



Gamified VR-Based Therapy System for Upper Limb Rehabilitation in Children with Hemiplegia.

Project ID: 25-26j472

Checklist 1 – Design and Mockups

BSc. Special (Hons) in Information Technology, specialization in Software Engineering
Department of Computer Science and Software Engineering

Sri Lanka Institute of Information Technology

Project Overview

Project Overview

System Name – ArmiGo

Purpose - Gamified VR therapy system for children with hemiplegia to perform upper limb rehabilitation exercises at home.

Target Users – Children 5-15 years, Therapists, Parents

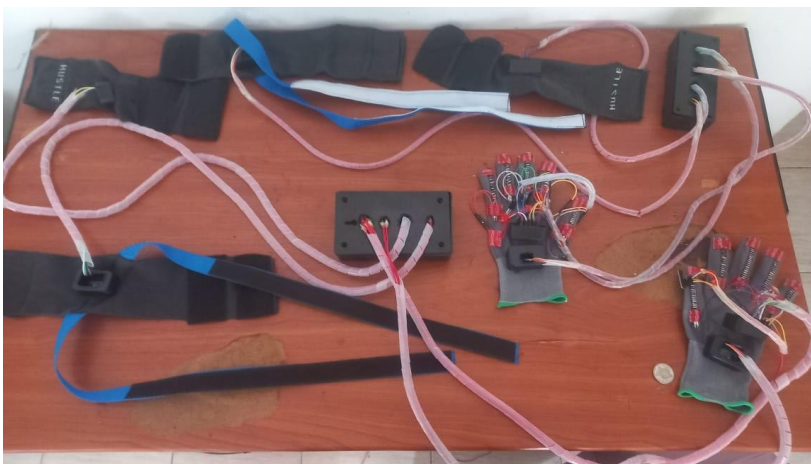
Platform – VR Headset + Wearable sensors + Clinical Dashboard

Design Process and Overview

- Initial Sketches & Wireframes
- High-Fidelity Mockups
- User Feedback Collection
- Iterative Improvements

Sketches and Wireframes

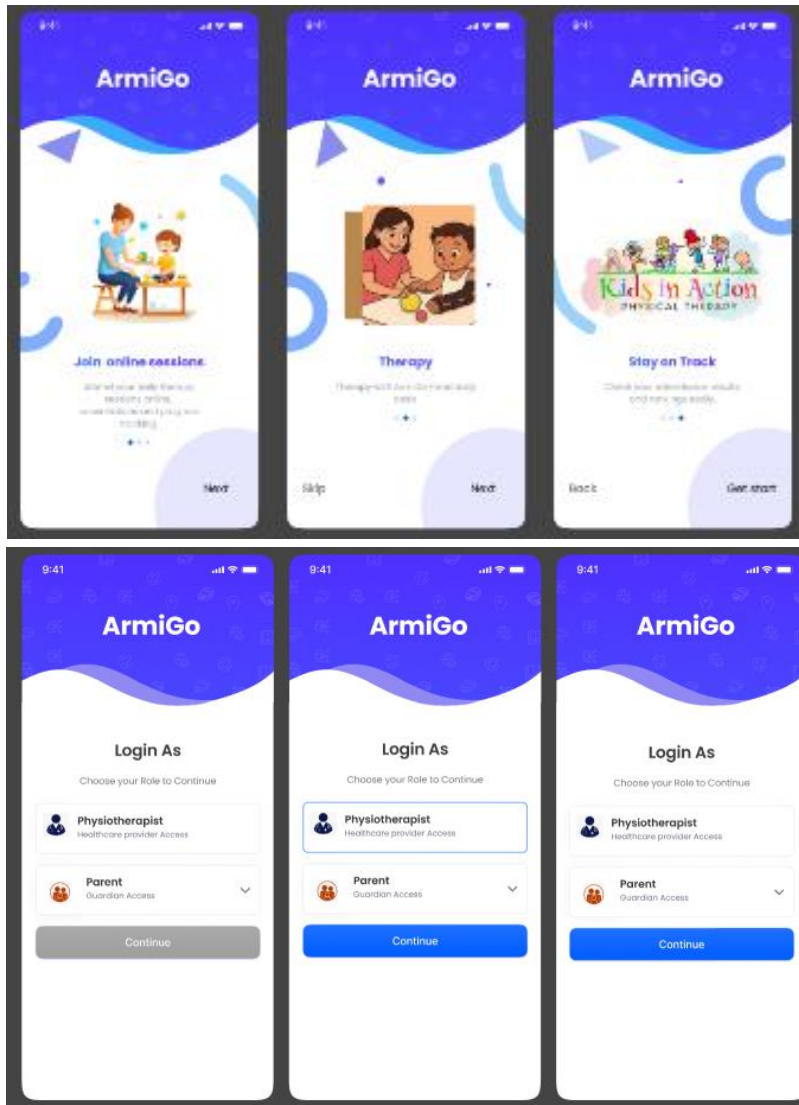
1. Glove and Wearables

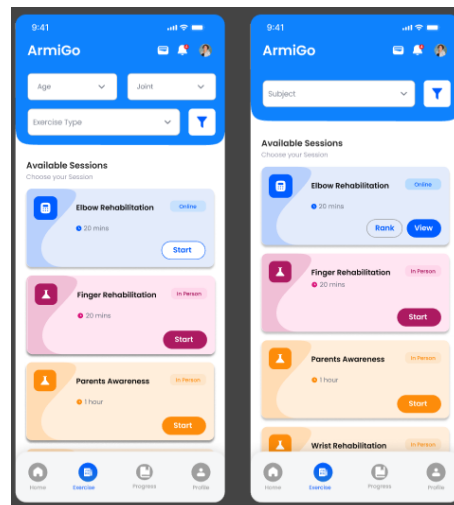
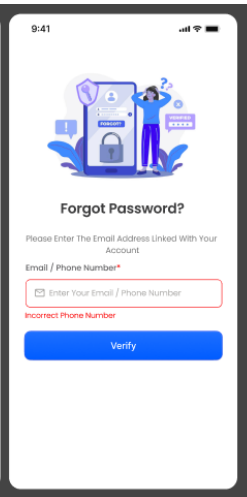
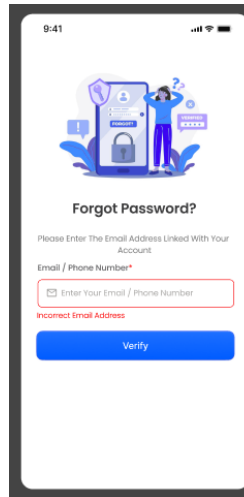
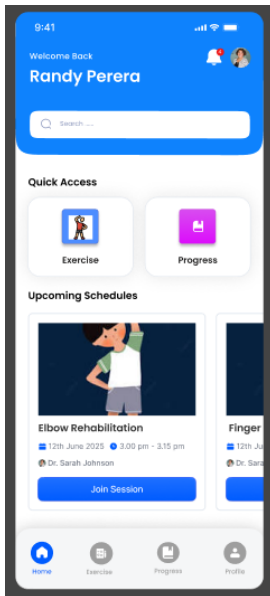
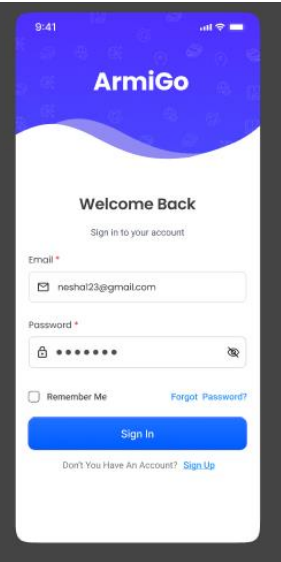
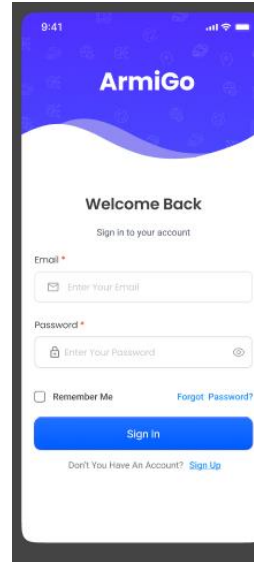
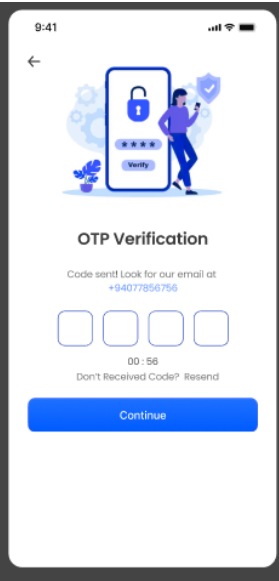
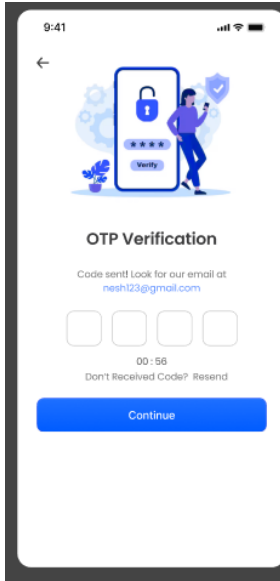


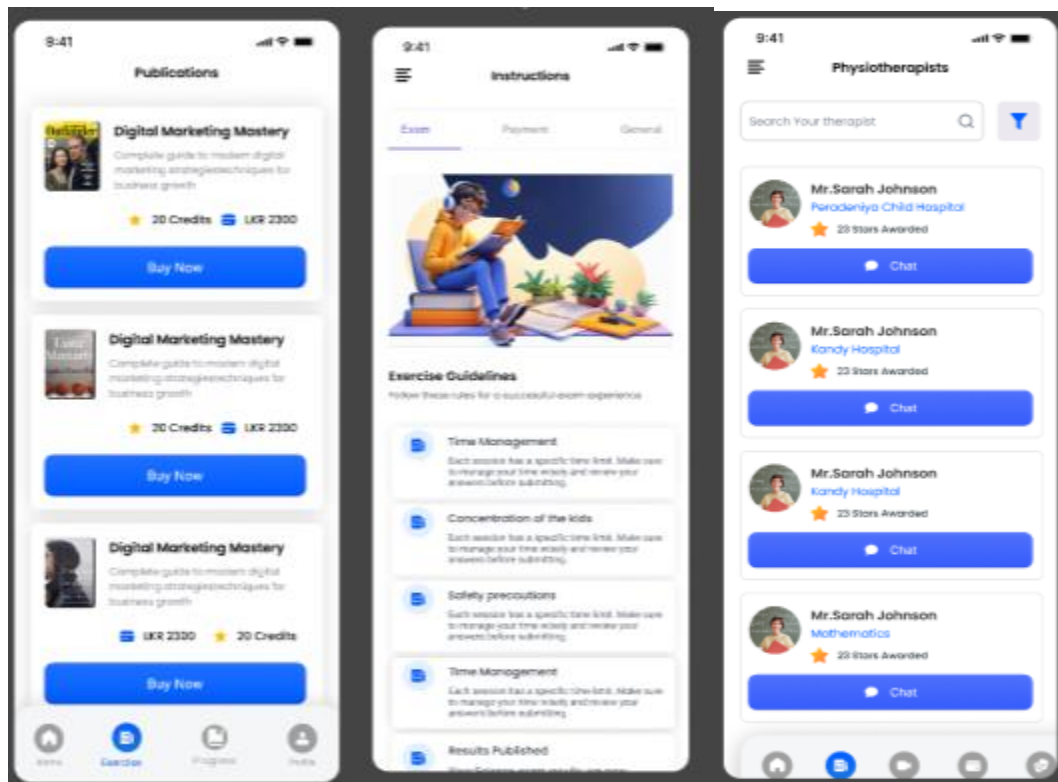
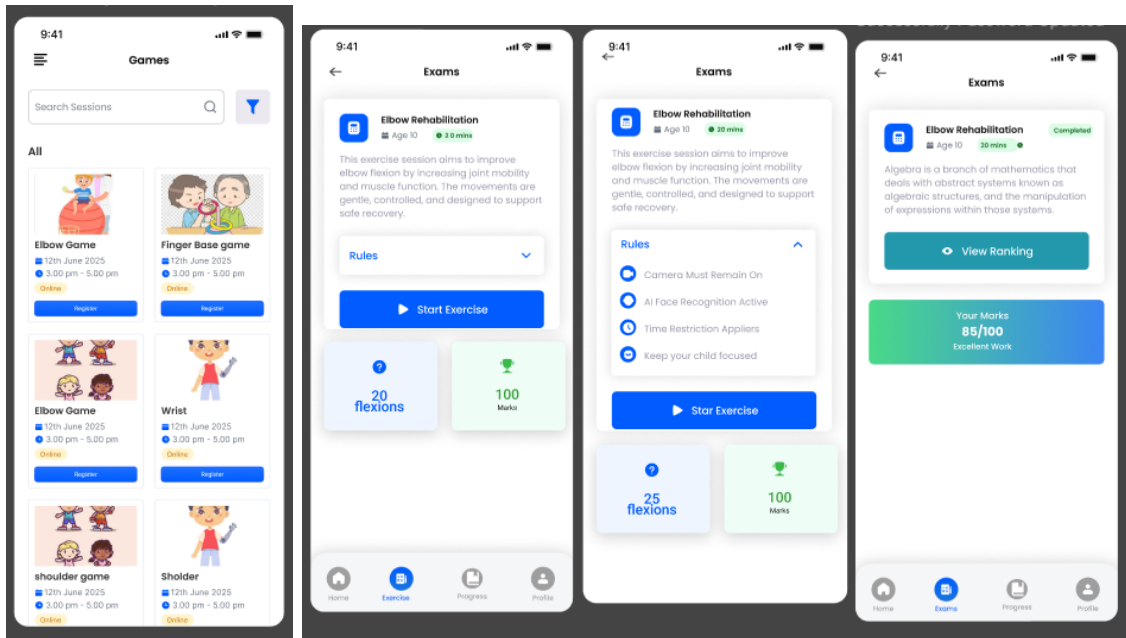
2. Mobile Screens

2.1.Sketches

2.2.High Fidelity Mockups







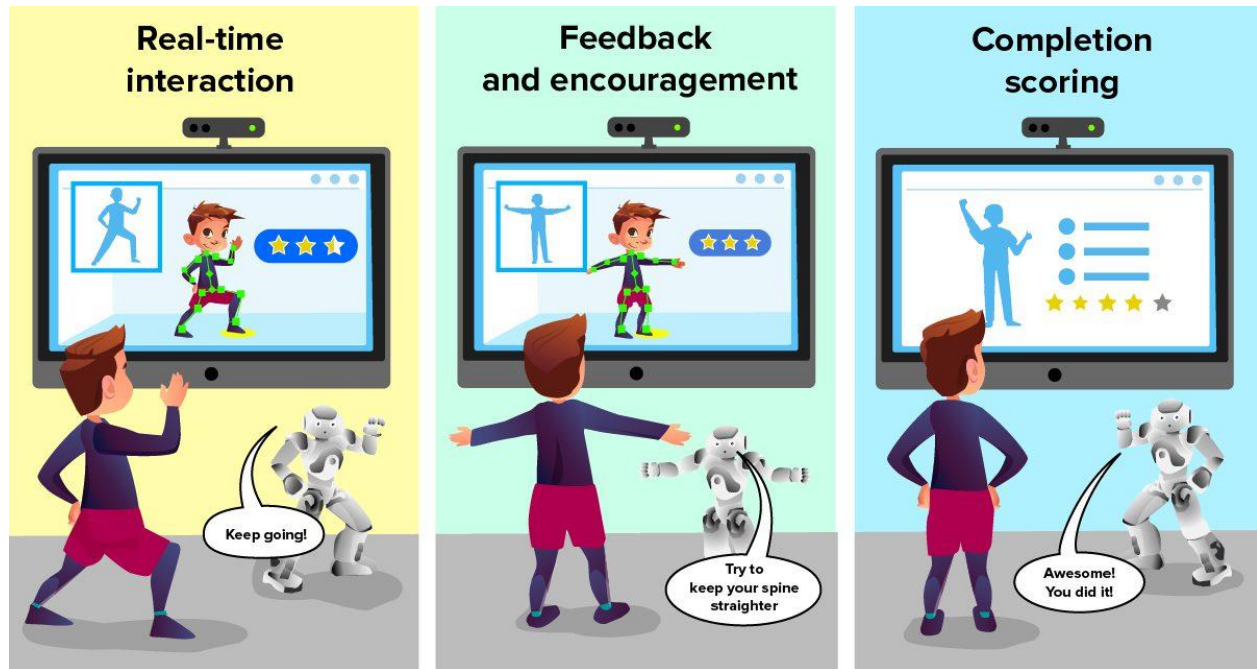
3. Web Screens

3.1.Sketches

3.2.High Fidelity Mockups

4. Game Screens

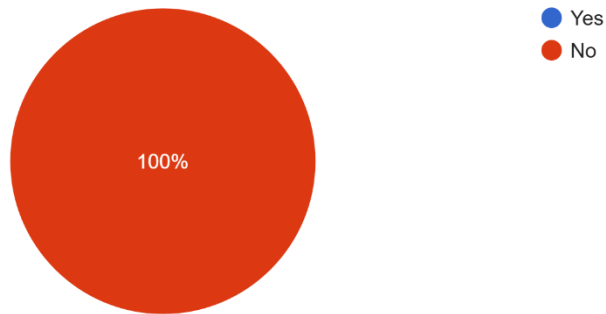
4.1.Sketches



User Feedback Collection - Parents

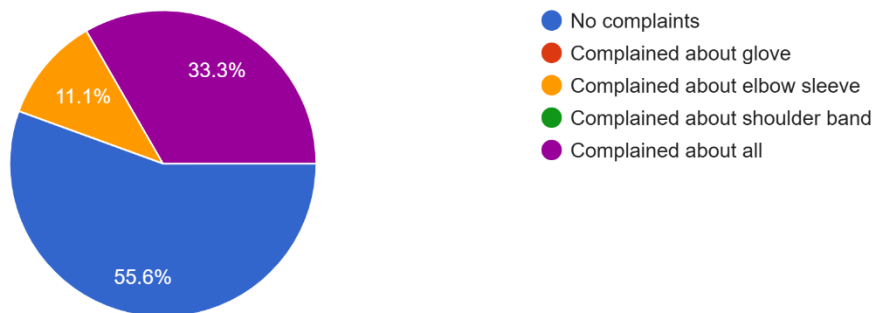
Has your child used wearable devices before (e.g., splints, braces, sensors)?

9 responses



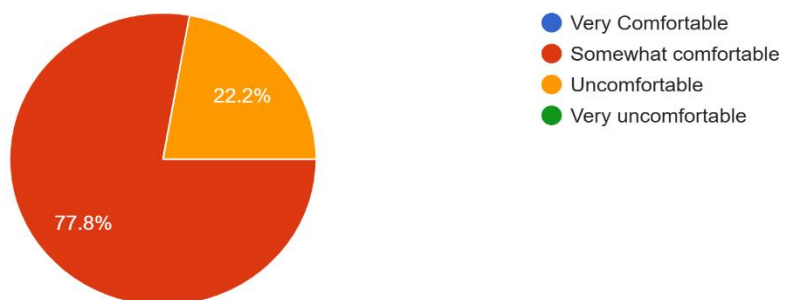
Did your child complain about any of the devices?

9 responses



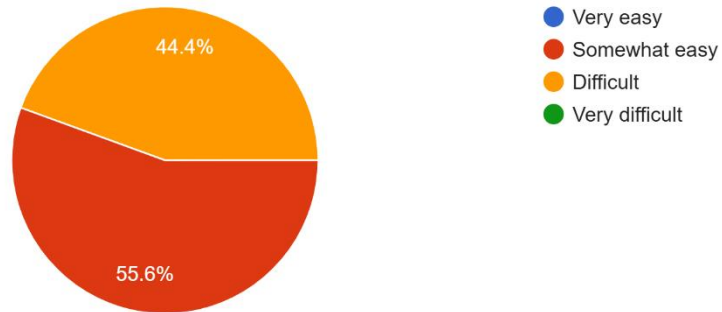
How comfortable did the devices appear on your child?

9 responses



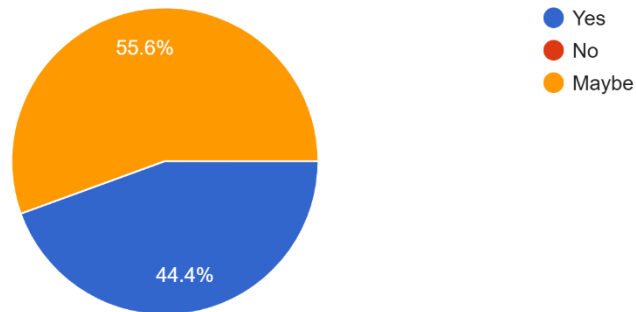
How easy was it to put on and take off the devices?

9 responses



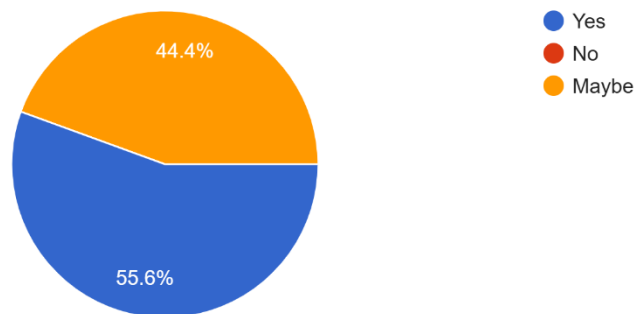
Do you believe these devices could help track your child's movement progress over time?

9 responses



Would you feel comfortable letting your child use these at home under supervision?

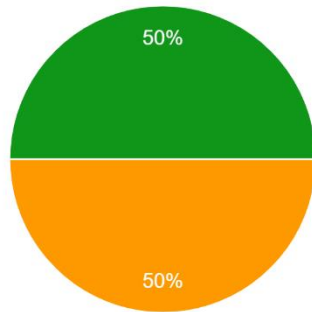
9 responses



User Feedback Collection – Children

How did the glove on your hand feel?

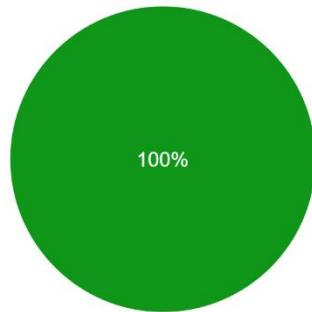
2 responses



- Very Comfortable
- Okay
- A Little Weird
- Uncomfortable
- Too Tight

How did the sleeve/band on your elbow feel?

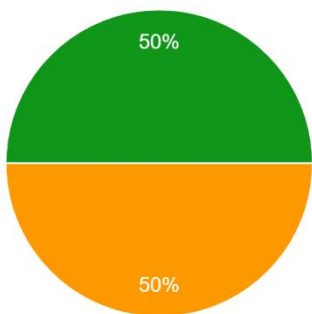
2 responses



- Very Comfortable
- Okay
- A Little Weird
- Uncomfortable
- Too Tight

How did the band on your shoulder feel?

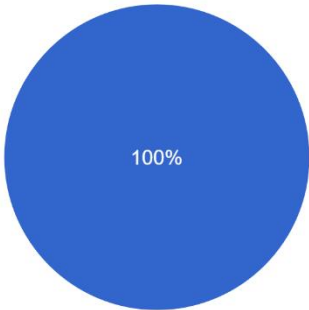
2 responses



- Very Comfortable
- Okay
- A Little Weird
- Uncomfortable
- Too Tight

Did anything bother you while wearing them?

2 responses

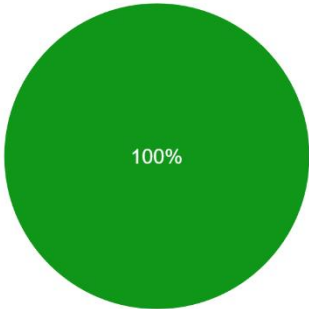


- Yes
- No

User Feedback Collection – Physiotherapist

Experience with sensor-based devices?

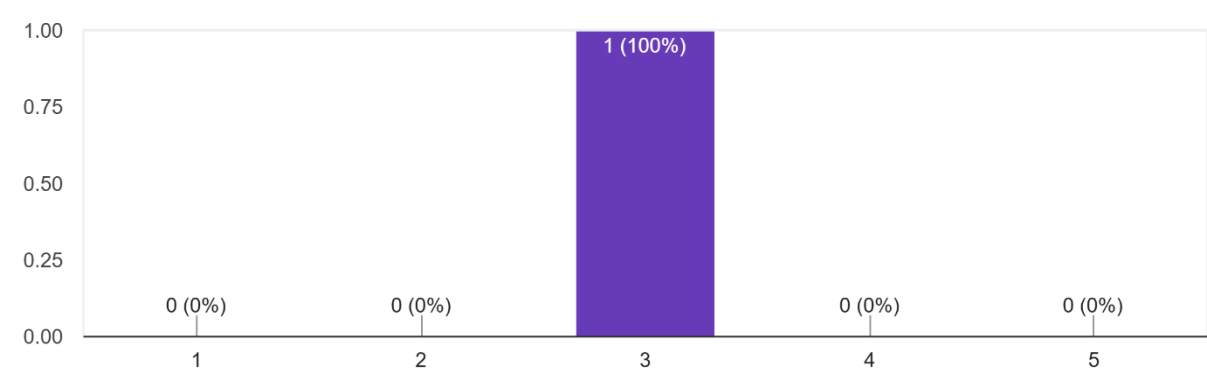
1 response



- Extensive
- Some
- Little
- None

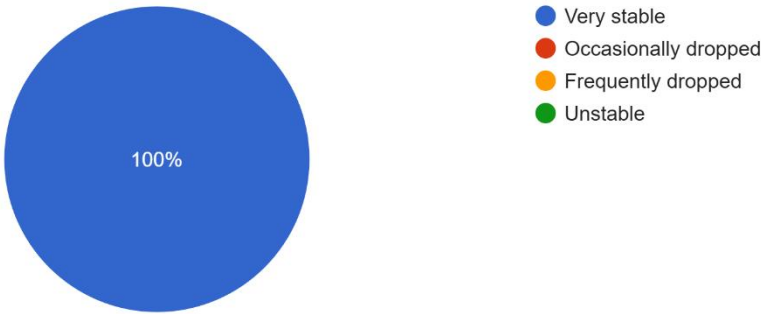
How easy was the device setup and calibration?

1 response



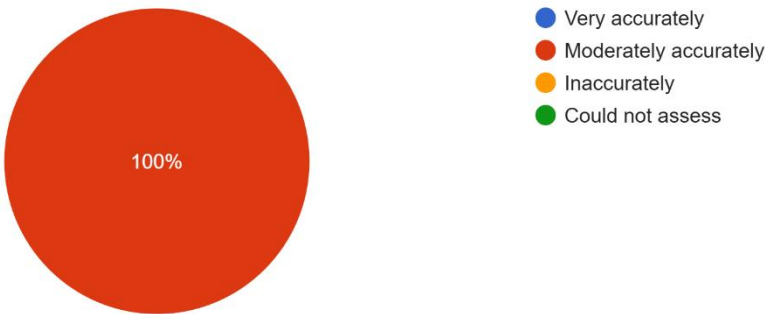
How stable was the sensor connection during use?

1 response



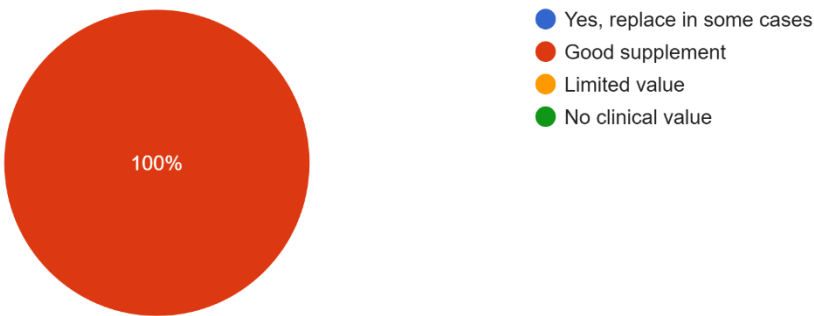
How well did the sensors capture the intended movements?

1 response



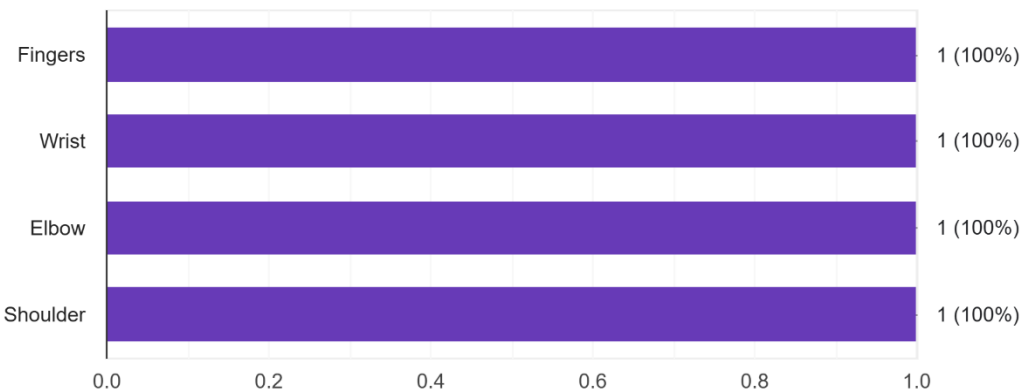
Do you think the data from these devices could replace or supplement visual observation?

1 response



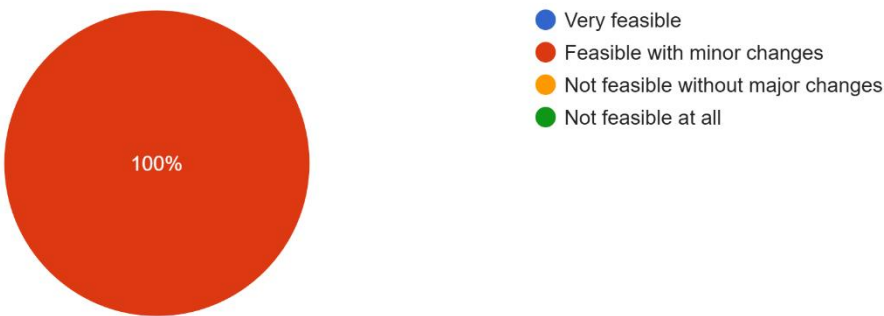
Which joints were best captured by the system? (Select all that apply)

1 response



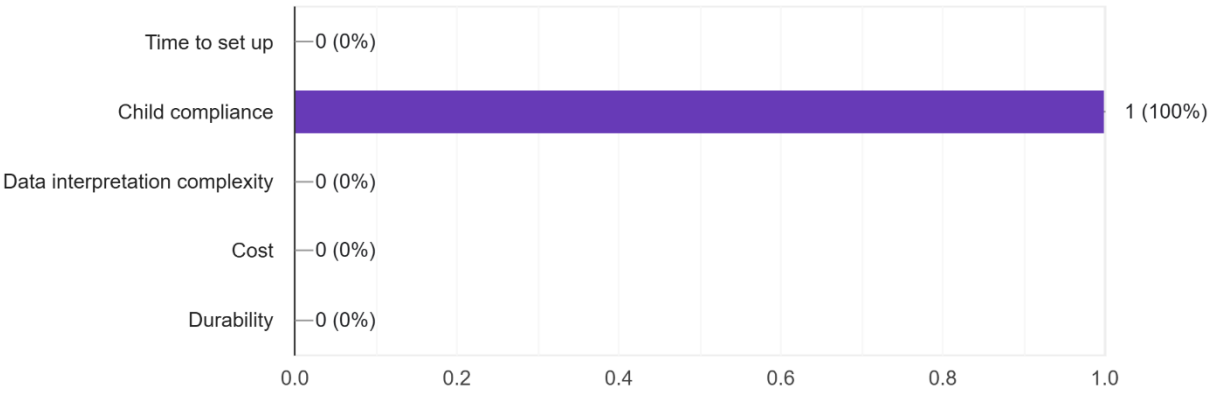
How feasible is it to use these devices in a typical therapy session?

1 response



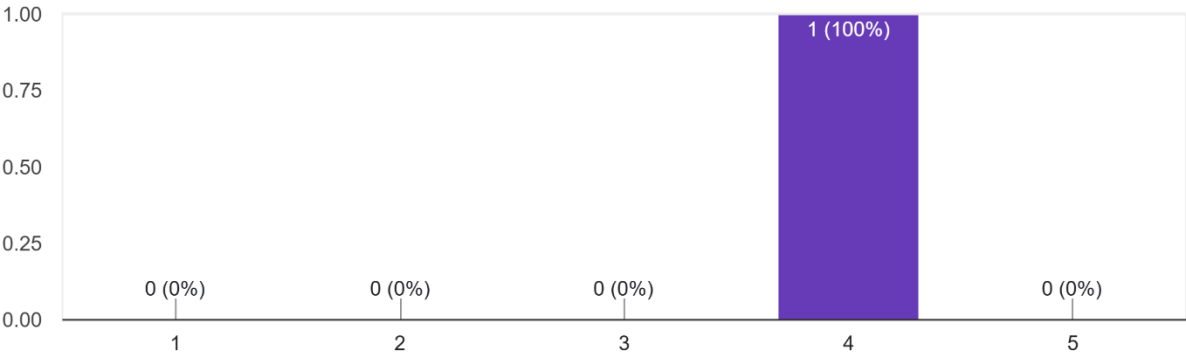
What are the biggest barriers to clinical adoption? (Select all that apply)

1 response



How likely are you to use this system for movement assessment if available?

1 response



Improvements Based on Feedback

Feedback	Change Made in Mobile App	Change Made in Web Dashboard	Reason for Differences
Dashboard too technical for parents	Simplified parent view: replaced complex graphs with progress rings, smiley icons, and star ratings	Kept detailed graphs but added toggleable views (simple ↔ detailed) for training new clinicians	Parents need quick, understandable feedback; clinicians need data depth for medical decisions
Children lose interest quickly	Added reward screens with unlockable animal avatars and celebratory animations visible in the app after each session	Added engagement metrics to dashboard: session duration, reward unlocks logged, and motivation score	Mobile app motivates the child directly; dashboard lets clinicians track motivational trends
No clear way to adjust difficulty	Added a “Request Adjustment” button for parents to notify the therapist if exercises seem too hard/easy	Added interactive sliders for game speed, sensitivity, and exercise complexity in the patient’s therapy plan	Parents shouldn’t modify medical parameters; clinicians need fine-grained control
Hard to distinguish correct vs compensatory movement	Added simple color feedback in session summary: green checkmarks for good sessions, orange warnings for high compensation	Added real-time skeleton overlay with color coding (green/red) and compensation heatmaps in the analytics panel	Parents need high-level insight; clinicians need detailed movement analysis for correction
Need better progress tracking	Introduced weekly streak counter and achievement badges visible on the home screen	Added exportable progress reports with timelines, range-of-motion trends, and compensation frequency charts	Parents respond to gamification; clinicians need structured data for evaluation and reporting