Improving Building Energy Efficiency by Kinect-based Occupancy Tracking and Mobility Detecting System

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ABSTRACT

Nowadays, most building air-conditioning systems still operate on a fixed schedule rather than real-time occupancy. In our study, we make an occupancy tracking software based on Kinect to reflect the number of people in a open lab. We then build a Markov Chain (MC) model after dividing the open area into 4 zones and calculating its occupancy respectively. When applying the real-time schedule of one week to a building model created with eQuest, we obtain a 22.1% energy reduction.

1. INTRODUCTION