computing Group to make computing, communication, and interfacing more efficient and effective. Please visit Efficient Computing Group homepage for more information regarding my research. He received the AT&T Asian Pacific Leadership award in 2000 and the Harold W. Dodds Honorific Fellowship from Princeton University for the last year of his doctoral study. His students and he have received the best paper award from ACM MobileHCI 2007.