

# A KNOWLEDGE REPRESENTATION AND REASONING FRAMEWORK FOR BUILDING ENERGY MONITORING

## Abstract

This poster presents a novel knowledge representation and reasoning framework for application to building energy monitoring. This framework can be used to enable the semantic integration of heterogeneous data from domains such as occupancy, weather, equipment, and utility for planning and management purposes. The presented framework employs a modular and scalable system architecture comprised of a library of ontologies that integrate data across domains and performance. Semantic Web technologies and inference-based reasoning are the key to the framework's implementation. An application example in which the framework automatically infers the operation and maintenance schedule of a valve in the building cooling system is presented. This framework is suitable for the much anticipated smart buildings with Internet of Things (IoT) solutions.

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