
Smart Shower

Yellow A

Mock Up Presentation

October 18th, 2007

Problem

- Water waste due to shower habits
 - Old Showers: 40 gallons/shower
 - New Showers: 25 gallons/shower
- \$60-\$120/year on water for showers
- About 10,000,000 J/shower



Solution

- Saving water by reducing the volume flow rate when high volume is not required for the user's showering routine.
 - Pressure/Volume Regulation
 - User Controlled
- About 10% less water used
- \$2/year in savings per person
- 1,000,000J/shower saved



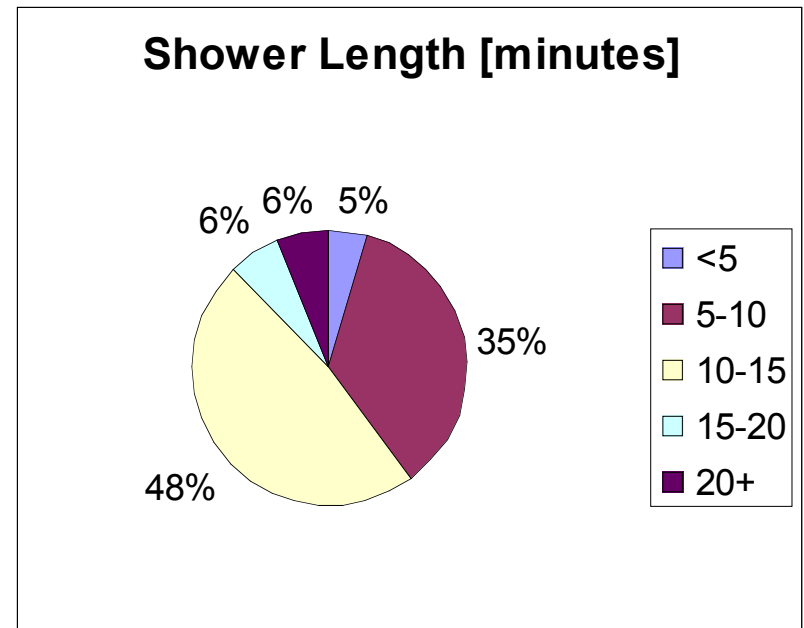
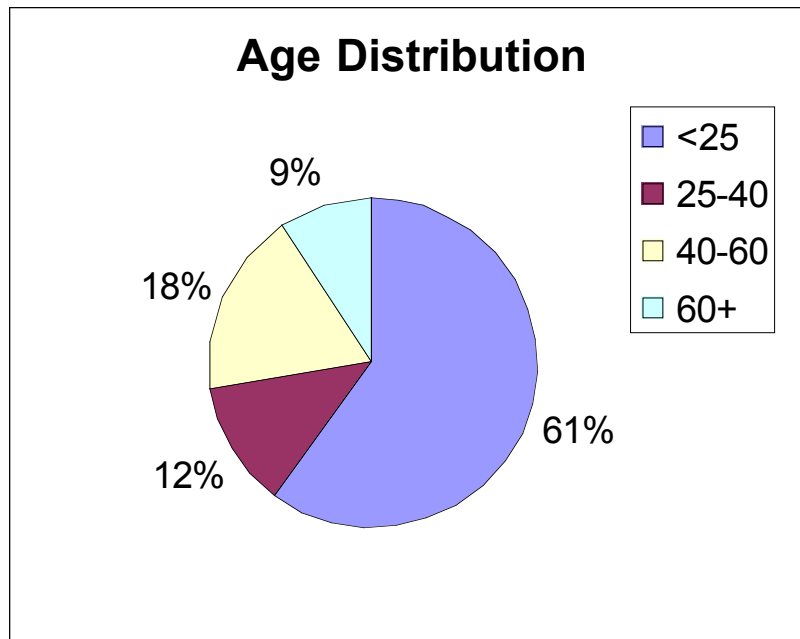
User Controlled Pressure System with
Microphone Sensor

Critical Issues and Risks

- Individual Shower Habits
 - User Preferences
 - Consumer Reluctance to Change
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Customer Interviews

- 65 interviews
 - 52% female, 48% male



Customer Insights

■ Concerns

- ❑ Shower Warmth
- ❑ Rinsing Pressure
- ❑ Sensor Reliability and Maintenance

■ Conclusions

- ❑ People want to save water
 - ❑ Quite concerned with losing shower quality
 - ❑ Considerable variability in customer responses
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Design Concept Concerns

Challenges

- Electrical Hazard
- Shower System Integration

Proposed Solutions

- Low Voltage Wireless
- Multiple Modules for Input

Sensor Type	Proposed Detection
Bump	Soap usage
Infrared (IR)	Position
Ultrasound	Position
Light	Position
Sound	User command

Design Concept Concerns

Challenges

- Electrical Hazard
- Shower System Integration
- Effective Use of Sensors

Proposed Solutions

- Low Voltage Wireless
 - Multiple Modules for Input
 - Customer Research
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Next Steps

- Aesthetics
 - Wireless communications
 - Multiple sensor integration
 - Decrease low flow from 20% by more efficiently dissipating heat (steam?)
 - Customer feedback and testing
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