

Diversified Anatomy and Physiology Lab Resource App



Our Team

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Clients



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FIRST

Clients displays diagrams and three dimensional models during lecture.

LAST

Clients will test students based on these diagrams. An example being labeling models.

NEXT

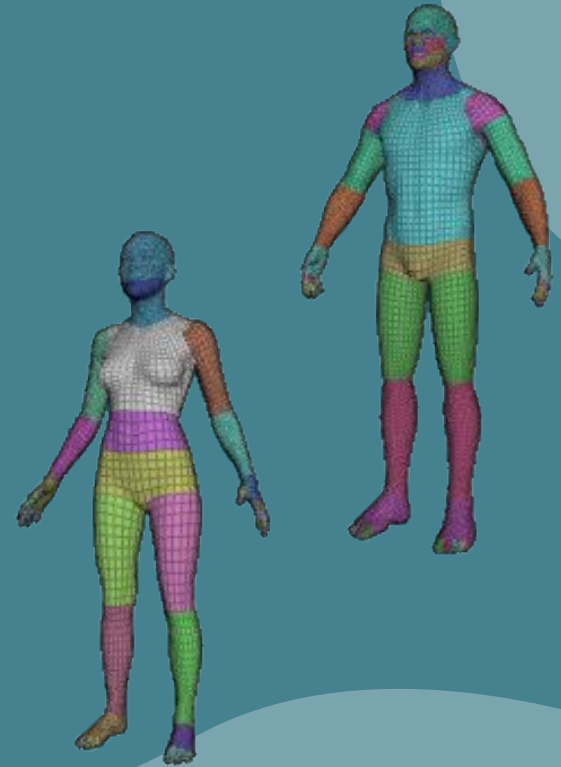
Clients will have students study the models by analyzing them.

A lack of diversified anatomical models in the BIO201 curriculum, resulting in the inability to diagnose skin pathologies and feelings of underrepresentation.

Current Solution: Low supply non-white slim models and expensive software.

Solution Overview

- A diversified approach to anatomical models as an interactive web application.
- Students can use to tailor their models to their learning.
- Enhance diversity and understanding of the material.
- Offers quick tutorials for users to learn the main features.



Requirements Review

1

A 3D Customizable Anatomical Model.

2

Adjustable settings for biological sex, skin tone, and body size.

3

Accurate content specific to BIO201.

4

Real-time updates.

Architecture Review

React, Material UI

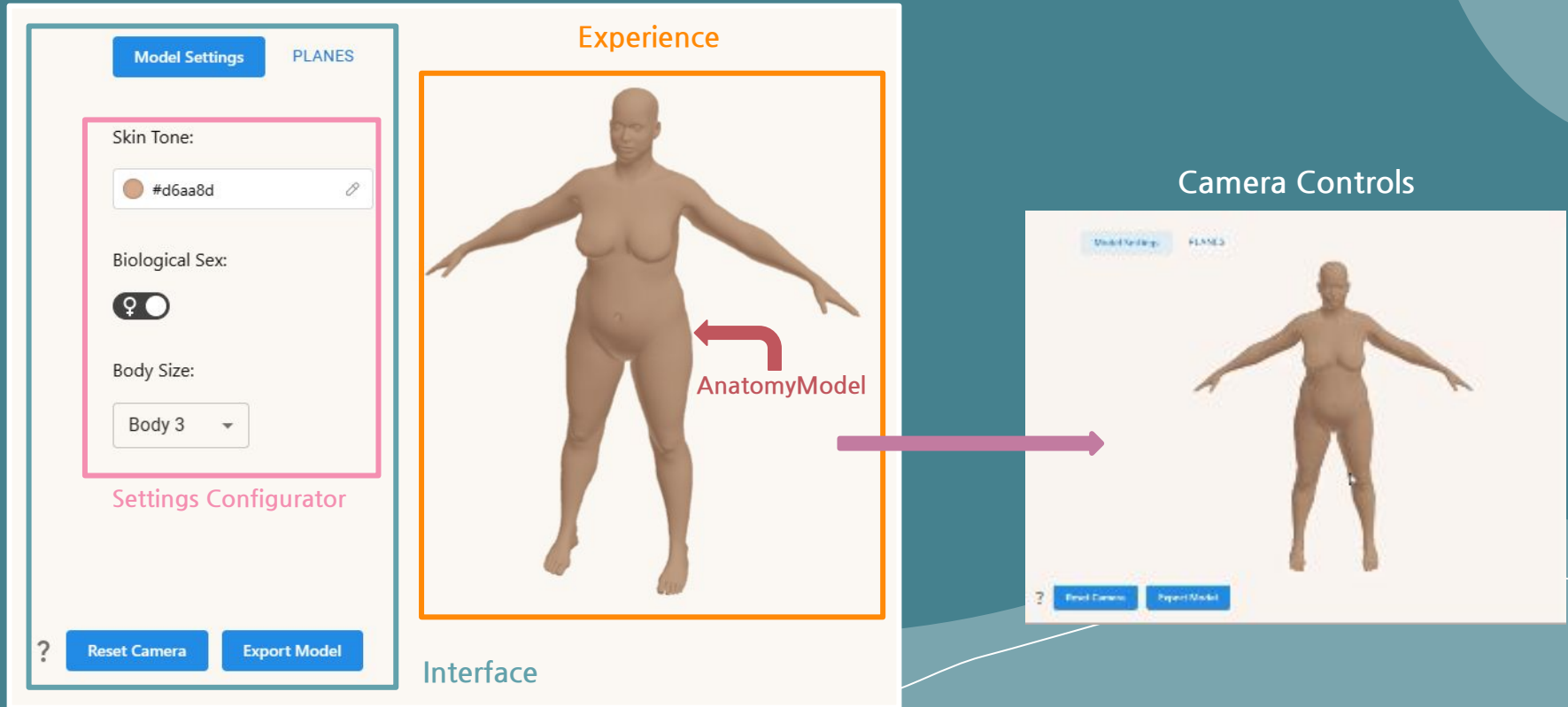
start

The image displays a sequence of four screenshots illustrating the user interface flow for the 'BIOLOGY 201: ANATOMY & PHYSIOLOGY' application. The first screenshot shows the landing page with a 3D human model and the title. The second screenshot shows a login form titled 'Diversified Anatomy and Physiology Lab Resource' with a 'SUBMIT' button. The third screenshot shows the 'BIO201 Menu' with a list of units and a 'User Guide' link. The fourth screenshot shows the 'Unit 1: Organs, Systems, and the Organization of the Body' interface, featuring a 3D model and 'Planes of Sectioning' controls. Red arrows indicate the flow from one screen to the next.

The image shows a screenshot of the 'User Guide' page. The page has a white background with a dark blue header. The title 'User Guide' is centered at the top. Below the title, there is a welcome message: 'Welcome to the AnATOMIA User Guide! This comprehensive guide is designed to help you navigate and make the most of your experience with our 3D anatomy & physiology program. Whether you are a student or instructor, this program offers an inclusive and educational learning experience of the human body. Click the button below to view and download the user guide.' At the bottom of the page, there is a blue button labeled 'DOWNLOAD USER GUIDE' and a link to 'About The Developers'.

Architecture Review

ModelPage utilizing Three.js



Architecture Review

Firebase Realtime Database, Cloud Storage, Node.js

1

Course Data

Top level collection

1.1

Units

Overarching unit topic

1.1.1

Subunits

Specific topic section

.1

Title

Title of the subunit

.2

Description

Content of the subunit

.3

Image

Content image for further explanation (Optional)

1.1.2

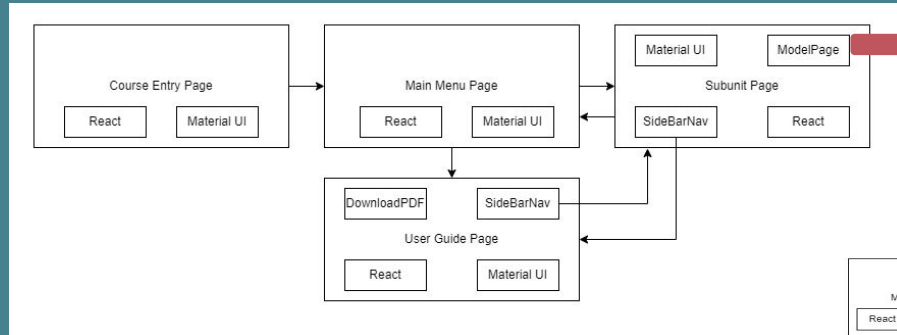
Model Files

Model files array for the unit

Implementation Review

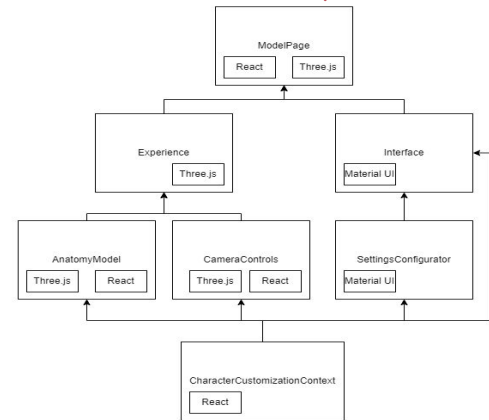
The major requirements that we implemented:

1. Course Access
2. Content Main Menu
3. Interactive 3D Modeling
4. Display Course Content
5. Exporting Models
6. User Guide

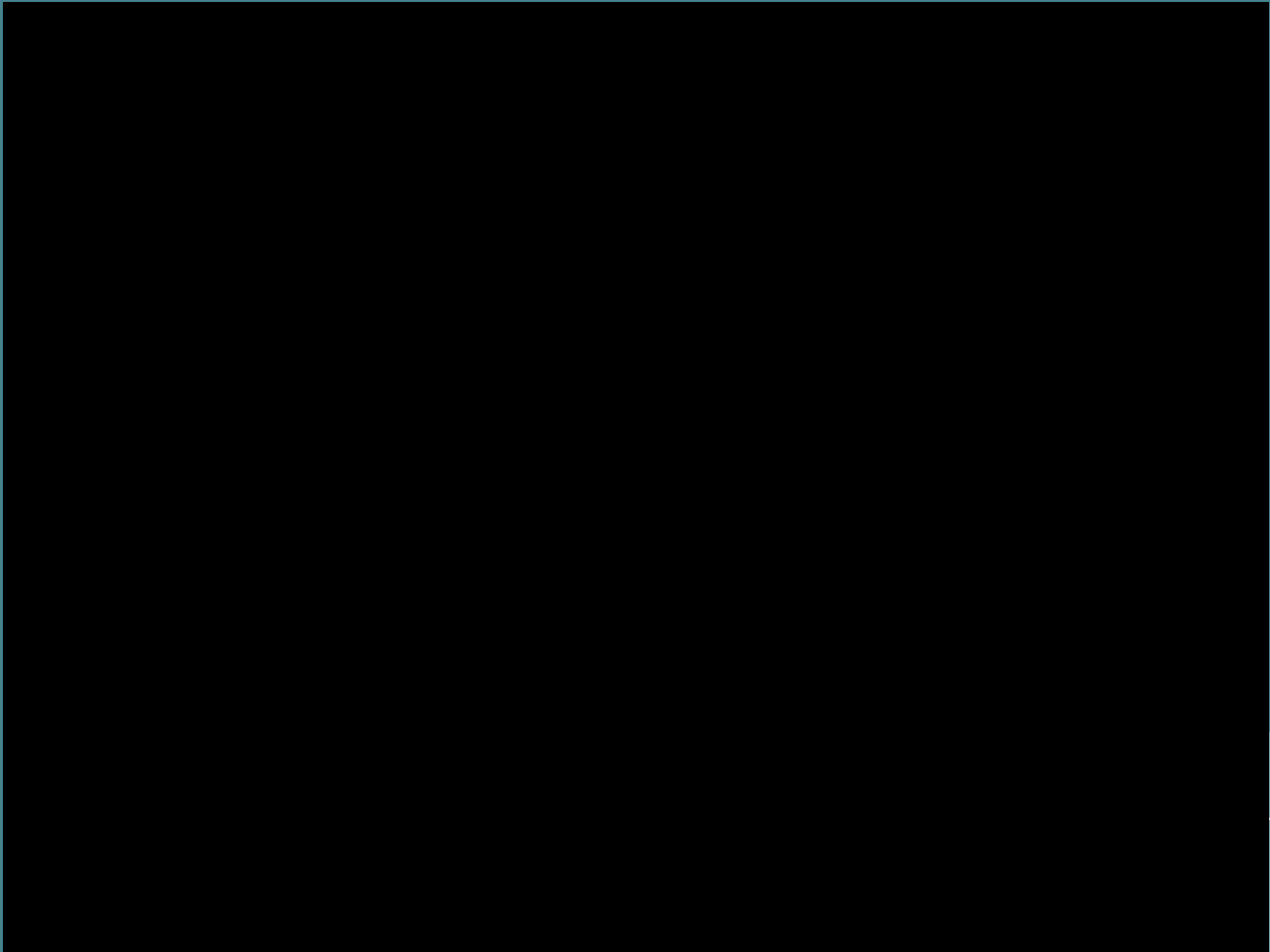


Stretch Goals:

1. Planes of Sectioning within scene
2. Directional Terms & Camera Modes
3. Whiteboard



Prototype Review



Challenges & Resolutions

Finding Usability Testing Participants:

- Finding the right audience to test the application with
- Resolution: Clients connected the team with students through EITS

Unit Testing Implementation:

- Large amount of components to be tested
- Resolution: Implementing one unit test at a time for each component ensuring at least 80% test coverage.

Testing Plan

Testing Type	Goal	Elements	Plan	Results
Unit Testing	Validate that each individual unit performs as required.	Jest and React Testing Library	Prepare test environment, run individual unit tests, record results.	Pass or Fail - Results will be analyzed and any errors that are detected will be discussed and dealt with immediately. Strived for 80% of test coverage
Integration Testing	Validate the flow of application.	Jest and React Testing Library	Testing functioning of navigation links, correct retrieval and display of data from our backend, record results.	Pass or Fail - Results will be analyzed and any errors that are detected will be discussed and dealt with immediately.
Usability Testing	Evaluate the front-end's functional usability.	Testing Participants and Tasks	After preparing tasks list we will observe the participants perform the tasks while taking notes and recording results.	Pass or Fail - Results and feedback will be analyzed. Any errors that are detected during the observation will be discussed and dealt with immediately.

Spring 2024 Schedule

- Unit Selection Menu
- Content Display & Interaction
- Export/Save Models
- Data Storage & Management
- User Guide
- Application Testing

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Spring Break	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Home Page Menu	X	X	X													
Subunit Pages		X	X	X												
3D Model Rendering		X	X	X	X	X										
Model Adjustments				X	X	X	X									
Model Interactivity					X	X										
Export Model User Interface						X	X									
Export/Save Model Functionality						X	X									
Database Setup & Initialization			X	X												
Data Storage			X	X	X											
Data Retrieval				X	X	X										
Database Administration									X							
User Guide Tutorial Content									X	X						
User Guide Tutorial Layout										X	X					
User Guide Assistance Options											X	X	X			
Download PDF Tutorial Kit									X							
Integration Testing									X	X	X					
Unit Testing									X	X	X					
Usability Testing											X					
UGRADS																

Conclusion

- Architecture Review
 - Unit Menu
 - Content Display and Interaction
 - Export Models
 - User Guide
- Implementation Review
- Testing Plan Review
 - Integration
 - Unit
 - Usability