Relevant published results of the research team related to the project thematic

Project Coordinator – Politehnica University from Timişoara	
1	**R. Ionel**, G. Vasiu, S. Mischie, "GPRS based data acquisition and analysis system with mobile phone control", Measurement, Elsevier, Volume: 45, Issue: 6, Pages: 1462-1470, DOI: 10.1016/j.measurement.2012.03.003, Published: July, 2012. The Measurement Journal (ISSN 0263-2241) is an Engineering Multidisciplinary publication ranked in the top 50% (Yellow zone). This work is relevant for the present research proposal as it demonstrates the ability of the PL to develop modular instrumentation systems which integrate different communication protocols.
2	**R. Ionel**, L. Pitulice, G. Vasiu, S. Mischie, O.B. Spiridon, "Implementation of a GPRS based remote water quality analysis instrumentation", Measurement, Elsevier, Volume: 65, Pages: 81-93, DOI: 10.1016/j.measurement.2014.10.061, Published: April, 2015. The Measurement Journal (ISSN 0263-2241) is an Engineering Multidisciplinary publication ranked in the top 50% (Yellow zone). This work demonstrates the possibility to adapt Virtual Instrumentation implementations to real life applications, in this case real time remote monitoring of water properties. Second, it confirms that the PL can successfully work as part of a multidisciplinary research group.
3	S. Nanu, **R. Ionel, C. Dughir, I. Ionel**, "Automation of a prototype for cutting, sorting and bundling of SRC crops for planting purposes", Measurement, Elsevier, Volume: 95, Pages: 201-209, DOI: 10.1016/j.measurement.2016.10.006, Accepted: 04.10.2016, Published: January, 2017. The Measurement Journal (ISSN 0263-2241) is an Engineering Multidisciplinary publication ranked in the top 50% (Yellow zone). This material is relevant from two important points of view. First, the PL was part of a research team formed by six partners from four different countries. This constitutes an argument with respect to the way in which the PL is able to collaborate with other researchers. Second, the PL has worked on the integration of various measurement technologies within a piece of functional industrial equipment.
4	D. Dascalu, L. Pitulice, **R. Ionel**, O. Bizerea – Spiridon, "The usage of a Zeolitic Composite for Quality Improvement of Copper Contaminated Mining Wastewaters", Int. J. of Environmental Sciences and Technology, Springer, Volume: 12, Issue: 7, Pages: 2285 – 2298, DOI: 10.1007/s1376201406295, Published: July, 2015. The Int. J. of Environmental Sciences and Technology (ISSN 1735-1472) is an Environmental, Sciences and Technology publication ranked in Zone 3. This work was rewarded by UEFISCDI in the 2015 competition for publications achievements. The PL was responsible for creating the instrumentation used in data acquisition and analysis.
5	**R. Ionel**, A. Gontean, P. Gherban – Draut, "Implementation of a CO Concentration Monitoring System using Virtual Instrumentation", Book Chapter in "Advanced Distributed Measuring Systems Exhibits of Application", River Publishers, Series in Information Science and Technology, Pages: 163 – 182, ISBN: 9788792329721, Denmark, Published: 2012. The paper was awarded the 1st prize for outstanding contributions in the "Advanced Measuring Systems including Virtual Instrumentation" conference section. The PL was responsible for creating the instrumentation used in data acquisition and analysis.
6	A.Cioabla, M. Lascu, **R. Ionel**, „Educational Biogas Installation Monitoring using Virtual Instrumentation Concepts", 2014 IEEE FRONTIERS IN EDUCATION CONFERENCE (FIE) Book Series: Frontiers in Education Conference Pages: 214-222 Published: 2014. : This paper presents the implementation of a Virtual Instrumentation (VI) based system which is used for remote monitoring of biogas production activities. The proposed measurement approach was designed and is used by students during Measurement and Instrumentation lectures. It combines hardware and soware knowledge while allowing the users to interact with a domain of great interest - biogas production. The PL was responsible for creating the instrumentation used in data acquisition and analysis.
7	D. Calinoiu, **R. Ionel,** M. Lascu, A. Cioabla, „Arduino and LabVIEW in Educational Remote Monitoring Applications," This paper presents the implementation of Virtual Instrumentation (VI) based system used for remote monitoring of selected environmental parameters: humidity, temperature, light intensity and methane. The educational benefits (learning outcomes) of this application are the following: design and implementation of the monitoring circuitry, programming for both LabVIEW and Arduino, understanding VI concepts and using mobile devices for parameters monitoring. The proposed application was developed by students during Measurements and Virtual Instrumentation programming courses. The PL was responsible for creating the instrumentation used in data acquisition and analysis.
8	P. Bauer, **R. Ionel**, „LabVIEW Remote Panels and Web Services in Solar Energy Experiment - A Comparative Evaluation," 2013 IEEE 8TH INTERNATIONAL SYMPOSIUM ON APPLIED COMPUTATIONAL INTELLIGENCE AND INFORMATICS (SACI 2013) Pages: 263-268 Published: 2013. This paper presents the implementation of a remotely accessible collection of solar

	energy programs for determining electrical characteristics and Maximum Power Point (MPP) tracking of a Photovoltaic (PV) module. Two remote communication technologies have been used for this purpose: the LabVIEW Web Services and the LabVIEW Remote Panels
9	**R. Ionel**, S. Ionel, P. Bauer, F. Quint," Water Leakage Monitoring Education: Cross Correlation Study via Spectral Whitening,": IECON 2014 - 40TH ANNUAL CONFERENCE OF THE IEEE INDUSTRIAL ELECTRONICS SOCIETY Book Series: IEEE Industrial Electronics Society Pages: 2465-2471 Published: 2014. This paper presents an educational experiment designed for enabling students to interact with a domain of great interest - leakage detection and monitoring. Students will create LabVIEW/MATLAB programs and will use already existing applications in order to get familiar with signal processing concepts like Cross Correlation, Time Delay Estimation and Signal Whitening.
10	**R. Ionel,** S. Mischie**,** D. Belega**, L. Mâțiu-Iovan,** C. Dughir**,** „I&M Applications for Educational Purposes," submitted to J. IEEE I&M Magazine, invited paper to be published in April 2020. This paper presents industry related applications relevant for VI based integrations and Boundary Scan technology implementations.
Project Partner 1 – Technical University from Cluj-Napoca	
1	**Gabriel Oltean, Laura Ivanciu**," Computational Intelligence and Wavelet Transform based Metamodel for Efficient Generation of not-yet Simulated Waveforms," PLoS ONE 11(1): e0146602. doi: 10.1371/journal.pone.0146602, Impact Factor: 2.806, Q1, pp. 1-30, 2016. This paper proposes a data-driven method to build fast to evaluate, but also accurate metamodels capable of generating not-yet simulated waveforms as a function of different combinations of the parameters of the system. The necessary data are obtained by early-stage simulation of an electronic control system from the automotive industry.
2	**Camelia Florea**, Mihaela Gordan, Aurel Vlaicu, Radu Orghidan, „*Computationally efficient formulation of sparse color image recovery in the JPEG compressed domain*", Journal of Mathematical Imaging and Vision (JMIV), Volume: 49, Issue: 1, Pages: 173-190, MAY 2014, ISI Journal, *Impact Factor: 1.767*; ISSN: 0924-9907, eISSN: 1573-7683. Sparse representations provide a powerful framework for various image processing tasks, among which image recovery seems to be an already classical application. While most developments of image recovery applications are focused on finding the best dictionary, the possibility of using already existing sparse image representations tends to be ignored. This is the case of the JPEG compressed image representation, which is a sparse image representation in terms of the discrete cosine transform (DCT) dictionary.
3	**Gabriel Oltean, Camelia Florea**, Radu Orghidan, Victor Oltean, „Towards Real Time Vehicle Counting Using YOLO-Tiny and Fast Motion Estimation", 2019 IEEE 25th International Symposium for Design and Technology in Electronic Packaging (SIITME), Cluj-Napoca, 23-26 October 2019.
4	**Gabriel Oltean, Laura Ivanciu, Horea Balea,"** *Video Surveillance for Pedestrian Detection and Behaviour Characterization*", IEEE 25th International Symposium for Design and Technology in Electronic Packaging (SIITME), Cluj-Napoca, October 23–26, 2019.
5	**Gabriel Oltean, Laura Ivanciu**, Mihaela Gordan, Ioan Stoian, Istvan Kovacs, "*Predictive model for the horizontal displacement of a dam using autoregressive neural network*," Conference: 21st IEEE International Conference on Intelligent Engineering Systems (INES), Location: Larnaca, CYPRUS, Date: OCT 20-23, pp., 33-38, 2017. The interpretation of data gathered from dam monitoring directly influences the detection of abnormal behaviors. Using previously recorded data, predictive models can be developed, so that the signs of a possible failure are detected as early as possible. The paper presents a multi-step ahead predictive model to generate the values for the horizontal displacement of a dam, using previous values of the displacement, water level and temperature.