

TECH OFFER

Data Centre Electrical Asset Monitoring Platform



KEY INFORMATION

TECHNOLOGY CATEGORY:

Green Building - Sensor, Network, Building Control & Optimisation

TECHNOLOGY READINESS LEVEL (TRL): **TRL8**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO175079**

OVERVIEW

Driving sustainability, efficiency and carbon reduction in data centres is a complex and increasingly challenging requirement. The increased global use of high-definition video streaming, conversational AI modelling technologies and online meeting platforms puts increasing strain on data centres.

To meet these complex challenges, an AI, data-driven solution is required. The proprietary solution proposed herein is a data acquisition and analytics system designed for deployment in data centres.

The solution employs non-intrusive clip-on current transformers which are easily installed at electrical distribution boards, which continuously gather current signatures information at a high sampling rate. This enables AI algorithms to detect subtle changes and patterns in the electrical signature of each connected asset or device.

Monitoring electrical assets has traditionally been complex and costly, requiring multiple sensors and expensive systems, and often requires deployment near to the asset or device to be monitored. This has led to widespread under-monitoring, resulting in

expensive maintenance and significant energy inefficiencies.

The solution extracts a proprietary set of deep energy data from electrical devices such as, uninterruptible power supplies (UPSs), Chillers, power distribution units (PDUs) and air conditioning and can be easily installed on both new and existing infrastructure. It offers real-time monitoring and reporting on important metrics such as real-time power usage effectiveness (PUE) and enables automation of sustainability reporting.

This technology offers an industry-changing solution: a non-intrusive cost efficient AI-powered monitoring system that is easy to install. It generates a proprietary data set that fuels machine learning algorithms, enhancing efficiency and reducing total cost of ownership for data centre managers and owners.

The technology owner is seeking opportunities to demonstrate the capabilities in the data centre environment, preferably based in Singapore.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Only a current transformer is required for each device, greatly reducing cost and increasing reliability.
- The proprietary current transformers are easily clipped onto electrical circuitry. The system can be installed into new or retrofitted into data centres and operates from its own independent network. Installation can be done by a locally qualified electrician.
- Additionally, fully assembled rack mounted solutions with a simple plug in feature available on server racks infrastructure.
- High-frequency electrical signature collection. The circuit transformer sensors are tethered to electrical circuits. These sensors acquire high-frequency electrical data, and the data is then fed into the intelligent monitoring system. The system has specialised machine learning algorithms specifically designed to provide valuable insight into the unique challenges of the built environment.
- Multiple data points are analysed based on power quality, asset condition, electrical safety, arcing, and carbon reduction.
- Proprietary hardware/software platform to make data acquisition and installation as un-intrusive, easy and cost-effective as possible.
- Web console for easy data visualization and open API for integration with other systems.
- Growing knowledge base and algorithm library to add value to the unique building environment.
- Dedicated in-house data solutions team with exceptional data science expertise that can understand and solve the bespoke challenges of specific buildings and assets.
- All data is also made available for direct download and local processing via a comprehensive Application Programming Interface (API).

POTENTIAL APPLICATIONS

Opportunities provided by the system

- Power Quality Monitoring - voltage, phase balance, power factor.
- Electrical device condition monitoring for predictive maintenance.
- Fault prediction and detection for maximising availability.
- Energy optimisation, cost savings and carbon footprint reduction.
- Arc detection capabilities for identification of fire hazards.
- Real-time warning and notifications.

MARKET TRENDS & OPPORTUNITIES

The system is ideally suited for the complex and ever increasing demands of data centres. Driving efficiencies in these environments, monitoring asset longevity and procurement, ESG reports and staff efficiencies are critical in this expanding sector

UNIQUE VALUE PROPOSITION

The solution gathers an unprecedented level of data, simultaneously monitoring thousands of different data points at any one time. The level of granularity provides a rich level of insight hitherto deployed at scale in most sectors.

Typically alternative technologies, such as sensors can be costly, require regular configuration, and are not always part of a scalable solution where things such as condition-based monitoring have to be done on a site-by-site basis as opposed to a learn and deploy model.