

Article Abstract

Title:	Fuzzy logic approach to provide safe and comfortable indoor environment
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Abstract:	The paper presents a fuzzy logic approach that aims to control the indoor air quality to provide a safe and comfortable environment. The proposed approach evaluates the current situation based on installed sensors and consequently provides the proper action(s) to keep the indoor environment safe and comfortable for living. Inputs for the fuzzy controller include measurements from temperature and humidity sensors to boost comfort, and that from toxic odors sensors to enhance safety. Controller's outputs include signals to the air conditioning unit (AC), ventilation system, and humidifier/de-humidifier, in addition to visual/audio warning alerts in case of dangerous situations. To validate the usability of the controller, various combinations of buildups of heat, humidity, and odors are investigated. Results obtained from the simulation studies illustrate the robustness of the proposed controller at the different input scenarios.
Keywords:	Indoor air quality; thermal comfort; safe environment; fuzzy logic.