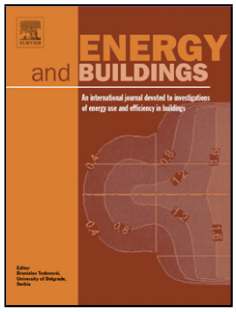

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A preliminary study of occupants' use of manual lighting controls in private offices: A case study

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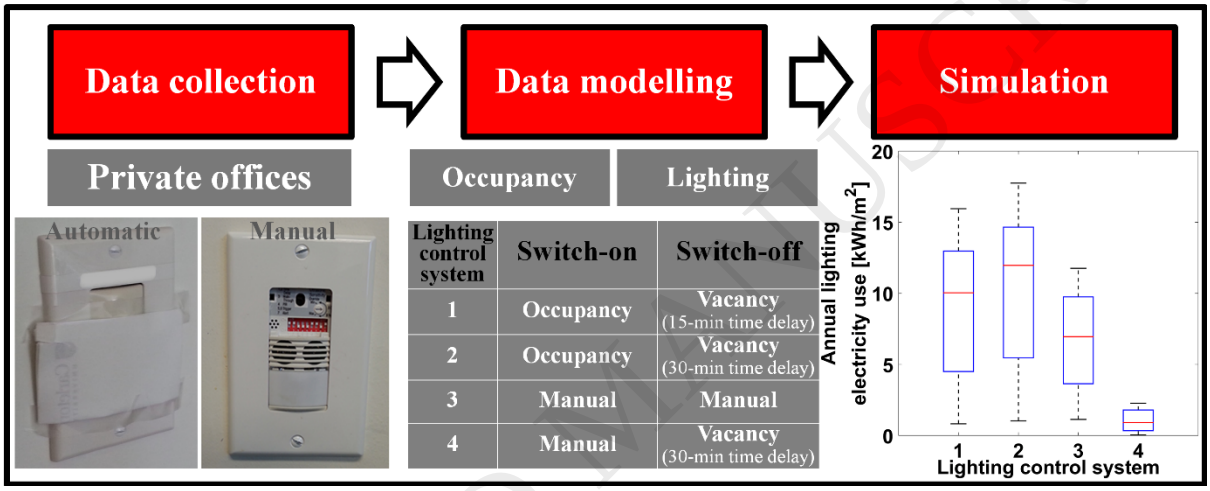
Graphical Abstract



Highlights

- The impact of light control systems on lighting energy use was evaluated.
- Probabilistic models were developed from a monitoring campaign.
- Data-driven models and a set of control systems were implemented in simulation.
- The manual-on system reduced the lighting energy use by a factor of seven.
- Study start date and duration affected the reliability of the models.

Abstract

While building engineers attempt to reduce energy use and provide occupants with comfortable spaces by automating building systems, poor implementation and neglecting occupants' preferences may cause the opposite effect. Monitoring occupants' building interactions provides valuable information in this regard. The main objective of this research is to examine the impact of the manual and automatic lighting control systems on the lighting energy use in private offices using experimental and simulation approaches. Probabilistic models for occupants' presence and lighting use were developed based on the