

System Design for REVITALIZE

Team 13, REVITALIZE

Bill Nguyen

Syed Bokhari

Hasan Kibria

Youssef Dahab

Logan Brown

Mahmoud Anklis

January 18, 2023

1 Revision History

Date		Version	Notes
January 2023	18th,	Syed Bokhari	Added user interface figma sketches
January 2023	18th,	Syed Bokhari	Added interface descriptions and additional information
January 2023	18th,	Syed Bokhari	Added reflection question answers

2 Reference Material

This section records information for easy reference.

2.1 Abbreviations and Acronyms

symbol	description
REVITALIZE	Explanation of program name
[... —SS]	[... —SS]

Contents

1	Revision History	i
2	Reference Material	ii
2.1	Abbreviations and Acronyms	ii
3	Introduction	1
4	Purpose	1
5	Scope	1
6	Project Overview	1
6.1	Normal Behaviour	1
6.2	Undesired Event Handling	1
6.3	Component Diagram	1
6.4	Connection Between Requirements and Design	1
7	System Variables	1
7.1	Monitored Variables	2
7.2	Controlled Variables	2
7.3	Constants Variables	2
8	User Interfaces	2
9	Design of Hardware	6
10	Design of Electrical Components	6
11	Design of Communication Protocols	6
12	Timeline	7
A	Interface	8
B	Mechanical Hardware	9
C	Electrical Components	9
D	Communication Protocols	9
E	Reflection	9

List of Tables

List of Figures

3 Introduction

[Include references to your other documentation —SS]

4 Purpose

[Purpose of your design documentation —SS]
[Point to your other design documents —SS]

5 Scope

[Include a figure that show the System Context (showing the boundary between your system and the environment around it.) —SS]

6 Project Overview

6.1 Normal Behaviour

6.2 Undesired Event Handling

[How you will approach undesired events —SS]

6.3 Component Diagram

6.4 Connection Between Requirements and Design

[The intention of this section is to document decisions that are made “between” the requirements and the design. To satisfy some requirements, design decisions need to be made. Rather than make these decisions implicit, they are explicitly recorded here. For instance, if a program has security requirements, a specific design decision may be made to satisfy those requirements with a password. —SS]

7 System Variables

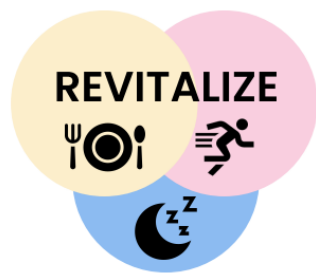
[Include this section for Mechatronics projects —SS]

7.1 Monitored Variables

7.2 Controlled Variables

7.3 Constants Variables

8 User Interfaces



Sign Up

Login

(a) Start

Welcome!
Let's get you started

Enter your name

Enter your email

Enter password

Confirm password

Sign Up

Already have an account ? [Login](#)

(b) Signup

Welcome Back!

Please input your information

Enter name or email

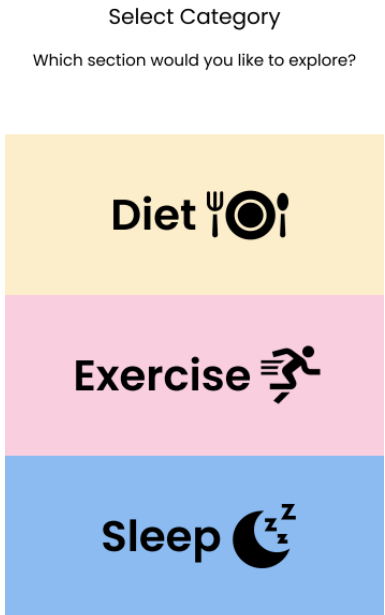
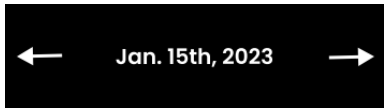
Enter password

[Forgot Password](#)

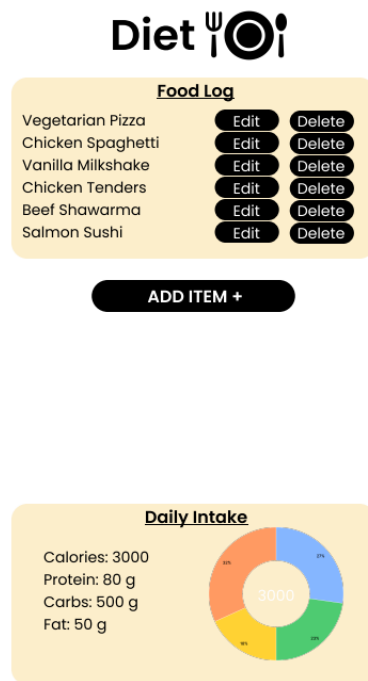
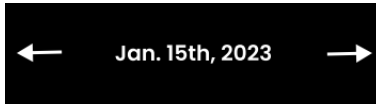
Login

Don't have an account ? [Sign Up](#)

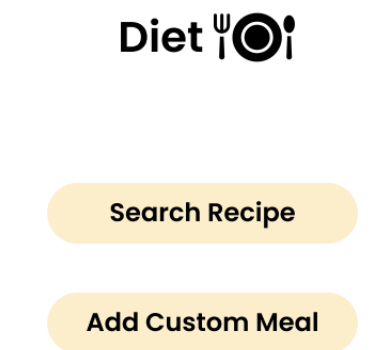
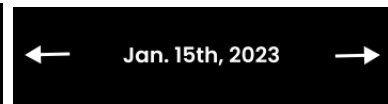
(c) Login



(d) Main




(e) Diet Main



(f) Diet Search/Add Custom Meal

← Jan. 15th, 2023 →

Diet 

Name of meal

Calories


Protein

Carbohydrates

Fat

ADD ITEM +

← Jan. 15th, 2023 →

Diet 

Keywords ▼

Allergies ▼


Diets ▼

Calories ▼


Nutrients ▼


SEARCH


← Jan. 15th, 2023 →


Diet 

Search: Pasta

 Pasta alla Gricia

 Pasta Frittata

 Kimchi Pasta

 Pasta Alla Genovese

(g) Diet Add Custom Meal

(h) Diet Recipe Search

(i) Diet Recipe List

Diet

Pasta alla Gricia



Coarse salt



1 pound orecchiette pasta



1 cup store-bought basil pesto

(j) Diet Recipe Info

Exercise

Exercise Log

Barbell Squat
Deadlift
Leg Press
Lunges
Goblet Squat
Bulgarian Split Squats

Edit Delete
Edit Delete
Edit Delete
Edit Delete
Edit Delete
Edit Delete

ADD WORKOUT +

(k) Exercise Main

Exercise

Exercise List



Barbell Squat



Deadlift



Leg Press



Lunges



Barbell Squat



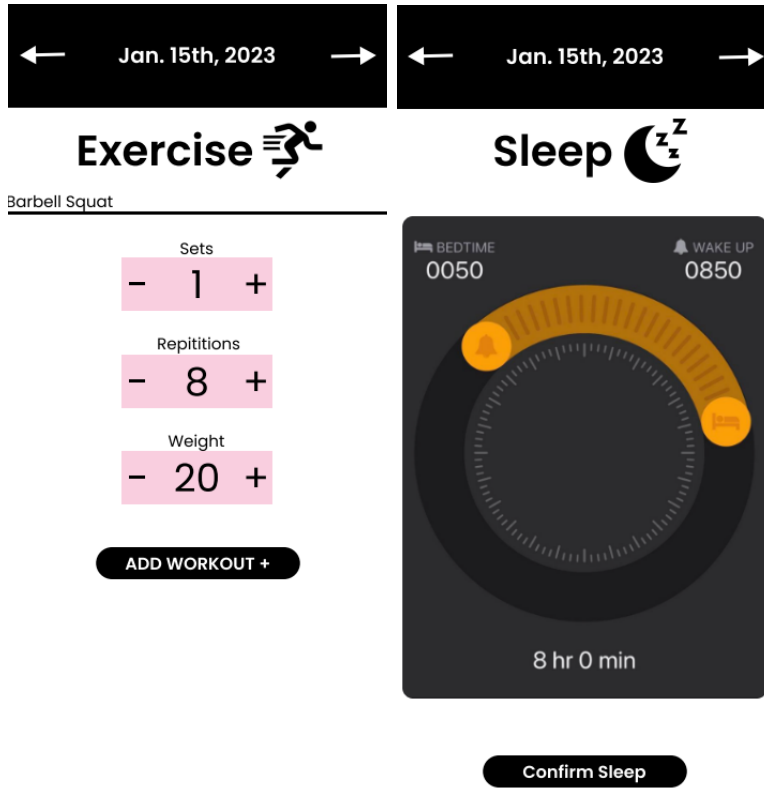
Deadlift



Leg Press



(l) Exercise List



(m) Exercuse Details

(n) Sleep

9 Design of Hardware

[Most relevant for mechatronics projects —SS] [Show what will be acquired —SS] [Show what will be built, with detail on fabrication and materials —SS] [Include appendices as appropriate, possibly with sketches, drawings, CAD, etc —SS]

10 Design of Electrical Components

[Most relevant for mechatronics projects —SS] [Show what will be acquired —SS] [Show what will be built, with detail on fabrication and materials —SS] [Include appendices as appropriate, possibly with sketches, drawings, circuit diagrams, etc —SS]

11 Design of Communication Protocols

[If appropriate —SS]

12 Timeline

[Schedule of tasks and who is responsible —SS]

A Interface

figure (a): This is the start screen when launching the application. It offers the user the ability to either sign up or login.

figure (b): This is the signup screen. The user must input valid information and register with confirmation from the database.

figure (c): This is the login screen. The user must input valid credentials to successfully enter the main screen.

figure (d): This is the main screen. The user can select from the three application categories and enter their specific page after click. The user can select the calendar value and change the date accordingly to see the information for the given day.

figure (e): This is the diet main screen. The food log is available to view and each entry can be edited or deleted. On the bottom of the screen, the total statistics of the day can be seen. The add item button is clicked to go to figure (f).

figure (f): This is the screen to traverse to the search or add custom meal pages.

figure (g): This is the custom meal screen. The user can input custom information to add to the food log.

figure (h): This is the recipe search screen. The user can select the API query options from the drop down to construct a unique recipe list.

figure (i): This is the recipe list screen. The recipes are listed based on the previous page query.

figure (j): This is the recipe information screen. Specific information relating to ingredients for each recipe is listed.

figure (k): This is the exercise main screen. It displays a list of exercises for the day that can be edited or deleted. A workout can be added by clicking the button.

figure (l): This is the exercise list screen. The screen displays a list of exercises available through the API. Once selected, the user is taken to figure m where they can add the custom information for their exercise.

figure (m): This is the exercise details screen. The user can customize their sets, reps and weight for accurate tracking.

figure (n): This is the sleep screen. The user can alter the clock value if the API sleep tracking was not correct and they can confirm the entry to add to their sleep log.

B Mechanical Hardware

C Electrical Components

D Communication Protocols

E Reflection

The information in this section will be used to evaluate the team members on the graduate attribute of Problem Analysis and Design. Please answer the following questions:

1. What are the limitations of your solution? Put another way, given unlimited resources, what could you do to make the project better? (LO_ProbSolutions)

Syed: Our main features are reliant on the database provided by external APIs. The recipe list and the exercise list can only give the user's the information that is accessible through the API. This limits the design of the app due to the limited query information.

Bill: Project does not have functionalities such as analytics of data and predictive models that can potentially benefit the user experience.

Hasan: Since time is a key resource, unlimited resources would imply unlimited time. I think with unlimited (or rather plenty of) time, we could improve every aspect- from the documentation to the UI to the business logic.

2. Give a brief overview of other design solutions you considered. What are the benefits and tradeoffs of those other designs compared with the chosen design? From all the potential options, why did you select documented design? (LO_Explores)

Syed: We considered a self serving exercise list, where the user would be able to add their own custom exercises. This seemed like a great option for user customizability, however the tradeoff is that the user must spend a tedious amount of time inputting the information. Instead, we have a preset list of the most common exercises that the user can quickly select and add their sets, repetitions and weight.

Bill: We considered using analytics to find statistics and trends of which features are used the most/the least etc. which could help us improve user experience. Also considered using predictive models such as giving recipe/exercise suggestions to user based on user data. These were great options, but are options that are nice to have and were considered stretch goals.

Hasan: To be honest I do not completely remember all the other design solutions we covered. However, I do remember that this design solution stood out because it solved a real problem; ie. an all-in-one health application that is user friendly and easily learned.