

Would you like FREE OF
CHARGE access to



Laboratories, equipment, people

Feasibility studies

Parts, materials, device, characterisation

State of the art reviews

Prototype testing

What problem are we solving?



Industry challenge:

The world will have **1 trillion IoT devices** by 2025 all needing a power source

- 100 for every person

Eliminate the need for battery replacement where possible

- Develop energy harvesting solutions and/or find ways to reduce the power consumption of devices

Research excellence challenge:

Collaboratively and concurrently develop application orientated & optimised solutions

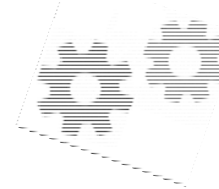
- Get academic and industry developers of energy harvesting components and systems as well as IoT devices to work together
- Accelerate & optimise development of parts and systems
- Parts should be standardised and interoperable



What are we doing about it?



- Building an ecosystem for collaboration starting with EnABLES
 - A €5.2M EU research infrastructure project
 - Creating 'self-sustaining' energy solutions to 'power the internet of things' based on **energy harvesting**, **storage**, **micro-power management** and **system integration** activities



- Providing external fast track technology access (TA) to expertise and laboratories – over 130 researchers & €2Bn worth of infrastructure
- Fostering internal joint research activities (JRAs) between partners guided by needs & opportunities
- Creating standardised and inter-operable libraries of parts & simulation tools for optimising system level performance
- Using EnABLES to foster a 'starting community'.



Simulation tools



Libraries & metrology



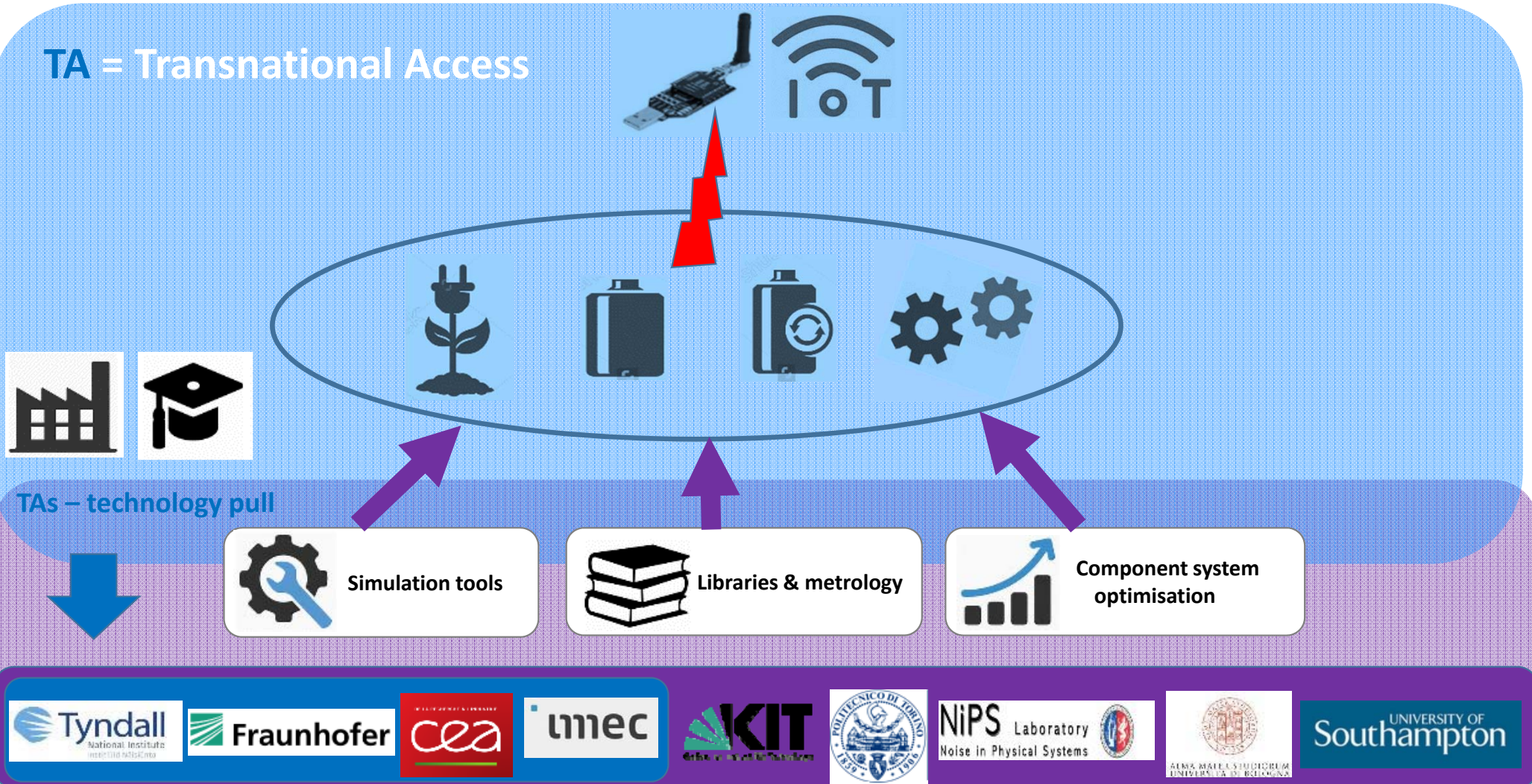
Component system
optimisation



Powering IoT Research Infrastructure

EnAIBLES

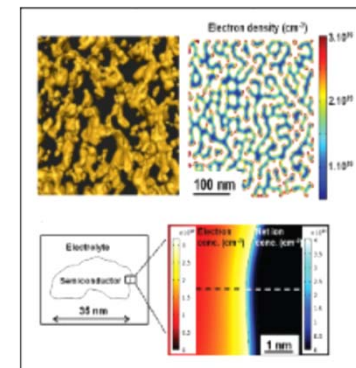
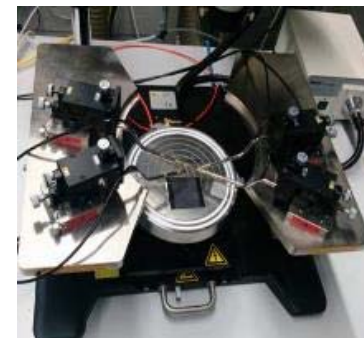
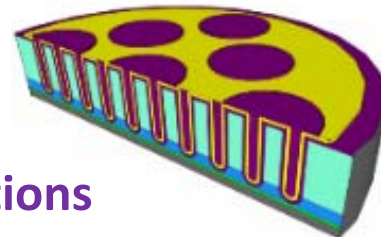
TA = Transnational Access



TA & JRA programs

- Transnational Access program* will enable
 - **Free of charge** access to expertise and laboratories
 - Feasibility studies
(paper, simulation, characterisation, proto)
- Joint research activities will create
 - System optimised, application orientated solutions
 - De-risked & standardised methodologies and library parts
(open source)

*The TA web portal will be launched June 2018

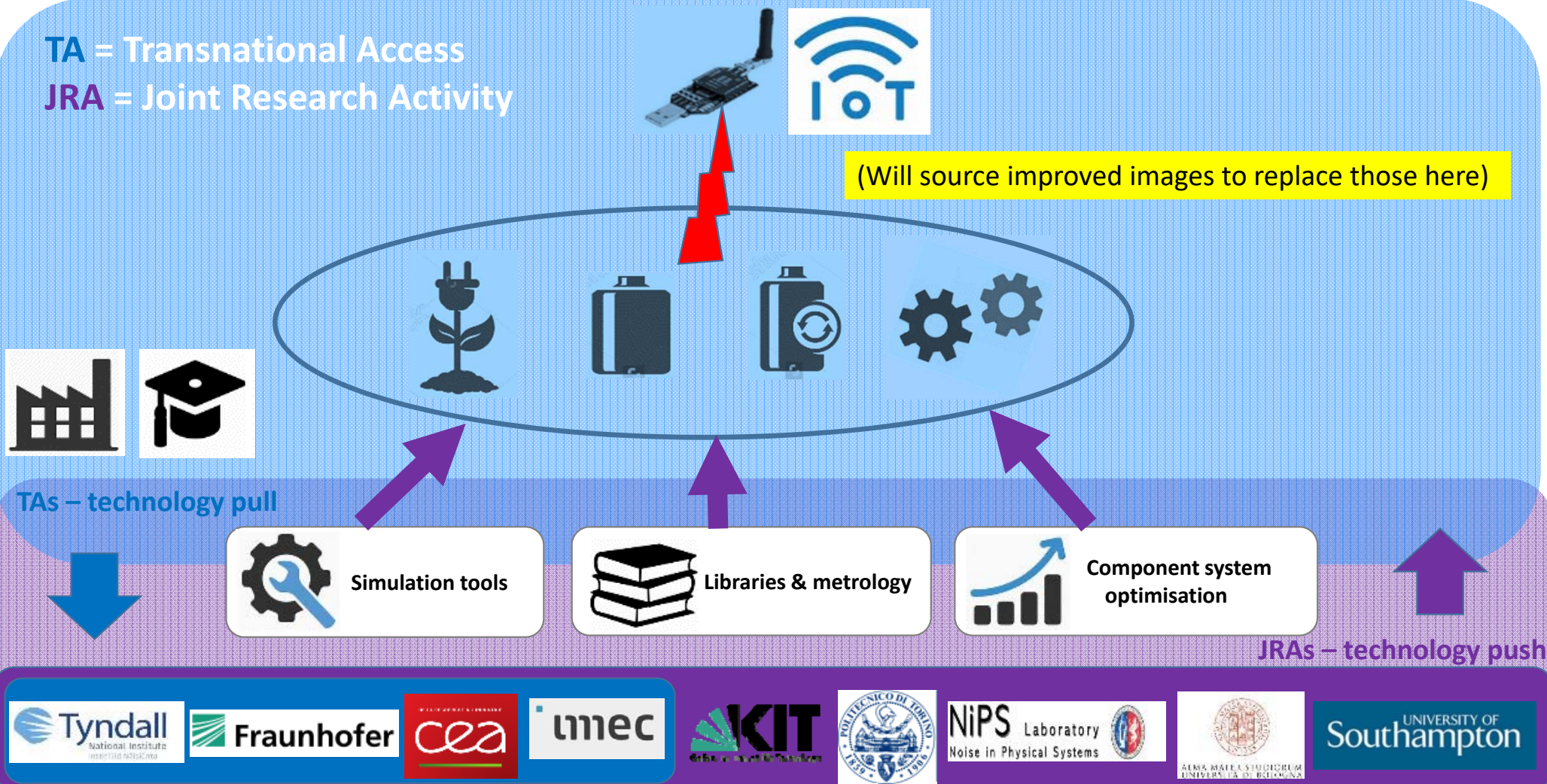


JRAs push and guide technology

EnABLES

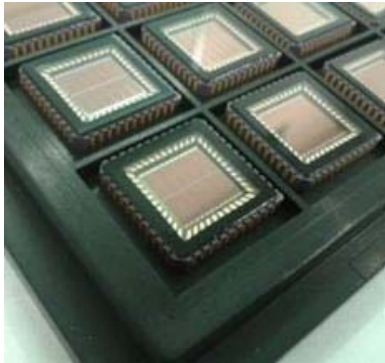
TA = Transnational Access

JRA = Joint Research Activity

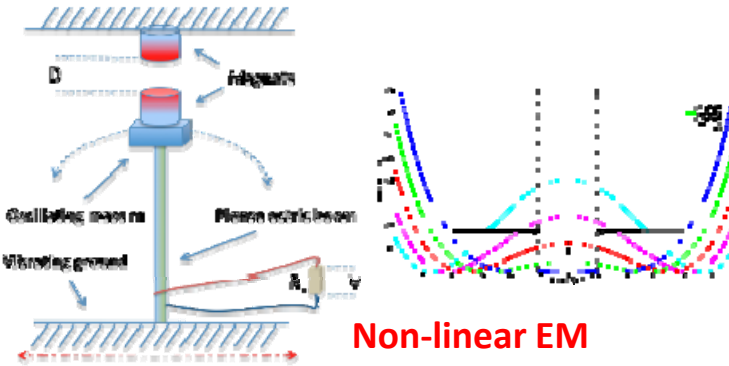


Examples of Technology Available

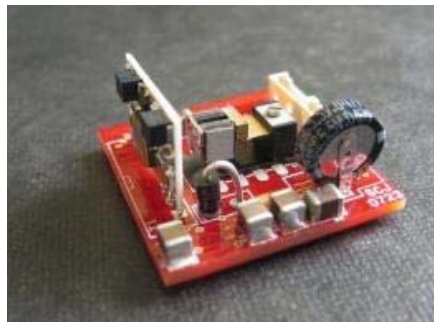
- Energy Harvesting



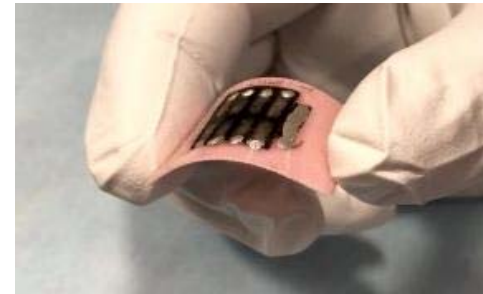
Integrated solar



Non-linear EM

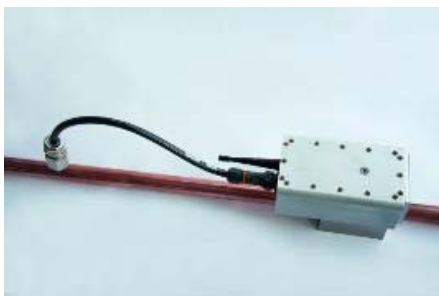


Electromagnetic (EM) Vibrational

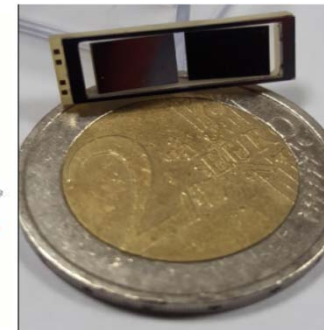
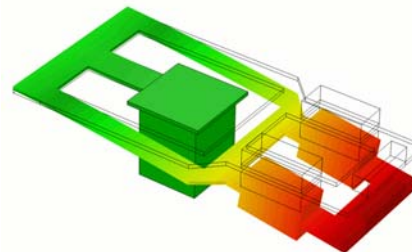


Piezo

Thermoelectric

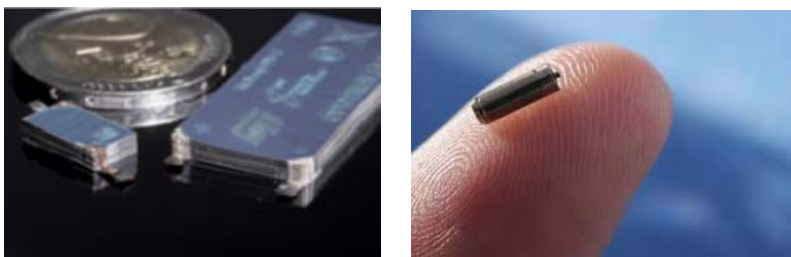


RF

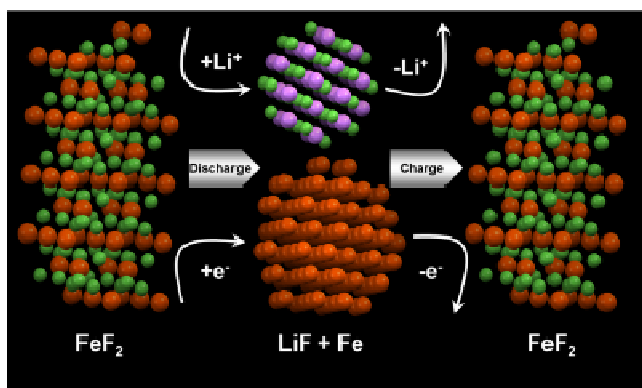


Examples of Infrastructure & Technology available

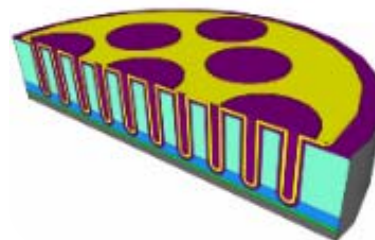
- Energy Storage



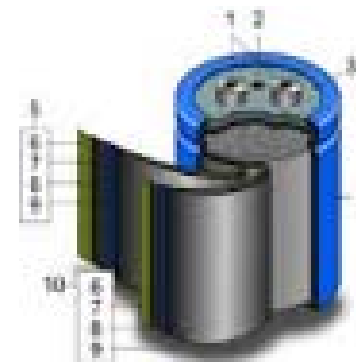
Microbatteries



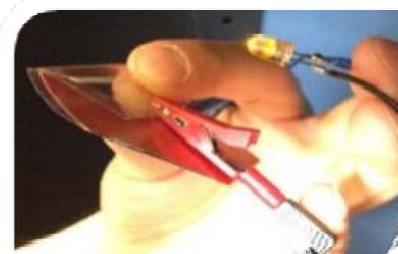
Printed batteries



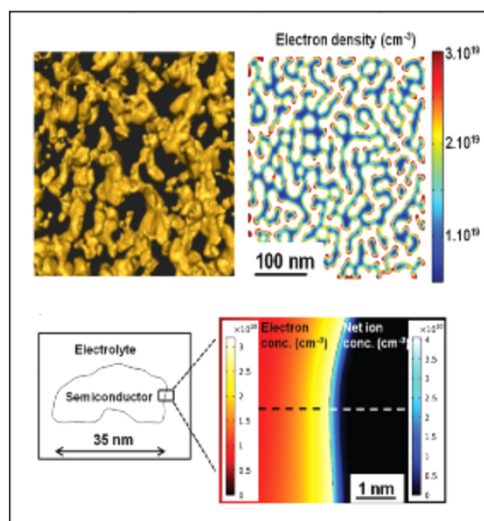
CMOS compatible Supercaps



Nanomaterial supercaps



Flexible batteries



Battery material simulation



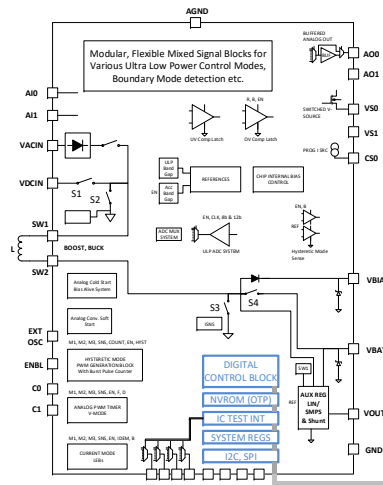
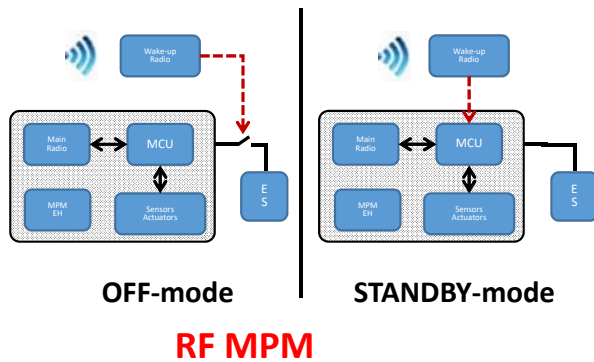
Examples of Technology Available



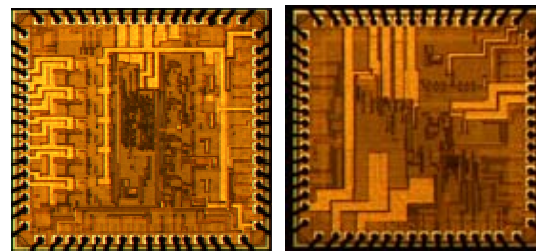
- **Micro-Power Management (MPM)**



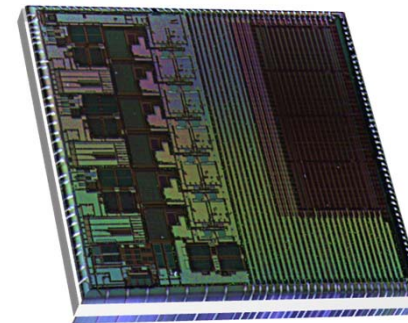
ULP (ultra low power) ASIC



MISCHIEF modular PMIC



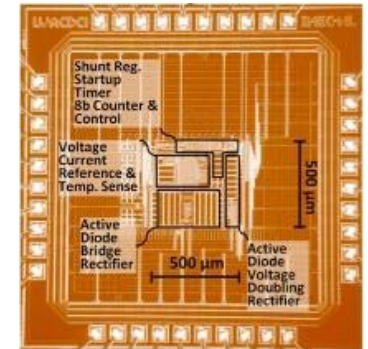
Multi- and Single-source PMICs



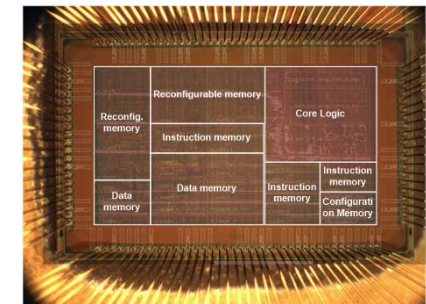
MuseIC



TEG MPM



Energy Aware PMIC

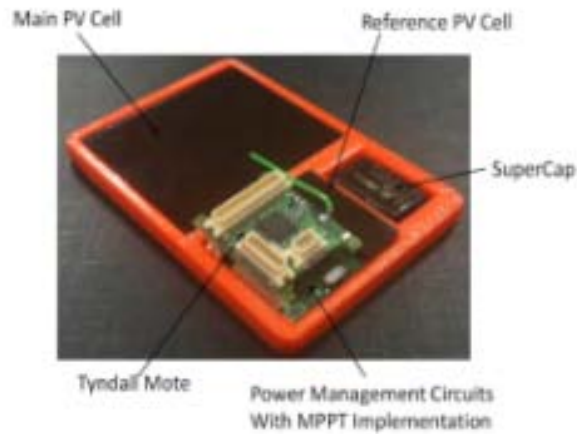


Near-threshold processor

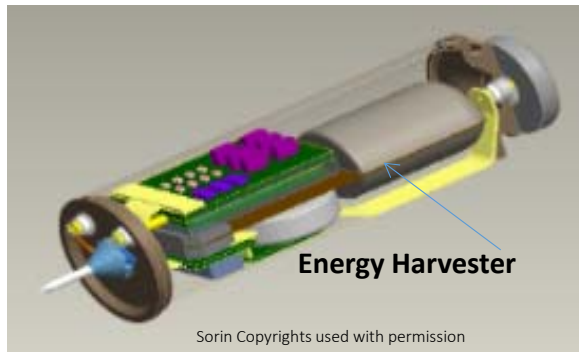


Examples of Technology Available

- **System integration**



Indoor solar building monitoring



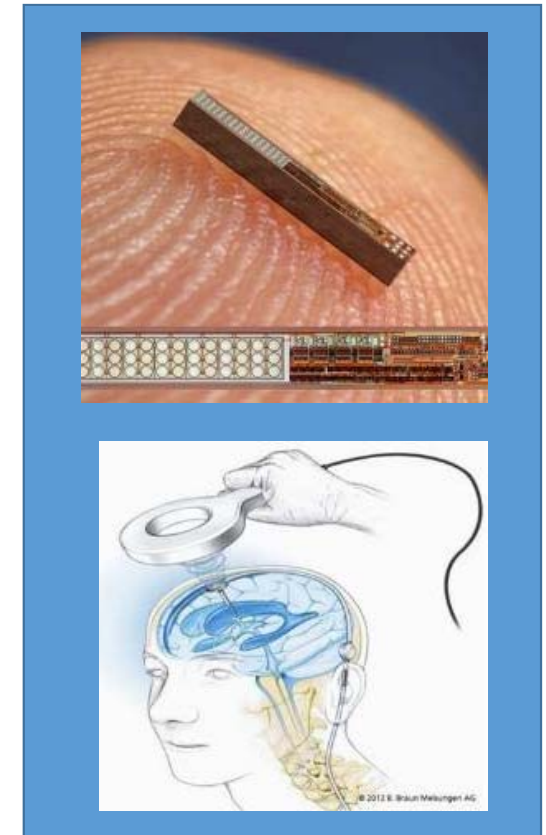
Implantable pacemaker



Solar powered window sensor



TEG powered sensor



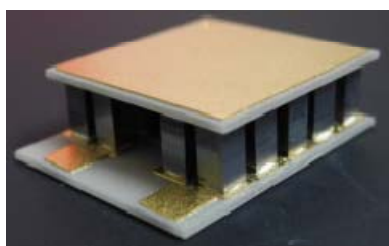
RF powered sensor



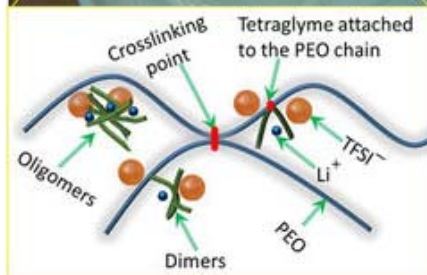
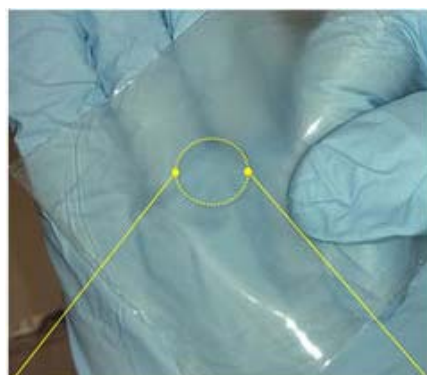
Examples of Technology Available



- System integration



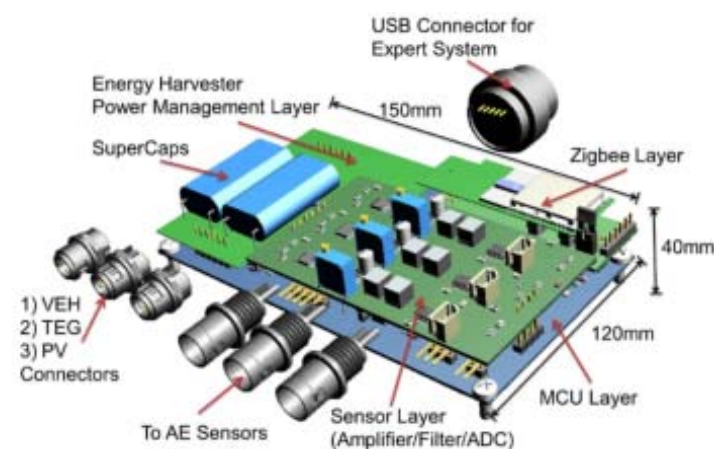
TEG sensor



Flexible battery



Solar powered IoT device



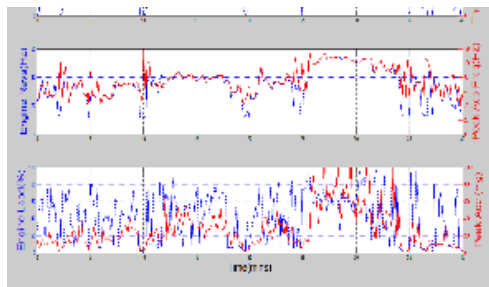
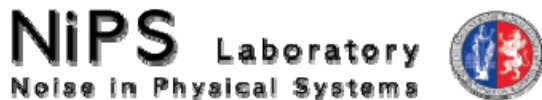
Multi-source equipment monitor



Virtual Access



- Virtual access databases already available from Perugia (NiPS) & Southampton
- Standardising, Integrating, Adding



Real Vibrations

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[DAQ Kits](#)
[Info](#)
[Policy](#)
[Contacts](#)

 Search:
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Home

Welcome to the Real Vibrations web site.

What is Real Vibrations ?

This web site is home to a digital database containing numerical time series and spectral representations of experimentally acquired vibration signals.

Most importantly, Real Vibrations is a participatory research project that aims at creating the world largest repository of vibrations recorded from everyday life objects and people movements.

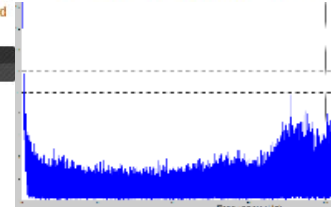
Cars, trains, airplanes, and even human beings, constantly vibrate and these vibrations can be recorded with various devices and stored in such a way that they are readily available and easily usable both by researchers and non expert visitors.

There's a vibrating world around us



What are these data for?

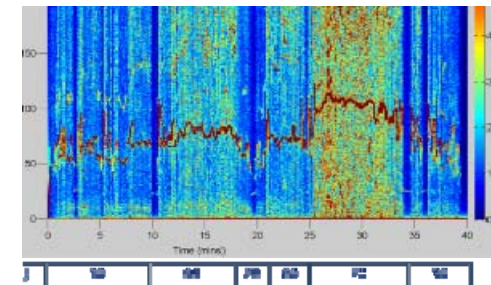
ving world
y transform
electronic
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Connecting to OBD via Bluetooth (1)



use. To us this is a map of potentially
oyed to power electronic devices such as
will be able to integrate and/or substitute



EU Project 730957

How can we EnABLE you?

En*A*BLES

En*A*BLES

COMING SOON TO A SCREEN NEAR YOU

