RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

INTERNATIONAL CONFERENCE
RELIABILITY AND STATISTICS IN TRANSPORTATION AND COMMUNICATION

SAVE THE DATE: 16-19 OCTOBER 2013

Dear colleagues, we are glad to invite you to participate in our annual conference **RelStat'13**. As usually we have main programme of the conference that is focused on the following themes: Theory and Applications of Reliability and Statistics; Reliability and Safety; Transport Systems; Rare Events and Risk Management; Modelling and Simulation; Intelligent Transport Systems; Transport Logistics; Education Programmes and Academic Research in Reliability and Statistics. And additional seminars and workshops within frames of EU projects. This year we have 3 internal seminars focused on current research in Logistics. During the conference the following projects will be presented:

- POLITE
- LogOnTrain
- T-Trans

POLITE IN A NUTSHELL:

POLITE is a project running over three years from June 2012 to December 2014 (Co-financed by the ERDF and made possible by the INTERREG IVC programme). The overall objectives of POLITE are:

- to improve local, regional and national policies on infomobility and thus enhance the use and attractiveness of public transport;
- to promote interoperability and wider deployment of Intelligent Transport Systems (ITS);
- to promote policies which foster co-modality through the use of ICT, thus leading to more sustainable mobility;
- ultimately, to harmonise ITS standards and solutions adopted by different cities, metropolitan areas, regions and countries in the process of developing common EU ITS standards.

POLITE partners will work together to achieve these goals through the exchange and transfer of experiences to regional and local policies on infomobility services. In addition, POLITE plans to establish links with other regions from outside the partnership with the purpose of gaining insights and raising awareness about existing different infomobility solutions around Europe.

The POLITE partnership approaches the issue of traveler information systems in a holistic and innovative way. The information needed by travellers at different territorial levels serves as input to the definition of public policies in a way which enables interoperability among information systems and a resulting increase of public transport attractiveness. Seven partners are involved in the project.

The event hold in Latvia within frames of the project will be organised to present project results in parallel with Component 3 achievements. This event will present the best practices analysis that was done by TTI. This event aims at fostering the transfer of POLITE achievements to the wider local/regional public and at feeding the partners' joint work at EU level by collecting stakeholders' concerns.

Transport and Telecommunication Institute is main partner for LaTDEA in this project.

This project is co-financed by the ERDF and made possible by the INTERREG IVC programme

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

About LogOnTrain Project

LogOnTrain project of the Estonia - Latvia - Russia Cross Border Cooperation Programme within European Neighbourhood and Partnership Instrument started in May 2013 and shall be completed in December 2014. Full name of the project is Logistics and Overland Transport Network for Training "Blue Collars" and the objectives of the project are as follows:

- Updating and upgrading of curricula and training programmes in logistics and freight forwarding for vocational schools according to modern international standards and synchronising them with university level ones so that credits achieved in vocational schools could be taken into account in universities
- Enhancement of trainers' qualification of transport, logistics, freight-forwarding, warehousing, etc.
- Developing and widening of the use of simulation, modelling and IT programmes in teaching/training of transport and logistics in vocational schools
- Creating networks between the border area business communities, local/regional authorities and educational/ research institutions in logistics and transport

The partnership of the project includes the following organisations from Estonia: Valga County Vocational Training Centre, Valga County Development Agency; from Latvia: Riga State Technical School, Latvian Transport Development and Education Association; and from Russia: Petersburg State Transport University, NPMP "North-Western Russia Logistics Development and Information Centre", and Saint-Petersburg State University of Telecommunications.

Within the framework of the LogOnTrain project series of activities and events will be carried through including an international forum for training in logistics and transport in Valga, Estonia, summer school for teachers and trainers in transport, seminars for upgrading curricula and network building, master classes and lectures by university professors in vocational schools, simulation, modelling and IT-based training tools, etc.

LogOnTrain

Estonia Latvia Russia
ENPI cross border cooperation programme
part-financed by the European Union
united by borders

1st Workshop of G-local Community of Interest to Market in Latvia 16/10/2013

The 1st Workshop of G-local Community of Interest to Market in Latvia will take place in Transport and Telecommunication Institute on 16/10/2013. The goal of this meeting is to initiate creating of Community of Interest to Market (CIM). The agenda of the meeting consists of number of presentations from government institutions, SMEs, academia, research organizations etc. Following topics will be proposed for discussions:

- **Implementation of EU Directive 2010/40/EU of the European Parliament and of the Council in Latvia**
- **Road traffic counting and classifying system implementation**
- **eCar in the context of the economy / green economy**
- **Logistics in era of ITS. Smart solutions for Latvian Enterprises**
- **Implementation of e-ticketing system in Riga**
- **ITS implementation in Jelgava city**
- **AED-portal: services for transport and commercial documentation completion**
- **Development of weight-in-motion system based on fiber optic sensor: project SVARI**

More information will be published on TSI official webpage.

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

T-TRANS AT A GLANCE

Budget: 1.7 M Euros

Duration: September 2012 – November 2014

Project coordinator: Xavier Leal (Universitat Autònoma de Barcelona)

Project supervisor from TTI side: Prof. I.Kabashkin

Leader partner: Universitat Autònoma de Barcelona (Spain)

Partners: LAGRANGE SARL (France), LAGRANGE SARL (France), KEMA Nederland BV (The Netherlands), Asociación Española de Fabricantes de Equipos y componentes de Automoción (Spain), FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V. (Germany), Universita degli Studi di Trieste (Italy), INTELSPACE Texnologies Kainotomias AE (Greece)

The main objective of the project is to provide information on innovation mechanisms for the Intelligent Transport Systems, in order to facilitate the upbringing of related innovative products and services to the market.

The main output of T-TRANS is expected to be a set of recommendations and information to improve the understanding of the ITS innovation processes. This overall objective is divided into two parallel main actions:

1) To carry out an in-depth analysis of pre-selected cases in several ITS domains and their innovation chains for their transfer to market;

2) Set-up an ITS oriented Innovation Network in Europe through the establishment and enhancement of the operation of three pilot nodes in the Region of Central Macedonia (Greece), Galicia (Spain) and Latvia.

DO YOU KNOW THAT

Four innovations will change transportation

Four new solutions based largely on existing technology could drastically improve the safety and efficiency of travel and transportation by 2025, according to a new report by the World Economic Forum in collaboration with The Boston Consulting Group.

The four solutions, all of which have the potential to deliver solid social and economic benefits, are:

1. A traffic management system for megacities to integrate and process information from vehicles, travel infrastructure, individuals and the environment in real time to forecast and counteract congestion and reduce total vehicle emissions.
2. An intermodal travel ticket, enabling travellers to use one ticket per journey, regardless of the mode of transport, and providing real-time advice on congestion and route-change options.
3. A smart visa system for check-in, security and border control, to improve efficiency and security.
4. Real time logistics tracking, using RFID (radio-frequency identification) chips to track product locations and provide real-time shipping updates.

See more information at www.abb.com
Information was taken from ITS International Journal (www.itsinternational.com)

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

BUSINESS AND RESEARCH: TOGETHER TOWARDS INNOVATIONS WITH ICT NEW TRENDS. BIG DATA, CLOUD, MOBILITY AND SOCIAL NETWORKS

SAVE THE DATE: 11 SEPTEMBER 2013

On September 11, 2013 TSI with partners, organizes a conference and exhibition „Business and Research: Together Towards Innovations with ICT new trends. Big Data, Cloud, Mobility and Social networks". It will take place in Transport and Telecommunication Institute (TSI) in Riga, 1 Lomonosova Street, conference hall 130 from 8:30 till 17:40.

We invite you to become an active participant of the conference: to take part in the exhibition and discussions as well as make new business contacts.

The main topics of the conference are:
• The use of modern IT-and ICT-technologies in scientific research
• The latest trends and technology in the Wireless-networks
• Announcement and explanation of the new EU directive - 2013/35/EU (Directive on the impact of electromagnetic radiation on employee. How this directive effects the industry. What all employers should know about it.).
• Green energy. Solar energy, LEDs, electric and hybrid cars. Testing and measurement in this area.

Participation in the conference is **free**.

Conference language: English.

To register for the conference, please fill in the following form

Conference programme

The event will take place within the framework of the conference "2nd Baltic HPC and Cloud Computing Conference" to be held in Riga Technical University in Riga, September 12-13.

Additional information can be obtained
by e-mail: revzina.j@tsi.lv or by phone: +371 67100584. Contact person: Jelena Revzina.

For more information please click **here**

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

2nd BALTIC HPC AND CLOUD COMPUTING CONFERENCE

International Conference "2nd Baltic HPC and Cloud Computing Conference" will take place in Riga, in the central building of Riga Technical University (RTU) on September 12-13.

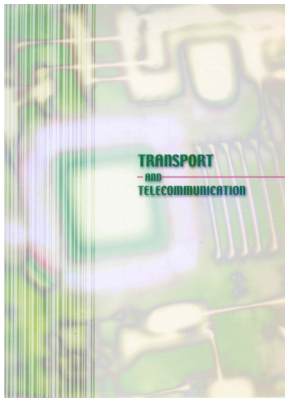
The organizers of the Conference – Riga Technical University, Transport and Communications Institute, Šiauliai University, companies *Baltic&Scan-Tech* and *Baltic HPC Association*. Sponsors of the Conference – companies *MathWorks*, *PANASAS, AIROHIVE, EMC², COMSOL, Adaptive Computing and RITTAL*.

The main theme of the Conference – application of high performance computing and cloud computing in various fields of education, science and industry. The organizers of the Conference have set themselves a task not only to discuss current trends in the development of cloud computing, but also to create a platform for getting acquainted and development of further cooperation between academic institutions and IT manufacturers.

Within the framework of the Conference, the training seminars on Matlab, Cisco IOS, CUDA, EMC and RITTAL will be held with the possibility of certification on September 10 – 11. Participation in the Conference and seminars for students and teaching staff of TSI is free.

Language of the Conference: English.
For more information and registration visit the Conference website: www.baltic-hpc.eu

НАШ ЖУРНАЛ TRANSPORT AND TELECOMMUNICATION ВЗЯЛ СЛЕДУЮЩУЮ ВЕРШИНУ !



30 августа 2013 года была получена новая информация о том, что журнал *Transport and Telecommunication* вошел в одну из крупнейших баз данных **EBSCO**, в группу баз данных **ProQuest**, а также в **SCImago** (последняя серьезно учитывается в рейтинге *Webometrics*, в котором институт из года в год занимает достойное место). Это реферативные базы данных публикаций в научных журналах, учитывающие взаимное цитирование публикаций, становятся сегодня важным аспектом оценки научного уровня высших учебных заведений. За последний год количество международных баз данных научных публикаций, в которые включены статьи журнала *Transport and Telecommunication,* увеличилось почти в два раза! И теперь журнал входит в 24 международные базы данных научных публикаций. Уже ранее журнал был включен в престижную базу данных—**SCOPUS**, которая является крупнейшем в мире порталом поиска научной информации и анализа состояния и перспектив развития науки.

Надеемся на активное участие в данном журнале преподавателей TSI с результатами своих научных исследований!

TSI TRANSPORT AND TELECOMMUNICATION INSTITUTE

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

ЦЕНТР ТЕЛЕКОММУНИКАЦИЙ, ЭЛЕКТРОНИКИ И РОБОТОТЕХНИКИ

Центр телекоммуникаций, электроники и робототехники был организован в 2013 году в рамках проекта IKAR при финансовой поддержке ERAF. Центр включает в себя 9 лабораторий, оснащённых современным программным и техническим обеспечением, которое активно используется в академической и исследовательской деятельности. Каждая лаборатория – это набор современного технического, программного и методического обеспечения, которое позволяет проводить занятия со студентами на самом высоком уровне. В рамках центра были сформированы и оборудованы следующие лаборатории:

Лаборатория телекоммуникаций и электронно-оптических систем

Лаборатория предназначена для изучения студентами принципов построения телекоммуникационного оборудования. Лаборатория оборудована стендами для изучения принципов работы:

- систем мобильной связи(GSM);
- глобальных навигационных систем(GPS);
- систем радиочастотной идентификации(RFID);
- оптоэлектронных систем;
- цифровых телефонных сетей;
- радио- передающих и приемных устройств;
- антенно-фидерных устройств.

В лаборатории представлено оборудование брендов Yokogawa, Man&Tel Co, IDIL, Ilsintech и др.

Лаборатория физики и электрических машин

Лаборатория оснащена учебным оборудованием фирмы PHYWE, которое позволяет наглядно изучить действие основных законов физики. Оборудование по электрическим машинам фирмы K&H MFG, позволяет разобраться с устройством и принципами работы современных электрических двигателей.

Лаборатория электроники

Данная лаборатория оснащена наборными полями для создания электрических схем. Все исследования производятся с использованием специализированного лабораторного измерительного оборудования.

Лаборатория моделирования электронных систем

Компьютерный класс с современным программным обеспечением, которое позволяет выполнять моделирование работы электрических схем и проектирование печатных плат. В список ПО входят:

- Пакет автоматизированного проектирования электроники OrCAD;
- Система функционального моделирования Proteus VSM;
- Система моделирования индустриального стандарта NI Multisim;
- Система графического программирования NI LabVIEW;
- Система проектирования для микроконтроллеров AVR Studio;
- Система проектирования для ПЛИС Xilinx ISE WebPACK и др.

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

Лаборатория встраиваемых систем и цифровой обработки сигналов
Лаборатория оснащена специальными отладочными комплектами с современными микроконтроллерами AVR, Freescale, STMicroelectronics, а так же программируемыми логическими схемами XILINX. Оборудование лаборатории позволяет проектировать и исследовать цифровые системы обработки сигналов и интеллектуальные системы управления.

Лаборатория промышленной автоматизации
Лаборатория оснащена системами программного управления Siemens и моделями производственных линий. Лаборатория предназначена для изучения принципов построения промышленных сетей и проектирования систем автоматизации на базе промышленных логических котроллеров. Промышленный манипулятор Kawasaki RS03N позволяет освоить принципы программирования промышленных роботов и изучить особенности интеграции робототехнических устройств в автоматизированные производственные линии.

Лаборатория проектирования и прототипирования
Лаборатория оснащена программным и аппаратным обеспечением для изготовления прототипов электронных устройств, в том числе станком ЧПУ LPKF Protomat S63, для изготовления двухсторонних печатных плат. Паяльное оборудование лаборатории позволяет проводить монтаж по PTH и SMT технологиям.

Лаборатория робототехники и студенческих научно-исследовательских работ
Лаборатория оснащена множеством современного измерительного оборудования компании HAMEG и комплектом отладочных модулей для микроконтроллеров, ПЛИС и сигнальных процессоров. Программно-аппаратная платформа NI ELVIS II позволяет проводить исследования работы электронных устройств путем физического, полунатурного и математического моделирования. Лаборатория содержит набор функциональных узлов роботов от LEGO, Lynxmotion, Pololu и Parallax, что позволяет создавать в лаборатории автономных мобильных роботов и изучать принципы построения систем управления робототехническими средствами.

Лаборатория подповерхностной радиолокации
Лаборатория оснащена георадаром компании GSSI для исследования дорожного полотна. Для обработки данных георадара в лаборатории установлено программное обеспечение RADAN 7.Все оборудование лаборатории позволяет изучать методы неразрушающего контроля качества дорожных покрытий и проводить работы по оценке качества прокладки дорожных покрытий и обнаружению скрытых инженерных коммуникаций.

TRANSPORT AND TELECOMMUNICATION INSTITUTE

RESEARCH & DEVELOPMENT DEPARTMENT NEWSLETTER

SEPTEMBER 2013

COST ACTION TU1208: CIVIL ENGINEERING APPLICATIONS OF GROUND PENETRATING RADAR

ABOUT COST TU1208

Action TU1208 focuses on the exchange of scientific-technical knowledge and experience of Ground Penetrating Radar (GPR) techniques in Civil Engineering. It also aims at promoting throughout Europe the effective use of this safe and non-destructive inspection method. The Action is establishing and strengthening active links between universities, research institutes, companies and end users working in this field, fostering and accelerating its long-term development in Europe.

The ambitious and interdisciplinary project of the COST Action TU1208 is being developed within the frame of a unique approach based on the integrated contribution of University researchers, software developers, geophysics experts, Non-Destructive Testing equipment designers and producers, end users from private companies and public agencies. About 70 Institutions from nineteen COST Member Countries (Austria, Belgium, Croatia, Czech Republic, Finland, France, Germany, Greece, Italy, Latvia, Macedonia, The Netherlands, Norway, Poland, Portugal, Spain, Switzerland, Turkey, United Kingdom) have joined the Action. Six Institutions from U.S.A. and one from Australia have joined the Action, too. Applications from a Near Neighbour Country (Armenia) and two International Partner Countries (Hong Kong and Japan) are under examination.

The Action will initially highlight the advantages and limitations of the available GPR equipment, survey procedures, and electromagnetic/numerical methods useful for the interpretation of experimental data; these studies will lead to the identification of open issues and gaps in knowledge and technology. Then, protocols and guidelines for EU Standards will be developed, for an effective application of GPR in different civil engineering tasks, with a main focus on the monitoring of pavements, bridges, tunnels and buildings, as well as on the sensing of underground utilities and voids in urban areas. A novel GPR will be designed and realized: a multi-static system, with dedicated software and calibration procedures, able to construct real-time lane three-dimensional high resolution images of investigated areas. Advanced electromagnetic-scattering and data-processing techniques will be developed. The understanding of relationships between geophysical parameters and civil-engineering needs will be improved. Freeware software will be released, for inspection and monitoring of structures and infrastructures, buried-object localization, shape reconstruction and estimation of useful quantities. A high level training program will be organized. Mobility of early career researchers will be encouraged. The project is described in detail in the Memorandum of Understanding.

D.Opolchenov: *"I participated in 1st general meeting of COST TU1208 members in Rome, that lhad been lasting for 3 days. There were a lot of participants from European countries and I represented our institution in this event. First day members presented their institutions and research directions. It was very interesting to see what equipment our colleges had and what research they were doing with it. Second day was decided to work in workgroups and each could find themes by interests. And on third day workgroup 4 showed GPR applications spheres."*