3D Printing Airway Trainers: BME 301

Dates: 4/11/25 - 4/17/25

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 started many prints using different materials this week after we segmented the MRI that was taken on Friday. This will help the team come to a conclusion on which material we want to use in our final print. The team will now turn its focus to completing testing and working on the final poster before Wednesday.

Weekly Goals and Accomplishments
- Team
  - Post processed the segmentation and prepared the files for printing
  - Started multiple prints at the Makerspace
- Matt Sheridan
  - Segmented 2 MRI scans into STL mesh files
  - Wrote segmentation protocols
- Dan Altschuler
  - Helped segment the MRI
  - Worked on 3D printing
- Cody Kryzer
  - Printed airways
  - Wrote protocols
- Lance Johnson
  - Converted segmented scans into printable files using Fusion 360

Upcoming Goals

- Team
  - Complete testing of the prototype
  - Complete the final poster
- Matt Sheridan
  - Help complete final poster and prepare for presentations
- Dan Altschuler
  - Complete all action items for the project
  - Finalize the executive summary
- Cody Kryzer
  - Finish final poster
  - Perform testing
- Lance Johnson
  - Test final prototype
  - Finish final poster
  - Begin final report