EmotiSpace: Designing Adaptive Environments based on Emotions

A personalized system for homes and smart workspaces.

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What are current working spaces lacking?

Static Environments

Traditional living and working spaces are not designed to adapt dynamically to our changing emotional states.

Decrease in Productivity

Stress, lack of focus, and fatigue are common issues that negatively impact performance and well-being.

Privacy Concerns

While technology has advanced, many smart solutions compromise user data and security.

Power of Color: Blue Light for Wellbeing

Tokyo Train Platforms

Japan faces a high suicide rate, with train platforms sadly a common site. In 2009, blue LED lights were installed on the Yamanote Line, known for its calming effect. This innovative solution resulted in an 84% reduction in suicides at stations with blue lights.

Scotland's Blue Streetlights

Similar strategies were adopted in Scotland, addressing high suicide rates and rising street crime. Blue streetlights were installed in public areas to create a calming effect, leading to a reduction in both suicides and crime.

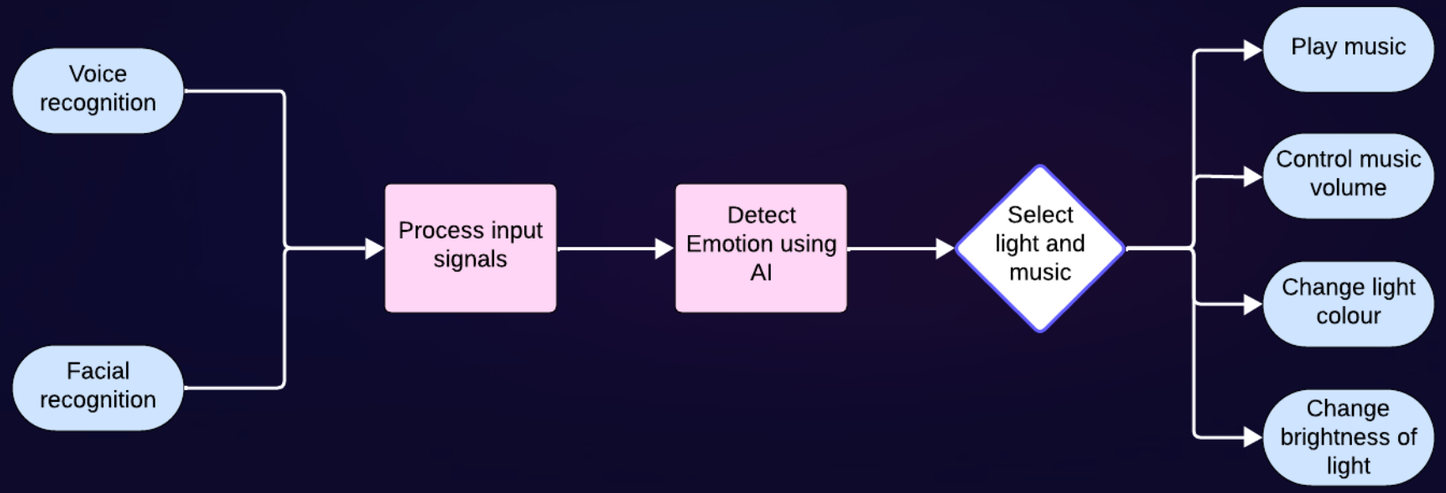
What do we offer?

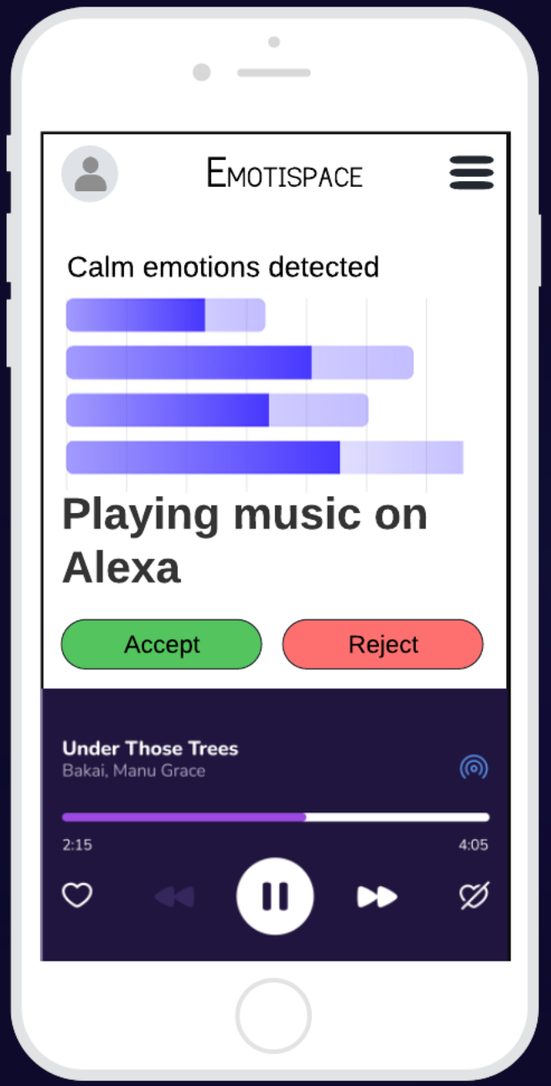
EmotiSpace is a compact and intelligent system that enhances your mood, productivity, and well-being.

Leveraging technologies like facial expression recognition, voice tone analysis, and real-time customization, EmotiSpace adapts your surroundings to match your emotional needs.

There is currently no product like this in the market.

Product Functioning and Prototype





Key Metrics - Goal Metrics

Measuring success requires quantifiable goals that drive EmotiSpace's growth and impact.

15%

Productivity Improvement

EmotiSpace improves work efficiency and user productivity.

75%

Customer Satisfaction Index

Users derive value from EmotiSpace and are willing to pay for its benefits.

10%

Market Penetration

EmotiSpace reaches a substantial portion of the target market.

90%

Retention Rate

Users continue using EmotiSpace for its intuitive and engaging experience.

Key Metrics - Driver Metrics

Metric	Description	Target
Emotion Detection Accuracy	Ability to correctly detect user emotions from various inputs.	90%+ accuracy
Session Frequency	How often users interact with EmotiSpace features daily/weekly.	High engagement rate
User Engagement	Tracking active usage time and environment adjustments.	Significant usage hours
Customer Satisfaction	Measured by Net Promoter Score (NPS).	NPS above 80
Adoption Rate	Number of devices sold in the first year.	1,000 units sold

Key Metrics - Guardrail Metrics

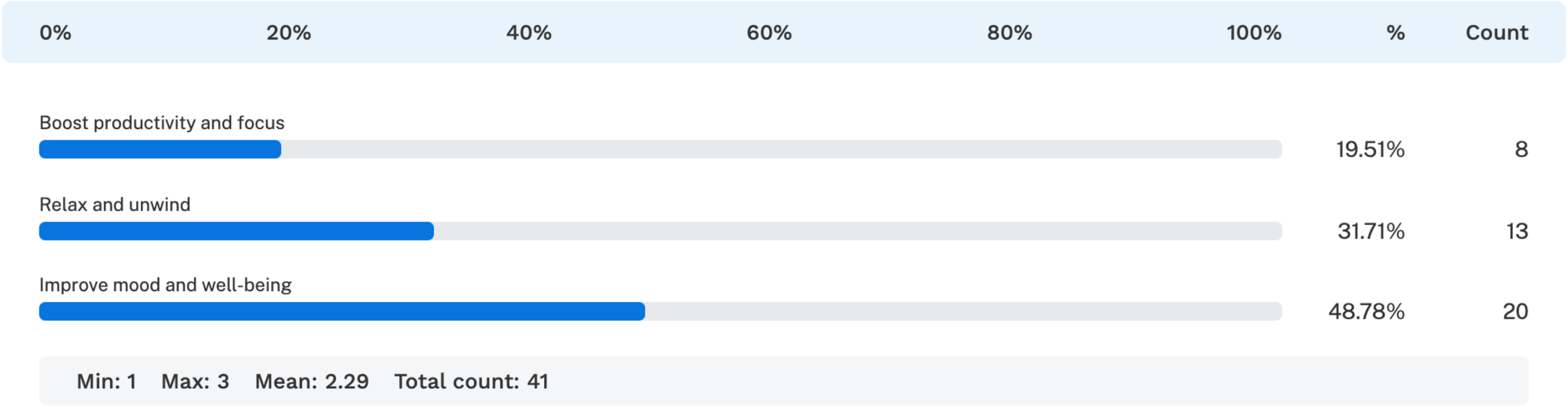
Metric	Description	Target
Privacy	How is data stored and processed?	No mandatory data storage or sharing; ensure real-time, on-device processing options.
Affordability	Improving mental health should be affordable	Higher value at a lower price.
Energy Efficiency	How much energy does the system use?	Minimal power usage.
Inclusivity	Reduce bias induced by AI	Compatibility across diverse user groups & living conditions.

User Survey Objectives

1. Preference Insights
2. Feature Prioritization
3. Pricing Sensitivity
4. Privacy Concerns

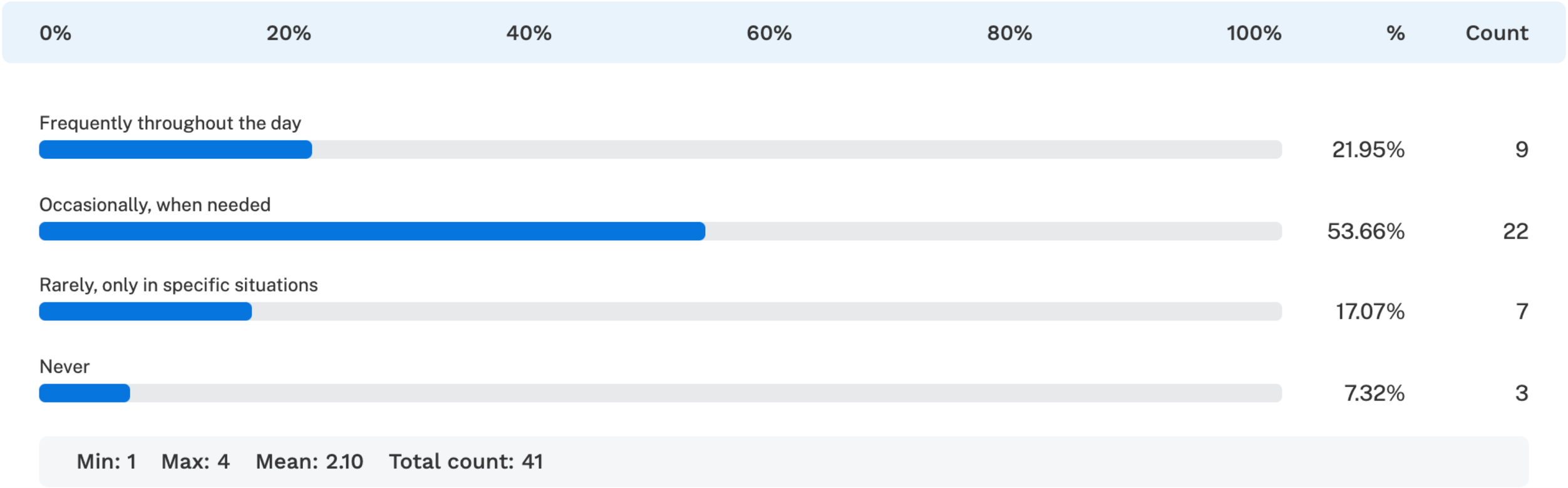
Survey Question 1

What's your primary goal when using a smart environment system?



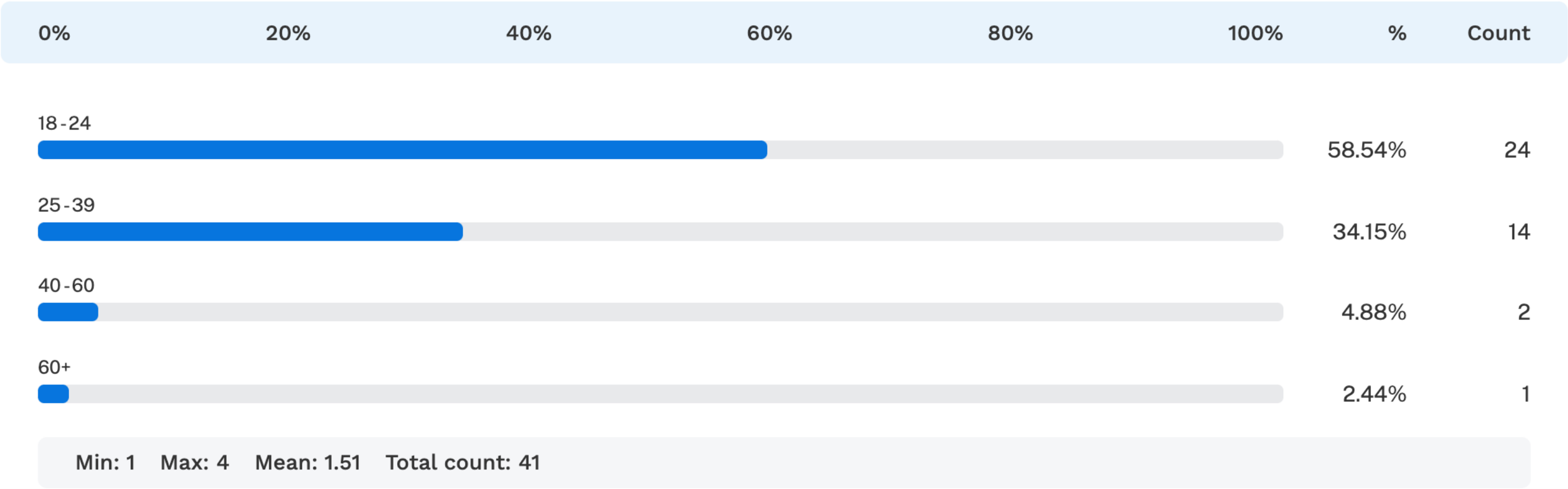
Survey Question 2

How often do you adjust your environment using technology (lighting, music, etc.)?



Survey Question 3

What is your age range?



Min: 1 Max: 4 Mean: 1.51 Total count: 41

Conjoint Analysis Framework

Total Respondents

30 participants participated in the study, with 25% of responses generated by Large Language Models (AI).

Key Attributes

- Emotion Detection (Facial Expression, Voice Tone, Both)
- Adaptive Features (Lighting, Music, Both)
- Privacy (Data Securely Stored, Processed Real-Time)
- Price ($9.99/month, $19.99/month, $29.99/month)

Dollar vs Utility

$1 = 8.89U

Dollar

One dollar translates to approximately 8.897 utilities in our conjoint analysis.

1U = $0.1123

Utility

Conversely, 1 utility is equivalent to approximately $0.1123, providing a valuable framework for quantifying user preferences.

Emotion Detection

Voice & Facial Expression

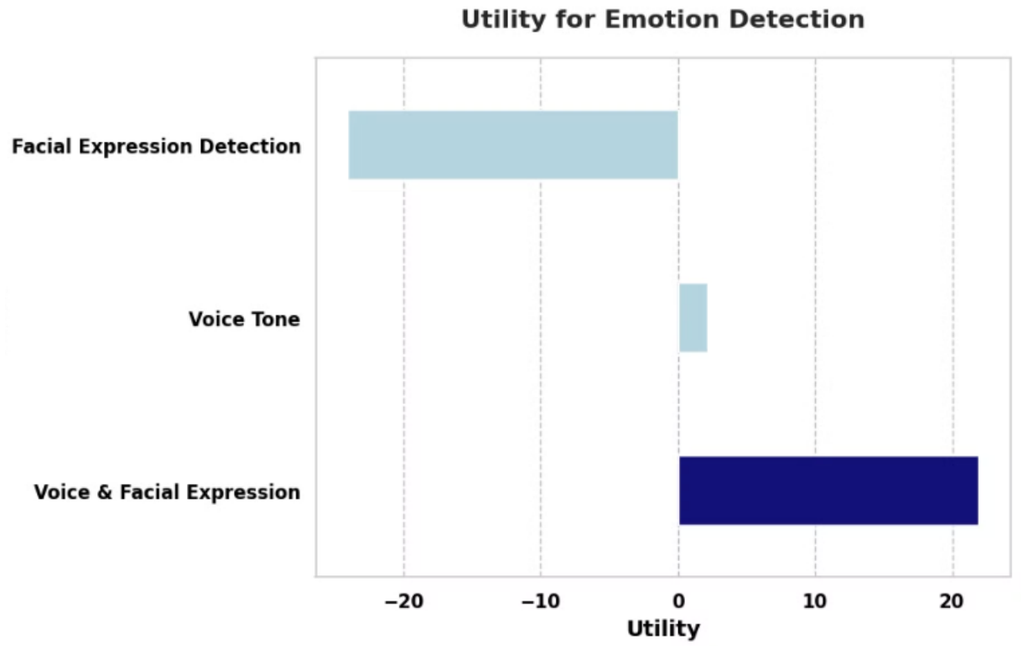
Users strongly favor an emotion detection system that captures both verbal and non-verbal cues.

Voice Tone Alone

Moderate Utility compared to Multimodal approach.

Facial Expression Detection Alone

Lowest utility score, there is noticeable reluctance from users to have their facial expressions analyzed.



Pricing

$9.99/m

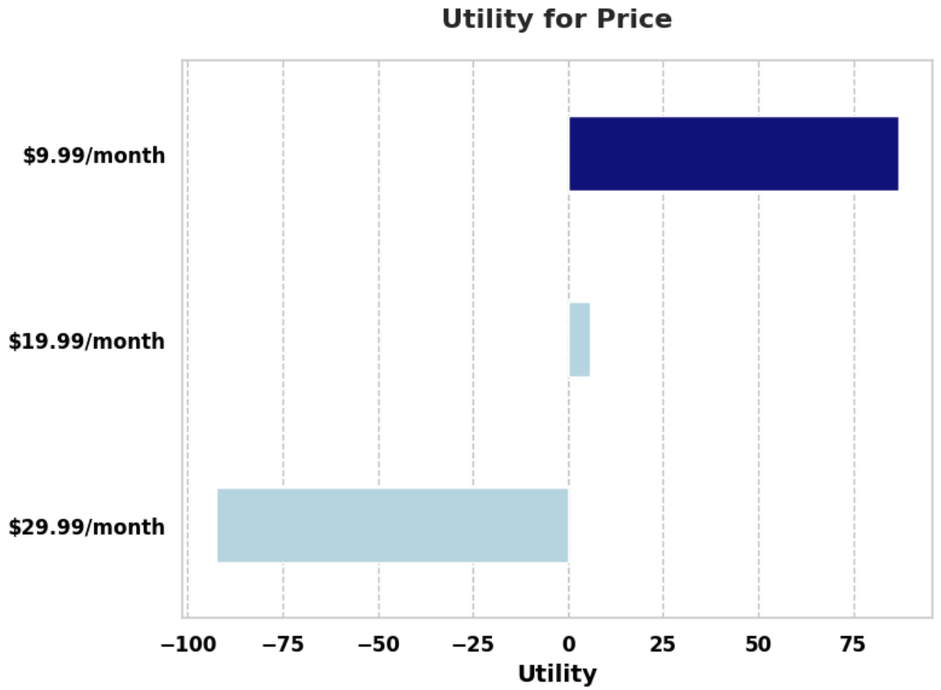
Users prefer the cheapest option, indicating their lack of willingness to spend more than 10$ a month on smart home systems.

$19.99/m

This level is less preferred but remains acceptable if justified by features.

$29.99/m

Users perceive this price as too expensive.



Adaptive Features

Music Relating to Feelings

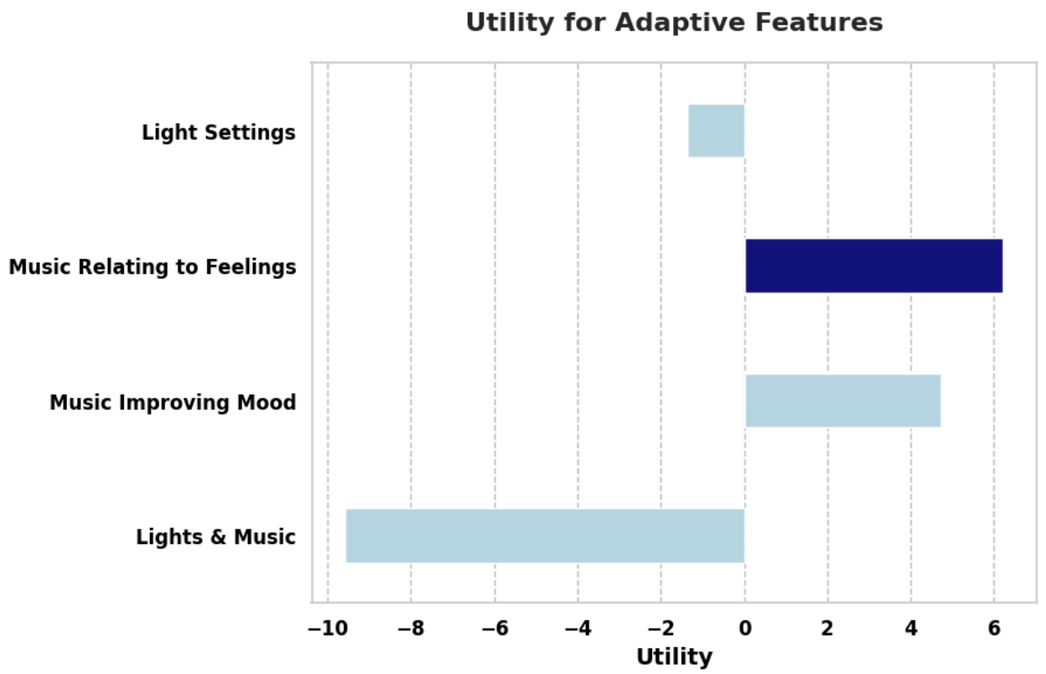
Users prefer music that complements their mood and creates a more immersive experience.

Music Improving Mood

Users prioritize music aligned with their current feelings over simply uplifting music.

Lights & Music Combined

Users find the combination of both features overwhelming or unnecessary. Could it be the pricing?



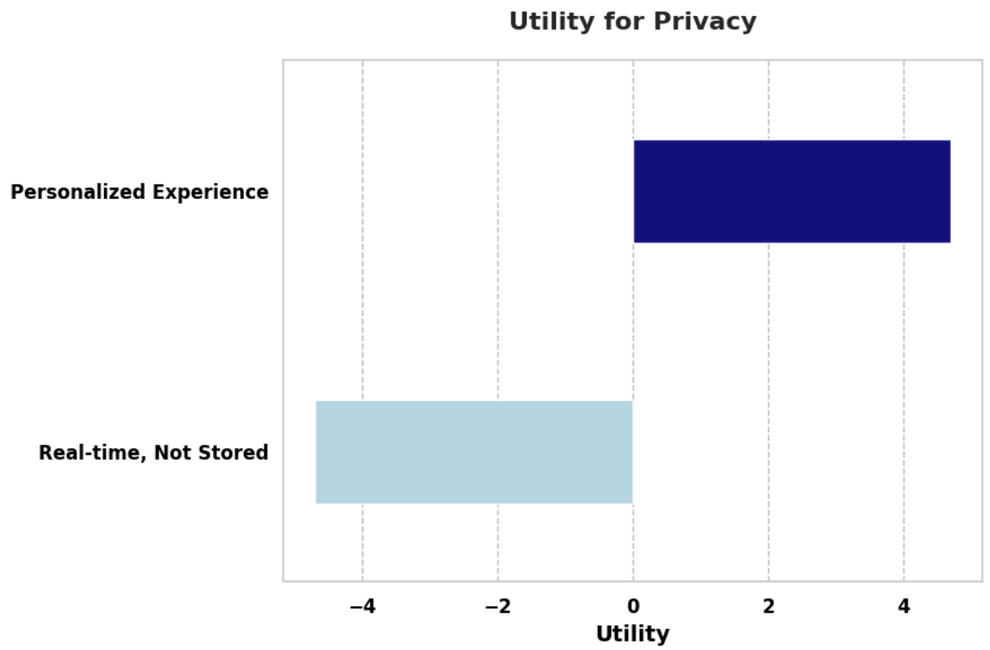
Privacy

Real-Time Processing

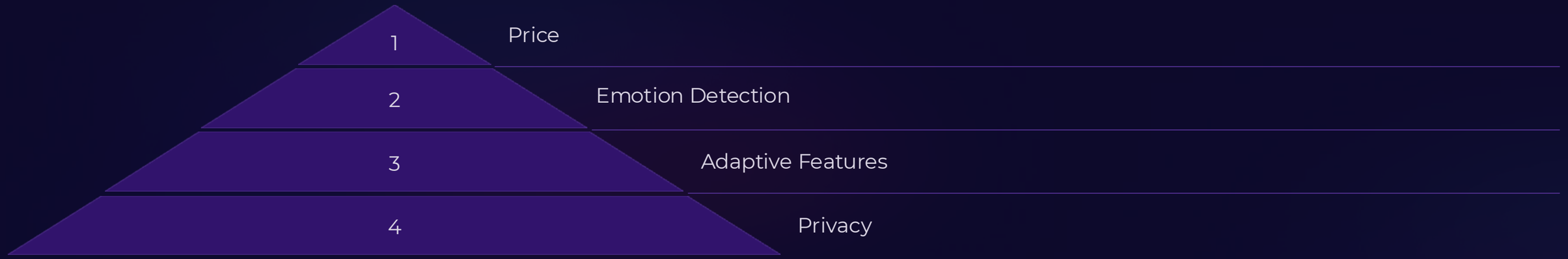
Negative utility for real time processing, which is contradictory to our original expectations.

Personalized Experience (Stored Data)

Users are willing to trade off real time processing with stored data for increased personalization and lower cost.



Key Insights: Prioritizing User Preferences



A/B Testing: Validating the conjoint results

Light & Music Pricing

A/B testing will compare the conversion rates, engagement rates, and customer feedback for two pricing models: one with a bundled pricing structure and another with separate pricing for light and music features.

- Group A (Control): Offer the current pricing model, which includes light and sound at $14.99/month.

- Group B (Variation): Offer an alternative pricing strategy. For example:
  - Light and sound priced separately (e.g., light at $9.99, sound at $9.99).

Current Model Recommendations

1 Objective

Pilot a **4-week subscription model** to assess user adoption and feature preferences.

2 Subscription Plans

Plan & Pricing	Description
Standard ($9.99/m for Light and music features each)	Adaptive lighting based on emotional states OR Dynamic music or soundscapes tailored to emotions.
Premium ($14.99/m for both Light and music features)	Includes both lighting and sound customization, offering a fully adaptive environment based on emotion detection.

3 Target Audience

Students, remote workers, MNC's, wellness enthusiasts looking for budget-friendly, customizable solutions.

4 Key Metrics

Plan Preference:
Track the proportion of users choosing the Premium plan vs. Standard plans.

Engagement:
Measure usage frequency of lighting and sound features.

Customer Feedback:
Collect feedback on perceived value for combined vs. standalone features.

A/B Testing: Optimizing/Experimenting

Blue Light Shades

A/B testing will assess the impact of different light shades on user alertness, mood and relaxation. This will involve testing light blue, mid-blue, and deep blue shades to identify the most effective shade for various emotional states.

Shades to Test:
1.Light Blue (495 nm): Calming and less intense.
2.Mid-Blue (470 nm): Balanced for focus and mood improvement.
3.Deep Blue (450 nm): Intense, strongly stimulates alertness.

Experiment Design:
•Random assignment to shades.
•2-week sessions at various times.
•Data collection via surveys and monitors.

Future Recommendations: Expanding the EmotiSpace Ecosystem

1 Temperature Regulation

- Add temperature adjustment as a feature to enhance emotional well-being.
- Integrate with smart thermostats (e.g., Nest, Ecobee) to dynamically adjust room temperature based on detected emotions:
- Cooler temperatures for focus and alertness.
- Warmer temperatures for relaxation and comfort.
- Example Use Case: When sadness is detected, EmotiSpace could warm the room slightly to create a cozier environment.

2 Partnerships

- Smart Thermostat Manufacturers:

Collaborate with companies like Google Nest or Honeywell for seamless temperature integration.

- Music Streaming Services:

Partner with Spotify or Apple Music to expand dynamic playlist features based on emotions.

- Home Automation Platforms:

Work with Amazon Alexa or Google Home to ensure compatibility and integration with existing smart home ecosystems.