

Thermal Efficiency Window System

Presented By:
Chelsea Patterson

Project Goals:

- Reduce energy costs for homeowners, renters, and businesses
- To create a self-functioning alternative form of regulating heat in a household
- Design a potentially integrative solution to systems already used
- Optimize design for spacial efficiency based on current fixtures

Why?

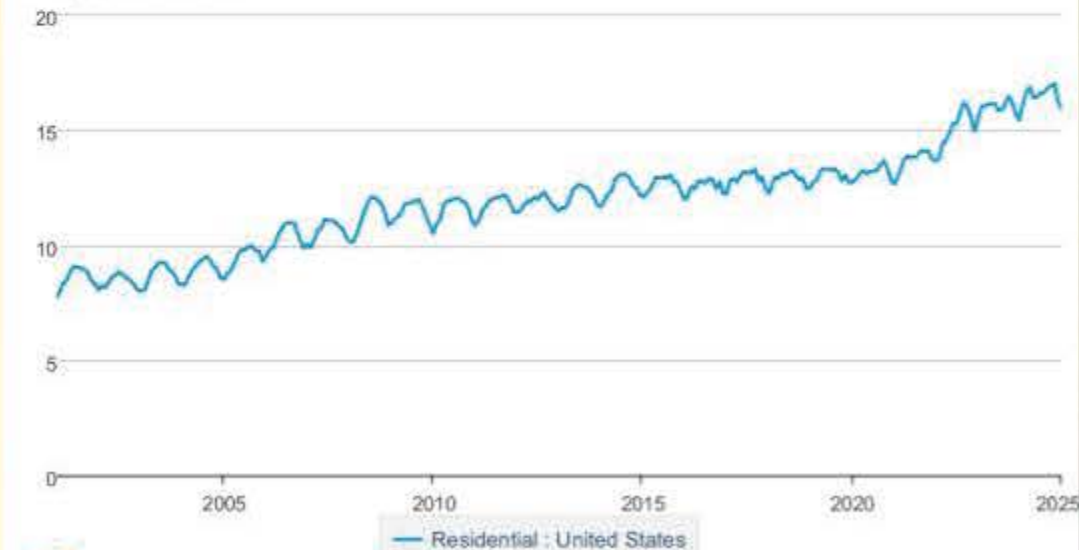
- Higher accessibility to renewable energy
- Less stress on the national energy grid
- Improve home weatherization implementation
- Lower energy costs per individual
- Create ease of use in the home by potential for remote automation

Project Future:

- Integration with automated home systems
- Integration with solar panel systems
- Automation based on residential HVAC already in the home
- Expanding energy consumption data

Average retail price of electricity, monthly

cents per kilowatthour



Data source: U.S. Energy Information Administration

“In New York State, conventional heating and cooling systems (furnaces, boilers, central/window ACs, etc.) are responsible for 37 percent of energy consumption and 32 percent of greenhouse gas emissions.” (NYSERDA)

Graph (left) showing the price of electricity per month in the average residence of NYS provided by the U.S. Energy Information Administration

Methods of Development:

- Arduino integration
- Servo motor-controlled blinds
- Temperature sensor
- Model construct produced by 3D modeling & printing