

Progress Report # 2

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: 9/19/24

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

The team had their first client meeting this week. We met Dr. Doyle at the Adapted Fitness center in the Bakke and received answers to many of our questions and toured the facility we will use to test the device. At this stage, we have completed the PDS for the product, which will be a living document that can be changed throughout the semester. Individually, everyone has conducted research relevant to the project's scope.

Summary of Weekly Team Member Design Accomplishments

- TEAM
 - Attended first client meeting.
 - Completed the PDS.
 - Scheduled next meeting with the client & participant in the training session
 - Attended a team meeting to discuss plans for the week.
- Simon

- Attended the first client meeting to introduce the team and discuss the initial design approach
- Completed 'Client requirements', 'physical requirements', 'operating environment', 'ergonomics', 'size' sections of the PDS.
- Researched more on the stroke and post stages of rehabilitation relevant to grip strength training
- Sarah
 - Attended the first client meeting at the Adapted Fitness center in the Bakke.
 - Completed the function and miscellaneous sections of the PDS.
 - Researched relevant standards that must be followed when fabricating and testing our product.
- Nicolas
 - Researched what causes the loss of grip strength and the dangers of weak grip strength.
 - Worked on the PDS.
- Owen
 - Attended the first client meeting and got to meet our client and learn more about the project
 - Completed the Weight, Materials, and Aesthetics, Appearance, and Finishes portion of the PDS
 - Uploaded progress reports to the website
- Joey
 - Researched the shelf life of gloves and what preventative measures to take to reduce loss of shelf life
 - Filled out PDS sections: Shelf life, Quantity, and Target Product cost
 - Read about the results from the meeting with the client, due to a class schedule conflict

Weekly/Ongoing Difficulties

- The grip-strength mechanism will be used by one of our client's patients. The client was unable to answer some of our questions regarding the patient's medical history and their ultimate goal of the project. We will need to meet with the patient to gain further information, however, the patient is not available to meet until next week. Until then, we will move forward with the information we received from the client.

Upcoming Team and Individual Goals

- TEAM
 - Undergo Canvas HIPAA training.
 - Brainstorm three different designs for the design matrix.
- Simon
 - Research further on possible design ideas to implement to the project, specifically into the bioinstrumentation field and biofeedback mechanism
 - Prepare and work on the preliminary design matrix
 - Discuss and engage more with the actual client who will be using the device in development stages

- Sarah
 - Meet with our client on Thursday September 26 to receive the client’s medical history. Draft more questions to ask prior to the meeting.
 - Brainstorm possible designs that can be used for the design matrix.
 - Research competing products and find ways to improve upon these existing devices.
- Nicolas
 - Email the client our PDS and to arrange our next meeting.
 - Come up with a design for the grip-strength device for the design matrix.
- Owen
 - Meet with client on Thursday, September 26 to learn more about the requirements the client has for the device and get a better idea of what the client wants
 - Do more research on stroke survivors and the conditions they live in after their stroke
 - Brainstorm ideas for the design matrix
- Joey
 - Attend BPAG meeting 9/27 to learn more about my role
 - Determine the budget for the project
 - Research effective materials that can be used for the glove; focus on durability, strength, and comfortability

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	9/19/2024	All	Complete	Yes
Design Matrix w/ at least 3 ideas	9/26/2024	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