3D Printing Airway Trainers: BME 301

Dates: 2/21/25- 2/27/25

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 finished the preliminary report which outlines all work done thus far in the semester. The team met with Dr. Sylvana García-Rodríguez, a researcher in the radiology department who shared valuable information about the process of segmenting a scan and preparing it to be 3D printed.

Weekly Goals and Accomplishments

- Team
    - Completed the preliminary report
- Matt Sheridan
    - Completed portions of the preliminary report
- Dan Altschuler
    - Completed the preliminary report
    - Began working on ITK-SNAP
- Cody Kryzer
    - Complete preliminary report
    - Research segmentation
- Lance Johnson
    - Contributed to the preliminary report
    - Got an airway STL file from Dr. García-Rodríguez
    - Reattached the mannikin head to the trainer body more securely

Upcoming Goals

- Team

    - 3D print the trachea STL file from Dr. Sylvia
- Matt Sheridan
    - Continue research on MRI segmentation, and download necessary software to do so
- Dan Altschuler
    - Continue to get used to ITK-SNAP
    - Begin getting familiar with 3D slicer
- Cody Kryzer
    - Research slicing softwares
    - Plan to print STL file from Dr. Sylvia
- Lance Johnson
    - Continue research into CT/MRI scan segmentation
    - Begin to research/learn about specific segmentation and post-segmentation softwares