

# PROGRAM IPIN 2012

## Monday 12 November 2012

15:00-17:00	Registration desk opens	The Pavillions
17:00-18:30	Pre-Conference Session	LG 03, Tyree Energy Technology Building
	<b>State-of-the art of pedestrian navigation with foot mounted IMU</b>	
	<b>Prof. Ulrich Walder</b>	Department of Civil Engineering, Graz University of Technology, AUSTRIA

## Tuesday 13 November 2012

8:00-8:45	Registration, Welcome	Internet registration		
8:45-9:15	<b>Opening session Theatre A</b>	<b>Prof. Andrew G. Dempster, IPIN 2012 Conference Director</b>	<b>Prof. Mary O’Kane, NSW Chief Scientist and Engineer</b>	
9:15-10:15	<b>Session 1: Keynote 1 Theatre A</b>	<b>The Indoor Tipping Point: Lessons from Indoor at Scale</b>	<b>Dr. Waleed Kadous, Google</b>	
10:15-10:45	Morning Tea	Internet registration		
10:45-12:30	<b>Session 2A: Industry SVERRE HOLM</b>	<b>Session 2B: WSN NIMA ALAM</b>	<b>Session 2C: Optical ULRICH WALDER</b>	<b>Session 2D: Hybrid GUENTHER RETSCHER</b>
	A confused mess – indoor positioning in 2012, Mr. Nunzio Gambale, Locata, AUSTRALIA	56 VoroLoc: Location Estimation Using Particle Filters, Voronoi Graphs and Ambient Sensor Data, Davide Merico, Contexta Network Solutions S.r.l., ITALY	94 Image Matching Techniques for Vision-based Indoor Navigation Systems: Performance Analysis for 3D Map Based Approach, Xun Li, University of New South Wales, AUSTRALIA	63 Hybrid indoor/outdoor localisation system to support aeronautical maintenance activities, Nelly de Bonnefoy, Paul Sabatier University, FRANCE
	RTLS challenges for the location of active RFID devices, Mr. Daniel Aljadef, Aeroscout, ISRAEL	75 Performance Evaluation of an Indoor Localization Protocol in a 802.15.4 Sensor Network, Jorge Juan Robles, Technische Universität Dresden, GERMANY	36 Indoor Positioning of Vehicles using an Active Optical Infrastructure, Sven Heißmeyer, Institut für Integrierte Produktion Hannover, GERMANY	66 Multi-Floor Map Matching in Indoor Environments for Mobile Platforms, Christian Ascher, Karlsruhe Institute of Technology, GERMANY
	Taking indoor Wayfinding mobile, Mr. Paul Pettersen, Abuzz, AUSTRALIA	133 Enabling Location-based Applications through Integration of WSNs and Smart Phones, Francescantonio Della Rosa, TUT, FINLAND	37 Mitigation of Attitude and Gyro Errors through Vision Aiding, Laura Ruotsalainen, University of Calgary, CANADA	153 Automatic 3D Calibration for a Multi-Sensor System, Enrico Köppe, Federal Institute for Materials Research and Testing, GERMANY
	218 End to End Continuous Indoor Positioning, Mr. Greg Turetzky, CSR, UNITED STATES	151 A Greedy Approach to Cooperative Indoor Localization, Heiko Will, Freie Universität Berlin, GERMANY	219 A multisensor LBS using SIFT-based 3D models, Antonio J. Ruiz-Ruiz, University of Murcia, SPAIN	14 Platform for Hybrid Positioning based on a Sensor Description Language, Moritz Kessel, Ludwig-Maximilians-University Munich, GERMANY
	Open localization scenarios at Siemens, Dr. Alejandro Ramirez, Siemens, GERMANY	221 Hybrid RSS-SOM Localization Scheme for Wireless Ad Hoc and Sensor Networks, Nyein Aye Maung Maung, Ritsumeikan University, JAPAN	17 Accurate Node Localisation with Directional Pulsed Infrared Light for Indoor Ad Hoc Network Applications, Ahmet Sekercioglu, Monash University, AUSTRALIA	
12:30-13:30	Lunch			
13:30-15:15	<b>Session 3A: TOF PHILIPPE CANALDA</b>	<b>Session 3B: WLAN ADRIANO MOREIRA</b>	<b>Session 3C: Optical SEBASTIAN TILCH</b>	<b>Session 3D: IMU Integration RUIZHI CHEN</b>
	5 The Impact of LPN on Positioning measurement in LTE-A System, Yuanfeng Du, Beihang University, CHINA	77 Combining similarity functions and majority rules for multi-building, multi-floor, WiFi Positioning, Adriano Moreira, University of Minho, PORTUGAL	190 An Indoor Localization Algorithm in a Small-Cell LED-based Lighting System, Mauro Biagi, University of Roma Tre, ITALY	35 Deeply Coupled GPS/INS Integration in Pedestrian Navigation Systems in Weak Signal Conditions, Markus Langer, Karlsruhe Institute of Technology, GERMANY
	45 Robust Tracking of a Mobile Beacon using Time Differences of Arrival with Simultaneous Calibration of Receiver Positions, Johannes Wendenberg, University of Freiburg, GERMANY	89 Design and Implementation of WiFi Indoor Localization based on Gaussian Mixture Model and Particle Filter, Katsuhiko Kaji, Nagoya University, JAPAN	E001 Title: An Indoor Positioning System Based on IR Phase Measurement, David Monzu, ITALY	202 Collaborative Navigation with Ground Vehicles and Personal Navigators, Guenther Retscher, Vienna University of Technology, Vienna, AUSTRIA

78 Time-of-flight positioning using the existing wireless local area network infrastructure, Alejandro Ramirez, Siemens AG, GERMANY	92 A Robust Room-level Localization Method Based on Transition Probability for Indoor Environments, Shinji Hotta, Fujitsu Laboratories LTD., JAPAN	188 Application of Laser Distance Measurers for the Camera and Laser-Based Indoor Positioning (CLIPS) Concept, Rainer Mautz, ETH Zurich, SWITZERLAND	164 Radio-Assisted Inertial Navigation System by Tightly Coupled Sensor Data Fusion: Experimental Results, Christian Ascher, Karlsruhe Institute of Technology, GERMANY
83 A novel indoor localization scheme based on fingerprinting technique and CDMA signals, Nadia Aloui, Grenoble University, France	96 Improved Wi-Fi AP position estimation using regression based approach, Youngsu Cho, Electronics and Telecommunications Research Institute, KOREA	41 A Portable and Low-Cost 3D Tracking System Using Four-Point Planar Square Calibration, Pekka Peltola, Tampere University of Technology, FINLAND	172 Scalable Indoor Pedestrian Localisation using Inertial Sensing and Parallel Particle Filters, Agata Brajdic, University of Cambridge, UK
	104 WiFi Fingerprinting Signal Strength Error Modeling for Short Distances, Andrew Dempster, University of New South Wales, AUSTRALIA	3 Kinect Positioning System (KPS) and its potential applications, Yoshiaki Nakano, Osaka Electro-Communication University, JAPAN	126 Multi-sensor based Surveying of House Drainage System - The current state of the art, Philipp Striegl, University of the Bundeswehr, GERMANY

15:15-15:45 Afternoon Tea

15:45-17:30

<b>Session 4A: LBS</b> <b>HEIDI KUUSNIEMI</b>	<b>Session 4B: WLAN</b> <b>PAUL PETERSEN</b>	<b>Session 4C: SLAM</b> <b>JOSE GUIVANT</b>	<b>Session 4D: IMU</b> <b>JAYANTHA KATUPITIYA</b>
105 RoughMaps: A Generic Platform to support Symbolic Map Use in Indoor Environments, Rainer Wasinger, The University of Sydney, AUSTRALIA	106 Benchmark Measurements for Wi-Fi Signal Strength based Positioning System, Matteo Cypriani, University of Franche-Comte, FRANCE	210 On Sensor Pose Parameterization for Inertial Aided Visual SLAM, Markus Kleinert, Fraunhofer IOSB, GERMANY	53 Evaluating MisMatch Probability of Activity-based Map Matching in Indoor Positioning, Sara Khalifa, University of New South Wales, AUSTRALIA
109 Harmonization of Position ProviderS, Anja Bekkelien, University of Geneva, SWITZERLAND	81 Fingerprinting Based Localisation Revisited, Christian Beder, Cork Institute of Technology, IRELAND	20 Complexity-reduced FootSLAM for Indoor Pedestrian Navigation, Maria Garcia Puyol, German Aerospace Center (DLR), GERMANY	84 Calibration of Smartphones for the use in indoor navigation, Harald Sternberg, Hafen-City University, GERMANY
138 A Smartphone Application for an Innovative User Supporting Location Based Shopping Experience, Martin Krammer, Graz University of Technology, AUSTRIA	154 Improving the Positioning Accuracy using Virtual Access Points in the Border Area, MyungIn Ji, Electronics and Telecommunications Research Institute, KOREA	71 ActionSLAM: Using location-related actions as landmarks in pedestrian SLAM, Michael Hardegger, ETH Zurich, SWITZERLAND	112 Pockets Mattering: Indoor Pedestrian Tracking with Commercial Smartphone, Feng Hong, Ocean University of China, CHINA
165 The Research on Cartographical Indoor Presentation and Indoor Route Modeling for Navigation Applications, Jacek Marciniak, Warsaw University of Technology, POLAND	159 Hidden Markov Model-based 3D Path-matching using Raytracing-generated Wi-Fi Models, Nicolai Viol, RWTH Aachen University, GERMANY	101 Virtual Reconstruction Using an Autonomous Robot, Matthew McGill, University of New South Wales, AUSTRALIA	137 Embedded Inertial Measurement Unit for Real-Time Sensor Integration and Data Processing, Andreas Fink, Rostock University, GERMANY
1 Investigation of location capabilities of four different smartphones for LBS navigation applications, Guenther Retscher, Vienna University of Technology, AUSTRIA		163 Real-time Laser Based SLAM for Multiple Heterogeneous Robots in Indoor Environments, Youssef Ktiri, The University of Tokyo, JAPAN	136 A robust pedestrian navigation algorithm with low cost IMU, Yan Li, University of Technology Sydney, AUSTRALIA

17:30-18:30 Demos

18:30-20:30 Demos Reception/Ice break

## Wednesday 14 November 2012

9:00-10:00 **Session 5: Keynote 2** **The indoor standards baby steps** **Dr. Lauri Wirola, Nokia** **Chair: Dr. Rainer Mautz, IPIN 2012 Conference Chair**

10:00-10:25 Morning tea

<b>Session 6A: Pseudolite</b> <b>JINLING WANG</b>	<b>Session 6B: WLAN</b> <b>MICHAL PIETRZYK</b>	<b>Session 6C: SLAM</b> <b>CLAUDE SAMMUT</b>	<b>Session 6D: Foot-Mounted</b> <b>CHRIS RIZOS</b>	Session 6E: Poster session 1
33 Utilizing pulsed pseudolites and high-sensitivity GNSS for ubiquitous outdoor/indoor satellite navigation, Heidi Kuusniemi, Finnish Geodetic Institute, FINLAND	174 A new method to generate and maintain a WiFi fingerprinting database automatically by using RFID, Binghao Li, University of New South Wales, AUSTRALIA	195 Mobile 3D Indoor Mapping Using the Continuous Normal Distributions Transform, Dylan Campbell, University of New South Wales, AUSTRALIA	38 A Particle Filter Approach to Indoor Navigation Using a Foot Mounted Inertial Navigation System and Heuristic Heading Information, James Pinchin, University of Nottingham, UK	102 205 122 139 230 229 224
50 Using Locata and INS for indoor positioning, Wei Jiang, University of New South Wales, AUSTRALIA	182 A Dynamic Channel Assignment Method Based on Location Information of Mobile Terminals in Indoor WLAN Positioning Systems, Ming Li, Kyushu University, JAPAN	19 Versatile Geo-referenced Maps for Indoor Navigation of Pedestrians, Bernhardt Schäfer, University of Stuttgart, GERMANY	150 Smoothing for ZUPT-aided INSS, John-Olof Nilsson, KTH Royal Institute of Technology, SWEDEN	

26 Experimental Positioning Results of the Repealite Based Indoor Positioning System, Ikhlas Selmi, Institut Mines-Telecom, Telecom SudParis, FRANCE	184 Large scale movement analysis from WiFi based location data, Filipe Meneses, University of Minho, PORTUGAL	215 Autonomous Distributed Multi Sensor Data Fusion for 3D Mapping, Jose Guivant, University of New South Wales, AUSTRALIA	220 Activity and Environment Classification using Foot Mounted Navigation Sensors, David Garret, University of Calgary, CANADA
30 INS and GNSS Fusion Enhancement based on a Weighted Reliabilities Approach, Alexandre Patarot, CEA, LIST, FRANCE	132 802.11 Network Planning based on ESBEA Evolutionary Algorithm to Improve Location Accuracy, Philippe Canalda, CEA-Leti, FRANCE	146 A Reference System for Indoor Localization Testbeds, Simon Schmitt, Freie Universitat Berlin, GERMANY	160 A note on the limitations of ZUPTs and the implications on sensor error modeling, John-Olof Nilsson, KTH Royal Institute of Technology, SWEDEN

11:50-12:50 Session 7: Industry panel Chair: Prof. Sverre Holm

12:50-13:50 Lunch

13:50-15:35	Session 8A: RFID KEFEI ZHANG	Session 8B: WLAN ALLISON KEALY	Session 8C: Vision JINLING WANG	Session 8D: Pedestrian Navigation ISAAC SKOG	Session 8E: Poster session 2
	2 Passive RFID Indoor Localisation to Aid the Blind, Oluropo Ogundipe, University of Nottingham, UK	191 A Device-Clustering Algorithm for Device Heterogeneity in Crowdsourcing-based Localization, Haiyong Luo, Institute of Computing Technology, Chinese Academy of Sciences, CHINA	15 An Accurate 3D Localization Technique using a Single Camera and Ultrasound, Masanori Sugimoto, University of Tokyo, JAPAN	147 Using Natural Footstep-Accurate Traces for Indoor Positioning Evaluation, Tim Schwartz, German Research Center for Artificial Intelligence, GERMANY	124 90 211 47 194 46 108
	86 Accurate Positioning Based on a Combination of Power Attenuation and a Signal Strength Indicator Using Active RFID Technology, Saleh Alghamdi, RMIT University, AUSTRALIA	197 Wireless LAN based Indoor Positioning using Radio-Signal Strength Distribution Modeling, Yaemi Teramoto, Hitachi Ltd., JAPAN	73 Scale-Preserving Long-Term Visual Odometry for Indoor Navigation, Andreas Möller, Technische Universität München, GERMANY	231 Landmark-based Navigation in Complex Buildings, Paul Heiniz, RWTH Aachen University, GERMANY	
	114 A New Indoor Position Estimation Method of RFID Tags for Continuous Moving Navigation Systems, Emi Nakamori, Kansai University, JAPAN	206 Entropy-based Location Fingerprinting for WLAN Systems, Nayef Alsindi, Khalifa University of Science, Technology and Research, UAE	120 Indoor positioning using visible light communication and high-speed camera equipped with fish-eye lens, Hideo Makino, Niigata University, JAPAN	51 Continuous Location Sensing and Analysis System in Hospital, Akio Sashima, National Institute of Advanced Industrial Science and Technology, JAPAN	
	192 RFID-Based Indoor Positioning Technologies – Where Are We?, Yuntian Brian Bai, RMIT University, AUSTRALIA	225 Direction-of-Arrival Tracking in WLAN Network Using Dual Antenna Access Points, Ji-Won Park, Chungnam National University, KOREA	128 An IMA-based Centimetre Precise Positioning for Smart Mobile Devices in Dash Environments, Philippe Canalda, Institut Femto-st, FRANCE	31 Indoor Pedestrian Localisation Solution based on Anemometry Sensor Integration with a Smartphone, Guillaume Trehard, CEA LIST, FRANCE	
	16 Camera-Assisted Localization of Passive RFID Labels, Theresa Nick, TU Dortmund University, GERMANY	72 Indoor Localisation with UMTS compared to WLAN, Ulrich Birkel, Technische Hochschule Mittelhessen, GERMANY	232 Image Based Localization with Sparse Database Using Panning Query Images, Tetsuo Inoshita, NEC Corporation, JAPAN		

15:35-16:00 Afternoon Tea

16:00-17:25	Session 9A: Geomagnetism SAMSUNG LIM	Session 9B: RSS FRANCOIS SPIES	Session 9C: Algorithms ANDREW G. DEMPSTER	Session 9D: Foot-Mounted YONG LI
	173 How feasible is the use of magnetic field alone for indoor positioning?, Binghao Li, University of New South Wales, AUSTRALIA	233 Indoor location based on the signal fusion Mobile device and base stations for 433 MHz band, Damian Grzechca, Silesian University of Technology, POLAND	117 Position Error Estimation for Hybrid Indoor Positioning Systems, Firas Aleshly, The University of Edinburgh, UK	18 A Study on Indoor Pedestrian Localization Algorithms with Foot-Mounted Sensors, Michailas Romanovas, Hahn-Schickard-Gesellschaft Institute of Microsystems and Information Technology, GERMANY
	58 Characteristics of Indoor Geomagnetism and Geomagnetic based Indoor Localization, Yong Kim, Samsung Electronics, KOREA	198 Hybrid CFO-RSS Cooperative Positioning for Environments with Limited GNSS Visibility, Nima Alam, University of New South Wales, AUSTRALIA	149 The Geo-n Localization Algorithm, Heiko Will, Freie Universität Berlin, GERMANY	22 A Novel Approach for Indoor Localization Using Human Gait Analysis with Gyroscopic Data, Kahala Abhayasinghe, Curtin University, AUSTRALIA
	143 Indoor Magnetic Field Characterization for Applications in Localization and Simultaneous Localization and Mapping, Michael Angermann, German Aerospace Center (DLR), GERMANY	82 Positioning with Multilevel Coverage Area Models, Matti Raitoharju, Tampere University of Technology, FINLAND	208 Classifying and Using Motion in Organic Indoor Positioning, Álvaro Fialho, Nokia Institute of Technology (INdT), BRAZIL	70 Indoor Navigation on Wheels (and on Foot) using Smartphones, Jó Ágila Bitsch Link, RWTH Aachen University, GERMANY
	201 Comparison of WLAN and Geomagnetic Fields for Indoor Positioning, Junyeol Song, Samsung Electronics, KOREA	110 Statistical Path Loss Parameter Estimation and Positioning Using RSS Measurements in Indoor Wireless Networks, Robert Piché, Tampere University of Technology, FINLAND		140 Fusing Information from Multiple Navigation Systems Using Upper Bounds on their Spatial Separations, Isaac Skog, KTH Royal Institute of Technology, SWEDEN

17:25 Go to Darling Harbour  
 19:00-23:00 Harbour Cruise

**Thursday 15 November 2012**

9:00-10:00	<b>Session 10: Keynote 3</b>	<b>From Rats to Robots: Bio-inspired Localization and Navigation</b>	<b>Prof. Gordon Wyeth, Queensland University of Technology</b>	<b>Chair: Prof. Chris Rizos, IPIN 2012 Conference Chair</b>
10:00-10:25	Morning tea			
10:25-12:10	<b>Session 11A: Pseudolite</b> <b>JOEL BARNES</b>	<b>Session 11B: WLAN</b> <b>FILIFE MENESES</b>	<b>Session 11C: Ultrasound</b> <b>CHRIS RIZOS</b>	<b>Session 11D: RSS</b> <b>ALEXANDER BEETZ</b>
	25 Optical and Radio Calibration of the Repealite Based Indoor Positioning System, Ikhlas Selmi, Institut Mines-Telecom, Telecom SudParis, FRANCE	28 Automated WLAN Calibration with a Backtracking Particle Filter, Moritz Kessel, Ludwig-Maximilians-University Munich, GERMANY	10 Ultrasound positioning based on time-of-flight and signal strength, Sverre Holm, University of Oslo, NORWAY	115 Enhancing Cooperative Localization by Exploiting Human-Induced Effects on RSS-based Ranging Measurements, Francescantonio Della Rosa, Tampere University of Technology, FINLAND
	60 Ambiguity Resolution and Validation in Precise Pseudolite Positioning, Tao Li, University of New South Wales, AUSTRALIA	54 Optimization of Rank Based Fingerprinting Localization Algorithm, Peter Brida, University of Zilina, SLOVAKIA	61 An Information Addition Technique for Indoor Self-localization System Using SS Ultrasonic Waves, Hiromichi Yoshiga, Soka University, JAPAN	118 Adding Link Quantity Information to Redundant RF Signal Strength Estimates for Improved Indoor Positioning, Andreas Fink, Rostock University, GERMANY
	111 Doppler Positioning with Orientation Estimation by Using Multiple Transmitters for High-accuracy IMES Localization, Yoshihiro Sakamoto, Waseda University, JAPAN	55 RSS-based Indoor Positioning Accuracy Improvement Using Antenna Array in WLAN Environments, Yue Rong, Curtin University, AUSTRALIA	100 Indoor Positioning for Moving Objects Using A Hardware Device with Spread Spectrum Ultrasonic Waves, Yuya Itagaki, Soka University, JAPAN	156 Multi-technology RF fingerprinting with leaky-feeder in underground tunnels, Fernando Pereira, European Organization for Nuclear Research, SWITZERLAND
	142 Calibration of Dead Reckoning with IMES for Pedestrian Navigation, Masaki Hidaka, Keio University, JAPAN	69 Device Signal Strength Self-Calibration using Histograms, Christos Laoudias, University of Cyprus, CYPRUS	186 Angular Dependence of Transducers for Indoor Positioning System Using SS Ultrasonic Waves, Akimasa Suzuki, Soka University, JAPAN	59 DactyLoc: A minimally geo-referenced WiFi+GSM-fingerprint-based localization method for positioning in urban spaces, Martin Wirz, ETH Zurich, SWITZERLAND
			40 Feasibility of ultrasound positioning based on signal strength, Sverre Holm, University of Oslo, NORWAY	
12:10-13:00	Lunch			
13:00-14:20	<b>Session 12A: Geomagnetism</b> <b>BRUCE HARVEY</b>	<b>Session 12B: UWB</b> <b>JORG BLANKENBACH</b>	<b>Session 12C: Audio</b> <b>SVERRE HOLM</b>	<b>Session 12D: Blind &amp; Visually Impaired</b> <b>BINGHAO LI</b>
	99 A Feasibility Test for Indoor Magnetic Field Prediction, Seung-Sep Kim, Chungnam National University, KOREA	68 A Constraint Approach for UWB and PDR Fusion, Isaac Skog, CSIC-UPM, SPAIN	23 Indoor localization using controlled ambient sounds, Don Kimber, University of California, UNITED STATES	67 Efficient, Authentication and Access control Implementation in Mobile Ad hoc Networks (MANET) as applied to Indoor Navigation Guidance System for Vision Impaired People, Lakmal Rupasinghe, Curtin University, AUSTRALIA
	141 A robust and precise 3D indoor positioning system for harsh environments, Abdelmoumen Norrdine, RWTH Aachen University, GERMANY	79 System Simulation for M-Sequence Radar Sensors, Markus Robens, RWTH Aachen University, GERMANY	27 Acoustic Receivers for Indoor Smartphone Localization, Joachim Hoppe, University of Freiburg, GERMANY	175 Indoor Positioning System based on Sensor Fusion for the Blind and Visually Impaired, Thomas Gallagher, University of New South Wales, AUSTRALIA
	95 Indoor Positioning System Using Geomagnetic Anomalies for Smartphones, Seong-Eun Kim, Samsung Electronics, KOREA	E003 Ultra-wideband Technology-based Localization Platform - Architecture & Experimental Validation, Piotr Karbownik, Fraunhofer Institute for Integrated Circuits, GERMANY	209 Audio Beacon Providing Location-Aware Content for Low-End Mobile Devices, André M. Cavalcante, Nokia Institute of Technology (INdT), BRAZIL	98 AccessBIM model for environmental characteristics for vision impaired indoor navigation and way finding, J.A.D.C. Anuradha Jayakody, Curtin University, AUSTRALIA
	49 Geomagnetism-based indoor location estimation method for future smartphone, Eung Sun Kim, Samsung Electronics, KOREA	34 CUPID algorithm for indoor multipath-aided cooperative localization using a single anchor, Heidi Steendam, Ghent University, BELGIUM	168 Acoustic Self-calibrating System for Indoor Smartphone Tracking (ASSIST), Fabian Höflinger, University of Freiburg, GERMANY	203 Indoor navigation for the visually impaired: Where are we today?, Elyse Wise, University of New South Wales, AUSTRALIA

14:20-14:45	Afternoon tea			
14:45-15:50	<b>Session 13A: HSGNSS ALLISON KEALY</b>	<b>Session 13B: UWB MICHAL PIETRZYK</b>	<b>Session 13C: Requirements THOMAS GALLAGHER</b>	<b>Session 13D: Geodetic CRAIG ROBERTS</b>
	48 Stability Analysis of Tracking Weak GPS Signals through Non-coherent Ultra-tight GPS/INS Integration, Yong Li, University of New South Wales, AUSTRALIA	65 A Mobile Security Robot equipped with UWB-Radar for Super-Resolution Indoor Positioning and Localisation Applications, Rahmi Salman, Universität Duisburg, GERMANY	74 Requirements and Metrics for Location and Tracking for Ambient Assisted Living, Adriano Moreira, University of Minho, PORTUGAL	32 Uncertainty Estimation for Kinematic Laser Tracker Measurements, Thomas Ulrich, Karlsruhe Institute of Technology (KIT), GERMANY
	64 RRLP (LPP and LPPe) Based Open Source Mobile Multi-GNSS Assisted GNSS Assistance Model, Architecture Proposal and Test results of OSGRSv3 on LTE LBS Framework, Ali Sarwar, University of New South Wales, AUSTRALIA	183 Time-Reversal UWB positioning beacon for railway application, Bouna Fall, Univ. Lille Nord de France, FRANCE	158 Constraints for different locomotion types and their role in subsampling of indoor environments for indoor navigation, Aftab Ahmed Khan, Technical University Berlin, GERMANY	93 Indoor Localization System based on Galvanometer-Laser-Scanning for numerous Mobile Tags (GaLocate), Jan Kokert, University of Freiburg, GERMANY
	185 Seamless combination of indoor and outdoor precise positioning technology, Zhi Chen, China Aerospace Science and Industries Academy of Information Technology, CHINA	97 Proposed Regulatory Arrangements for Ultra-Wideband Services in Australia, Gabriel Phillips, Australian Communications and Media Authority, AUSTRALIA	80 MapUme: Smartphone Localisation as a Service - a cloud based architecture for providing indoor localisation services, Christian Beder, Cork Institute of Technology, IRELAND	130 Separation of Control Quality and Measurement Accuracy for Guiding Control Tasks of an Indoor Construction Machine Simulator, Alexander Beetz, University of Stuttgart, GERMANY
15:50-16:15	<b>Closing session</b>	<b>Best paper award, Best student paper award, announce the host organisation of IPIN 2013</b>	<b>Chair: Dr. Rainer Mautz, IPIN 2012 Conference Chair</b>	

Posters			
102	Adaptive Drop Beacon Algorithm to Mitigate the Border Area Effect	Jooyoung Kim, Myungin Ji, Youngsu Cho, Yang Koo Lee and Sang Joon Park	Electronics and Telecommunications Research Institute, KOREA
205	Data fusion algorithm for indoor navigation based on multi-sensor approach	Dirk Baumbach, Denis Grießbach and Sergey Zuev	German Aerospace Center (DLR), GERMANY
122	Position and Rotation Estimation for Mobile Robots Straying from a Recorded Path Using Ego-motion	Tatsuya Shoji, Yoshinobu Hagiwara and Hiroki Imamura	Soka University, JAPAN
139	Automatic change detection based on normal camera in indoor environment	Juan Shi, Jinling Wang and Yaming Xu	University of New South Wales, AUSTRALIA; Wuhan University, CHINA
230	Experimental Validation of the Ultra-wideband Technology-based Localization Platform	Piotr Karbownik, Grzegorz Krukar, Michal M. Pietrzyk, Norbert Franke and Thomas von der Gruen	Fraunhofer Institute for Integrated Circuits, GERMANY
229	An Implementation of a Sub-nanosecond UWB Pulse Generator	Piotr Karbownik, Grzegorz Krukar, Michal M. Pietrzyk, Norbert Franke and Thomas von der Gruen	Fraunhofer Institute for Integrated Circuits, GERMANY
224	Comparison of QCLS Location Algorithms Using Two-Way Ranging Measurements	Jeongmin Lim, Ji- Won Park, Tae-Kyung Sung	Chungnam National University, KOREA
124	Pedestrian indoor navigation using two foot-mounted IMUs	Tran Nhat Hung and Young Soo Suh	University of Ulsan, KOREA
90	Design of System Architecture for Indoor Location Based Services	Yang Koo Lee, Myungin Jee, Youngsu Cho, Jooyoung Kim, Sangjoon Park	Electronics and Telecommunications Research Institute, KOREA
211	Calibration of Laser Bundles for Optical Indoor Positioning Systems	Sebastian Tilch and Rainer Mautz	ETH Zurich, SWITZERLAND
47	User tracking using a wearable camera	Milan Redzic, Conor Brennan and Noel E O'Connor	Dublin City University, IRELAND
194	Precision indoor propagation of ephemerides of navigational satellites	Sergey Kudryavtsev	M.V. Lomonosov Moscow State University, RUSSIA
46	Mirror Worlds for Indoor Navigation and Awareness	Don Kimber, David Lee, Jim Vaughan, Jacob Biehl, Mathew Cooper and Jun Shingu	FX Palo Alto Laboratory, UNITED STATES; Fuji Xerox, JAPAN
106	An Algebraic Solution to the Multilateration Problem	Abdelmoumen Norrdine	RWTH Aachen University, GERMANY