عنوان مقاله:

A MATLAB-BASED SIMULATION OF ENERGY USAGE FOR BUILDING THERMAL MANAGEMENT WITH FUZZY LOGIC

محل انتشار:

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خلاصه مقاله:

Building energy simulation is important for the study of energy efficiency in intelligent buildings. In this paper we are going to explain new method for heating and cooling systems in intelligent buildings. In this method we used a fuzzy logic algorithm to calculate compensation coefficient for heating and cooling system. We try to find a coefficient for increasing and decreasing the rate of heating and cooling systems. In this algorithm we used the difference between desired value and building temperature and difference between desired value and thermal disturbance as two coefficients to calculate compensation value. We also used a coefficient to simulate volume of area. These coefficients are used as the inputs for fuzzy logic toolbox. Based on these inputs, we created two outputs for this fuzzy toolbox. One output is the compensation coefficient to compensate temperature of building. The second one is a coefficient to simulate volume of the area. We designed 72 different rules among these inputs and outputs to prepare smart heating-cooling system for buildings. Maximum compensation value is 0.4 unit; but, it changes with some rules based on results of fuzzy rules. We can also change this maximum value and the results will be the same. The second output has effect on one parameter by the name of Cenv that it shows the impact of volume on the rate of temperature change

کلمات کلیدی:

Heating-Cooling systems, Fuzzy Logic method, Compensation Value