

Introduction to Sensor Networks

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Abstract

Due to the advances in electronics and (wireless) communication, the development of networks of low-cost, low-power, multi-functional sensors has received increasing attention. These sensor networks are a new type of networked, embedded computing systems and are expected to become a key technology for many pervasive computing applications.

In this seminar I will introduce some fundamentals of the emerging field of sensor networks and will discuss selected research topics conducted at the Institute of Networked and Embedded Systems. The seminar is intended as a compact introduction to sensor networks. I will thus sketch HW and SW issues of sensor nodes and networks, cover networking aspects (media access and routing), explain time synchronization in sensor networks and introduce application examples

Biosketch

Bernhard Rinner is professor at the Alpen-Adria-Universität Klagenfurt, Austria where he is heading the Pervasive Computing group. He is deputy head of the Institute of Networked and Embedded Systems and served as vice dean of the Faculty of Technical Sciences from 2008-2011. Before joining Klagenfurt he was with Graz University of Technology and held research positions at the Department of Computer Sciences at the University of Texas at Austin in 1995 and 1998/99.

His current research interests include embedded computing, embedded video and computer vision, sensor networks and pervasive computing. Bernhard Rinner has been co-founder and general chair of the ACM/IEEE International Conference on Distributed Smart Cameras and has served as chief editor of a special issue on this topic in The Proceedings of the IEEE. Currently, he is Associate Editor for Ad Hoc Networks Journal and EURASIP Journal on Embedded Systems. Together with partners from four European universities, he has jointly initiated the Erasmus Mundus Joint Doctorate Program on Interactive and Cognitive Environments (ICE). He is chair of the doctoral advisory board of the Faculty of Technical Sciences, an elected member of the Senate of Alpen-Adria-Universität Klagenfurt and member of the board of the Austrian Science Fund.