3D Printing Airway Trainers

Progress Report 2

Client: Dr. Kristopher Schroeder

Advisor: Dr. John Puccinelli

Date: 9/20/2024

Team:

Maribel Glodowski mjglodowski2@wisc.edu (Co-leader)

Jack Sperling jwsperling@wisc.edu (Co-leader)

Maiwand Tarazi mtarazi@wisc.edu (BWIG)

Elle Heimer eoheimer@wisc.edu (Team Communicator)

Nathan Klauck nklauck@wisc.edu (BSAC)

Ilia Mikhailenko imikhailenko@wisc.edu (BPAG)

Problem Statement

Airway management is important in keeping a patient stable in various medical environments. While novel techniques and innovative devices for better airway management have decreased the difficulties medical professionals face, developing airway management skills in difficult and unique scenarios is essential to positive and effective patient outcomes. Developing a method of using 3D printing and existing patient imaging to create realistic airway training manikins would allow medical professionals to practice airway management skills with physiologically consistent results.

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. Puccinelli.

Summary of Team Role Accomplishments

- Maribel Glodowski
    - Continued background research on the different difficult airway management cases that can occur
    - Worked on creating a detailed PDS
- Jack Sperling
    - Continue researching background and existing products
    - Begin researching materials and manufacturing methods to potentially use (latex modeling, 3D printing capabilities of makerspace vs outside provider)
    - Researched potential for utilizing parts of some commercially available mannequins
    - Worked on creating detailed PDS
- Maiwand Tarazi
    - Worked on PDS
    - Researched competing 3D printed airway models
- Elle Heimer
    - Further research background information for PDS
    - Begin drafting Project Design Specification
- Nathan
    - Attended first BSAC meeting
    - Prepared for BSAC exec meeting
- Ilia
    - Continue researching existing airway trainer models to identify potential areas for improvement/design alteration

Weekly/Ongoing Difficulties

- None to report currently

Upcoming Team and Individual Goals:

The team goals include continuing individual research and creating a detailed Project Design Specifications document.

- Maribel Glodowski

    - Continue background research and begin brainstorming different designs
    - Create a design matrix outline
- Jack Sperling
    - Work on a detailed and flushed out design matrix
    - Continue researching commercially available products
    - Ask Dr. P about past airway trainer project and potential resources from that
- Maiwand Tarazi
    - Begin drafting design matrix with team
    - Obtain spare manakin from Dr. Schroder to brainstorm trainer designs
- Elle Heimer
    - Begin brainstorming design ideas
    - Continue drafting Project Design Specification
- Nathan Klauck
    - Further research on related topics with a focus on 3D printing methods
    - Help with draft of PDS
    - Draft initial design ideas
- Ilia
    - Continued to research 3D airway trainers present on the market
    - Finalized assigned portion of Product Design Specification

Activities Timesheet

Team Member	**Time for the Week**	**Total Time for the Semester**
Maribel Glodowski	4	6
Jack Sperling	4	6
Maiwand Tarazi	3	5
Elle Heimer	3	5
Nathan Klauck	4	6

Ilia Mikhailenko	4	6

Expenses:

- No expenses to report at this time

Project Timeline:

Task	**Sept.**			**Oct.**					**Nov.**					**Dec.**
	13	**20**	**27**	**4**	**11**	**18**	**20**	**25**	**1**	**8**	**15**	**22**	**29**	**6**
Project														
Brainstorming	**X**	**X**												
Researching	**X**	**X**												
Manufacturing														
Testing/Remodeling														
Deliverables														
Progress report	**X**	**X**												
PDS		**X**												
Mid-semester														
Final														
Meetings														
Team	**X**	**X**												

Advisor	**X**	**X**												
Client	**X**													
Website														
Update	**X**	**X**												