Access provider – Tyndall

System Integration - Access description

Access to Tyndall's System integration tools to enable simulation, optimisation and evaluation of IoT power systems in a wireless sensor networks. This includes a simulation and optimisation tool, as well as Energy harvested wireless sensor hardware platforms.

Technical offering

- Hardware platforms that can be used for characterisation and testing of complete multisource energy harvested wireless sensor nodes. The hardware has plug and play capability for energy sources and sensors. Possible configurations include, Solar, TEG and vibration energy harvesters and a range of environmental sensors integrated via a standard interface.
- Simulation and optimisation of the complete IoT Power system enabling trade offs to be made between Wireless nodes, Energy Storage, Energy Harvesting, Power Management to determine best battery lifetime and potential autonomous harvested power capabilities.
- Characterisation of sub system blocks for inclusion into the IoT Power systems simulation and optimisation tool. Enabling bespoke configurations for specific use cases

Main equipment

- Energy Harvested Wireless System Simulation Tool (ROWBUST)
- Multisource Equipment Monitor
- Ambient indoor light Energy Harvester

Typical applications

A broad range of autonomously powered energy harvested wireless sensor systems that monitor sensed data from the environment. Examples being, machine and infrastructure health, building energy management and smart cities

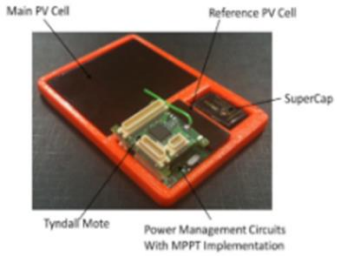
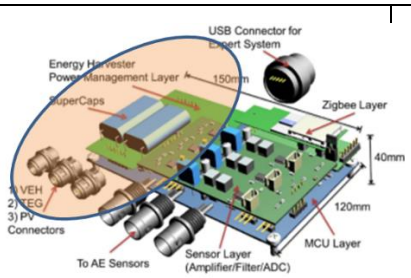
Case study

An SME or research team are developing an energy harvesting system to power a wireless sensor mote. They need access to a tool to run simulations to optimise sub system blocks to enable battery-less power. On completion of the analysis they then want to prototype the system to evaluate performance. A Typical project would give access to simulation results from the optimisation tool running with bespoke sub block models from the client. In addition access to

energy harvesting wireless platforms and expertise is available from Tyndall to enable bench evaluation.

Responsible

Peter Haigh

		
Ambient indoor light Energy Harvester	**Multisource equipment monitor**	**Energy Harvesting wireless sensor system simulation Tool**
Keys specifications		
• **400uW at 300Lux** • **2 hours self start** • **Requires 8 Hours at 300 Lux.** • **72 Hours operation in darkness** • **Powers temperature, light and humidity WSN node**	• **Suitable for self powering a wireless conditional monitoring unit (eg MOSYCOUSIS project)** • **VEH, TEG and PV interfaces** • **EH power management** • **Super cap energy storage** • **AE Sensor interfaces**	• **Enables a non expert to determine battery life / energy harvesting capability for a combination of components and ambient energies** • **Models include, wireless sensor node, power management IC, Energy Storage, Energy Harvesting.** • **Simulate and optimise trade offs between sub system parts**