

Duty-Cycling Buildings Aggressively: The Next Frontier in HVAC Control

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1: Summary

The paper first argues why the problem they are targeting is actually a significant one. building energy consumption accounts for 40% of power usage. As like the other paper, it points out flaws in existing building management technologies in that they don't incorporate people in the model.

The main components of the sysmt are occupancy sensor nodes, wireless network infrastructure, and a control architecture. The occupancy nodes need to be low power and wireless. They use passive infrared sensors. The data collection network, which gets data from the proximity sensors is an important part of the entire system. They propose using middle man base stations to get the data from the sensors in their error and then relay them to the infrastructure network. This ensures good radio coverage to all the stations. The final components involves data analysis and control. They say most of the EMS protocols have already been developed.

Some of the more informative data will take time to aggregate and look for trends. They proposed that patterns will expose themselves. Some of the stuff we have seen in previous papers. The analysis of savings and gains is very thorough.

2: Strengths

- Automated change

3: Weaknesses

- Other locations
- UCSD has alot of existing infrastructure

4: Future Directions

- Expand to more large scale control of more of the building's infrastructure