Demand Response Resource Energy Optimization System for Residential Buildings

Sooyoung Jung*,[1], Jun-Ho Huh**
*Department of Electrical & Computer Engineering, Seoul National University, Seoul, Republic of Korea.
[1] CEO of Hanmi E&C Inc.
*First Author Email: sjung7@snu.ac.kr
**Department of Software, Assistant Professor of Catholic University of Pusan, Republic of Korea.
**Corresponding Author: 72networks@cup.ac.kr

Abstract. The demand response energy optimization system for the residential buildings includes one or more energy managers that monitor and control one or more power loads arranged in the building, an energy management system server that stores the information these loads by communicating with a number energy managers, and a demand response server that transmits information about the external demand reduction request to the same energy manager in the same manner. The system is effective and efficient in optimizing the energy used by the residential buildings as it can efficiently control the reduction according to the load arranged in each residence when reduction of energy use has been requested by the demand response server.

Keywords: Demand Response, Resource Energy Optimization, Smart Grid, Residential Buildings, Optimization.

1 Introduction

This study introduces a demand response resource energy optimization system and describes its methodology. This system is comprised of one or more energy managers that monitor/control one or more loads arranged in the residential building, an energy management system server that stores the information concerning the power consumption of these loads by communicating with one or more energy managers, and a demand response server that transmits external demand reduction request to the same energy managers in the same manner.

The system is effective and efficient in optimizing the energy used by the residential buildings as it can efficiently control the reduction according to the load arranged in each residence when reduction of energy use has been requested by the demand response server.

2 Demand Response Resource Energy Optimization System for Residential Buildings

The system model proposed in this study is shown in above [Fig 1]. The energy manager (110) arranged in the residential building can monitor the power consumptions of respective loads (120) arranged in the building and controls the