Digital traction with Japanese finger sleeves

Progress Report 1

Client: Mr. Pape Samb

Advisor: Dr. Justin Williams

Date: 9/11/2025

Team:

Ilia Mikhailenko	imikhailenko@wisc.edu (Co-leader)
Nathan Hansen	ndhansen@wisc.edu (Co-leader)
Ben Willihnganz	bwillihnganz@wisc.edu (BWIG)
Mariamawit Tefera	mstefera@wisc.edu (Team Communicator)
Nathan Klauck	nklauck@wisc.edu (BSAC)
Sam Dudek	dudek4@wisc.edu (BPAG)

Problem Statement

Design a device that allows for precise digital control of the components of the human hand through the use of Japanese finger sleeves. This device will be designed to allow for controlled and stable traction during relevant surgeries so that proper positioning of the hand can be attained with minimal manual effort.

Brief Status Update

Project selection concluded. There was a brief team introduction, which included setting up the team drive, assigning team roles, and meeting with Dr. Williams.

Weekly/Ongoing Difficulties

- None to report currently

Current Design

- None to report currently

Materials and Expenses

- None to report currently

Summary of Past Week Accomplishments

- Ilia Mikhailenko
    - Assisted in setting up the team notebook
    - Started background research to get a better understanding of the project and study competing designs to develop ideas for designing our own digital traction device
- Nathan Hansen
    - Assisted in setting up the team notebook
    - Completed preliminary research to better understand the function of traction devices and current shortcomings.
- Nathan Klauck
    - Created a shared drive and added project resources, as well as current documents
    - Began Research
- Ben Willihnganz
    - Set up the project website and uploaded the team image
    - Performed research on contemporary traction designs and some of their advantages and drawbacks
- Mariamawit Tefera
    - Sent introductory email to client, set up first meeting time/location/details
    - Began research on project background
- Sam Dudek
    - Completed research on the biological and physiological functions of digital traction in surgery, as well as other competing designs being used in the field

Upcoming Team and Individual Goals:

The current team goals include beginning individual research, meeting with the client to define the specifications that are important to the project, and laying out expectations for the semester.

- Ilia Mikhailenko
    - Continue background research on the competing designs for digital traction devices and identify ways we can create an improved model
    - Create an outline for the project design specifications documents and start drafting
- Nathan Hansen
    - Continue researching background and existing products
    - Begin to draft a product design specification document to narrow research and help draft design ideas.
- Nathan Klauck
    - Begin research on the topic pertaining to current devices on the market and relevant anatomy
    - Continue to add templates and start documents in our shared drive
    - Prepare for the first BSAC meeting
- Ben Willihnganz
    - Continue research on biological, anatomical, and physiological components of hand surgery in order to better understand our project goals.
    - Continue to update our website and gain an understanding of the BWIG role.
- Mariamawit Tefera
    - Read through background materials on digital traction and Japanese finger sleeves to get familiar with the problem.
    - Prepare discussion points/questions for the upcoming client meeting.
    - Further research background information on hand anatomy and its relevance to traction devices.

- Sam Dudek
    - Continue researching the biological and physiological functions of digital tractions and other competing designs
    - Look more into the BPAG role and what is needed of that specific role

Activities Timesheet

Team Member	Time for the Week	Total Time for the Semester
Ilia Mikhailenko	4	4
Nathan Hansen	3	3
Nathan Klauck	4	4
Ben Willihnganz	3	3
Mariamawit Tefera	2	2
Sam Dudek	2	2

Preliminary Project Timeline:

Task	Sep			Oct					Nov				Dec	
	12	19	26	3	10	17	24	31	7	14	21	28	5	10
Project R&D														
Brainstorm														
Research														
Prototyping														
Testing														
Deliverables														
Progress Reports														
Prelim presentation														
Final Poster														

Meetings														
Client														
Advisor														
Website														
Update														