3D Printing Airway Trainers: BME 400

Dates: 9/19/25 - 9/25/25

Client: Kristopher Schroeder, MD
Advisor: Dr. Paul Campagnola

Team:
Matt Sheridan (Communicator)
Dan Altschuler (Team Leader)
Cody Kryzer (BPAG)
Lance Johnson (BSAC)
Elleana Thom (BWIG)

Problem Statement

Airway management is an integral part of keeping a patient stable in many medical environments. While training medical practitioners with simple airway trainers has improved patient outcomes, this has not had the same effect on patients with abnormal airways. The use of 3D printing from existing patient imaging to create realistic and individualized airway manikins would assist medical professionals, allowing them to practice airway management skills on lifelike models.

Brief Status Update

The team worked on making a design matrix for the neck modulation of the manikin. The team also reached out and scheduled time with the MRI machine and Dr. Schroeder so we can get optimal scans for segmenting.

Weekly Goals and Accomplishments

- Team
    - The team completed the design matrix and worked on making the manikin
    - Scheduled meeting to get new scans
- Matt Sheridan
    - Brainstormed designs for the design matrix and overall design
- Dan Altschuler
    - Started the print from Decent Simulators
- Cody Kryzer
    - Worked on design matrix
    - Met Anchal
- Lance Johnson
    - Worked on the design matrix
- Elle Thom
    - Researched how to make silicon mold. Worked on design matrix.

Upcoming Goals

- Team
    - Work on segmenting the new scans
    - Finalize the preliminary presentation
- Matt Sheridan
    - Get MRI scans
    - Work on segmenting MRI scans
    - Begin fabrication of manikin
- Dan Altschuler
    - Meet at the hospital for the scans
    - Work on segmenting
- Cody Kryzer
    - Meet at the hospital on Monday for MRI scans
- Lance Johnson
    - Begin modeling the manikin skull and outlining the size of the overall assembly in CAD
- Elle Thom
    - Meet the team for MRI scans.
    - Work on preliminary report.