



## QUALVISION

RFID Supervision System for Keeping Quality of Perishable Foods

### Project Summary

During this project, a semi-passive universal, multi-applications, SMART RFID Sensing Transponder has been developed. It consists of a new low-power passive 13.56MHz RFID Analogue Front End (AFE) Chip, sensors, rechargeable battery a micro-controller and memory. The AFE was designed and fabricated successfully based on using a 0.35um CMOS technology.

To allow re-charging a battery through the RF field, a new battery charger is designed and integrated within the AFE, this leads to a self-powered system which is a new benefit in the RFID sensing and continuous monitoring.

Using the designed SMART RFID Sensing Transponder, a Shelf Life Time Tracker (SLTT) system has been developed. The SLTT is a supervision RFID system monitoring quality changes during transport of perishable foods. When addressed, the system will give a shelf life prediction based on the used quality model. This system will be used to make appropriate management decisions that maintain and increase value across a supply chain.

In addition to the shelf life prediction, the SLTT allows the conditions monitoring (temperature, humidity, etc.). To improve the shipment process, the stored data can be uploaded using the RF interface for further analysis.

### Valorisation

The scientific results of this project are submitted/are being submitted to the following conferences:

1-“Smart SysTech 2012, European Conference on Smart Objects, Systems and Technologies”

2-“IEEE Sensors 2012”

3-“IEEE Custom Integrated Circuits Conference”

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This project has been carried out by The HES-SO Valais