

Smart Home Light Control App

Date: 23 September 2025

Alexandro Bolfa, student number 331500

Table of Contents

[1. Introduction 3](#_Toc478981509)

[2. Methodology 3](#_Toc478981510)

[3. Findings 3](#_Toc478981511)

[4. Discussion 3](#_Toc478981512)

[5. Conclusion 3](#_Toc478981513)

[6. Appendix 3](#_Toc478981514)

# Introduction

The purpose of this project is to design and evaluate a prototype for a Smart Home Light Control App that allows users to adjust lighting according to their mood. The project focuses on applying principles of User Experience (UX) and Usability taught throughout the course, demonstrating how emotional design can influence user satisfaction and ease of use.

Modern smart lighting systems offer extensive control over color, brightness and automation, yet many users find existing interfaces unintuitive or lacking in emotional appeal. The goal of this project was to explore how emotional design, specifically Norman’s three levels of design (visceral, behavioral and reflective) can be applied to create a light control experience that evokes comfort, pleasure and personalization.

The project was conducted using a user-centered approach emphasizing users’ needs and reactions throughout the design and testing phases. The outcome is a low-fidelity prototype developed in Figma that allows users to select lighting moods such as *Relax*, *Focus* or *Energize* quickly and enjoyably.

# Methodology

The design process followed the user-centered and iterative methods presented in the course. The project was divided into four phases: user research, ideation, prototyping and usability testing.

## User Search

The first step was to identify potential users and their needs. A short informal interview was conducted with three participants who use smart lights at home. They expressed frustration with the complexity of existing apps and desired simpler, more intuitive controls that fit specific daily moods rather than technical settings.

A persona was developed to represent the target user:

*Emma, 27, lives in a small apartment and uses smart lights to create cozy environments. She wants to change lighting easily when studying, relaxing or having guests over.*

This aligns with the user-centered design principles emphasizing early focus on users and their tasks.

## Ideation and Concept Development

Using cognitive principles, the interface was designed to minimize memory load by promoting recognition over recall. Instead of requiring users to remember settings or color codes, the interface provides clear icons and mood labels such as *Relax*, *Focus* and *Energize*.

The concept also draws from external cognition: users can see the effects of their choices directly on-screen through visual previews of light color and brightness. This immediate feedback supports decision making and reinforces intuitive interaction.

Brainstorming sketches explored how to visualize moods using colors and symbols. The design goal was to make the app feel inviting and calm, rather than technical.

## Prototype Creation

The prototype was developed as low-fidelity mock-up in Figma, following the prototyping principles. Low-fidelity methods were chosen because they are quick, inexpensive and easy to change.

The prototype included:

* A home screen showing the current lighting mood
* A color preview panel and brightness slider
* Three main mood buttons (Relax, Focus, Energize)
* An option to save favorite moods

The design incorporated emotional design principles (Norman 2004):

* **Visceral level:** soft gradients, circular buttons, warm tones and a friendly icon set evoke positive first impressions.
* **Behavioral level:** large buttons and clear feedback make it easy to use and understand.
* **Reflective level:** The ability to name and save favorite “moods” allows users to experience identity and create meaning in their experience.

## Usability Testing

Usability testing followed the Think-Aloud method (Olmsted-Hawala et al., 2010), where the participants were asked to perform simple tasks using the prototype while verbalizing their thoughts.

Test setup:

* 3 participants (age 23-33)
* Tasks:

1. Change lighting to “Relax” mode
2. Adjust brightness manually
3. Save a custom mood named “Study Time”

* Observations: notes were taken on task completion time, errors and verbal comments.

This test provided empirical data on how users understood and emotionally responded to the prototype. Observations were used to identify usability issues and emotional responses to color and layout.

# Findings

## Prototype Overview

The final prototype consisted of three main screens:

1. **Home Screen:** displays current light scene and quick mood buttons.
2. **Mood Selection Screen:** provides larger previews of each mood and color changes in real-time.
3. **Custom Scene Screen:** allows users to create personalized moods with color and brightness sliders.

Users responded positively to the color-coded layout and the ability to see changes immediately. All participants completed the tasks successfully.

## User Test Results

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Success Rate | Average Time | Notes/User Feedback |
| Select “Relax” mode | 100% | 8s | “Easy to find and feels cozy” |
| Adjust brightness | 100% | 6s | “Slider works like expected” |
| Create custom mood | 67% | 20s | “Didn’t notice the save icon immediately” |

Two participants described the interface as “calm” and “satisfying to use”. One noted that the icons “felt friendly”. The main difficulty was finding the save feature for custom moods.

# Discussion

Discuss your findings and your process. How would you do this different the next time? What worked well? What did you get out of it? Did you reach your initial goal?

# Conclusion

Based on the design process so far, what are the next steps in your project (imagine that you will continue working on it towards a fully functional system). Also, this is a good place to briefly reflect on the process as such.

# Appendix

This could contain essential parts of audio/video capture of participatory design workshops, usability tests, prototype presentations, surveys, personas, etc….