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Indoor Temperature Estimation with FIR Filter Using R-C Network Model

Authors : Sung Hyun You, Jeong Hoon Kim, Dae Ki Kim, Choon Ki Ahn

Abstract : In this paper, we proposed a new strategy for estimating indoor temperature based on the modified resistance capacitance (R–C) network thermal dynamic model. Using minimum variance finite impulse response (FIR) filter, accurate indoor temperature estimation can be achieved. Our study is clarified by the experimental validation of the proposed indoor temperature estimation method. This experiment scenario environment is composed of a demand response (DR) server and home energy management system (HEMS) in a test bed.

Keywords : energy consumption, resistance-capacitance network model, demand response, finite impulse response filter
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