Energy saving by applying the fuzzy cognitive map control in controlling the temperature and humidity of room

ABSTRACT

This paper investigated the implementing of soft computing methodology of fuzzy cognitive map on controlling parameters of heating, ventilating and air-conditioning systems. In the past few years, many researches have been done on application of different controllers on heating, ventilating and air-conditioning system as a more energy consuming part of the building automation system. Unlike the conventional control methods which are used more in this area like PID controller, the fuzzy cognitive maps method was chosen to control of the temperature and humidity of the room in winter operation season and summer operation season. By applying the fuzzy cognitive map controller, more energy efficiency and also more energy saving has obtained. The advantages of using fuzzy cognitive maps indicated as a controller on the typical heating, ventilating and air-conditioning system in this paper. The algorithm of FCM control reached to the goals of comfort, robustness and energy saving.