

2016 3rd International Symposium on Wireless Systems within the Conferences on Intelligent Data Acquisition and Advanced Computing Systems (IDAACS-SWS 2016)

**Offenburg, Germany
26 – 27 September 2016**



IEEE Catalog Number: CFP16WSI-POD
ISBN: 978-1-5090-4318-7

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP16WSI-POD
ISBN (Print-On-Demand):	978-1-5090-4318-7
ISBN (Online):	978-1-5090-4317-0

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Session – Keynotes	1
Industrial Communication for Factories, <i>Prof. Dr. Erich Zielinski, Alcatel-Lucent, Bell Labs Stuttgart, Germany</i>	2
Generic Sensor Interface Description Language for Wireless Sensor Communication, <i>Dr. Christoph Rathfelder, Hahn-Schickard Association of Applied Research, Germany</i>	3
Session – Simulation	4
Accelerated Buffer Overflow Simulation in Self-Similar Queuing Networks with Long-Range Dependent Processes and Finite Buffer Capacity, <i>Izabella Lokshina, USA, Thomas Wendt, Germany, Cees Lanting, Switzerland</i>	5
Evaluation of MCDM-based Handover Decision Algorithms in OMNeT++, <i>Atheer Al-Rubaye, Yevgeniy Yeryomin, Jochen Seitz, Germany</i>	11
NS3 Simulation studies for optimized neighbor discovery in 6LoWPAN networks, <i>Ragavendra Prasad, Vivek R, Jitendranath Mungara, Jubin Sebastian E, India</i>	15
Integration and Analysis of an Extended IEEE 802.15.4 Modules with SmartMAC and Wake-on-Radio Functions into the Network Simulator NS3, <i>Joseena M Jose, Axel Sikora, Manuel Schappacher, Nguyen Minh Phuong, Germany</i>	19
Session – Localization 1	24
Automatic Signal Strength Map Construction in Indoor Positioning System Based on Round Trip Time of Flight Measurements and Inertial Navigation, <i>Aleksandr Galov, Alex Moschevikin, Russia</i>	25
Non Disjoint Set Covers Approach for Wireless Sensor Networks Lifetime Optimization, <i>Yousif E.E. Ahmed, Sudan, Kondo H. Adjallah, France, Sharef F. Babikier, Sudan</i>	30
The Multi-Mode Inertial Tracking System for Unconstrained Indoor Positioning, <i>Aleksandr Mikov, Russia</i>	36
Session – Energy	44
High Q Impedance Matching for RF Energy Harvesting Applications, <i>Christian Merz, Gerald Kupris, Germany</i>	45

Nano-sensor Capacity and SNR Calculation According to Transmit Power Estimation for Body-Centric Nano-Communications, <i>Mustafa Alper Akkaş</i> , Turkey	51
Investigations On The Performance Of Bluetooth Enabled Mesh Networking, <i>Junaedi Adi Prasetyo, Artem Yushev, Axel Sikora</i> , Germany	56
Advertising Power Consumption of Bluetooth Low Energy Systems, <i>Raphael Schrader, Thomas Ax, Christof Röhrig, Claus Fühner</i> , Germany	62
Session – Infrastructure & Integration.....	69
Backhaul Infrastructures in Building Automation Systems: Wired or Wireless?, <i>Selahattin Gökceli, Güneş Karabulut Kurt, Berna Örs</i> , Turkey	70
IPv6 over LoRaWAN TM , <i>Patrick Weber, Daniel Jäckle, David Rahusen, Axel Sikora</i> , Germany	75
Radio module for fast real-time control of inverse triple pendulum, <i>Roman Čečil, Vlastimil Šetka, Miloš Schlegel</i> , Czech Republic	80
Session – Localization 2.....	85
Smart Space Deployment in Wireless and Mobile Settings of the Internet of Things, <i>Dmitry G. Korzun, Ivan V. Galov, Aleksandr A. Lomov</i> , Russia	86
Reliable and Low-cost Indoor Localization Based on Bluetooth Low Energy, <i>Nizam Kuxdorf-Alkirata, Dieter Brückmann</i> , Germany	92
Investigations on Passive Channel Impulse Response of Ultra Wide Band Signals For Monitoring and Safety Application, <i>Alex Moschevikin, Eugene Tsvetkov , Anton Alekseev ,Russia, Axel Sikora</i> , Germany	97
Session – Various Topics	105
Transformation between XML and CBOR for network load reduction, <i>Thomas Rix, Kai-Oliver Detken, Marcel Jahnke</i> , Germany.....	106
Hierarchical Dynamic Index NAT as a Mobility Solution, <i>Atheer Al-Rubaye, Ariel Aguirre, Jochen Seitz</i> , Germany	112
A Novel Split Radix Fast Fourier Transform Design for an Adaptive and Scalable Implementation, <i>Adnan Rauf, Muhammad Adeel Pasha and Shahid Masud</i> , Pakistan	116
Modeling The Wireless Sensor Networks Using The Error Control Scheme, <i>Anatoliy Sachenko, Vasyl Yatskiv, Taras Tsavolyk</i> , Ukraine	122

Performance Investigation Of 6Lo With RPL Mesh Networking For Home And Building Automation,
Jubin Sebastian E, Artem Yushev, Axel Sikora, Manuel Schappacher, Junaedi Adi Prasetyo, Germany 127

Prototype of a Sensor Device for Learning Environments, *Volodymyr Brovkov, Albrecht Fortenbacher, Haeseon Yun, Daniel Junker, Germany* 134

Efficient Encoding and Transmission of Monitoring Data in Information efficient Wireless Network,
Bohdan Shevchuk, Orest Ivakhiv, Mykhaylo Geraimchuk, Yuriy Brayko, Ukraine 138