Motus Methods Design Review

November 30, 2023

CS 476 Requirements Engineering

Team Members:
Payton Cox
Caroline Fye
Eli Barela
Tomas Jauregui

Mentor: Saisri Muttineni

Sponsor: Dr. Zachary Lerner, Biomotum

The Team

Payton Cox

Team Lead

Customer Communicator

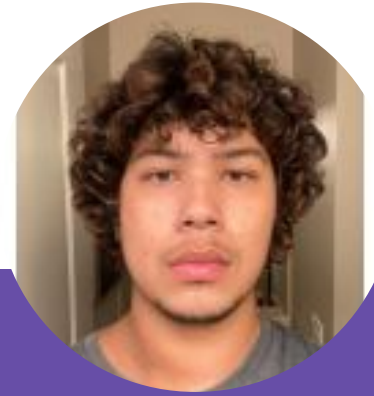
Caroline Fye

Lead Stand-in

Recorder

Eli Barela

Quality Assurance



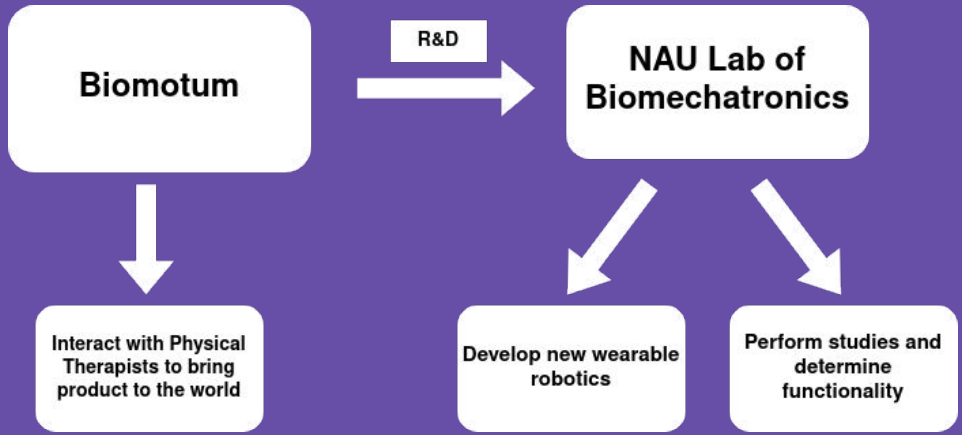
Tomas Jauregui

Architect

Release Manager

Introduction

- Biomotum - Pioneering medical company with CSO Zachary Lerner, specializing in the development of advanced robotic exoskeletons
- With a mission “To optimize human mobility by providing intelligent and intuitive wearable systems, to a wide range of users in the medical markets.”



Understanding the problem

The Issue

Cerebral palsy poses significant challenges for children, impacting their motor skills, independence, and overall quality of life.

The Current Solution

Current physical therapy methods lack personalization, hindering their effectiveness for individual needs.

Why it needs to change

Personalized, engaging, and effective therapy is crucial for optimizing outcomes, fostering independence, and positively shaping the future of children with cerebral palsy

Solution Overview

- Gamified Walking app
- Expanding upon Biomotum's app
- Expand the individualized training and provide more engagement
- Progress page with AI chat to encourage user

Key Requirements

- Gathered requirements from meetings with our sponsor and visiting his lab at NAU

Game

2D runner (side scroller)

- Obstacles to leap over

Level Based (5-10 mins)

Exoskeleton used as inputs

Flutter app

Flame game engine

User Profile

Name

Age

Diagnosis (optional)

Customizable avatar

- Skin color
- Hair
- clothes

Progress Page

After level to see scores

Tips to improve based on user performance

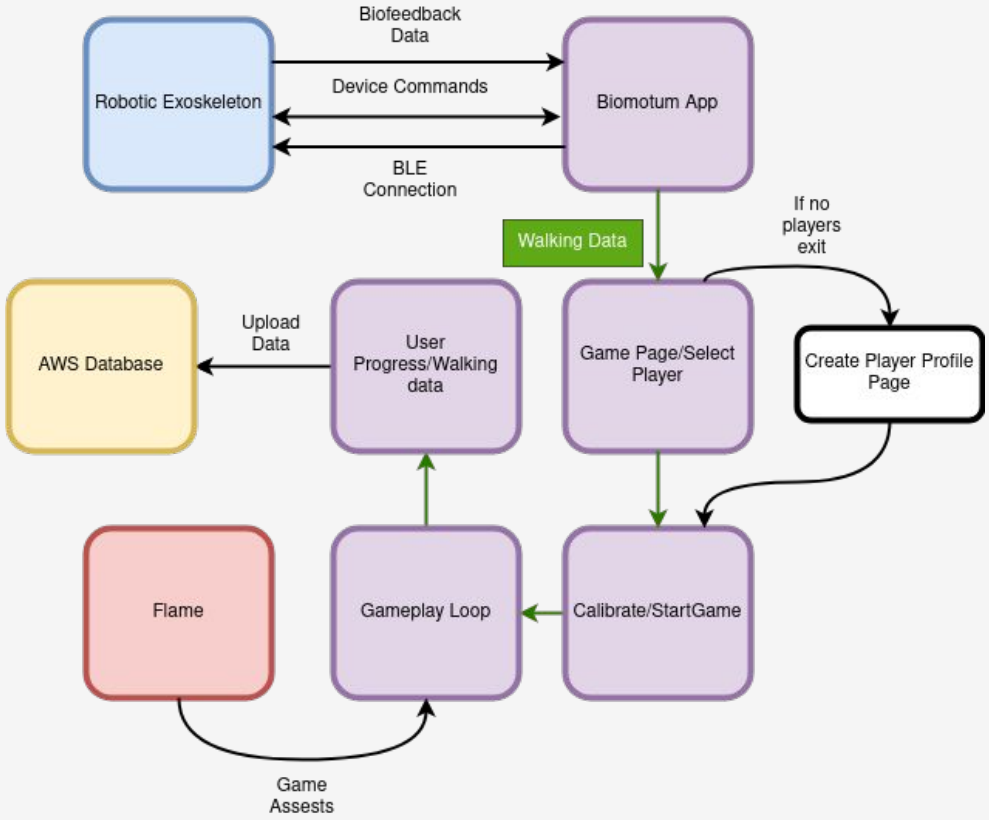
AI chat to get encouragement and training tips (Stretch goal)

Potential Risks

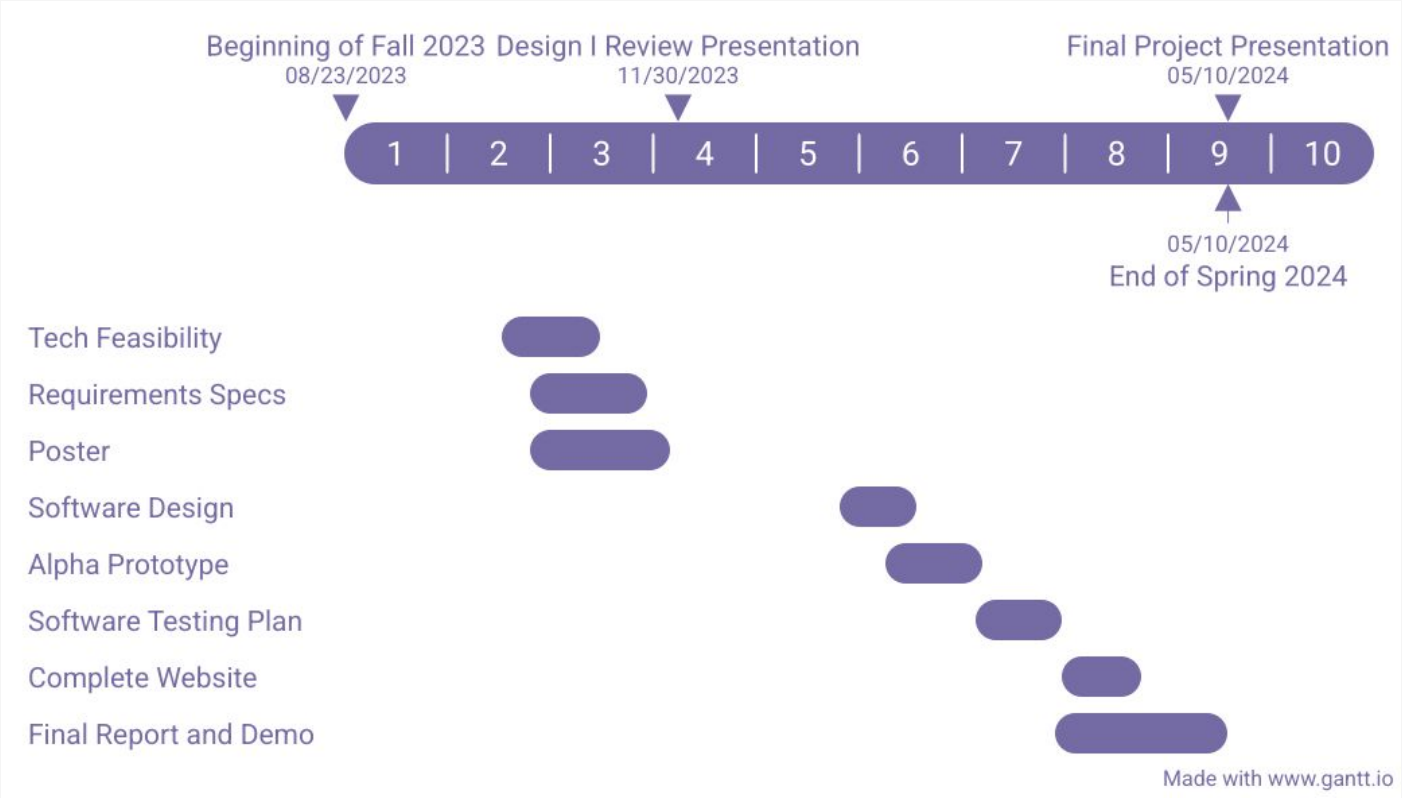
1. Cannot migrate existing application to new version of Flutter
2. Limited application of game mechanics due to our engine
3. Faulty interactions between the exoskeleton and the application
4. The target clients (children) aren't being engaged/enjoying the game
5. The game is too slow to respond/interact with the data in an appropriate manner

Feasibility

- Testing Game Engines
- Why Flame ?
- Testing Migration
- Why Flutter?
- Milestones Completed
- Milestones Upcoming



Timeline of Project



Conclusion

While there are ways to help provide kids with helpful physical therapy, it usually lacks flair and is unengaging.

Our app aims to provide kids some motivation and drive to continue to push through

Biggest challenge: making sure the game is entertaining and fun for them

Thank you