IPI Innovation Partner for Impact
SINGAPORE

TECH OFFER

Power and Water Monitoring System for Sustainability Report Generation

KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Low Carbon Economy
Electronics - Sensors & Instrumentation
Green Building - Sensor, Network, Building Control & Optimisation

TECHNOLOGY READINESS LEVEL (TRL): **TRL4**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO174937**

OVERVIEW

Singapore commits to achieving net zero emissions by 2050 as part of the nation's Long-Term Low-Emissions Development Strategy. This target is dependent on many factors including industry's ability to collect energy consumption data effectively on activities that generate greenhouse gas emissions.

Developed by a local research team, this solution provides a cost-effective way to collect consumption data on two key contributors to carbon footprint, electricity and water. Long-range (500m) plug-and-play wireless sensors integrated with a customized dashboard provide users with an intelligent and accurate overview of their utility consumption in their facility. Coupled with an analytics engine running in the background, usage patterns can be established, optimized and contingency alerts provided where required.

The solution caters well to facilities with legacy systems by allowing consumption data to be collected without the need for extensive system changes. The system is fully customizable and configurable based on user requirements. The technology owner is looking for partners and collaborators to further co-develop and trial this technology.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Long-range (>500m) wireless connection enables wider, easier installation.
- Ability to integrate with some models of existing conventional meters
- Values received are shown in CO_2-Eq (1 m^3 of "tap water at consumer" to 1.30 kg CO_2-Eq).
- Real-time monitoring of water consumption, leakages, and others.
- Continuous data collection to allow the study of usage patterns.
- Data visualization and in-depth analytics.
- Ability to pinpoint and isolate water-leaking parts
- SMS Notification system to reduce time wasted before action is taken
- Ability to shut off remotely using a solenoid valve to reduce water wastage.
- Helps to raise general awareness of CO_2-Eq
- Allows savings on CO_2-Eq which will quadruple (based on carbon credit) in the next five years for factories

POTENTIAL APPLICATIONS

- Sustainability reporting for listed or IPO companies. (SGX recommendation for core metrics includes GHG emissions, Energy consumption and Water consumption)
- Factories and Manufacturing Facilities: Ideal for wastewater management, water-flow and additional IoT sensors may be added to track that the output remains within regulations, or recycled inputs are within specifications. Idle machines can also be switched off, allowing better resource management.
- Public Institutions: Complements and reinforces water conservation efforts Private Commercial Facilities- provides surveillance for a long-term redesign of water distribution throughout a facility for cost-effectiveness.
- Housing facilities: Monitor the usage of electricity and water to study possible areas of savings to reduce CO_2-Eq. Help to raise general awareness regarding carbon footprint generation.
- Facilities with unstable power supply or critical processes: With the monitoring and control system, it is possible to control the usage of resources when it is limited or restricted. Power to non-critical equipment may be cut to reduce consumption, and the allocation of fluids may also be set based on different conditions.

UNIQUE VALUE PROPOSITION

Compared to existing systems in the market which typically cater to either power or energy monitoring, this solution offers the additional integration of water monitoring as well as additional control features to trigger intervention steps should there be anomalies such as piping leaks.

The system allows direct insight to the correlation between what is used to carbon footprint. Data is collected to help users understand the greatest generators of carbon footprint, so that users are more aware, and can consider ways to reduce their carbon equivalent emissions.