Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
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CONNECT

SensePower

Optimising battery usage in Internet of Things (IoT) sensor deployments.

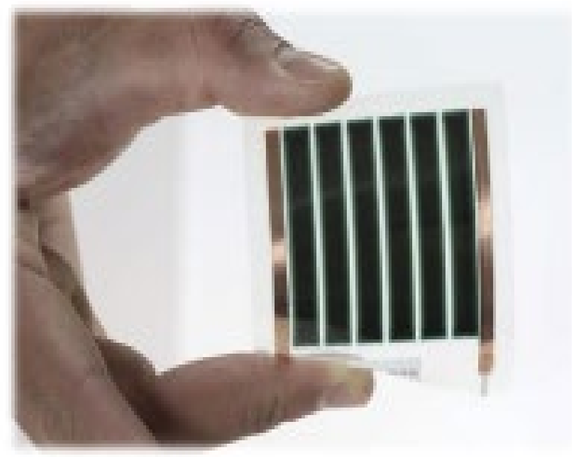
Overview

The CONNECT research centre's Artificial Intelligence solution 'SensePower' leverages sensor data to improve the energy-efficiency of IoT device deployments. It can recognise sensing and transmission patterns across time and space and optimises transmission from the best data source. By doing this, the technology reduces operational maintenance & energy costs, prolongs sensors' battery life and lifetime of network deployments.

Technology features

The scheduling service for battery-powered devices will have the following proposed innovative features taken directly from the information supplied:

- Leveraging the spatio-temporal correlation from the sensor's measured data: IoT sensors that measure the same physical phenomena, e.g., humidity and temperature, collect information correlated in time and space. By detecting this correlation, SensePower can infer the values that would be measured by sensors and avoid unnecessary transmissions.
- Reducing the frequency of measurements and transmissions, and hence, reduce the consumed power and increase the overall longevity of IoT deployments.
- Minimising the number of messages in the core network, thus making it more efficient.
- Advanced Maintenance crew scheduling, i.e., an alert system to inform technicians responsible for maintenance when to replace sensors' battery.



Advantages

- **Total cost of ownership:** Save at least 30% on operational maintenance and energy costs. By using artificial intelligence, it can improve the energy efficiency of deployed sensors which prolongs time between battery change, device replacement and overall energy consumption.
- **Simplicity:** A black box solution using powerful state of the optimisation algorithms which do the hard work in the background. Reduces the need for IoT deployment and network management consultancy services and puts control into the hands of the network provider, solutions provider or indeed customer.
- **Versatility:** Wireless communication technology-agnostic and can operate in networks supporting Nb-IoT, LTE-M, LoRaWAN and Sigfox among many others. Can also be combined with other existing hardware solutions.
- **Enterprise Level:** The technology can optimise deployments for large organisations which have various geographically dispersed sites and many distributed diverse networks. These enterprises could use SensePower to optimise own device energy utilisation, lower maintenance costs and for planned maintenance purposes.
- **Forecasting:** Using AI, the system will be able to accurately predict maintenance requirements, such as when batteries will need to be changed having been fully optimised.

Technology Sector
Future networks and communications

Opportunity
Research collaboration
Available to License

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