

Monitoring and Controlling Buildings Indoor Air Quality Using WSN-based technologies

Abstract:

Ventilation systems operate at buildings level for enhancing air quality by injecting fresher air from outside into inside buildings. In many situations, occupants have to open doors or windows in order to get indoor fresh air. However, in cold or hot periods, or when there are no windows, ventilation systems automatically act on behalf of occupants by insuring good indoor air quality. More precisely, the ventilation controller performs this task by automatically adjusting fresh air as much as needed based on actual indoor CO₂ concentration. Several approaches have been implemented and deployed in real-setting scenarios, but most of them are either time-triggered or are based on predefined schedules, e.g., ON/OFF and PID. In this paper, we propose to use contextual data mainly indoor/outdoor CO₂ concentration for developing a WSN-based platform for monitoring and control. A prototype was deployed in a real-lab test scenario for ventilation control. Experiments have been conducted and obtained results show the efficiency of the proposed solution.

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