

Progress Report # 1

UW Adapted Fitness: Grip Strength Improvement Mechanism

Client: Dr. Kecia Doyle

Advisor: Prof. William Murphy

Team: Simon Nam (Team Co-Leader and BSAC)

Sarah Kendall (Team Co-Leader)

Nicolas Maldonado (Communicator)

Owen Noel (BWIG)

Joey Dringoli (BPAG)

Date: 9/12/24

Problem Statement

A longtime Adapted Fitness client and mechanical engineer has worked consistently on stimulating his hand with lesser grip strength. The client would like a custom mechanism that would help an adapted fitness client improve his grip function and enable him to better grip on daily objects and workout equipment.

Brief Status Update

Our team's main goal this week was to assess the project and get a grasp on the prototype the client needed. The team initially met together after team selection, assigned roles, and discussed possible research questions to ask for the client. We have contacted the client and are in the process of scheduling a client meeting. By next week, a product design specification document must be developed. Each team member has contributed by conducting their own research relevant to the project.

Summary of Weekly Team Member Design Accomplishments

- TEAM
 - Assigned team roles, brainstormed questions for the client, and discussed the basics of the project.
- Simon

- Initially created a team notebook in LabArchives and assisted BME 200 members on how to navigate through the course webpage and expected deliverables on a weekly basis.
- Developed modes of contacting for effective team communication.
- Researched on different possible ideas for buildup of mechanisms to improve grip strength and came up with adequate questions to ask to client
- Provided guidelines on how to write weekly progress reports starting from this week.
- Sarah
 - Communicated with our advisor to schedule weekly meetings.
 - Conducted preliminary research on grip strength and exercises that improve grip strength. Ideally, we can apply these exercise mechanisms to our product.
 - Researched patents for existing products that improve grip strength.
- Nicolas
 - Made initial contact with the client
 - Organizing meeting time with client for us to know precisely what the client wants from us
 - Began initial research on existing products already on the market
- Owen
 - Uploaded team picture and bio to the project website
 - Researched different grip strength devices and methods already on the market
 - Began brainstorming questions for our client
- Joey
 - Researched the different types of grip strength
 - Researched traditional exercise methods used to enhance grip strength
 - Created both a materials/expenses tracking spreadsheet and a Google doc requesting funding (can be found in shared team folder under Materials & Expenses)

Weekly/Ongoing Difficulties

- The main difficulty this week is agreeing on a specific time to meet as a team throughout the semester. Team's meeting is essential as we will begin researching existing models and brainstorming elements of a possible prototype.

Upcoming Team and Individual Goals

- TEAM
 - Meet with our client to discuss expectations and begin drafting the Product Design Specifications. Meet with the advisor to learn more about expectations and requirements for deliverables for BME 200/300.
- Simon
 - Create and begin working on the PDS template; delegate different aspects of the PDS to team members.

- Attend a BSAC meeting on 9/13 to provide feedback to BME faculty about the design courses and curriculum. Learn more about the roles of peer advisor and mentors to the freshmen
- Continue on researching the bioinstrumentation aspects of possible mechanisms for improving grip strength.
- Sarah
 - Research the biology of the hand, specifically understand which muscles are involved in grip strength.
 - Complete the product design specifications and conduct research on existing products and standards prior to PDS drafting.
- Nicolas
 - Find a time to meet with our client
 - Continue research on what the market has to offer already, as well as begin research on the biology of the human hand.
 - Have my questions ready for the client
- Owen
 - Add progress report to team website and continue to update the website
 - Meet with our advisor and client to discuss the project in further detail
 - Continue research on grip strength devices and possible grip strength issues
- Joey
 - Research-specific instruments already used for improving grip strength
 - Begin finding a vendor to source potential weights/materials that could be used to construct our device
 - Discuss the budget with the client to find out how much capital we will have

Project Timeline

Project Goal	Deadline	Team Assigned	Progress	Completed
Background Reading and Prep for First Client Meeting	9/12/2024	All	Complete	Yes
PDS Draft 1	9/20/2024	All	In Progress	No
Design Matrix w/ at least 3 ideas	9/27/2024	All	Not yet started	No

Preliminary Presentations	10/4/2024	All	Not yet started	No
Preliminary Deliverables (Report, Notebook, Peer Eval)	10/9/2024	All	Not yet started	No
Final Poster Presentation	12/6/2024	All	Not yet started	No
Final Deliverables	12/11/2024	All	Not yet started	No

Materials & Expenses

n/a