3D Printing Airway Trainers: BME 400

Dates: 11/22/25 - 11/28/25

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 spent this week preparing the negative from the MR data as well as designing the new silicone mold. The new mold is designed to allow for the airway to stand up as well as adding in a spine where we can insert the lamprod design. The 3D print was printed this week so we can start molding when the team is back from break.

Weekly Goals and Accomplishments

- Team
    - Finalized negative slicing
    - Printed the 3D model that will be used for the silicone mold
- Matt Sheridan
    - Finalized the negative model from the MR scans received at the start of the semester
    - Sent the scans off to lance to be converted to a 3D print
- Dan Altschuler
    - Worked on creating the 3D model
    - Worked on prototype at the Makerspace
- Cody Kryzer
    - Worked on the manikin stand at the makerspace
    - Helped with printing of model
- Lance Johnson
    - Finalized the airway model from Matt, converting it into a mold for the negative of the airway
    - Started and received the print from the Makerspace

- Elle Thom
    - Helped in the Makerspace starting to build the stand for the manikin
    - Helped with printing the 3D mold from the Makerspace

Upcoming Goals

- Team
    - Create the silicone mold
    - Finish building of the manikin
    - Testing
- Matt Sheridan
    - Work on final prototype in the makerspace
    - Create silicone mold
- Dan Altschuler
    - Continue work on the manikin
    - Finish the silicone mold after break
    - Get testing done
- Cody Kryzer
    - Complete work on the manikin
    - Create silicone mold, adding in the lamp rod design
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- Lance Johnson
    - Finish working on the manikin and building neck adjustment mechanism
    - Testing
    - Finish the silicone mold
- Elle Thom
    - Finish the prototype in the makerspace
    - Finalize the silicone mold