

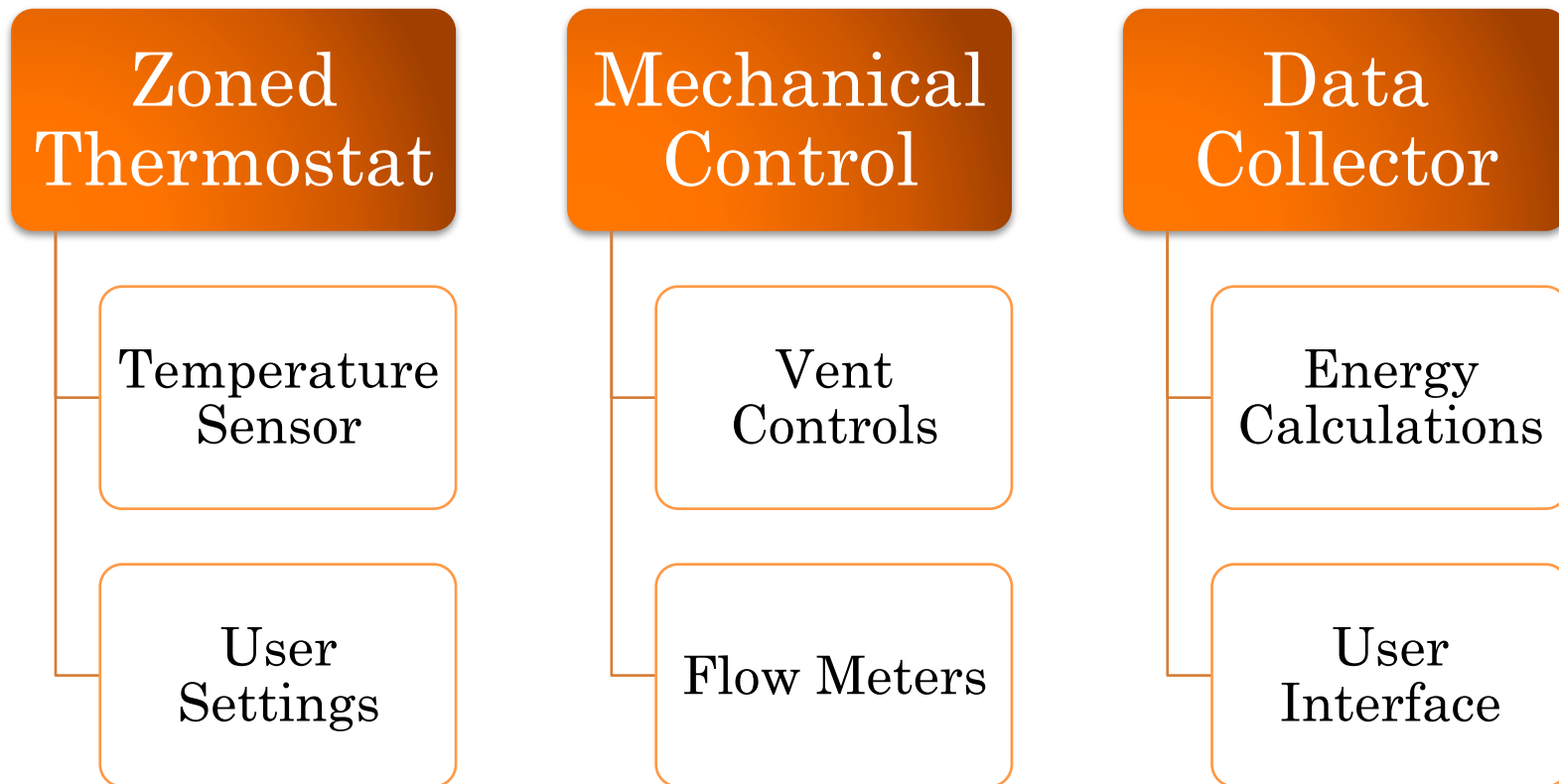
# SITUATION

- 92.7% of U.S. households have central heating
- Problem:
  - Inconsistencies across rooms
  - No individual temperature control, comfort
  - Wasted energy in current system
- Solution
  - System that monitors each room
  - Automatic adjustments
  - Track data for detailed reports

# BIG QUESTION

- How much energy will be saved?
- Will this product be worth it?
- 2 ways to save energy
  - Avoid overheating of room
  - Eliminate wasted heat out windows
- Our Product
  - Break even in two years
  - Cost up to \$300

# SYSTEM

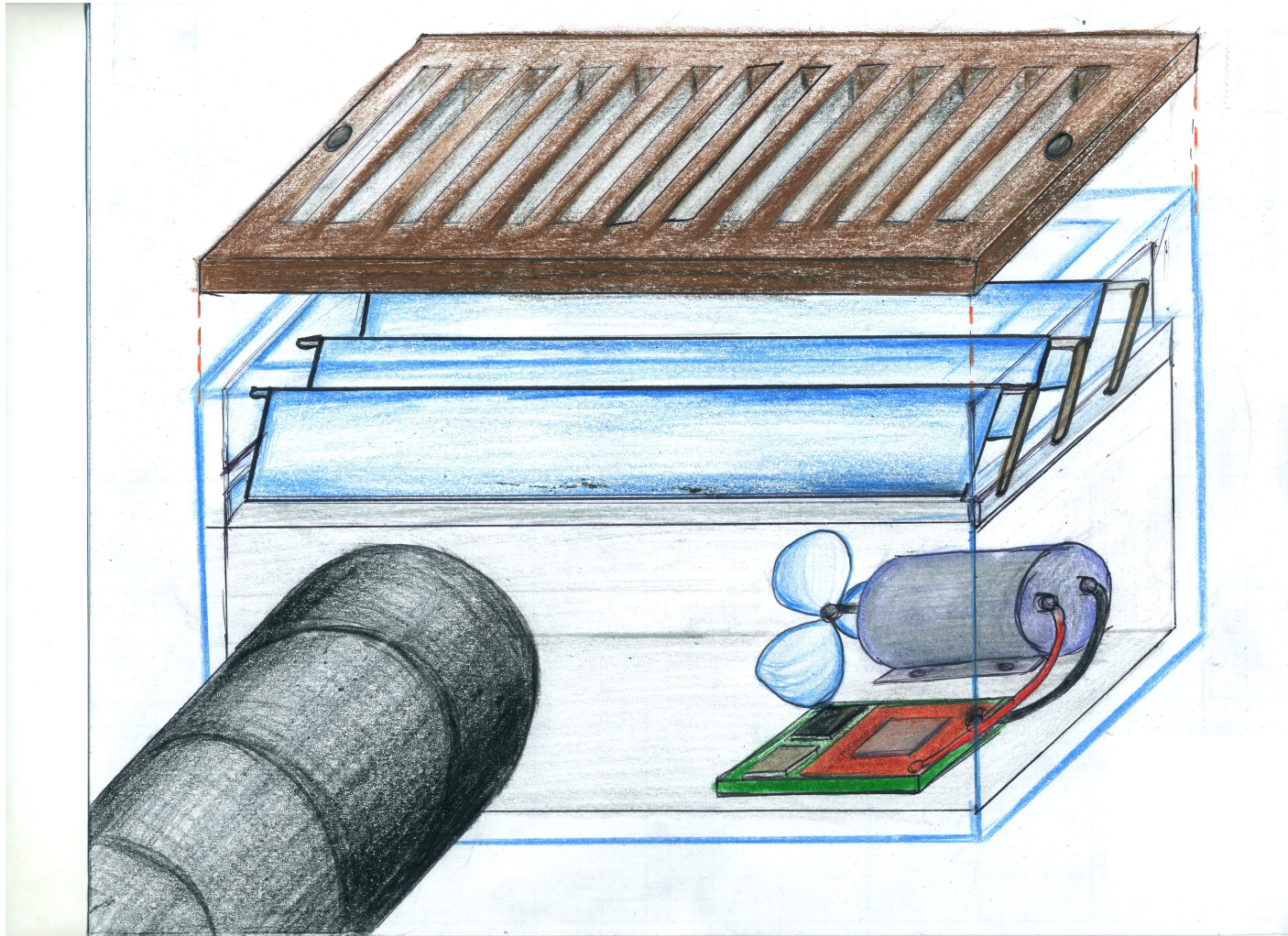


# FLOWMETER

- Needs to measure relative flow
- Designs considered
  - Spirometer
  - Anemometer
  - Paddlewheel
  - Spring Loaded Flap
- Estimated flow  
0.2 - 0.4 L/s



# MECHANICAL DESIGN



# BENCHMARKING

- Similar products exist

- MyTemp
- Aprilaire Zoned Comfort Control



myTemp

- Our Product

- Modular
- Easy, Self-Installation
- Sleek, Unobtrusive
- Less expensive



Aprilaire

Source: mytemp.com, aprilaire.com

# CUSTOMER NEEDS

- Lawrence @ MIT
  - Inexpensive solution to zoning temperature controls
- Homeowner
  - Want a payback period of two seasons
- Apartment owners
  - When utilities are built in the rent, owners want to reduce wastage of their tenants
- Apartment renters
  - “He likes his room hotter, why should I be paying for that?”



# FUTURE CONSIDERATIONS

- Incorporate spring-flap flowmeter
- Magnetic assembly
- Redesign motor placement
- Linkage mechanism vs. pulley
  - Motor runs only during movement
  - Magnetic clasp



# QUESTIONS?