

## CTIT Newsletter – February 2012

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### News



The [ICT Roadmap](#) for the Topsectors is ready! Currently, [96 companies](#) support this Roadmap.



#### ERC Starting grants call

Expected is only one more call, that will probably published end July 2012, with deadlines on the three different research domains in October/November 2012. More information will be published on the [ERC website](#).



#### MMB Award 2012

Marijn Jongerden, former PhD-student of the DACS group has acquired the prestigious German [MMB Award 2012](#) for his dissertation.



#### ORTEC Excellence Award

Peter Vanberkel (MB/OMPL, CHOIR) was awarded the [ORTEC excellence in advanced planning 2012](#).



#### Kiens' Treinplanner

CTIT researcher Kien Tjin-Kam-Jet has developed a [new journey planner for NS Dutch Railways](#) that has just one search field.

For other conferences: see our [website](#).

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## Agenda

- 20-21 February 2012: FP7 Training Course for [Coordinators](#) (information in Dutch)
- 22 February 2012: [3rd Future Internet Architecture \(FIArch\) Open Workshop](#). Location: Av. Beaulieu 25, O/SI, Brussels
- 6 March 2012: FP7 Training Course “[How to write” a Cooperation project](#) (information in Dutch)
- 15 March 2012: FP7 Training Course [Legal and Financial affairs](#) (information in Dutch)
- 23 March 2012: [Smart Object Security Workshop](#), Paris (co-located with the 83rd IETF meeting)
- 12 April 2012: FP7 Training Course [Legal and Financial affairs](#) (information in Dutch)
- 19 April 2012: FP7 Training Course “[How to write” a Cooperation project](#) (information in Dutch)
- 10 May 2012: FP7 Training Course [Legal and Financial affairs](#) (information in Dutch)
- 15 May 2012: FP7 Training Course “[How to write” a Cooperation project](#) (information in Dutch)
- 23 May 2012: FP7 Training Course for [Coordinators](#) (information in Dutch)
- 11 October 2012: STW Annual Congress. Location: Nieuwegein’s Business Center

## PhD defences

February 2, 2012:	Arjan de Roo (EWI/SE)
February 2, 2012:	Nina Schaap (EWI/CTS)
February 17, 2012:	Saeed Sedghi (EWI/DIES)
February 23 2012:	Trajce Dimkov (EWI/DIES)
March 30, 2012:	Ricardo Neisse (EWI/IS)

## Information on research funding programs

### Seventh Framework Program of the European Union:

#### ICT Program:



Currently, the 9th Call of the FP7/ICT Program has been opened., with deadline: 17 April 2012. The following challenges are being addressed:

- Challenge 2: Cognitive systems and robotics
- Challenge 4: Technologies for Digital Content and Languages -> Digital Preservation
- Challenge 5: ICT for Health, Ageing Well, Inclusion and Governance -> Virtual Physiological Human (a), (b), (d)
- Challenge 8: ICT for Learning and Access to Cultural Resources -> ICT for access to cultural resources

- Future and Emerging Technologies:
  - FET Proactive: Quantum ICT (QICT) including ERA-NET-Plus
  - FET Proactive: Fundamentals of Collective Adaptive Systems (FOCAS)
  - FET Proactive: Neuro-Bio-Inspired Systems (NBIS)
  - Coordinating Communities, Identifying new research topics for FET Proactive initiatives and Fostering Networking of National and Regional Research Programs (a), (b), (c), (d) Currently, [FP7/Call 8](#) is open, deadline **January 17, 2012**. It is a large Call, the budget will be **785.5 M-€**. On January 18, 2012, **Call 9 can be expected**, closing date April 17, 2012 (budget 291 M-€). You can find the final version of the [ICT-Workplan 2011-2012](#) here.

### [All Open Calls](#)

With the 8th Call, CTIT researchers submitted in total 24 proposals:

- 18 STREPs (Small or medium-scale focused research projects)
- 4 IPs (Integrated Projects)
- 1 NoE (Networks of Excellence)
- 1 Marie Curie

In 4 proposals the UT is the intended project coordinator.

With two special Calls in December 2011 on 'Security' and 'Mobility', another three projects were submitted:

- 2 STREPs
- 1 IP

We will keep our [website](#) updated with the latest news; you may always contact us for information ([Wilma Hiddink](#), a.o. for EPSS (A2 forms for proposal submission), ECAS, NEF and GPFs (A2 forms for Grant Preparation)).

### *Other funding programs*



#### **Vernieuwingsimpuls**

The Call for [Vici-preproposals](#) is open until March 29, 2012. It is meant for excellent senior researchers (the best 10-20% of their research discipline). Maximum budget for funding is 1.5 M-€.

### *Upcoming deadlines*

Continuously:

- [NWO Free Competition Exact Sciences](#) (*information in Dutch; currently temporarily closed*)
- [NWO TOP Subsidies](#) (*information in Dutch*)
- [NWO Brain & Cognition: an integrated approach](#) (*Social Sciences, ZonMW - information in Dutch*)
- [NWO Free Competition Humanities](#) (*information in Dutch*)
- NWO [Aspasia](#) (Female researchers in science / by nomination) (*information in Dutch*)
- [ZonMW TOP-subsidies](#) (innovative research in health / for excellent groups)
- [STW Open Technology Program](#) (*information in Dutch*)
- [Future & Emerging Technologies](#) (FET / several deadlines until March 12, 2013)

February:

- 16-2-2012: [ERC Advanced Calls Physical Sciences and Engineering](#)
- 18-2-2012: [Anita Borg scholarships - Europe, the Middle East and Africa](#)
- 22-2-2012: [FP7-SCIENCE-IN-SOCIETY-2012](#)

March:

- 1-3-2012: [NWO-Horizon](#) (previous: G-Programs) - Behavioral Sciences
- 14-3-2012: [ERC Advanced Calls Life Sciences](#)
- 15-3-2012: [Christiaan Huygens Science Award](#)
- 29-3-2012: [STW Perspectief Program 2012](#)
- 29-3-2012: [Vici-preproposals](#)

April:

- 3-4-2012: [NWO Rubicon](#) (for recently graduated researchers)
- 11-4-2012: [ERC Advanced Calls Social Sciences and Humanities](#)
- 17-4-2012: [ICT Call 9I](#)
- 19-4-2012: [Industry Academia Partnerships](#) & Pathways (scholarship for exchange of researchers between industry and universities)
- 19-4-2012: [NWO Zwaartekracht](#), only for top-research groups; to be submitted through the Board of the University.
- 24-4-2012: [NWO Explorail](#) (cooperation with ProRail - full proposals)

May:

- 8-5-2012: [CIP Call Intelligent Energy Europe](#) (IEE)
- 15-5-2012 [CIP Call Smart mobility](#)

August

- 28-8-2012: Deadline [Vici full proposals](#)

October

- 2-10-2012: Deadline [Vidi-proposals](#)

## Projects

### Preparing Secure Vehicle-to-X Communication Systems

Project Number: 269994

Project Manager: Dr. [Frank Kargl](#)

Faculty of [Electrical Engineering, Mathematics and Computer Science](#)

Tel.: +31-53-4894302

Email: [f.kargl@utwente.nl](mailto:f.kargl@utwente.nl)

Project website: <http://dies.ewi.utwente.nl/?page=research&sub=projects&cmd=PRESERVE>

### Summary

Cooperative ITS and V2X communication promise a new age of safer, more efficient, and more comfortable road traffic. However, this promise can only be fulfilled if those systems are designed and implemented in secure way where they cannot be abused by malicious attackers and where the personal data processed by them is not subject to abuse and privacy violations.

The goal of PRESERVE (Preparing Secure Vehicle-to-X Communication Systems) is to bring secure and privacy-protected V2X communication closer to reality by providing and field testing a security and privacy subsystem for V2X systems. PRESERVE will combine and extend results from earlier research projects, integrating and developing them to a pre-deployment stage by enhancing scalability, reducing the cost-level, and addressing open deployment issues. It aims at providing a comprehensive protection ranging from the vehicle sensors, through the on-board network and V2V/V2I communication, to the receiving application. As a result, PRESERVE will present a complete, scalable, and cost-efficient V2X security subsystem that is close-to-market and will be provided to other FOT projects and interested parties for ongoing testing.

Field testing will investigate a number of important scalability and feasibility issues. Further, the V2X security subsystem will also be provided to other projects to jointly investigate integration and performance in larger fleets of vehicles. Another strategic objective of PRESERVE is to contribute to on-going harmonization and standardization efforts on the European level.

**Project duration:** 1-1-2011 / 1-1-2015

**Project budget:** 5,438,508 € / 3,850,000 € funding

**Number of person/years:** 391 person months

**Project Coordinator:** University of Twente

**Participants:** University of Twente, KTH, Renault, Escrypt, Fraunhofer, Trialog

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**Project budget CTIT:** 1,091,274 € / 842,688 € funding

**Number of person/years CTIT:** 88 person months

**Involved groups:** [Distributed and Embedded Security \(DIES\)](#)

**CTIT Strategic Research Orientations:** [Integrated Security and Privacy in a Networked World](#) , [Wireless and Sensor Systems](#) <http://www.ctit.utwente.nl/research/sro/istrice/>

## Wireless Ad-hoc Links using robust Noise-based Ultra-wideband Transmission

Project Number: STW 11317

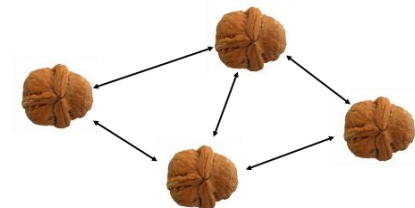
Project Manager: Dr.ir. M.J. Bentum

Faculty of [Electrical Engineering, Mathematics and Computer Science](#)

Tel.: +31-53-4892108

Email: [m.j.bentum@utwente.nl](mailto:m.j.bentum@utwente.nl)

Project website:



## Summary

Wireless Sensor Networks (WSNs) are widely seen as a key enabling technology to create an "internet of things" which can support numerous new applications (see utilization summary paragraph). Once the sensor nodes are very cheap and small, "smart dust" networks might even become a reality. Such WSNs should preferably work autonomously, creating ad-hoc networks. They should also consume very low power to allow for battery-less operation of sensor nodes via energy harvesting. Recent research results indicate that this is only feasible using communication protocols that allow for very low-duty-cycle operation [1],[2], bringing average power down a few hundred  $\mu\text{W}$  [3]. Still, for energy harvesting less power and hence lower duty-cycle is desired.

As the feasibility of WSNs has been shown, they are used more and more. However, WSNs might quickly become a hazard to themselves as there are only a few radio bands in which these devices communicate (e.g. the 2.4 GHz ISM band). The spectrum thus easily becomes overcrowded. Moreover, other devices with more powerful transmitters often work in the same frequency bands. Hence the robustness of WSNs is likely to become the next major challenge. It might even become a major roadblock for successful ubiquitous deployment of WSNs.

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In this project we intend to focus on the communication robustness problem while maintaining or even reducing low power consumption, compatible with energy harvesting. We propose to explore wideband modulation to enable robust wireless communication in a crowded, interference-rich environment. Spread spectrum techniques use wideband modulation and can provide such robustness [4],[5]. However, they are usually power-hungry, most notably due to timing synchronization issues. We believe we can tackle these issues employing a noise-based ultra- wideband transmission technique that we proposed in [6],[7], which exploits a transmitted reference technique. This technique can achieve high processing gain with very small synchronization times [6],[7] and hence low duty-cycle and low power. Initial research shows promising results and we would like to pursue this path further.

The goal of the project is to develop robust radio links for WSNs that operate in an extremely crowded radio spectrum, at very low power.

To realize this vision we propose to work cross-disciplinary with three PhD students in three neighboring but distinct fields: 1) the (noise-based) modulation technique ("MOD-PhD"); 2) low- power IC Design ("ICD-PhD") of the radio transmitter (modulation) and receiver (demodulation); 3) communication protocols ("MAC protocols", "MAC-PhD"). We will work closely with interested industrial partners with experience in the WSN field from the application to the implementation platform level (DevLab, NXP, Thales). The results will be validated by prototypes on silicon.

**Project duration:** 2011-2015

**Project budget:** 636.752 €

**Number of person/years:** 3.6 fte /yr

**Involved groups:** [Telecommunication Engineering \(TE\)](#), [Integrated Circuit Design \(ICD\)](#), [Design and Analysis of Communication Systems \(DACS\)](#)

**CTIT Strategic Research Orientations:** <http://www.ctit.utwente.nl/research/sro/istrice/> [Wireless and Sensor Systems](#)

### *CTIT Newsletters*

In case you have input for the newsletter, about workshops, PhD defences or other events, please send the information to [office@ctit.utwente.nl](mailto:office@ctit.utwente.nl).