2015 International EURASIP Workshop on RFID Technology (EURAFID 2015)

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Conference Program

O1: Opening and plenary talk: UHF RFID Technology: Past, Present, and Future

UHF RFID is a promising AIDC (Automatic Identification and Data Collection) technology based on modulated backscatter which has several advantages compared to barcodes and to other wireless technologies. This talk will cover the history and the present state of RFID, illustrated with several examples and applications. We will also discuss the latest developments in RFID and outline potential future research challenges.

G1: GRETA Special Session

G1.1 The GRETA Architecture for Energy Efficient Radio Identification and Localization
Nicolò Decarli (University of Bologna, Italy); Anna Guerra (CNIT - University of Bologna, Italy); Francesco Guidi, Marco Chiani and Davide Dardari (University of Bologna, Italy); Alessandra Costanzo (DEIS, University of Bologna, Italy); Marco Fantuzzi and Diego Masotti (University of Bologna, Italy); Stefania Bartoletti (ENDIF University of Ferrara, Italy); Jinous Shafiei Dehkordi (University of Ferrara, Italy); Andrea Conti (ENDIF University of Ferrara, WiLAB University of Bologna, Italy); Aldo Romani and Marco Tartagni (University of Bologna, Italy); Roberto Alesii (University of L'Aquila, Italy); Piergiuseppe Di Marco (University of L'Aquila, Sweden); Fortunato Santucci (University of l'Aquila, Italy); Luca Roselli and Marco Virili (University of Perugia, Italy); Pietro Savazzi (Università degli Studi di Pavia, Italy); Maurizio Bozzi (University of Pavia, Italy)
pp. 1-8

G1.2 GRETA Approach Towards New Green Material Technologies
Marco Virili, Luca Roselli, Federico Alimenti and Paolo Mezzanotte (University of Perugia, Italy); Stefano Moscato, Lorenzo Silvestri, Maurizio Bozzi and Luca Perregrini (University of Pavia, Italy)
pp. 9-15

G1.3 Electromagnetic prediction of antenna layout impact on UWB localization and sensing
Marco Fantuzzi and Diego Masotti (University of Bologna, Italy); Alessandra Costanzo (DEIS, University of Bologna, Italy)
pp. 16-21

G1.4 Energy-based Order of Arrival Estimation via UWB-UHF RFID
Stefania Bartoletti (ENDIF University of Ferrara, Italy); Nicolò Decarli (University of Bologna, Italy); Anna Guerra (CNIT - University of Bologna, Italy); Francesco Guidi and Davide Dardari (University of Bologna, Italy); Andrea Conti (ENDIF University of Ferrara, WiLAB University of Bologna, Italy)
pp. 22-27

G1.5 Multi-reader multi-tag architecture for UWB/UHF radio frequency identification systems
Roberto Alesii (University of L'Aquila, Italy); Piergiuseppe Di Marco (University of L Aquila, Sweden); Fortunato Santucci (University of l'Aquila, Italy); Pietro Savazzi (Università degli Studi

di Pavia, Italy); Roberto Valentini (Universita' dell'Aquila, USA); Anna Vizziello (University of Pavia, Italy)
pp. 28-35

Lunch Break

P2: Plenary Talk: Security and privacy issues related to RFID authentication

Katerina Mitrokotsa presents security and privacy issues related to RFID authentication with a focus on relay attacks and the main countermeasure against this type of attacks which is a category of authentication protocols that try to bound the distance (measure how close is the authenticator to the authentication system).Relay attacks have been launched against RFID proximity cards, automobile access control system and NFC and many more applications. Of course I will give a lot of background and introductory information for a general audience.

SP1: Signal Processing in RFID

An EPC Class-1 Generation-2 anti-collision protocol for RFID tag identification in augmented systems
Leonardo D. Sanchez M. (Universidad Autonoma Metropolitana & Iztapalapa, Mexico); Victor Ramos (Universidad Autonoma Metropolitana, Mexico)
pp. 36-43

Hardware Based Design and Performance Evaluation of a Tree based RFID Anti-Collision Protocol
Laura Arjona (Deustotech Institute of Technology- University of Deusto, Spain); Hugo Landaluce (Deustotech Institute of Technology - University of Deusto, Spain); Asier Perallos (Fundacion Deusto, Spain); Sergio Martin (Spanish University for Distance Education - UNED, Spain)
pp. 44-47

A bivariate DTMC model of the RFID FSA reading process to study the continuous wave outage effect
Javier Vales-Alonso, Juan Pedro Muñoz-Gea and Juan Jose Alcaraz (Universidad Politécnica de Cartagena, Spain)
pp. 48-52

***** Mid Session Break *****

RFID Tag Acquisition via Compressed Sensing: Flexibility by Random Signature Assignment
Martin Mayer and Norbert Goertz (Vienna University of Technology, Austria)
pp. 53-58

A novel simulator for RFID reader-to-reader anti-collision protocols
Renato Ferrero, Filippo Gandino, Bartolomeo Montrucchio and Maurizio Rebaudengo (Politecnico di Torino, Italy); Linchao Zhang (China Academy of Electronics and Information Technology, P.R. China)
pp. 59-64

Tag Identification Time in Multiantenna Collision Scenarios
Jelena Kaitovic (Vienna University of Technology, Austria); Markus Rupp (TU Wien, Austria)
pp. 65-72

An Effective Intrusion Detection Approach for Jamming Attacks on RFID Systems
Leandro Avanço (IPT - Institute for Technological Research of the State of São Paulo, Brazil); Adilson Guelfi (UNOESTE / FIPT, Brazil); Elvis Pontes (University of Sao Paulo & Laboratory of Integrated Systems (LSI), Brazil); Anderson Silva and Sergio Kofuji (University of São Paulo, Brazil); Fen Zhou (University of Avignon, France)
pp. 73-80

S1: Social Event

P3: Plenary Talk: RF Energy on demand

Innovative antenna designs have brought the UHF RFID systems to a new level, where selective read ranges from few centimetres to tens of meters are possible. Focusing the RF energy at predefined spaces and distances enables reliable applications and avoids long "trial-and-error" cycles. In this talk the recent advances in reader antenna development for achieving selective read ranges will be presented, starting from the small near field antennas, through the middle range platforms and till the long range phased-array switch beam antennas.

RF1: RF Techniques for RFID

ISO/IEC 14443 VHBR: Influence of the proximity antennas on the PCD-to-PICC data link performance
Vincent Berg (CEA LETI, France); Jean-Baptiste Doré (CEA, France); Francois Frassati (CEA, LETI, Minatec, France)
pp. 81-86

A 13.56MHz class E power amplifier for inductively coupled DC supply with 95% Power Added Efficiency (PAE)
Franz Johann Stubenrauch, Norbert Seliger, Maximilian Schustek and Alexey Lebedev (FH Rosenheim, Germany); Doris Schmitt-Landsiedel (Technische Universität München, Germany)
pp. 87-93

Implementation aspects of an SDR based EPC RFID reader testbed
Florian Galler, Thomas Faseth and Holger Arthaber (Vienna University of Technology, Austria)
pp. 94-97

Investigation of Suitable Parameters for Setup-Independent RFID Sensing
Stefano Caizzone (German Aerospace Center (DLR), Germany); Emidio Di Giampaolo (University of L'Aquila, Italy); Gaetano Marrocco (University of Rome Tor Vergata, Italy)
pp. 98-102

Near field phased array DOA and range estimation of UHF RFID tags
Jordy Huiting, Andre Kokkeler and Gerard Smit (University of Twente, The Netherlands)

pp. 103-107

Improved Efficiency of Wireless Power Transfer by Tilting Coils for Wireless Data Communication

HyunGyu Ryu and Dongsoo Har (KAIST, Korea)
pp. 108-111

Lunch Break

P4: Plenary Talk: Embedded Component Packaging and Application for RFID

ECP® - stands for Embedded Component Packaging. 2008 started an EU funded project, named HERMES, by an industrial consortium to industrialize this kind of technology. Through ECP®, components are embedded inside an organic substrate (PCB - Printed circuit board) and connected by copper plated micro vias. It's possible to embed passive and/or active components. For RFID applications, ECP® provides the possibility to directly integrate the IC in a printed circuit board, or to create a Tag made of a PCB with embedded IC. The presentation will provide an overview about the technology itself, component requirements and the advantages of using it.

RF2: Architectures and experimental work

Measurement Based Indoor SIMO RFID Simulator for Tag Positioning

Hasan Noor Khan (Graz University of Technology, Austria); Jasmin Grosinger (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria); Bernhard Auinger and Dominik Amschl (Graz University of Technology, Austria); Peter Priller (AVL List GmbH, Austria); Ulrich Muehlmann (NXP Semiconductors, Austria); Wolfgang Boesch (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria)
pp. 112-119

SIMO RFID System Performance in an Engine Test Bed

Lukas Görtschacher (Graz University of Technology, Austria); Jasmin Grosinger (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria); Bernhard Auinger and Dominik Amschl (Graz University of Technology, Austria); Peter Priller (AVL List GmbH, Austria); Ulrich Muehlmann (NXP Semiconductors, Austria); Wolfgang Boesch (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria)
pp. 120-125

Multichannel Digital Transmit Beamforming Experiments for RFID Tag Localization

Markus Cremer and Anjum (Jim) Pervez (London South Bank University, United Kingdom); Uwe Dettmar, Carsten Hudasch, Rainer Kronberger and Robin Lerche (Cologne University of Applied Sciences, Germany)
pp. 126-131

A Small UHF-RFID Transponder with Integrated GPS for Localization Applications

Alois Ascher, Michael Eberhardt and Markus Lehner (Technische Universität München, Germany); Benedikt Lippert (Techniche Universität München, FG Höchstfrequenztechnik, Germany); Erwin Biebl (Technische Universität München, Germany)

pp. 132-139

***** Mid Session Break *****

Experimental Investigation on the Interference between UHF RFID and GSM
Renato Ferrero, Filippo Gandino, Bartolomeo Montrucchio and Maurizio Rebaudengo (Politecnico di Torino, Italy)
pp. 140-143

Bistatic Architecture Provides Extended Coverage and System Reliability in Scatter Sensor Networks
Konstantinos Tountas, Panos N. Alevizos, Aikaterini Tzedaki and Aggelos Bletsas (Technical University of Crete, Greece)
pp. 144-151

Bringing Near Field Communication under water: short range data exchange in fresh and salt water
Alessandro Pozzebon (University of Siena, Italy)
pp. 152-156

RFID Integration as an Application to Industrialize and Qualify High-Volume Composite Production
Julia Pielmeier (Fraunhofer IWU Projektgruppe RMV, Germany); Gunther Reinhart (Technical University Munich, Germany)
pp. 157-161