

## Author's Accepted Manuscript

Development of network control platform for energy saving of fan coil units

Xiuming Li, Tianyi Zhao, Jili Zhang, Tingting Chen



PII: S2352-7102(17)30114-6  
DOI: <http://dx.doi.org/10.1016/j.jobee.2017.04.020>  
Reference: JOBE267

To appear in: *Journal of Building Engineering*

Received date: 2 March 2017  
Revised date: 25 April 2017  
Accepted date: 30 April 2017

Cite this article as: Xiuming Li, Tianyi Zhao, Jili Zhang and Tingting Chen  
Development of network control platform for energy saving of fan coil units  
*Journal of Building Engineering*, <http://dx.doi.org/10.1016/j.jobee.2017.04.020>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

# Development of network control platform for energy saving of fan coil units

Xiuming Li, Tianyi Zhao, Jili Zhang\*, Tingting Chen

Faculty of Infrastructure Engineering

Dalian University of Technology, Dalian 116024, China

\* Corresponding author. Tel.: +86041187407753

\*Email: lixiuming@mail.dlut.edu.cn

## Abstract

This paper presents a networked platform for fuzzy control of FCUs, which has strong extension ability, a friendly user interface and a web-based database. By means of Mamdani type fuzzy rules and functioning fuzzy subset inference methods, the duty ratio fuzzy algorithm is demonstrated using mathematical formulas and a serial of logic operations. Then, the proposed networked platform with the web-based database has been applied on the 39th floor in Jinjiang creative building in Chengdu, and the implementation process is detailed with the developed smart thermostat which is able to communicate with the programmable logic controller based on Modbus-RTU protocol. Finally, the duty ratio fuzzy control method is carried out in the proposed networked platform, and results indicate that the proposed networked platform for fuzzy control of fan coil units improves the automation level and the energy efficiency based on the networked integration technology, and it has a strong application potential for terminal devices of multi-zone HVAC units.

Download English Version:

<https://daneshyari.com/en/article/4923151>

Download Persian Version:

<https://daneshyari.com/article/4923151>

[Daneshyari.com](https://daneshyari.com)