International

Innovation in Knowledge Based and Intelligent Engineering Systems

INVITED SESSION SUMMARY

Title of Session:
Integrated Wireless-Sensor-Networks - Localization in Challenging Environments and Data Visualization

Name, Title and Affiliation of Chair:

Prof. Dr.-Ing. Andreas König, Institute of Integrated Sensor Systems, TU Kaiserslautern

Details of Session (including aim and scope):

In the last decade, wireless sensor networks (WSN) have gathered a lot of attention as an important research domain. In many applications, e.g., navigation, military, ambient intelligence, medical, agriculture, and industrial tasks, WSN technology is employed. In particular, for context- or location-based services efficient, reliable, and inexpensive sensor localization is mandatory. Common technologies used for localization in WSN are, e.g., RF, light/IR, or ultrasonic. Rough environments, e.g. undersea networks (USN), coal mines and chemical industry, impose severe constraints on communication and localization, as high attenuation of RF, bad visibility, high temperature and pressure, changing environment, etc. Additionally, sensor mobility and localization for 3D position , as met in USN as well as in other industrial tasks, increase the complexity and hinder the operation of many existing concepts. The physical constraints of each localization technology lead to different aptness. Sophisticated algorithms are required to extract the location information from potentially noisy, corrupted, or incomplete sensor information. Fusion of sensorial input, e.g., RF and US in the Xbow cricket system, as well as additional sensorial information is one means of employing intelligent engineering systems for robust localization under integration constraints. More recent activities also include magnetic sensing, e.g., based on Anisotropic Magneto-Resistive (AMR) sensors, in localization solutions.

The session focus is on new localization applications and solutions in rough environments under the constraints of sensor node mobility, 3D-scenarios, low-power operation as well as MEMS integration combining sensors, electronics and smart algorithms to intelligent engineering systems. Papers are invited from original research that contribute to one or several of these goals and report on enhanced localization abilities and remaining obstacles. Additionally, papers are welcome on novel visualization methods for sensor swarm data obtained in the regarded applications.

Instructions for Authors:

Papers must be prepared according to the Instructions for Authors of the KES'2010 Conference (http://kes2010.kesinternational.org/submission.php) and submitted in electronic form using the PROSE online submission system. The conference proceedings will be published by Springer-Verlag as part of the LNCS/LNAI series. Extended versions of selected papers will be considered for publication in the KES Journal (www.kesinternational.org/journal/). All papers must be presented by one of the authors who must register for the conference.

Submission Deadlines
Submission of full papers: 31 March 2010
Notification of acceptance: 15 April 2010

Camera-ready papers to be received by: 1 May 2010

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

In particular, contributors from a federal research framework on MEMS/WSN will be invited to participate.

Website URL of Call for Papers (if any):

http://www.eit.uni-kl.de/koenig/gemeinsame_seiten/conferences/CfP_WSN_Loc.pdf

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