Program of

16th Conference of Open Innovations Association FRUCT

27-31 October 2014

UNIVERSITY of OULU

ENPI CBC KARELIA

NOKIA Connecting People

IEEE

GAUDEAMUS IGITUR,
JUVENES DUM SUMUS!
POST JUCUNDAM JUVENTUTEM,
POST MOLESTAM SENECTUTEM
NOS HABEBIT HUMUS.

UBI SUNT, QUI ANTE NOS
IN MUNDO FUERE?
VADITE AD SUPEROS,
TRANSITE AD INFEROS,
UBI JAM FUERE.

VITA NOSTRA BREVIS EST,
BREVI FINIETUR,
VENIT MORS VELOCITER,
RAPIT NOS ATROCITER,
NEMINI PARCETUR.

VIVAT ACADEMIA,
VIVANT PROFESSORES!
VIVAT MEMBRUM QUODLIBET,
VIVANT MEMBRA QUAELIBET!
SEMPER SINT IN FLORE!

VIVANT OMNES VIRGINES
FACILES, FORMOSAE!
VIVANT ET MULIERES,
TENERAE, AMABILES,
BONAE, LABORIOSAE!

VIVAT ET RESPUBLICA,
ET QUI ILLAM REGIT!
VIVAT NOSTRA CIVITAS,
MAECENATUM CARITAS,
QUAE NOS HIC PROTEGIT

PEREAT TRISTITIA,
PEREANT DOLORES,
PEREAT DIABOLUS,
QUIVIS ANTIBURSCHIUS,
ATQUE IRRISORES!

Organization Committee of 16th Conference of Open Innovations Association FRUCT

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Conference Secretaries: Santa Stibe, Ulia Trifonova
General Chair: Sergey Balandin

Program Committee

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Alexander Sayenko (Nokia Siemens Networks, Finland)
Anton Shabaev (Petrozavodsk State University, Russia)
Yuriy Sheynin (State University of Aerospace Instrumentation, Russia)
Nikolay Shilov (SPIIRAS, Russia)
Charalabos Skianis (University of the Aegean, Greece)
Alexander Smirnov (SPIIRAS, Russia)
Andrey Terekhov (Saint-Petersburg State University, Russia)
Olav Tirkkonen (Aalto University, Finland)
Tony Torp (Tampere University of Applied Sciences, Finland)
Timofey Turenko (MariaDB Corporation, Finland)
Yu Weider (San Jose State University, USA)
Liang Zhou (Technical University of Munich, Germany)

The program of the 16th FRUCT conference

October 27-31, 2014, Oulu, Finland

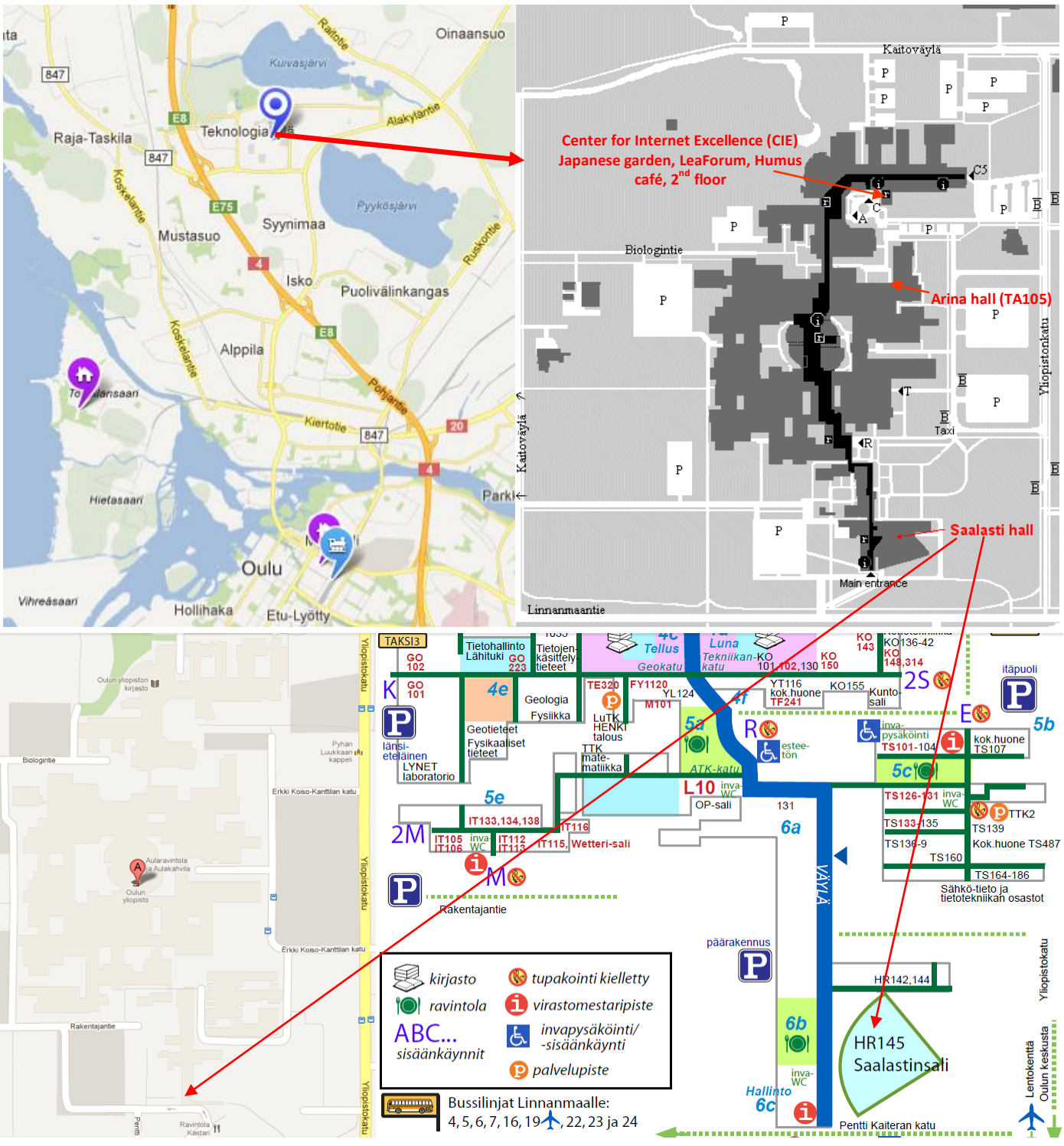
All events are free of charge, but all participants must be registered at www.fruct.org/conference16

University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

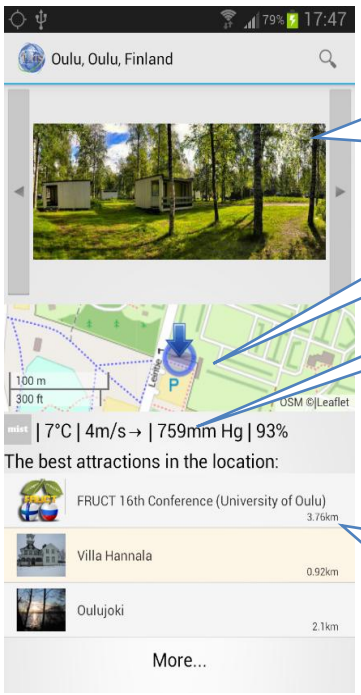
DATE	TIME	PROGRAM	
27.10.14	13:00-17:00	Karelia ENPI KA322 and KA432 projects stakeholder meeting and workshop, LeaForum (**by invitations**)	
28.10.14	10:00-12:00	Karelia ENPI KA322 and KA432 projects stakeholder meeting and workshop: summary and results overview, LeaForum (**by invitations**)	
	12:00-13:00	**Registration to Smart e-Tourism seminar**	**Lunch break**
	13:00-17:00	**Smart e-Tourism seminar** (KA322 closing seminar), CIE, Japanese garden	
29.10.14	09:00-13:00	**Smart e-Tourism seminar**: Geo2Tag training and consulting, LeaForum	Smart Spaces and IoT WG, CIE, Japanese garden
	13:00-14:00	**16th FRUCT Conference Registration**	**Lunch break for participants of Smart e-Tourism seminar**
	14:00-15:30	**Opening of 16th FRUCT conference:** Welcome words and the Main Plenary Session, Saalastinsali **Keynote talk:** MariaDB - enhanced, drop-in replacement for MySQL, by Timofey Turenko	
	15:30-16:00	**Coffee break**	
	16:00-18:30	**Mobile healthcare and Wellbeing seminar**, Saalastinsali	
	18:30-23:30	Advisory Board Meeting (**by invitations**)	
30.10.14	09:15-09:45	**16th FRUCT Conference Registration**	
	09:45-10:30	**Invited talk:** Wireless mesh networking, results of Converged Infrastructure for Emerging Regions (CIER) project, Dmitry Petrov, Magister Oy, Finland	
	10:30-11:00	**Coffee break**	
	11:00-12:00	Location Based Services, Positioning and Navigation, Arina Sali	
	12:00-13:00	**Lunch break**	
	13:00-14:30	Smart Spaces and Internet of Things I, Arina Sali	
	14:30-15:00	**Coffee break**	
	15:00-16:15	Smart Spaces and Internet of Things II, Arina Sali	
	16:15-16:45	**Break**	
	16:45-17:30	Demos Promo: Presentation in Pecha Kucha format, LeaForum	
	17:30-18:00	**Setting up and preparation to Demo Session**, Humus café	
	18:00-20:30	**Demo Session and Social Event**, Humus café	
31.10.14	10:00-10:15	**16th FRUCT Conference Registration**	
	10:15-12:00	Embedded Systems and Networks, LeaForum	mHealth WG meeting, CIE, Japanese garden
	12:00-13:00	**Lunch break**	
	13:00-14:30	Developing the next generation of applications, LeaForum	
	14:30-15:00	**Coffee break**	
	15:00-15:45	Energy sources and management, LeaForum	
	15:45-16:00	**Official closing of the 16th FRUCT conference**, LeaForum	

Practical Information

The 16th FRUCT conference will be held in the main building of the University of Oulu. The university is located 20 minutes from the centre of Oulu. You can get there from the airport by bus number 9 or from the city centre (and the railway station) by buses 3 and 19. Cost of one bus ticket from airport is 4,70e, inside Oulu is 3,30e. You can walk from the city center through the picturesque places, but the whole route will take around 1.5 hours.



In addition to the general scheme above you can use the detailed scheme of University of Oulu main campus that can be found at page: http://www.oulu.fi/dokumentit/kartat/Linnanmaa_2012_suomi.pdf. **Note:** In order to get access to FRUCT conference, Smart e-Tourism and mHealth seminars you **must register** via the conference web www.fruct.org/conference16 (registration is free of charge). For your convenience, inside the university building there will be signs to help you find conference rooms, places for coffee breaks, lunch place and other facilities.



List of images related to the location

Clickable map

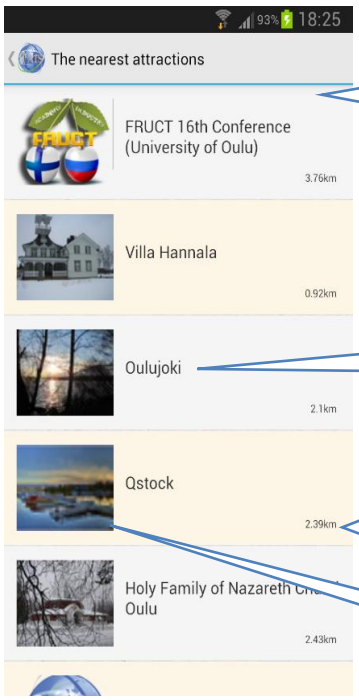
Current weather

Path from the user location to FRUCT 16th conference

First three interesting places around

Tourist Assistant - TAIS - a mobile tourist guide for Android devices. Based on your current location, it provides recommendations about places of interest around. You can see your location in the map, browse information about attraction around, check photos, current weather and create path to place of interest. The information is aggregated from Wikipedia, Wikivoyage, Wikitravel, Panoramio.

During FRUCT conference TAIS will allow participants to easily find way to the locations of the main conference. In the main screen please select one of main attractions "FRUCT 16th Conference". When the user selects one of the attractions he/she can open map and see path from current location to the FRUCT 16th conference place.



Interested places around

Scrollable list of images for interesting place

Interesting place description

Distance from the location to an interesting place

Attraction image

Smart e-Tourism seminar (project KA322 closing seminar)

Seminar dates: October 28-30, 2014 Place: University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu
on 28.10 in CIE, Japanese garden; on 29.10 in LeaForum

Overview

The seminar provides great opportunity to foster dialogue and mutual knowledge between academic researchers and tourism business representatives from Russia and Finland. The seminar is aimed at creating a platform for exchanging experiences and best practices of using perspective approaches and latest information technologies for the development of e-tourism services and infrastructures in Karelia and Oulu regions. The seminar program consists of presentations given by invited academic and industrial experts, round table discussion and training on Geo2Tag open source platform. The seminar program is concluded by demo section organized in cooperation with the 16th FRUCT conference.

We warmly welcome industry and academic experts to contribute to the seminar by participation in interactive discussions and experience sharing. The seminar is free of charge and open for participation. The seminar will be held in co-location with the 16th FRUCT conference, so the seminar participants are welcome to take part in all events of the 16th FRUCT conference. The seminar is a part of implementation of cross-border cooperation project co-funded by the European Union, the Russian Federation and the Republic of Finland; project KA322 Development of cross-border e-tourism framework for the programme region (Smart e-Tourism).

For more information and latest updates of the seminar program please visit the seminar web page www.fruct.org/e-tourism3.

St. Petersburg Institute for Informatics and Automation of RAS

Program

October 28 (Tuesday)

University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

Seminar: Smart e-Tourism seminar (project KA322 closing seminar) **Room:** CIE, Japanese garden		Chair: Santa Stibe
13:00	30m	**Registration**
13:30	5m	Seminar opening and welcoming, Santa Stibe, Project coordinator, UoO, CIE, Finland
13:35	10m	Cross-border tourism cooperation, Toni Saranpää, Programme coordinator, Karelia ENPI CBC Programme, Finland
13:45	15m	Smart e-Tourism project experiences, Anton Shabaev, Deputy director at IT-Park, Petrozavodsk State University, Russia
14:00	15m	ICT role in tourism: let's discuss examples, Sergey Balandin, President, FRUCT, Finland
14:15	15m	Mobile Application for Guiding Tourist Activities: Tourist Assistant – TAIS, Alexey Kashevnik, Senior researcher, SPIIRAS, Russia
14:30	15m	3D Internet in Tourism: 3D Virtual Kizhi Island development, Matti Pouke, Researcher, CIE, Finland
14:45	30m	**Coffee break**
15:15	20m	Tourism development in Oulu region, Janne Soini, Managing director, Oulu Marketing Ltd., Finland
15:35	20m	Tourism development in Russian Karelia, Alexey Tigushkin, Tourist Information Centre of Republic of Karelia, Russia
15:55	20m	Research and development of advanced e-Tourism services: A perspective from Petrozavodsk State University, Dmitry Korzun, Vice-dean for research, Petrozavodsk State University, Russia
16:15	45m	**Coffee and Networking**

October 29 (Wednesday)
University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

Hands-on training: Smart e-Tourism seminar: Geo2Tag training and consulting **Room:** LeaForum		Trainer: Mark Zaslavskiy
09:00	15m	**Registration**
09:15	45m	Geo2Tag architecture overview
10:00	30m	Installation process: how to get working platform in 5 min
10:30	15m	**Coffee break**
10:45	45m	Client libraries for Qt and java overview
11:30	30m	Raw JSON interface
12:00	45m	Practical examples and hands-on session
12:45	15m	Questions & Answers session
13:00		**Closing of Training, Lunch**

Pre-requirements for Geo2Tag training

You should have basic experience of programming on Java and Qt plus elementary knowledge of Linux.
We recommend having your own laptop for exercises.

Mobile Healthcare and Wellbeing seminar

Seminar dates: October 29-31, 2014 Place: University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu Saalastinsali

Overview

Mobile Healthcare is fast developing area with a lot of growth potential, research and business opportunities. The seminar is targeted to demonstrate state of the art in field of m-healthcare in Russia and Finland and support exchange of best practices and ideas with other regions. The seminar program consists of a set of lectures on the current state of the m-Health field in both countries, a set of demos organized in co-location with FRUCT Demo session and the m-Health WG meeting. The seminar organizers welcome all attendees of the 16th FRUCT conference to take part in the seminar program.

Statement of Prof. Oleg Medvedev: The space program has played the key role in development of e-Health technologies in USSR and Russia. The country has over twenty years of highly isolated medicine informatization with very limited external contacts. Main tendencies in development and implementation of EHRs and PHRs are on the levels of healthcare provider, regional and national. The main problem of developed solutions is lack of common interfaces and interoperability with the existing systems. Nowadays Russian state is an active player in this field, e.g., it recently launched the Governmental program of informatization and the special facilitating role is given to the Skolkovo Foundation.

Program

October 29 (Wednesday)

University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

Seminar: Mobile Healthcare and Wellbeing seminar **Room:** Saalastinsali		Chair: Maritta Perälä-Heape
16:00	15m	Opening speech: OuluHealth ecosystem, Maritta Perälä-Heape, Director, CHT, University of Oulu, Finland
16:15	30m	Mobile healthcare and wellbeing development trends in Russia, Oleg Medvedev, Professor, Moscow State University, Russia
16:45	20m	eHealth trends in Scandinavia, Kalevi Virta, International Networks Coordinator, CHT, University of Oulu, Finland
17:05	10m	Future Internet Challenge eHealth (FICHe) Accelerator program, Satu Vainämö, Program Coordinator, CIE, University of Oulu, Finland
17:15	45m	**Panel discussion** Moderator: Maritta Perälä-Heape Participants: 1) Oleg Medvedev, Professor, Moscow State University, Russia 2) Kalevi Virta, International Networks Coordinator, CHT, Finland 3) Kari Kivistö, CEO, Spektikor Ltd., Finland 4) Matti Niemistö, CEO, motiMind Ltd., Finland 5) Maxim Yatskovskiy, FRUCT MD Ltd., Russia 6) Sergey Balandin, FRUCT Association
18:00	30m	**Coffee and Networking**

The program of the 16th FRUCT conference

October 27-31, 2014, Oulu, Finland

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October 29 (Wednesday)
University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

Session: Official opening of the 16th FRUCT conference **Room:** Saalastinsali		Chairman: Sergey Balandin
13:00	1h	**16th FRUCT Conference Registration**
14:00	15m	Official opening of the 16th FRUCT conference. Welcome words: Sergey Balandin – conference general chair, President of FRUCT Association Mika Ylianttila – conference local chair, Director of Center for Internet Excellence, University of Oulu Anton Shabaev – ENPI KA322 and KA432 projects leader, Deputy director of IT-Park, PetrSU
14:15	10m	Cross-border cooperation: current program and future cooperation instrument, Henna-Mari Laurila, Senior Adviser, Karelia ENPI Program, Finland
14:25	10m	Setting the scene – why Oulu?, Pauliina Pikkujämsä, Head of Marketing & Communications, BusinessOulu, Finland
14:35	20m	Next generation 3D Internet, Pasi Mattila and Mika Rantakokko, Center for Internet Excellence, University of Oulu, Finland
14:55	35m	Keynote talk: MariaDB - enhanced, drop-in replacement for MySQL, by Timofey Turenko, MariaDB Corporation, Finland
15:30	30m	**Coffee break**
Seminar: Mobile Healthcare and Wellbeing seminar **Room:** Saalastinsali		Chair: Maritta Perälä-Heape
16:00	15m	Opening speech: OuluHealth ecosystem, Maritta Perälä-Heape, Director, CHT, University of Oulu, Finland
16:15	30m	Mobile healthcare and wellbeing development trends in Russia, Oleg Medvedev, Professor, Moscow State University, Russia
16:45	20m	eHealth trends in Scandinavia, Kalevi Virta, International Networks Coordinator, CHT, University of Oulu, Finland
17:05	10m	Future Internet Challenge eHealth (FICHe) Accelerator program, Satu Vainämö, Program Coordinator, CIE, University of Oulu, Finland
17:15	45m	Participants: **Panel discussion** Moderator: Maritta Perälä-Heape 1) Oleg Medvedev, Professor, Moscow State University, Russia 2) Kalevi Virta, International Networks Coordinator, CHT, Finland 3) Kari Kivistö, CEO, Spektikor Ltd., Finland 4) Matti Niemistö, CEO, motiMind Ltd., Finland 5) Maxim Yatskovskiy, FRUCT MD Ltd., Russia 6) Sergey Balandin, FRUCT Association
18:00	30m	**Coffee and Networking**

October 30 (Thursday)
University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

09:15	30m	**Conference registration**
09:45	45m	Invited lecture: Wireless mesh networking, results of Converged Infrastructure for Emerging Regions (CIER) project, Dmitry Petrov, Magister Oy, Finland
10:30	30m	**Coffee break**
Session: Location Based Services, Positioning and Navigation **Room:** LeaForum		Chairman: Timofey Turenko
11:00	15m	Geocontext extraction methods comparison and analysis, Mark Zaslavskiy and Dmitry Mouromtsev, ITMO, Russia

11:15	15m	Indirect Geolocation Methods in mHealth Applications, Maxim Yatskovskiy, FRUCT MD LLC, Russia
11:30	15m	Indoor Localization Method Based on Wi-Fi Trilateration Technique, Maxim Shchekotov, SPIIRAS, Russia
11:45	15m	The Development and Research of the Indoor Navigation System for a Mobile Robot with the Possibility of Obstacle Detection, Alexander Tyukin, Ilya Lebedev and Andrew Priorov, YarSU, Russia
12:00	1h	**Lunch**
Session: Smart Spaces and Internet of Things I **Room:** Arina Sali		Chairman: Alexey Kashevnik
13:00	15m	Fault Tolerance Support of Smart-M3 Application on the Software Infrastructure Level, Ivan Galov and Dmitry Korzun, PetrSU, Russia
13:15	15m	Active Control by a Mobile Client of Subscription Notifications in Smart Space, Andrey Vdovenko and Dmitry Korzun, PetrSU, Russia
13:30	15m	User Presence Detection Based on Tracking the Network Activity in SmartRoom, Sergey Marchenkov and Dmitry Korzun, PetrSU, Russia
13:45	15m	Evaluation of Program Code of Smart-M3 Knowledge Processors Developed Using the SmartSlog Tool, Aleksandr Lomov and Dmitry Korzun, PetrSU, Russia
14:00	15m	Smart-M3-Based Robot Interaction in Cyber-Physical Systems, Nikolay Teslya and Sergey Savosin, SPIIRAS, Russia
14:15	15m	An Approach for Creation Smart Space-Based Trip Planning Service, Kirill Kulakov and Anton Shabaev, PetrSU, Russia
14:30	30m	**Coffee break**
Session: Smart Spaces and Internet of Things II **Room:** Arina Sali		Chairman: Dmitry Korzun
15:00	15m	Smart Space-Based Interaction Model for Tourist Assistant – TAIS, Alexander Smirnov, Alexey Kashevnik and Andrew Ponomarev, SPIIRAS, Russia
15:15	15m	Ontology for Cyber-Physical-Social Systems Self-Organisation, Alexander Smirnov, Tatiana Levashova and Nikolay Shilov, SPIIRAS, Russia, and Kurt Sandkuhl, University of Rostock, Germany
15:30	15m	Linking E-Learning Ontology Concepts with NLP algorithms, Dmitry Mouromtsev, Fedor Kozlov, Liubov Kovriguina and Olga Parkhimovich, ITMO, Russia
15:45	15m	The Internet of Machines - Technological Synergy and Computer Music, Eugene Cherny and Gleb Rogozinsky, ITMO, Russia
16:00	15m	Decentralised Approach to Provision of Home Services, Vadym Kramar and Markku Korhonen, OAMK, Finland, Serge Smidtas, VisAge Camera Contact, France, and Marjo Rauhala, Vienna University of Technology, Austria
16:15	30m	**Break**
Session: Demos Promo: Presentation in Pecha Kucha format **Room:** LeaForum		Chairman: Ilya Paramonov
16:45	5m	Training Assistant: the Automatic Training Data Collection System, by Ivan Timofeev, Sergey Lobarev, Nikita Timofeev and Sergey Averkiyev, YarSU, Russia
17:50	5m	Intelligent Mobile Tourist Guide: Tourist Assistant - TAIS, by Maxim Shchekotov, Nikolay Teslya, Alexei Kashevnik and Andrew Ponomarev, SPIIRAS, Russia
16:55	5m	Smart Space-Based Lego Mindstorms EV3 Robots Interaction, by Nikolay Teslya, SPIIRAS, Russia
17:00	5m	Kizhi Island virtual model, by Matti Pouke, University of Oulu, CIE, Finland
17:05	5m	Control Your Things: Tool for Collection and Control of Personal Things, Ksenia Lagutina, Andrey Vasilev and Ivan Timofeev, YarSU, Russia
17:10	5m	Accessibility map mobile application, Irina Shabalina and Kirill Kulakov, PetrSU, Russia
17:15	5m	Monitoring system for patients with hypertension based on mobile application and cloud service, Ivan Shchitov, YarSU, Russia
17:20	5m	System for monitoring patients with diabetes, Maxim Yatskovskiy, FRUCT MD LLC, Russia
17:25	5m	A system for automatic verification of arrhythmia detection algorithms by Artem Rudenya, Alexander Borodin and Yulia Zavyalova, PetrSU, Russia
17:30	30m	**Break and Preparation to Demo Session**

Session: Conference social event combined with Demo session **Room:** Humus café		Chairman: Ilya Paramonov
18:00	2.5h	**Demo Session and Social Event**
20:30		**Closing of Day 4**

October 31 (Friday)
University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu

09:30	30m	**Conference registration**
Session: Embedded Systems and Networks **Room:** LeaForum		Chairman: Dmitry Petrov
10:15	15m	Problems of Developing SpaceWire – Ethernet Bridge and Transferring SpaceWire Packages Over Ethernet, Valentin Rozanov and Evgeny Yablokov, SUAI, Russia
10:30	15m	STP-ISS Transport Protocol Overview and Modeling, Valentin Olenev, Yuriy Sheynin, Irina Lavrovskaya and Ilya Korobkov, SUAI, and Dmitry Dymov, Sergey Kochura and Sergey Openko, JSC "Academician M.F. Reshetnev" Information Satellite Systems", Russia
10:45	15m	Development of the Transport Layer Scheduling Mechanism for the Onboard SpaceWire Networks, Valentin Olenev, Irina Lavrovskaya, Ilya Korobkov, Elena Podgornova and Nadezhda Matveeva, SUAI, Russia
11:00	15m	Design of Onboard Local Area Networks, Sergey Pakharev, Alexey Syschikov and Elena Suvorova, SUAI, Russia
11:15	15m	Domain-Specific Languages for Embedded Systems Portable Software Development, Vera Ivanova, Boris Sedov, Yuriy Sheynin and Alexey Syschikov, SUAI, Russia
11:30	15m	QoS Support in Embedded Networks and NoC, Nadezhda Matveeva, Elena Suvorova and Yuriy Sheynin, SUAI, Russia
11:45	15m	Technology and Design Tools for Portable Software Development for Embedded Systems, Boris Sedov, Alexey Syschikov and Vera Ivanova, SUAI, Russia
12:00	1h	**Lunch break**
Session: Developing the next generation of applications **Room:** Arina Sali		Chairman: Oleg Medvedev
13:00	15m	Design of Diary Applications for Vital Sign Registration Targeted at Multiple Android Application Stores, Ivan Shchitov, Eldar Mamedov and Ilya Paramonov, YarSU, Russia
13:15	15m	Fast Pulmonary Function Test Using Onboard Smartphone Equipment, Alexander Borodin, Anton Shabaev and Irina Shabalina, PetrSU, Russia
13:30	15m	Presenting Risks Introduced by Android Application Permissions in a User-friendly Way, Juraj Varga and Peter Muska, UIM FEI STU, Slovakia
13:45	15m	Open Budget Format, Olga Parkhimovich and Vitaly Vlasov, ITMO, Russia
14:00	15m	Methods of Complete Surface Reconstruction through Merging of Point Clouds According to Stereo Vision Data, Alexandr Prozorov and Andrew Priorov, YarSU, Russia
14:15	15m	Age Estimation from Face Images: Challenging Problem for Audience Measurement Systems, Vladimir Khryashchev and Alexander Ganin, Piclab LLC, and Olga Stepanova and Anton Lebedev, YarSU, Russia
14:30	30m	**Coffee break**
Session: Energy sources and management **Room:** LeaForum		Chairman: Sergey Balandin
15:00	15m	Efficient Use of Solar Chargers with the Help of Ambient Light Sensors on Smartphones, Christian Schuss, Tore Leikanger and Timo Rahkonen, University of Oulu, Finland, and Bernd Eichberger, Graz University of Technology, Austria
15:15	15m	The Application of Modern Information Technologies for Power Monitoring and Control in Conditions of Distributed Generation, Boris Abramovich, National Mineral-raw University "Gorniy", Veronika Prokhorova, SUAI, and Yuriy Sychev, National Mineral-raw University "Gorniy", Russia
15:30	15m	Thermal Modeling and Electromagnetic Analysis of 1000 KVA distribution transformer based on Electrical –Thermal Equivalent Circuit and FEM, Atabak Najafi and Ires Iskender, Gazi, Turkey
15:45	15m	**Official closing of the 16th FRUCT conference, LeaForum**

Demo Session of the 16th FRUCT conference

Time: 30 October 2014, 17:00-20:30 Place: University of Oulu, Pentti Kaiteran katu 1, Oulu
LeaForum + Humus café

The Demo section of the 16th FRUCT conference will be combined with the demo session of the Regional seminar on Mobile Healthcare, early diagnostics and fitness and with the conference social event. The first part is a promotional section to present/introduce demo projects to the public. Presentations will be done following the Pecha Kucha style. Main idea of this section is to make people aware of the demo and become interested to visit the demo stand at the second part of the session. During the second part of demo session teams get a place to install the demo and poster. If you have some special requirements please contact organizing committee by email info@fruct.org.

Pecha Kucha Presentation Format

Pecha Kucha is a presentation technique where a speaker shows a definite number of slides (usually 20 or 15), each for 20 seconds. The slides are changed automatically during the talk. The main intention for Pecha Kucha presentation style is to prevent participants from being too verbose and to make their talks more dynamic and impressive.

Pecha Kucha Night is an event where each speaker uses Pecha Kucha presentation, and speakers change each other in non-stop fashion. Initially invented by architects, this kind of event is often used to present creative projects or work; nowadays it is also used for R&D talks too. Pecha Kucha Night format allows all participants to make announcements about their demos in attractive and time-efficient way. That is why we have chosen this format for demo promotion section at FRUCT conference. More information can be found at http://www.fruct.org/demo16.

How to prepare Pecha Kucha presentation

Here is an instruction on how to prepare your Pecha Kucha style presentation for Demo promotion section. Your presentation must contain exactly 6 slides, and each of them will be displayed for 20 seconds. The slides will be changed automatically. So, the whole presentation will take exactly 2 minutes (it should be noted that usually Pecha Kucha presentation has 20 slides, but we have to reduce the number due to a large amount of submitted presentations). Provide the information about yourself and your presentation on the first slide (name, institution, title of your presentation).

The main purpose of your talk would be to interest people, so your presentation should make absolutely clear the main ideas of your project and explain what you plan to show at the demo stand. Make your presentation fascinating to attract attendees and avoid technical details in your talk. Reveal one main idea on each slide. Do not overload your slides with information. Remember, that each slide is displayed only for 20 seconds. Place no more than 2 lines of text per slide, or one big picture. Avoid using slide titles. Do not duplicate the same slides in your presentation — it is cheating! If you see that 20 seconds for a particular slide is not enough for you, try to decouple it into the two or more, or omit the details. Do not place “Thank you” or “Q&A” slides in the presentation. Pecha Kucha session does not imply any questions from the auditory. All the questions will be asked afterwards in a poster room. Prepare your speech thoroughly and beforehand. As you have only 20 seconds per slide, it is quite impossible to improvise during the talk. Rehearse your speech several times to be sure in the absence of pauses when you wait for the slide change, or accelerations when you fails to follow your slides. Try to speak in the same pace during all the presentation. It definitely depends on your text, so try to prepare near the same amount of text in speech for each slide.

Check list

- Use exactly 6 slides.
- Place information about yourself and your presentation (name, institution) on the first slide.
- Reveal one main idea on each slide.
- Place no more than 2 lines of text or 1 large image per slide.
- Do not duplicate the same slides, do not place “Thank you” or “Q&A” slides in the presentation.
- Do not use any slide change animation.
- Prepare your speech thoroughly and do not forget to rehearse it.

List of Demos (*preliminary list based on submissions done by October 16*)

1. ***Training Assistant: the Automatic Training Data Collection System, by Ivan Timofeev, Sergey Lobarev, Nikita Timofeev and Sergey Averkiyev, YarSU, Russia***
   A lot of people visit gyms to compensate their insufficient activity level. They record completed exercises to diaries during workouts. This data can be used as a basis for development of individual training program that allows to increase productivity of next workouts. However, the manual addition of exercise records to the diary takes a lot of time and may be error-prone due to person's fatigue. At the demo section we demonstrate a part of the use case we show how server collects exercise data and composes it into the exercise record. We developed the prototype of the device on gym apparatus, the model of an exercise machine and the prototype of the server application that demonstrates data processing.
2. ***Intelligent Mobile Tourist Guide: Tourist Assistant - TAIS, by Maxim Shchekotov, Nikolay Teslya, Alexei Kashevnik and Andrew Ponomarev, SPIIRAS, Russia***
   Tourist Assistant - TAIS (Tourist Attraction Information Service) is a mobile tourist guide developed for Android-based devices. It provides tourists with recommendations on what attraction (e.g., museum, monument, social place) are currently better to visit, based on the tourist's preferences and current situation in the region (e.g., closed attractions, weather situation, accessible drivers around the tourist who can drive him/her to places of interest). The service is based on Smart-M3 information sharing platform that provides the smart space infrastructure. Recommendation methods, algorithms, and scenarios have been successfully developed, prototyped. Tourist Assistant - TAIS provides possibilities for tourists browsing attractions descriptions and photos, estimating attractions and related images to improve recommendation performance. For information sources the following resources are used at the moment: Wikipedia, Wikivoyage, Panoramio. Moreover, the service can display current user location on the map, provide possibilities to build pedestrian and car paths to the interested attraction, find fellow travelers who can pick tourist up around location and drop off around interested attraction. Current weather in the tourist location is displayed for the tourist in mobile device and used for making recommendations for the tourist (e.g. in rainy weather outdoor attractions less preferred than indoor). Mobile tourist guide consists of several services that solving particular tasks and interact in smart space that allows to provide interoperability support between them. There are attraction information service, recommendation service, administration service, context service and mobile client. Attraction information service extracts the information about attractions from different Internet sources and shares it with the smart space. Recommendation service takes the lists of shared attractions, their images and descriptions and range this lists according the tourist preferences and context situation in the considered area shared with the smart space by context service. It uses for automated filtering and ranking two approaches: content analysis and user evaluation. Administration service allows to setup the following parameters for the mobile tourist guide operation: attractions searching radius, recommended attractions count, smart space waiting time, new default items count, images searching radius for main page, GPS inquire timeout, and changing location for GPS inquire. Using the mobile client for accessing to the mobile tourist guide allows the tourist to see recommendation about attractions in the region during the trip and rate the attractions, photos and their descriptions. In the Fig. 1 the architecture of mobile tourist guide is presented. Mobile client shares with the smart space the tourist context information like coordinates and his/her preferences. Attraction Information Service acquires from different Internet sources attraction information (a list of attractions around the tourist, images and their descriptions). The recommendation service analyzes the attraction information and tourist preferences, estimations and provides recommendations for the tourist. Administration Service allows to set special settings, which allows to tune mobile tourist guide with balance between quickness and recommendations quality. Context Service provides weather information in the region around the tourist.
3. ***Smart Space-Based Lego Mindstorms EV3 Robots Interaction, by Nikolay Teslya, SPIIRAS, Russia***
   Nowadays cyber-physical environments are spreading wide all over the world. There are many systems such as "smart home", "smart car", "smart city", which are based on the real time interaction between physical world and cyber world. One of the examples of cyber-physical system is a "smart home" devices interaction for home cleaning. For example, there are two robotic vacuum cleaner in the house. Before the cleaning they creating a map of dirtying and split the house to the two parts based on the nearest dirty points. The other example is a situation when vacuum cleaner finds a hindrance, for example big toy or chair. It shares

information about the situation through the smart space and manipulating robots should decide which of them would go to remove the hindrance. The demo provides interaction model of devices in smart space. These devices are robot cars based on the Lego® Mindstorms EV3 constructing kit with ultrasonic and gyroscope sensors. Each car is driven by two independent large motors and controlled by control block with LeJOS installed on the SD-card. WiFi USB-adapter provides local area network connection. For the control block the LeJOS has been chosen because it is provide full functionality OS with JRE Environment. Robots shares information through the Smart-M3-based smart space via using the Java KPICore library. After the start command receiving from the smart space, each car rotate at 360 degrees and fetch information about turn angle and distance from the gyroscopic and ultrasonic sensors correspondingly. This information stores for the future processing to separate found objects. The separation algorithm discerns objects by analyzing difference between neighbor distances. All found objects are sorted by the average distance and shared through the smart space. Each robot has subscription to new objects that are appearing in the smart space. When the objects from the other robot appear, they are queried by listening robot and comparing with existing set of its objects. The values equality means that robots find each other and these values should be excluded from the set. If there are more than two equalities, robots should move toward one of the equal objects and repeat the area scanning. When robots find each other, they can detect the object and select the nearest robot. This robot turns to the angle the object is located in and moves to the object. Additionally the demo provides an Android-Based application for robot control through the smart space. This application allows starting and ending robot moving, changing direction of moving (forward or backward) and turning around for object searching as well as showing the state of each robot. Robot shares each action throug the smart space. These actions are: moving forward or backward, turning to the right or to the left, scanning area, objects discerning, information sharing and making a decision. Two nearest objects are showing ih the corresponding fields.

4. ***Kizhi Island virtual model, by Matti Pouke, University of Oulu, CIE, Finland***

   The Kizhi 3D virtual model is a multi user virtual world depicting the southern section of Kizhi Island at lake Onega, Russia. The model is hosted on Meshmoon service.It was modeled using the free and open 3D creation software Blender. Principles of low-polygon modeling were used to ensure the model's applicability to real-time interactive 3D virtual environments such as the RealXtend Tundra. With low-poly modeling, the complexity of the model is kept to minimum which ensures viewing the model in interactive applications is not too computationally intensive. The main focus of the modeling was the Pogost area containing five major buildings which were The Church of the Transfiguration of Our Savior, The Church of Intercession, The Bell Tower of the Kizhi Pogost, The Fence of the Kizhi Pogost as well as the house of peasant Oshevnev. Main detail of the modeling work was focused in the Pogost area and its immediate surroundings. In its entirety, the model ranges from the hydrofoil docks in the north to the southern end of the island.

5. ***Control Your Things: Tool for Collection and Control of Personal Things, Ksenia Lagutina, Andrey Vasilev and Ivan Timofeev, YarSU, Russia***

   Everyone faces the challenge of finding and collecting all things for the travel, journey, etc, and tracking them to ensure that they are not forgotten or lost. One possible solution for these tasks is to attach electronic tags to required things and to keep a track of them by a smartphone or a special scanner.

   There are 4 technologies that can be used to create electronic tags: Wi-Fi, Bluetooth, RFID, NFC. All tags differ from each other in the size, range, battery life, format of the recorded data and other technical characteristics. These parameters define how the user's smartphone can interact with electronic tags and which use cases can be implemented in the application. For example, the data exchange between RFID-tags and smartphone requires a scanner, but other types of tags can be directly used by the phone.

   The proposed system for control of personal things consists of a mobile application and electronic tags. The user attaches the tags to things. The database of things with tags is stored in the phone. Also if the user wants to keep a track of objects with RFID-tags, one will be able to use the special scanner. It can be put in the bag, drawer or any other container where user wants to track things. We have designed three use cases for the system: 1) The user collects things in a bag. The application automatically creates a list of detected things. Then one can rename, delete, edit list contents and check presence of things later on; 2) The user chooses the thing that one cannot find. The application determines and shows to the user the distance between the smartphone and the tag associated with the thing. When user is on the move the displayed distance is changing accordingly; 3) The application can be set to alarm the user if the thing with the tag disappears from the visibility range.

Currently the application implements list creation and things presence checking use cases. In the first scenario the user sees on the screen the names of all objects which have been added previously for tracking. Then one manually forms the list by selecting thing's names. In the second scenario the user uses a list that was created in advance. When one wants to collect things into the bag he/she chooses the appropriate list and carries things with attached tags near the phone. The application highlights the corresponding list items and puts them to the end. When all things were detected the user sees the message "All things are collected". Current version of Control Your Things application supports electronic tags with NFC technology. In the future authors plan to add support for Bluetooth and RFID tags and implement other use cases.

6. ***Accessibility map mobile application, Irina Shabalina and Kirill Kulakov, PetrSU, Russia***
   "Accessibility Map" is a mobile service for cartographic visualization of information about social facilities categorized by accessibility levels and types of disability. Development of "Accessibility map" is a part of project related to development of information environment for persons with disabilities. The aim of the project is to improve quality of life of persons with disabilities by addressing issues related to social exclusion, accessibility and mobility of disabled people by means of advanced ICT. Mobile application "Accessibility map" is targeted to cartographic visualization of accessibility information about social significant objects. The application utilizes data from "Accessibility Passports" web-service, which database is filled by regional social authorities. All objects of application "Accessibility map" are categorized by accessibility levels for various types of disability. The application also provides following information: name of the object or organization, description of organization activity, description of routes to an object, accessibility information related to the types of disability. All organizations are grouped by activity. The categories are healthcare, education, social care, sport, culture etc. Two means of visualization are available in the service: a categorized list of objects, and a map with geo-tags. Accessibility level of an object on the map is marked by color. Also search and filtering features have been implemented in application, types of disability are marked with appropriate signs. The objects can be filtered by the several criteria: organization activity; categories of persons with disabilities (moving on a wheelchair", "hearing-impaired", "visually impaired", etc.); levels of accessibility ("fully accessible", "conditionally accessible" and "inaccessible"). The development was carried out with support of grant KA432 "Journey planner service for disabled people (Social Navigator)" of Karelia ENPI program.
7. ***Monitoring system for patients with hypertension based on mobile application and cloud service, Ivan Shchitov, YarSU, Russia***
   Monitoring patients suffering from hypertension is a very important task that requires doctor to watch the patient's health status regularly. Such a task consumes a lot of resources. In order to reduce the number of patient's visits to a hospital we propose a system that allows monitoring patient's health status remotely.
   The system consists of Blood Pressure Diary application, which is installed on the patient's Android smartphone, and a cloud server. The patient can add blood pressure measurements into the diary manually or automatically via NFC or Bluetooth. These measurements are automatically synchronized with cloud that allows to systematically send information about health state to the doctor via e-mail and report to the hospital in case of emergency. Another functions of the system include keeping the same data on all of one's mobile devices and browsing the patient's measurements with additional context information (e.g., weather) via web UI.
8. ***System for monitoring patients with diabetes, Maxim Yatskovskiy, FRUCT MD LLC, Russia***
   The demonstration will show a system based on Cubieboard2 hardware as a home gateway mHealth, which allows receiving data from the Bluetooth glucometer and display reminders for patient on TV. This gateway also interacts with the cloud mHealth platform, which sends the measurement data and where we can to initiate a reminder to the patient.
9. ***A system for automatic verification of arrhythmia detection algorithms by Artem Rudenya, Alexander Borodin and Yulia Zavyalova, PetrSU, Russia***
   A number of arrhythmia detection algorithms are being developed within a CardiaCare project. These algorithms should be thoroughly verified using real electrocardiograms with abnormalities annotated by experts. To provide a way of semi-automatic continuous testing of arrhythmia detection algorithms, the proposed system have been developed. Annotated electrocardiogram recordings are fetched from open databases. Short fragments are stored according to arrhythmia type identified by expert.
   During tests the system runs the algorithm implementation on automatically constructed set of signals and reports obtained performance evaluation indicators (sensitivity, specificity and accuracy).

FOR NOTES

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CALL FOR PARTICIPATION

17th Conference of Open Innovations

Association FRUCT

Yaroslavl, Russia, 20-24 April 2014

Overview

FRUCT is the largest regional cooperation framework between academia and industry in form of open innovations. FRUCT conferences are attended by the representatives of more than 20 FRUCT member universities from Russia, Finland, Denmark, Italy, Ukraine, industrial experts from Nokia, Qt community, EMC^2, Ericsson, Samsung, Intel, Nokia Siemens Networks, Siemens and a number of guests from other companies and universities.

The conference is an R&D forum for the most active students, academic experts, industrial researchers and influential representatives of business and government. The conference invites the world-class academic and industrial researchers to give lectures on the most relevant topics, provides an opportunity for student teams to present progress and results of their R&D projects, meet new interesting people and form new R&D teams. The conference program consists of 3 to 5 intensive (½ or full day) trainings on the most promising technologies, plus 3 days of the main conference.

We warmly welcome all university research teams to participate in the conference, present your research and join the FRUCT Program. Thanks to our sponsors, all participants can enjoy free of charge registration to the event, but the online registration must be done by everyone before the conference.

Background and motivation

The distinctive feature of modern IT and Telecommunications industries is in dramatic shortening of the period when technology remains commercially viable. On the one hand, this is due to the competition between key market players that are pushing all manufacturers to accelerate innovations; on the other hand, this is due to technological progress speed up caused by the growing expansion of intellectual resource invested into R&D and design activities. This trend is an important call and challenge for the leading educational and research institutions around the globe. In the FRUCT we believe that it is crucial to combine forces of EU and Russia to follow up the competition in adopting university education to the new industrial trends. The first step is to strength a bridge between Russian and Finnish academic worlds, increase visibility of involved research teams and set direct personal contacts between academic and industrial experts. More information about FRUCT is available at www.fruct.org.

Call for papers and presentations

Submit your full papers (min 6, max 12 pages) and extended abstracts (min 200 words, max 5 pages) for project in progress and to poster/demo section by **March 6, 2015**. All submitted papers will be peer reviewed by the technical committee. Please follow provided paper templates. The list of priority topics is as follows:

- Location Based Services, Navigation, Logistics management, e-Tourism solutions
- Mobile Healthcare, Wellbeing, Automated diagnostics, Fitness, e-Health solutions
- Future services: Proactivity, IoT, Smart Spaces, Context Analysis, Big Data and data mining
  - ✓ Energy efficient design of sensors, integration of peripherals
  - ✓ Cross-platform software, innovative mobile services, new approaches to application design, innovative UX
- Smart Systems, Inter-device connectivity, embedded networks

The list of additional topics is as follows:

- Mobile device security, management of personal and business privacy
- Modern network architectures, Emerging wireless technologies, Air interfaces and protocols
- Mobile multimedia and video services and solutions

All conference papers and abstracts will be published in FRUCT proceeding (ISSN 2305-7254), all full papers will be published in IEEE Xplore (Scopus) and selected papers recommended (but not guaranteed) for CPCI indexing (Web of Science). The templates, conference news and other details can be found at http://www.fruct.org/conference17.