3D Printing Airway Trainers: BME 301

Dates: 4/4/25 - 4/10/25

Client: Kristopher Schroeder, MD
Advisor: Prof. Beth Meyerand

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

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 went to the hospital this week to complete the MRI scan that we needed for segmenting and printing. The team hopes to have a rough segmentation complete by the end of the week so that we can try another print in a different material. The hope is that by the Wednesday of next week, the team will have all action items completed and ready to be on our poster for presentations on Friday.

Weekly Goals and Accomplishments

- Team
    - Completed the scan
    - Began segmenting and printing
- Matt Sheridan
    - Communicated with radiology to set up MRI scan time and volunteer
    - Reviewed MRI scans and began segmenting
- Dan Altschuler
    - Got comfortable using segmenting software
- Cody Kryzer
    - Prepare to segment scan with 3D slicer
- Lance Johnson
    - Helped Dr. Vigen set up the scan in the sniffing position

Upcoming Goals

- Team
    - Segment the MRI scans that were acquired on Friday
    - 3D print scans
    - Consider work on other facets of the project - testing and poster
- Matt Sheridan
    - Finish segmentation and print new STL file
- Dan Altschuler
    - Work on segmenting
    - Complete all other action items for the prokect
- Cody Kryzer
    - Continue to write protocols
    - Work on implementing our printed airway onto the manikin
    - Segment the scan we got
- Lance Johnson
    - Prepare sliced file for 3D printing
    - Print new STL file with the team