TECH OFFER

AI-Native Orchestration Platform for Building Operations Management

KEY INFORMATION

TECHNOLOGY CATEGORY:
Infocomm - Smart Cities
Green Building - Sensor, Network, Building Control & Optimisation
Electronics - Sensors & Instrumentation
Infocomm - Artificial Intelligence
Infocomm - Internet of Things

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO175503**

OVERVIEW

Operational energy use in buildings is a major emissions driver, accounting for about 27.3% of energy-related global emissions in 2022. With the Singapore Green Plan 2030 and Mandatory Energy Improvement (MEI) regime to target 80% of new buildings to be Super Low Energy buildings from 2030 and enhance energy performance of existing buildings respectively, various assets (residential, commercial and mixed-use) are actively integrating and retrofitting solutions to support a low-carbon built environment.

The technology owner has developed a comprehensive solution comprising both hardware IoT devices and an AI-native software platform aimed to reduce energy consumption and energy use intensity (EUI) for both new and existing building infrastructure.

This end-to-end technology solution provides monitoring, down to the last-mile energy consumption portfolio, from respective plug-loads to rooms and floors, to enable quantifiable reductions. With the proprietary AI model, the solution aims to provide self-management capabilities for daily operations while having self-learning capabilities to cater to respective infrastructures. This results in an increased operational efficiency and measurable cost savings, in addition to aligning with ESG-related guidelines.

The technology owner has successfully conducted deployments on existing building infrastructures, with one pilot exhibiting up to 30% energy savings during the period. The owner is seeking industrial collaboration partners, such as data centers, hospitals and manufacturers, looking to gain visibility of their energy consumption and actively reduce EUI within infrastructures.

TECHNOLOGY FEATURES & SPECIFICATIONS

The comprehensive solution comprises various hardware IoT devices and an AI-based software platform to enable users to monitor and quantify energy consumptions to reduce EUI. The key features of the solution's hardware IoT devices include:

- Various form factors, such as smart plug-load and smart miniature circuit breaker (MCB) sensors, for non-invasive last-mile/ upstream energy consumption monitoring
- Simple plug-and-play installation and setup
- Integration of proprietary enterprise-grade security protocol and wireless chip design for secure communications
- Wireless communications for respective smart IoT sensors to cloud platform
- Safety certifications and SAFETY mark certified for local deployment
- Real-time power monitoring parameters and remote actuation capabilities at load based on AI-based software platform

Coupled with the deployed hardware, the key features of the solution's SaaS AI-based software platform include:

- Smooth integration of proprietary smart IoT devices and/ or 3rd party IoT sensors for visibility at one location.
- Cloud-based platform for ease of viewing and measurable insights anywhere
- Proprietary AI models for orchestration, smart monitoring and suggested actuations of respective IoT devices
- Self-learning capabilities to cater to occupancy centric infrastructure
- Data logging functionalities with report generation

POTENTIAL APPLICATIONS

The owner is seeking collaboration partners, such as manufacturers and end-users, looking to gain visibility of their energy consumption and actively reduce EUI within infrastructures, such as:

- Residential: Hotels, hostels and apartments with changing occupancy and power profile throughout the year
- Commercial/ Mixed Use: School campus, F&B outlets with different power profile but have routine occupancy profile
- Industrial: Banks, data centres, offices with varying energy-intensive appliances with some equipment requiring prioritisation

UNIQUE VALUE PROPOSITION

This comprehensive solution comprising both IoT hardware sensors and AI-native software platform enables reduction in both energy consumption and energy use intensity (EUI) for building infrastructure in a non-invasive, end-to-end approach. The plug-and-play IoT sensors provide last-mile monitoring and actuations securely via their proprietary enterprise-grade security

protocol. The cloud-based software platform provides visibility of quantifiable reductions at a glance remotely while providing capabilities to orchestrate and integrate existing 3rd party sensors into the platform. The proprietary AI models are empowered by self-learning capabilities to translate measured power and occupancy profile patterns to actionable insights, via remote actuations, thereby resulting in tangible cost reductions and improved operational efficiency.