



ROOM CLIMATE CONTROL SYSTEMS RESEARCH

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ABSTRACT

This paper describes control applications for air handling systems commonly found in rooms climate control. The basic processes such as heating, cooling and ventilation are presented individually then combined into typical air handling systems.

HVAC systems in buildings must be complemented with a good control scheme to maintain comfort under any load conditions. Efficient HVAC control is often the most cost effective option to improve the energy efficiency of a building. However, HVAC processes are nonlinear, and characteristics change on a seasonal basis so the effect of changing the control strategy is usually difficult to predict.

The use of optimization and adaptation principles in regulation systems permits to construct the most modern automatic room climate control systems. However, under different conditions systems can produce different results, so developers face a new challenge – a choice of the most effective adaptation method under certain circumstances. This task of method choice was solved by a dynamic modulation in Simulink MatLab environment that produces many detailed characteristics of algorithm choice, by simulating operating regulators.

Process control is an efficient expression of improving the operation of a process, the productivity of a plant, and the quality of products.

Standard PID-regulator was included in the research model.

Keywords – temperature, PID regulator, Simulink MatLab.