

MICHIGAN STATE

UNIVERSITY

Beta Presentation

3D Analysis of Dental Patient History

The Capstone Experience

Team Delta Dental 3DADPH

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*From Students...
...to Professionals*

Project Overview

- Delta Dental of Michigan, Indiana, and Ohio.
 - Headquartered in Okemos, MI
 - Processes millions of claims per year
- Claim approval could require human review
 - Adjudicators handle massive amounts of data
 - Viewing and editing this data is time consuming
- This project allows users to:
 - Upload and edit patient dental records
 - View a 3D mouth model based on dental records



Team Member's Technical Tasks

Technical Tasks Assigned

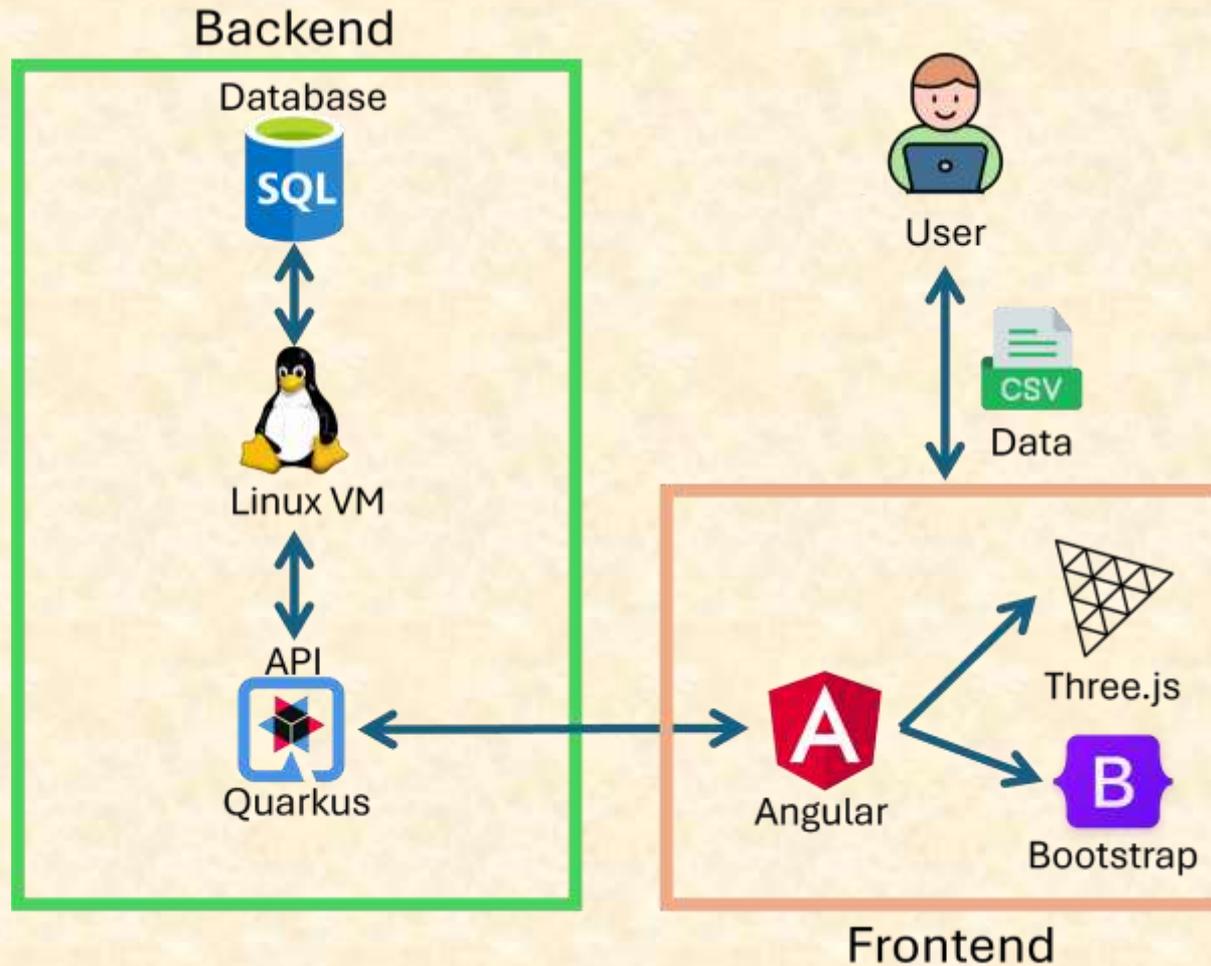
- Ben Crimmins
 - Three.js integration with frontend
 - Tooth selection on model and tooth selection viewer
 - Visual Indicators on mouth model and timeline
- Lance Stemple
 - Creating the home page
 - Upload page for claims and ability to upload CSVs
 - Timeline (selecting claims and grouped claims menu)
 - Photos page table
- Jacob Robson
 - Upload page for patient information
 - Procedure data being viewable and editable in data page
 - Added viewable data to tooth selection viewer
 - Added in models for crowns and tooth removals
- Thomas Toaz
 - Create 3D adult and baby mouth models
 - Camera interface to snap users around the mouth
 - Create base materials/key for procedure classes
 - Create zoomable timeline
 - Allow user to highlight tooth surfaces
- Jasen Van Acker
 - Add UX features for photos page
 - Configure photo upload/view on photos page and database
 - Mouth model tooth details dialog for claim information
 - Tooth code mapping to display correct tooth names
- Sanju Kona
 - Data table with filtering capabilities
 - Data page CSV export
 - Patient typeahead and auto generation

Technical Tasks Completed

- Ben Crimmins
 - Three.js integration with frontend
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System Architecture



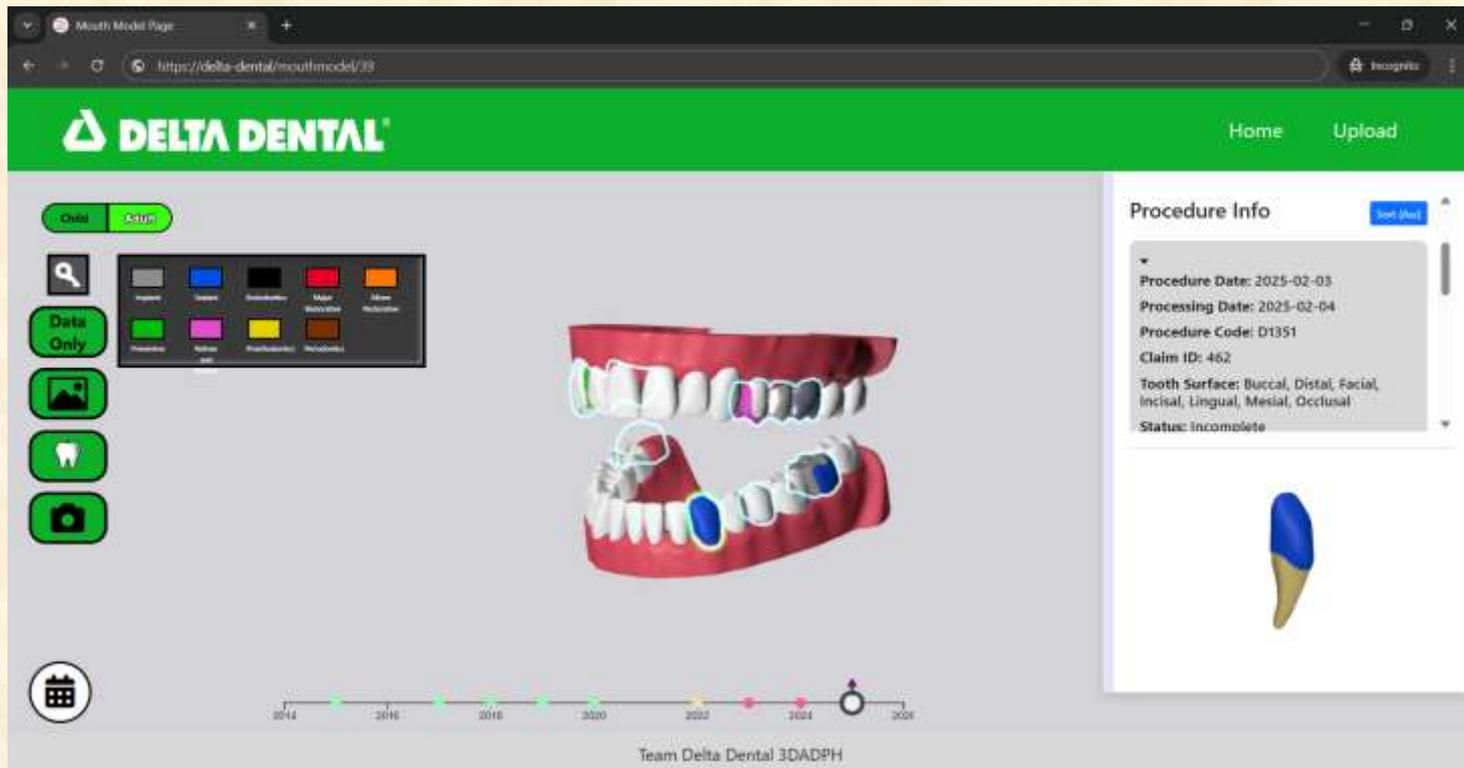
Home Page

The screenshot displays the home page of the Delta Dental 3DADPH application. The page features a green header with the Delta Dental logo and navigation links for 'Home' and 'Upload'. Below the header is a 'Patient Selector' section with a search bar and two tabs: 'All Patients' (selected) and 'Favorites'. A table lists eight patients with columns for ID, Name, Birthday, Actions, and Favorite status.

ID	Name	Birthday	Actions	Favorite
1	John Smith	05/21/1991	Mouth Model Data Edit Delete	☆
2	Sarah Johnson	09/30/1988	Mouth Model Data Edit Delete	☆
3	Mark Williams	03/03/1975	Mouth Model Data Edit Delete	☆
4	Emily Brown	12/11/1983	Mouth Model Data Edit Delete	☆
5	David Miller	01/17/1978	Mouth Model Data Edit Delete	☆
6	Alice Green	07/14/1985	Mouth Model Data Edit Delete	☆
7	John Doe	01/13/2003	Mouth Model Data Edit Delete	☆
8	Thomas Toaz	01/01/1900	Mouth Model Data Edit Delete	☆



Mouth Model



Upload Patient/Procedure

The screenshot shows a web browser window with the URL <https://delta-dental/upload/dsm>. The page features a green header with the Delta Dental logo and navigation links for 'Home' and 'Upload'. Below the header, there are two tabs: 'Upload Procedure' (active) and 'Upload Patient'. The main form is divided into two columns of input fields:

Field Name	Value
Patient ID	39
Procedure Date	04/02/2025
Processing Date	04/04/2025
Procedure Code	D5875
Tooth Code	2
Tooth Surface	None x Buccal x Distal x (+5)
Status	Incomplete
Notes	Enter notes

At the bottom of the form is a large green 'Submit' button. Below the form is a button labeled 'Select CSV File'.



Patient Procedures Page

DELTA DENTAL Home Upload

Plum Pete's Dental History Data

Download CSV Back to Mouth Model

ID	Patient ID	Procedure Date	Processing Date	Procedure Code	Tooth Code	Tooth Surface	Status	Notes
458	39	1/30/20	2/12/20	D7140	32	Buccal, ...	Completed	None
459	39	2025-02-12	2025-01-28	D4323	1	Buccal, Distal, Facial, Incisal, Lingual, Mesial, Occlusal	Incomplete	None
461	39	2025-02-03	2025-02-04	D7140	4	Incisal, Mesial, Occlusal	In Progress	None
462	39	2025-02-03	2025-02-04	D1351	22	Buccal, Distal, Facial, Incisal, Lingual, Mesial, Occlusal	Incomplete	None
443	39	2018-04-15	2018-04-17	D0220	18	None	Completed	Periapical radiograph

Items per page: 5 1 - 5 of 24

What's left to do?

- Features
- Stretch Goals
 - Dark mode
- Other Tasks
 - Bug fixes
 - User interface updates



Questions?

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