3D Printing Airway Trainers: BME 400

Dates: 9/12/25 - 9/19/25

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 made updates to the PDS to reflect changes in the goals for the upcoming semester. Matt reached out to the lab to look into getting better imaging for the team. Dan downloaded the .3mf file from Decent Simulators and will get it 3D printed soon.

Weekly Goals and Accomplishments

- Team
    - The PDS was updated to reflect changes in the scope of the project
    - Contact was made with the hospital to advance efforts for better imaging
- Matt Sheridan
    - Reached out to the MRI lab to gather better scans for the semester
- Dan Altschuler
    - Updated the PDS
    - Got the .3mf file from Decent Simulators
- Cody Kryzer
    - Updated PDS
- Lance Johnson
    - Updated PDS
- Elle Thom
    - Went through the PDS with the team. Completed revisions of the PDS. Researched more on 3D slicers as well as individual research on manikins with specific craniofacial abnormalities.

Upcoming Goals

- Team
    - Continue work on the manikin modeling
    - Look into other resources for segmentation
- Matt Sheridan
    - Begin working on designing the manikin
    - Brainstorm methods for modulation of the manikin.
- Dan Altschuler
    - Print the manikin shell
    - Purchase silicone to cast the manikin
- Cody Kryzer
    - Spend some time on outreach for class
    - Brainstorm ways to modify the manikin
- Lance Johnson
    - Begin modeling the manikin skull and outlining the size of the overall assembly in CAD
- Elle Thom
    - Continue research into craniofacial abnormalities that can be implemented into the manakin. Meet the new team member. Go to outreach class.