Resident-Aware Green Home

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Abstract : The amount of energy the world uses doubles every 20 years. Green homes play an important role in reducing the residential energy demand. This paper presents a platform that is intended to learn the behavior of home residents and build a profile about their habits and actions. The proposed resident aware home controller intervenes in the operation of home appliances in order to save energy without compromising the convenience of the residents. The presented platform can be used to simulate the actions and movements happening inside a home. The paper includes several optimization techniques that are meant to save energy in the home. In addition, several test scenarios are presented that show how the controller works. Moreover, this paper shows the computed actual savings when each of the presented techniques is implemented in a typical home. The test scenarios have validated that the techniques developed are capable of effectively saving energy at homes.