

SENSKIN



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Press Release

SENSKIN: 'SENsing SKIN' for Monitoring-Based Maintenance of the Transport Infrastructure

A new EU project has launched to pave the way towards the next generation integrated bridge management and monitoring systems.

Xanthi, 10/06/2015. Over the next three and a half years the European project SENSKIN will improve Structural Health Monitoring techniques for transport infrastructure through the development of an innovative monitoring and management system for bridges based on an inexpensive, low power, wireless, skin-like sensor. The project, which consists of 13 partners from 7 countries, officially launched its activities with the organisation of the consortium kick-off meeting that was held in Athens, Greece on 2-3 June 2015.

Structural Health Monitoring (SHM) is expected to play a predominant role in the management of the transport infrastructure nowadays mainly because much of the expected growth in traffic demand will have to be accommodated on existing infrastructure with widespread signs of deterioration, while climate changes may negatively affect the infrastructure loading. Yet, SHM techniques continue to rely on point-based, as opposed to spatial, sensing requiring a dense network of these point-sensors increasing considerably the monitoring cost. Furthermore, conventional sensors fail at relatively low strains and their communication system is unreliable in extreme service conditions: thus, they do not provide a foolproof alarm of an imminent structural collapse.

The European project, SENSKIN, responds to the above by developing an inexpensive, low power, wireless, skin-like sensor that offers spatial sensing of irregular surfaces (transportation bridges in particular). This sensor will be able to withstand and monitor large strains and to self-monitor/report. Emerging Delay Tolerant Networks technology will be also applied so that the output of the sensors is transmitted even under difficult conditions, such as, in the case of an earthquake, where some communication networks are inoperable. Additionally, SENSKIN as a monitoring system will be supported by a Decision-Support-System for proactive condition-based structural intervention under operating loads and intervention after extreme events. The SENSKIN technology will be implemented in the case of bridges and tested, refined, evaluated and benchmarked on an actual bridge.



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Following these, SENSKIN is expected to drastically reduce traffic disruptions from structural inspection and assessment works, decrease inspection and assessment costs, increase the safety of passengers and improve the working conditions of inspectors.

DUTH/SPICE's role is the identification of SENSKIN device communication needs and the development of a DTN communication system responsible for storing and forwarding the data gathered from sensors to the data harvesting centre. Based on its critical role throughout the project, DUTH/SPICE team members will also contribute at several other work packages with tasks ranging from the installation of the communication gateway to the evaluation and testing of intra-sensor communication capabilities, including also the verification of proper communication between SENSKIN devices, gateways and the ad hoc data harvesting station.

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Project Fact Sheet:

Duration: 45 months (June 1, 2015 - December 1, 2018)

**Total budgeted/
EC contribution:** 3,883,041€

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Partners:

- University of Potsdam, Germany
- Egnatia Odos S.A., Greece
- RISA GmbH, Germany
- TECNIC S.p.A., Italy
- Democritus University of Thrace, Greece
- Mistras Group Hellas A.B.E.E., Greece
- University of Stuttgart, Germany
- TRL Ltd, UK
- State Enterprise State Road Scientific Research Institute Named After M. P. Shulgin, Ukraine
- Forum of European National Highway Research Laboratories, Belgium
- Teletronic Rossendorf GmbH, Germany
- Turkish General Directorate of Highways, Turkey



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Website: www.senskin.eu (to be available on September 2015)

