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MODULAR ADVANCED MONITORING AND CONTROL SYSTEM FOR INCREASING ENERGY EFFICIENCY IN EXISTING BUILDINGS

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Overview

This paper presents the advanced monitoring and control system architecture developed under the Energy IN TIME (EiT) project for existing non-residential buildings.

Methods

This approach was based on the necessity to implement advanced building simulation models to reduce the energy consumption and energy bill of existing buildings. The developed system methodology covers the most accurate and up to date international standards for energy efficiency. The project goes beyond existing building BEMS systems by developing an advanced monitoring and control system to meet the indoor comfort conditions and use systems behavior performance to further improve energy efficiency and equipment lifetime.

Results

A demo pilot was chosen to implement, test and validate the project results with a focus on developing a continuous commissioning strategy to better cope with real operation of the building and improve the capabilities of the fault detection and diagnostic system, designed for overall system robustness and evaluating faulty operation scenarios. The system architecture is modular and can be adapted to complex building and systems configuration, providing a wide range of measurements to implement. The control algorithms were specially developed for this particular demo building.

Conclusion

This approach will bring an increase in the system efficiency and therefore will contribute significantly to improving the building energy bill. The data interpretation and validation will be done based on the online data storage platform which has more than 18 months of continuous recorded data from the demo building.

References

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