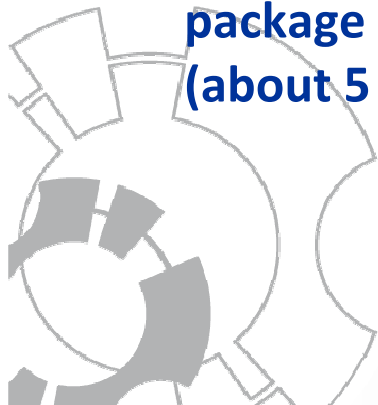


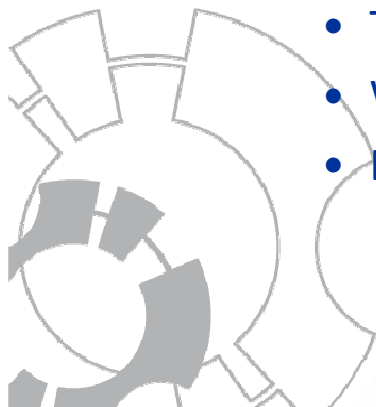
Project vision

- ➔ More and more sensors are distributed in the environment.
- ➔ Wireless communication is increasingly used for data acquisition.
- ➔ Most of the time data processing is implemented on the sensors.
- ➔ **So sensor must be autonomous in energy.**
- ➔ Low power circuits and algorithms for optimizing the energy consumption are available.
- ➔ But about the permanent energy sources, we are generally only the choice to deal with solar or wind energy or with copper wire supply distribution.
- ➔ **So the idea is to combine multi micro energy sources in a smart and low cost package for providing everywhere permanent low power energy supply (about 5 Watt per day) to the sensors and to their communication module.**



Innovation

- ➔ Integration and packaging of core electronics in charge of the energy management from the connected source availability and from the meteorological forecast provided by the wireless link with a supervisor.
- ➔ Multi technology integration and multi system packaging :
 - Solar cell : silicon and optic.
 - Mini wind turbine : mini electro mechanical.
 - Kinetic generator : mini electro mechanical.
 - Fuel cell : electro chemical.
 - Battery : electro chemical.
 - Thermo cell: electro thermal and optic.
 - Wireless communication : electronic (hyper).
 - Data acquisition and control : numerical electronic.



Application fields

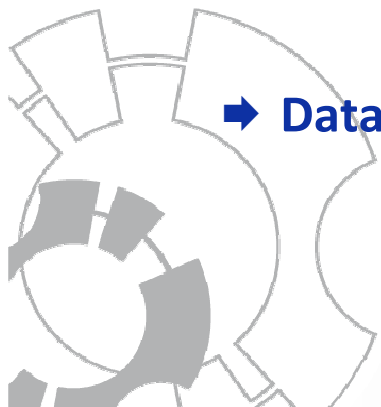
Autonomous fixed or mobile stand alone sensor applications for :

➔ Environment monitoring such as:

- physical measurement,
- meteorology data acquisition,
- toxicity and quality surveillance of the air and water,
- seismic data acquisition, ...

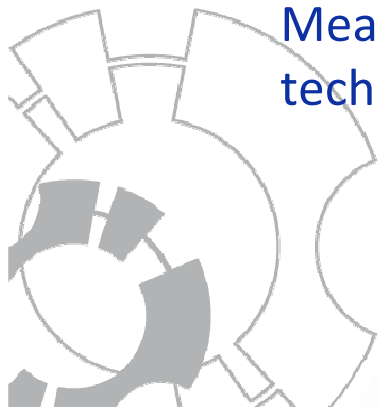
➔ Machinery and industrial processing widespread on large area like electrical, water, oil, gas and communication networks.

➔ Data and alarm wireless communication functionality.



Existing partners

- ➔ **MARTEC SERPE-IESM** : a SME company which designs, manufactures and commercialises sensors for perimeter protection and surveillance.
- ➔ **TECNALIA-RBTK : ROBOTIKER FOUNDATION (SPAIN)** a private non-profit making Foundation whose purpose is to contribute actively to sustainable development in society through Research, Technological Development and Innovation (R+D+I).
- ➔ **PIAP** : Industrial Research Institute for Automation and Measurements (POLAND) a Centre of excellence for antiterrorist technical tools and anti-crisis support.



Expected partners

➔ An industrial company that manufactures and sells micro energy generators such as

- wind generator,
- thermo pile,
- solar panel,
- kinetic generator,
- fuel cells.

