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An Experimental Platform for Heterogeneous Wireless Sensor Networks

Sheng-Po Kuo, Chun-yu Lin, Hua-Wei Fang⁴, Yueh-Feng Lee, Yu-Chee Tseng, Chung-Ta King, Y.-W. Peter Hong, and Chin-Liang Wang



Chin-Liang Wang

*Chair, Wireless Networks Group of NTP / Professor,
National Tsing Hua University
clwang@ee.nthu.edu.tw*

Biography

Chin-Liang Wang received the B.S. degree in electronics engineering from National Chiao Tung University (NCTU), Hsinchu, Taiwan, in 1982, the M.S. degree in electrical engineering from National Taiwan University, Taipei, Taiwan, in 1984, and the Ph.D. degree in electronics engineering from NCTU in 1987.

He joined the faculty of National Tsing Hua University (NTHU), Hsinchu, Taiwan, in 1987, where he is currently a Professor of the Department of Electrical Engineering and the Institute of Communications Engineering. During the academic year 1996-1997, he was on leave at the Information Systems Laboratory, Department of Electrical Engineering, Stanford University, Stanford, CA, as a Visiting Scholar. He served as the Director of the Institute of Communications Engineering from 1999 to 2002 and the Director of the University's Computer & Communications Center from 2002 to 2006. He has been the Chair of the Wireless Networks Group of the National Science & Technology Program for Telecommunications in Taiwan since 2004. His current research interests are primarily in wireless communications and wireless sensor networks.

Dr. Wang served as an Associate Editor for the IEEE Transactions on Signal Processing from 1998 to 2000 and has been an Editor for Equalization for the IEEE Transactions on Communications since 1998.

Abstract

This paper presents an experimental platform for heterogeneous wireless sensor networks (WSNs) and a middleware architecture to support context-aware services (CASs) and location-based services (LBSs). The purpose of this platform is to provide both academia and industry a large-scale experimental environment to test and to verify their newly developed WSN systems. In the middleware architecture, a SENSORINFO gateway is implemented to hide the discrepancy of different WSNs from application developers. Hence, application developers can deploy their CASs and/or LBSs easily without considering the differences of the underlying sensor hardware. To demonstrate the features of this platform, we implement two pilot applications: the People Tracking System and the Green Building Monitoring System.