TETRACOM: Technology Transfer in Computing Systems

FP7 Coordination and Support Action to fund 50 technology transfer projects (TTP) in computing systems. This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 609491.

TEchnology Transfer of RFID for Infrastructure Sensing (TETRIS)

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TTP Problem

The Problem

Commercial Available Solutions

Disadvantages

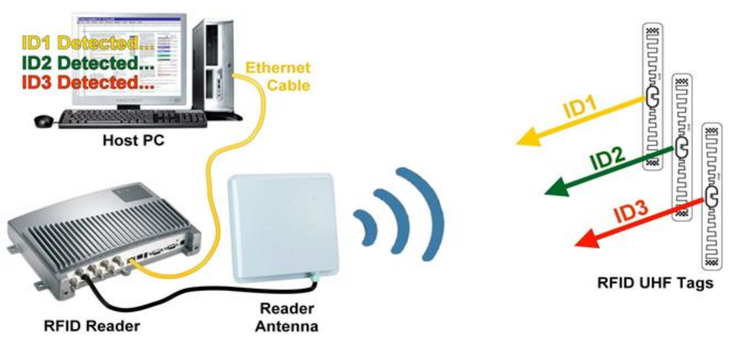
- Not embeddable;
- Need batteries;
- No pre-monitoring activity;
- Useful to monitor the building crack, but not to prevent it!
- Not IoT-oriented

Mission: TETRIS project aims at transferring the University of Salento recognized skills on RFID technology to the company partner STMicroelectronics, through the definition of a new compact and cost-effective RFID-based commercial product which, if buried into new constructions, enables their effective and battery-free monitoring.

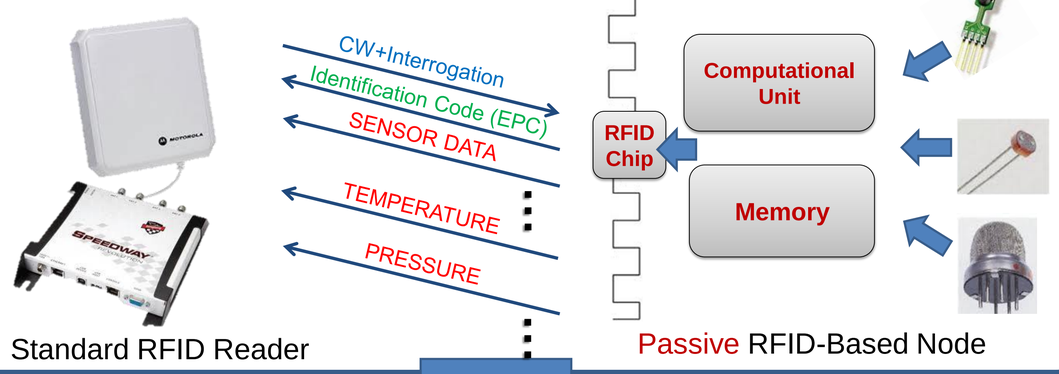
TTP Solution

A battery-free sensing system is possible thanks to the peculiarity of RFID technology that exploits external RFID reader antennas both to wirelessly energize the device and to receive back the state tensor (i.e. in terms of temperature and pressure) of the monitored building structure.

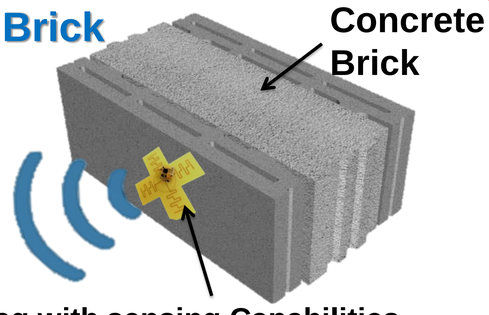
Standard RFID Technology



Integration between RFID and Sensors: The Idea



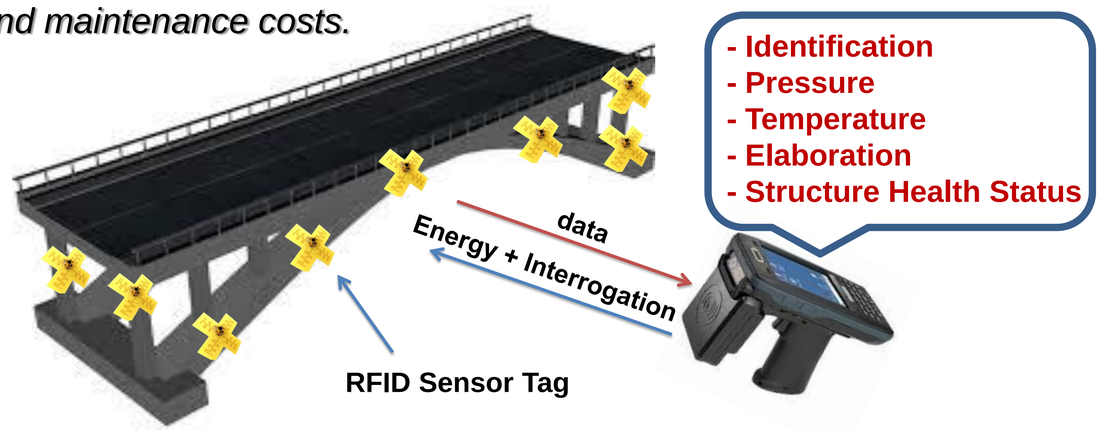
Concept: Novel Brick with sensing Capabilities



Novel passive RFID Devices with sensing capabilities

TTP Impact

Thanks to the integration between passive RFID and sensors TETRIS approach will lead to significant advantages in the health monitoring of strategic infrastructures like bridges, streets, houses, skyscrapers, and tunnels, mainly in terms of flexibility, environmental sustainability, duration, and maintenance costs.



Potential Impact on the building monitoring market

- consolidation in the premium markets of both emerging green electronic and smart self-powered wireless devices for the IoT;
- potential access to new markets, such as the one of the construction industry, both as technology provider and system provider;
- increase of the market of products to be used in the final sensor tag, such as memories, low power microcontrollers, analog chips, pressure sensors, and temperature sensors.

TTP Facts

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