# Lab 2 Report: Functional UI Design

Course: IoMT-Based Stress Monitoring System  
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Institution: Michigan Technological University  
Instructor: Dr. Ronghua Xu  
Duration: Week 2  
Lab Title: Functional UI Design in Figma for IoMT Mobile Application  
Objective: To create, connect, and test user interface designs for a mobile stress-monitoring application using Figma.

## 1. Introduction

The second phase of the IoMT-Based Stress Monitoring System project focused on crafting the user experience—the bridge between data and human interaction. In this lab, Figma was used to design and prototype the application’s interface, creating a clear visual structure for how users would navigate and interact with the mobile app. This stage transitioned the project from abstract backend planning to concrete, user-centered design, forming the foundation for future Flutter implementation.

## 2. Objectives

By the end of this lab, the following objectives were achieved:

* Gain familiarity with Figma’s workspace and tools for UI/UX design.
* Develop a complete functional prototype for the stress monitoring mobile app.
* Design all necessary screens including login, home, and data visualization pages.
* Connect pages through navigation elements such as buttons, icons, and menus.
* Demonstrate wireframe flow and prototype interactions using Figma’s prototyping mode.

## 3. UI Design Process in Figma

Figma was chosen for its collaborative cloud-based features and dynamic prototyping capabilities. The design process was structured into the following stages:

1. Stage 1: Research and Planning

Reviewed healthcare application UI trends and patient monitoring dashboards to identify essential design elements—clarity, simplicity, and accessibility. Color palettes were selected to evoke calmness and trust: soft blues, whites, and subtle gradients. The app layout followed a minimalist approach to reduce cognitive load for stressed users.

1. Stage 2: Frame Creation

Created multiple frames (pages) for each section of the application:  
• Login Page – Secure entry screen for authentication.  
• Home Page – Central hub displaying user’s name, last check-in, and navigation icons.  
• Stress Self-Evaluation Page – Daily questionnaire with sliders or checkboxes.  
• Fitbit Data Page – Displays heart rate and related metrics from Fitbit.  
• Stress Comparison Page – Graphical comparison between perceived stress and physiological readings.

1. Stage 3: Wireframing and Layout

Constructed low-fidelity wireframes to define structural hierarchy and information flow. This step ensured the alignment of layout logic before applying visual themes and typography. Each page maintained consistent navigation zones and alignment grids.

1. Stage 4: Prototyping and Interactivity

Using Figma’s prototype mode, interactive pathways were established between pages. Buttons were linked to simulate navigation (e.g., Login → Home → Data View). Icons, navigation bars, and back arrows were connected to create a circular flow. Transitions were configured with smooth ‘smart animate’ effects to mimic a real mobile experience.

1. Stage 5: Testing and Refinement

Tested the interactive prototype in presentation mode and via mobile preview. Adjusted alignment, button sizes, and color contrasts for readability. Usability testing simulated daily usage patterns—logging in, recording stress levels, and comparing data. The design emphasized simplicity for accessibility and inclusivity.

## 4. Application Screens and Functions

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| --- | --- |
| Screen Name | Purpose and Key Elements |
| Login Page | Secure authentication; user inputs credentials; button leads to Home Page. |
| Home Dashboard | Main hub showing user summary, navigation to stress input and Fitbit pages. |
| Stress Evaluation Page | Daily check-in page allowing user to input perceived stress levels via slider or multiple-choice form. |
| Fitbit Data Page | Displays heart rate, steps, and activity logs retrieved from Fitbit API (placeholder for integration). |
| Comparison Page | Visual comparison of subjective stress vs. Fitbit physiological metrics using progress bars or graphs. |

## 5. Functional Flow and Navigation

The final prototype achieved full navigability through Figma’s prototyping mode. User flow was structured as follows:  
  
Login → Home → (Stress Evaluation | Fitbit Data | Comparison) → Logout.  
  
The user could transition seamlessly between different modules without logical dead ends, ensuring high usability and minimal confusion.

## 6. Testing and Validation

The prototype was tested in both desktop and mobile preview modes. Button connections, interactive animations, and alignment were validated. Interactive behavior mimicked final app performance expectations: tapping ‘Submit’ transitioned to results page; tapping the Fitbit icon navigated to data screen; and tapping ‘Home’ returned to the dashboard.

## 7. Challenges and Resolutions

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| Challenge | Description | Resolution |
| Complex Navigation Links | Multiple frames required inter-page linking consistency. | Used naming conventions and duplicate links to maintain navigation consistency. |
| Color Accessibility | Ensuring visual comfort and readability across devices. | Used WCAG color contrast validation tools and soft background palettes. |
| Component Reuse | Rebuilding identical buttons for each screen slowed design. | Created reusable Figma components for buttons, icons, and text fields. |
| Screen Alignment | Initial inconsistencies in grid layout. | Applied Figma auto-layout and uniform grid spacing for alignment. |

## 8. Outcome and Deliverables

* Completed functional UI prototype with connected screens.
* Linked wireframes showing navigation between app pages.
* Shared Figma project with instructor for review (Dev Mode Link).
* Demonstration video of prototype navigation.
* Design ready for Flutter implementation in Lab 3.

## 9. Reflection

This lab transformed abstract functionality into tangible visual experience. Figma served not only as a design tool but as a thought process canvas—a place where each screen became a story in user well-being. Designing for stress monitoring demanded empathy: colors had to calm, layouts had to breathe, and transitions had to feel intuitive. This human-centered approach laid the emotional and aesthetic foundation for subsequent app development.

“Design is not decoration; it’s dialogue. Each element speaks to the user’s emotion, guiding them from anxiety to clarity.”

## 10. Forward Outlook

The Figma prototype now serves as the design reference for Flutter code development in Lab 3. Each frame will correspond to a Dart file, and navigation links will translate into Flutter’s route system. This ensures a seamless transition from visual design to functional application, preserving design integrity throughout development.

✅ Lab 2 Successfully Completed. The application’s visual framework is now established, ready to evolve into a fully coded Flutter front-end.