Real Life Use Cases - EnABLES Transnational Access Projects

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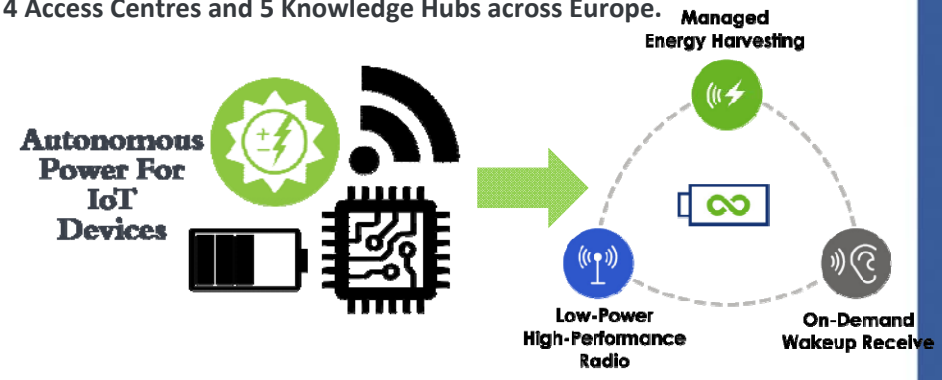
ABSTRACT: EnABLES allows companies to take advantage of fully funded access to key European research Infrastructures in the area of powering the Internet of Things (IoT). Helping industry and academia alike to address key challenges in achieving truly 'invisible', unobtrusive, and self-powered (autonomous) wireless devices. The project does this by providing access to state-of-the-art facilities and the expertise at the EnABLES partners sites. EnABLES is made up of 4 Access Centres and 5 Knowledge Hubs across Europe.

Introduction

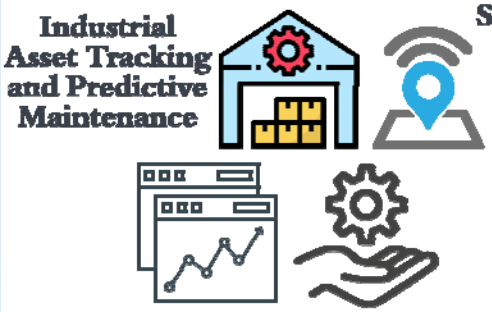
Tyndall National Institute has undertaken multiple of these transnational access projects spanning a wide breadth of interesting topics. Tyndall provides state of the art laboratories for characterization of devices (batteries, microprocessors, sensors), reports on the state of the art in the area of interest and guides partners in energy consumption and battery-life optimization.



Industrial Asset Tracking and Predictive Maintenance: Challenges

Some challenges faced are:

- *Limited Expertise in Ultralow Power Electronics*
- *Non-Linear Importance in Asset Tracking*
- *High Power Computation on Edge Nodes*



How EnABLES Helps

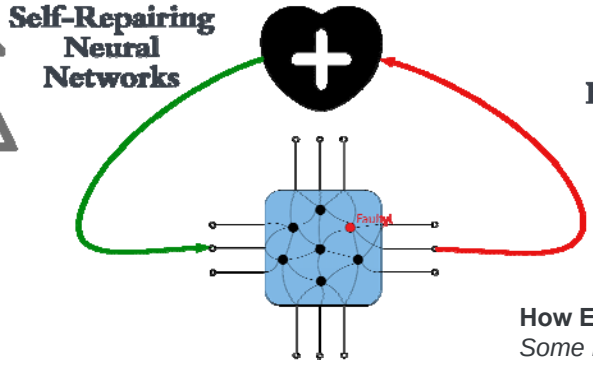
Some Helpful Solutions:

- *State-of-the-Art Review of Current Technology*
- *Development of Bespoke Solutions and Simulations for Specific Factories*
- *Low Power Solutions for Edge Devices (e.g. Wake-Up Radios, Low Power FPGAs)*

Self-Repairing Neural Networks: Challenges

Some challenges faced are:

- *High Power FPGAs Used*
- *Hard to Reduce Structures for ANNs*
- *Understanding Power Consumption in Complex Networks*
- *Need for Simulation Capabilities*



How EnABLES Helps

Some Helpful Solutions:

- *Advice on Less Power-Hungry Components*
- *Measurement of Current Devices Being Used in State-of-the-Art Power Labs*
- *Simulation Tool Development*

Unit Load Device Tracking for Aviation: Challenges

Some challenges faced are:

- *Low Ambient Energy for Large Periods of Time*
- *Lack of Measurement Tools and Low Power Lab Access*

How EnABLES Helps

Some Helpful Solutions:

- *Development of Energy Harvesting Strategies for Low Ambient Energy Levels*
- *Development of Low Power Firmware for this Specific Application*
- *Measurement and Characterization of Power Available and Components That can operate within this Ranges*