Sustainable Campus Buildings through Sensing and Human-Building Interaction

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Goals & Rationale 1

- Enhance **energy efficiency** and **reduce greenhouse gas emissions** on the Pitt campus.
- Develop **new sensing** and **data science techniques** to identify energy efficiency opportunities.
- Use **human-in-the-loop** approaches to incorporate sustainable operations into existing buildings

Methodology 2

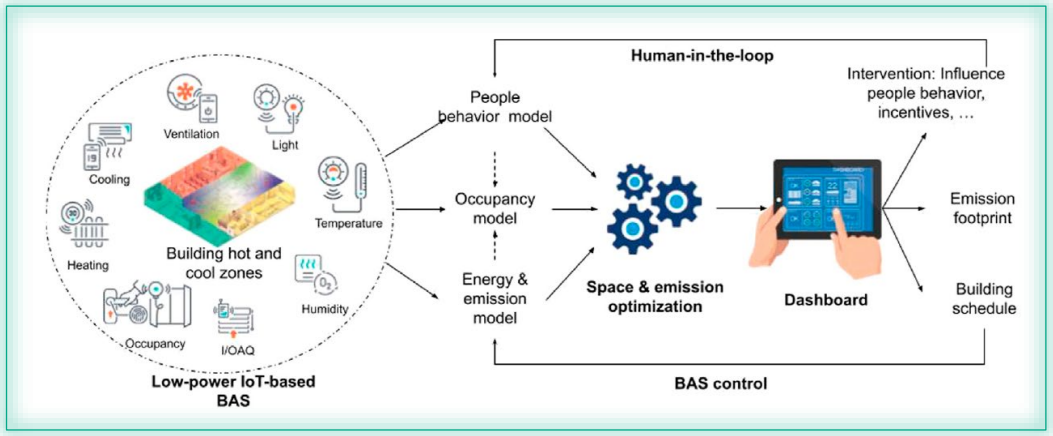
- **Data Collection:** Create/install sensors and use apps to gather data on occupancy, environmental conditions, and occupant comfort preferences.
- **Data Analysis:** Analyze collected data to provide actionable insights about HVAC/lights to Facilities Management based on actual space usage and occupant feedback.
- **Intervention:** Design and test interventions that encourage occupants to adopt energy-saving behaviors and preferences (e.g., incentivizing users, reporting discomfort)

Outcomes 3

- **Comprehensive datasets** on building usage and occupant behavior.
- **Tools for scalable data** collection and analysis.
- Actionable strategies for **energy savings** and **sustainability improvements** in campus buildings.

Innovation 4

- Collection and integration of **occupant feedback** into building management systems.
- Development of **low-cost, scalable sensor solutions** and **behavioral interventions**.
- Combination of **machine learning** and **behavioral science** to optimize building operations and occupant comfort.



Impact & Scalability 5

- Project insights and methodologies will contribute to **achieving the goals of Pitt's Climate Action Plan.**
- The strategies developed can be adapted to **other universities** and **large building portfolios**, enhancing **broader sustainability efforts**.

Making Pitt Buildings More Sustainable