



OralOptix

INTELLIGENT ASSESSMENT OF INTRA-ORAL RADIOGRAPH QUALITY

SUPERVISED BY
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Group #18

GROUP MEMBERS



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Problem Definition

manual review is :



time-
consuming



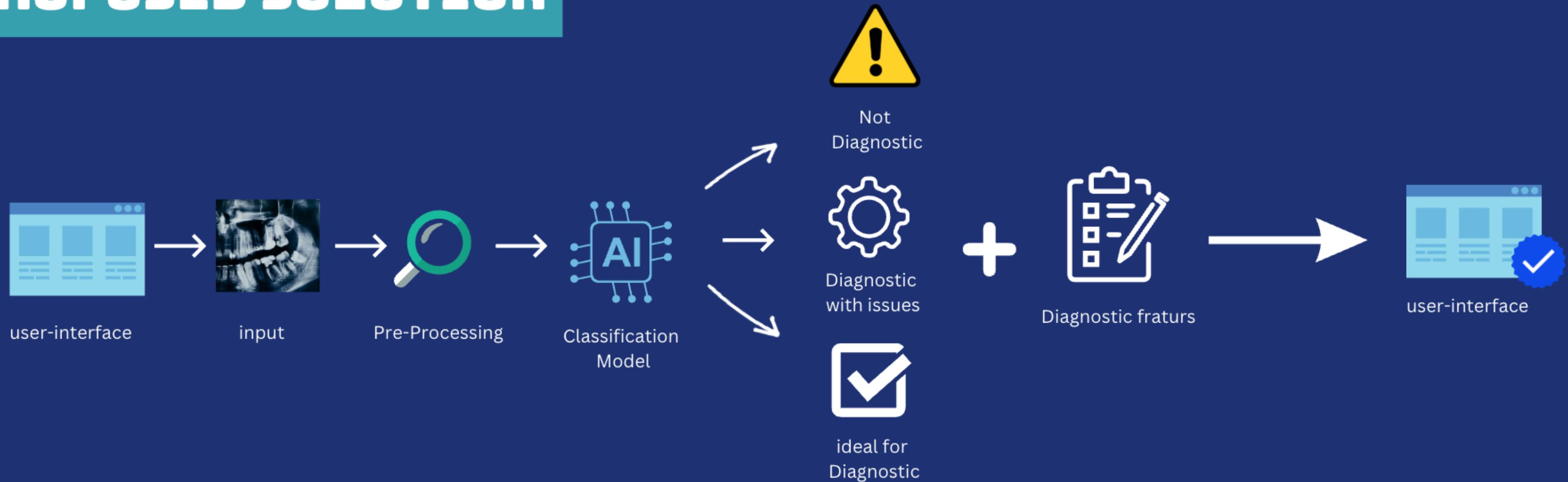
requires significant
expertise.



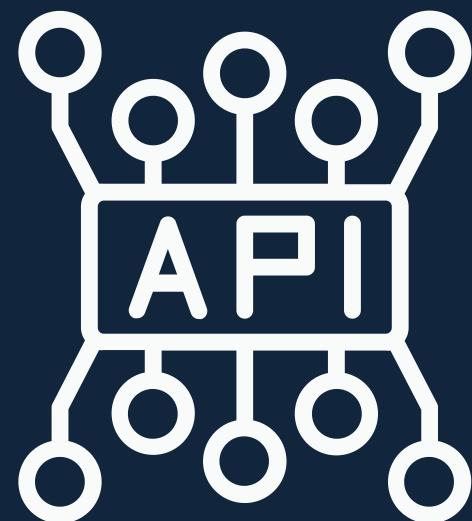
can lead to
inefficiencies



PROPOSED SOLUTION



Back-end Implementation



API Implementation



Database Implementation

Back-end Tools

phpMyAdmin, XAMPP



PHP



Visual Studio Code



Visual Studio Code

Database Tables

	Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/>	patients		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	radiographs		21	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	users		2	InnoDB	utf8mb4_general_ci	32.0 KiB	-
3 tables		Sum	25	InnoDB	utf8mb4_general_ci	64.0 KiB	0 B

View Samples

	id	first_name	middle_name	last_name	email	password
 Edit Copy Delete	2	rafa		balkhdhar	rafa.o5dr@gmail.com	\$2y\$10\$NFYzKaKoJOXlibxIIPmp8OupZAqbyGvoC5PW

	id	user_id	first_name	middle_name	last_name	medical_history	medical_file	gender	phone_number	age
<input type="checkbox"/> Edit Copy Delete	1	1	Ebony test	Dexter Flores	Dominguez	Facere mollitia eum	NULL	male	+1 (291) 454-3841	40
<input type="checkbox"/> Edit Copy Delete	4	2	Arden	Colette Ingram	Owens	Nesciunt ex quo id	NULL	female	+1 (329) 904-7817	84

	id	user_id	patient_id	type	image_path	ma	kvp	exposure_time	error_detected	source_type	classification_status	created_at
 Copy Delete	1	2	3	Bitewing	file_680d863cab483_Bitewing2.jpg	5	5		["Peeling of plate AOI","Receptor position","cone..."]	0	2	2025-04-27 03:19:59
 Copy Delete	2	2	3	Bitewing	file_680e6d12a1569_Bitewing2.jpg	65	100		["Peeling of plate AOI","Receptor position","cone..."]	0	2	2025-04-27 19:44:52
 Copy Delete	3	2	3	Bitewing	file_680e6fc98dc3b_Bitewing2.jpg	1	11		["Peeling of plate AOI","Receptor position","cone..."]	0	2	2025-04-27 19:56:27
 Copy Delete	4	2	3	Bitewing	file_680e700e3a65e_Bitewing2.jpg	79	71		["Peeling of plate AOI","Receptor position","cone..."]	0	2	2025-04-27 19:57:34

Front-End Implementation

A web-based system for assessing intra-oral radiographs



Key Features of the Front-End

01 User-Friendly Interface

Simple and easy to navigate.

02 Smooth Navigation

Guided workflow with step-by-step interactions.

03 Interactive Elements

Buttons, form validation, and dynamic UI updates.

04 Responsive Design

Works across different screen sizes.



Technologies Used



HTML

Structures content (forms, buttons, images).



CSS

Enhances the design and layout for readability.

JavaScript

Adds interactivity (real-time validation, smooth transitions).



VS Code

A code editor used for development, offering debugging tools and extension support.

System Workflow

Sign-Up & Login



OralOptix

Full Name

Email

Password

Confirm Password

Sign Up

Already have an account? [Log In](#)



OralOptix

User ID or Email

Password

Log In

[Forgot Password?](#)

Don't have an account? [Sign Up](#)



System Workflow

Dashboard

OralOptix

Dashboard My Patients

1

Upload Image

2

Patient Info

3

Technical Settings

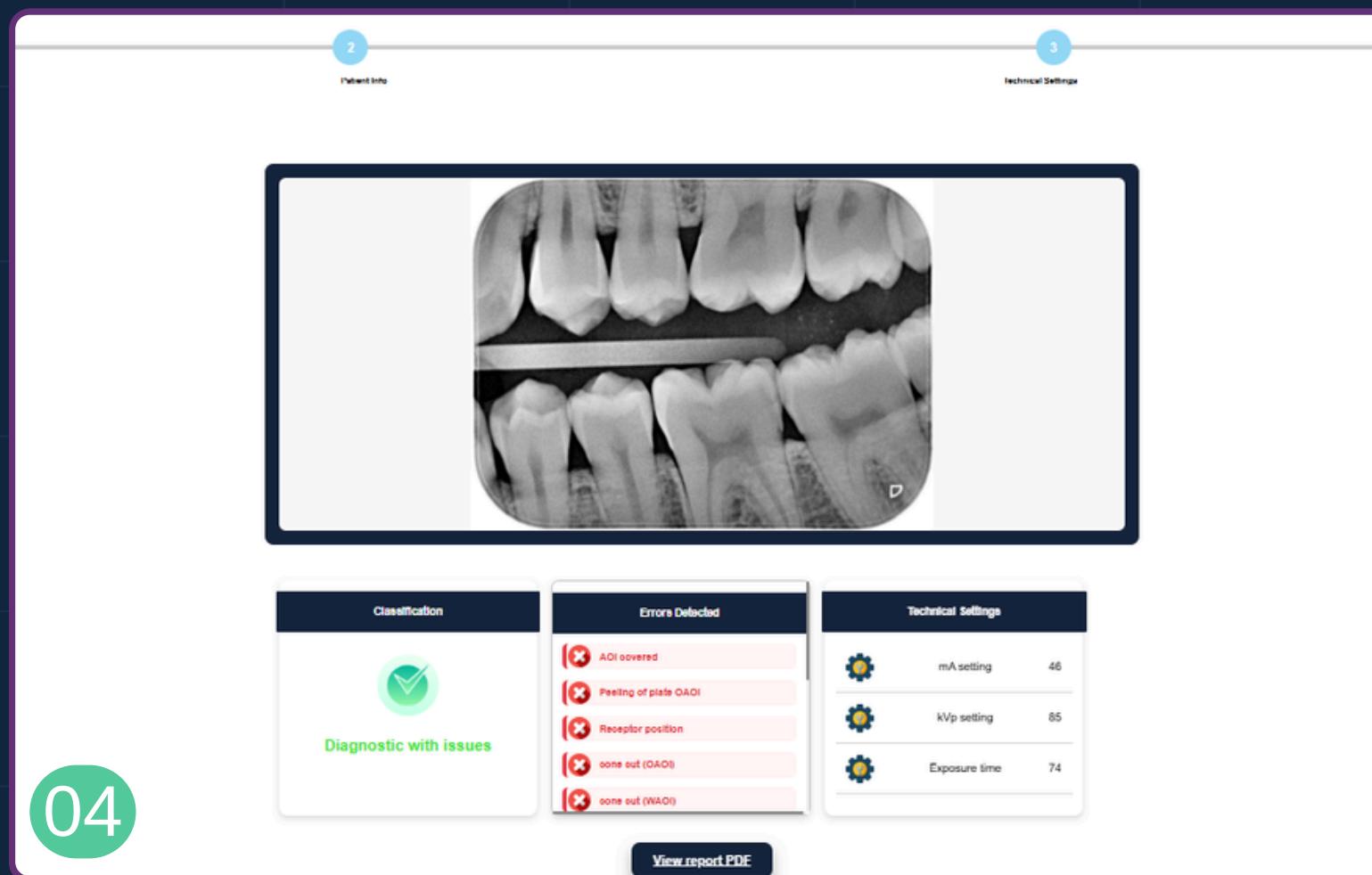
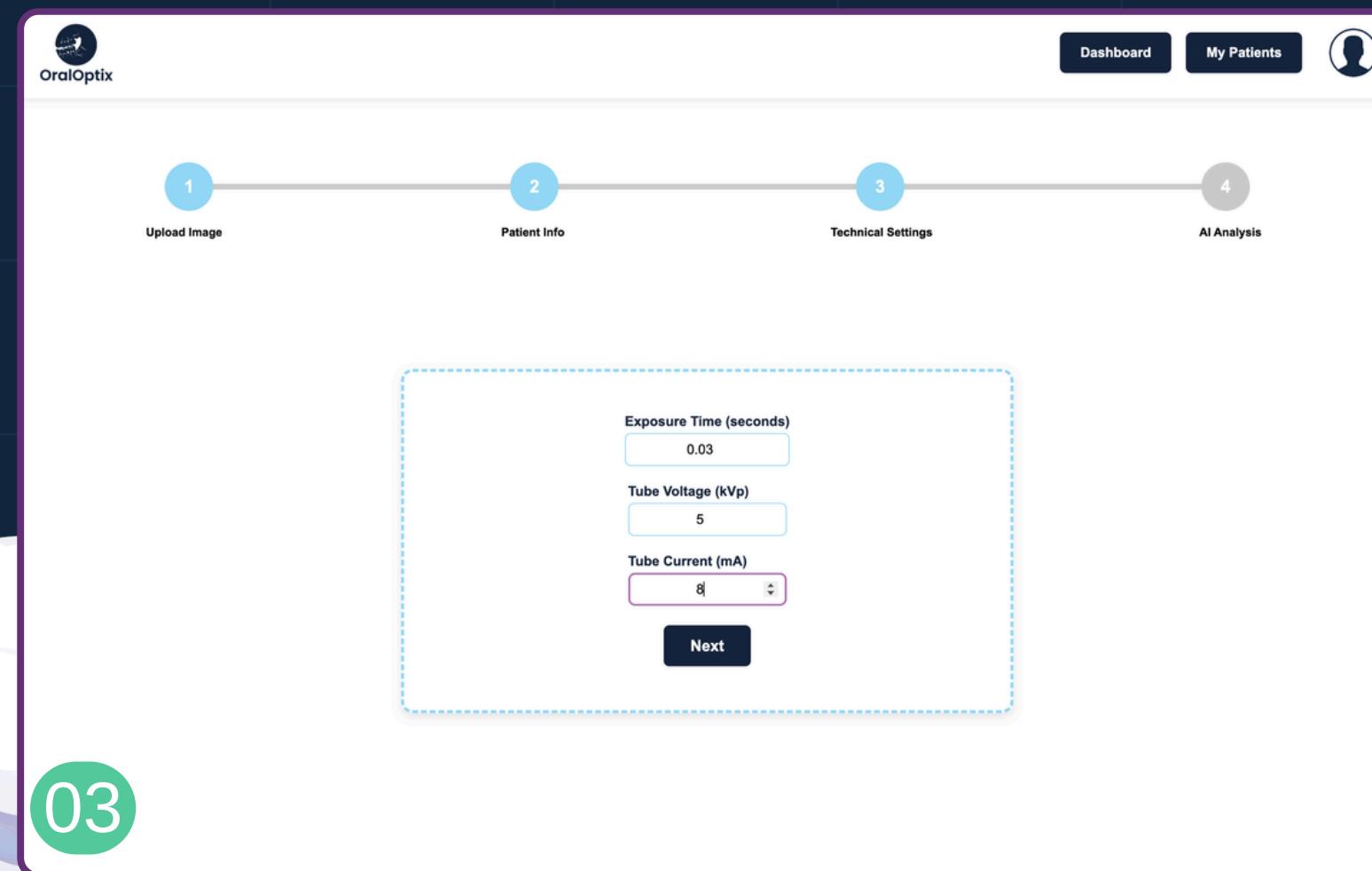
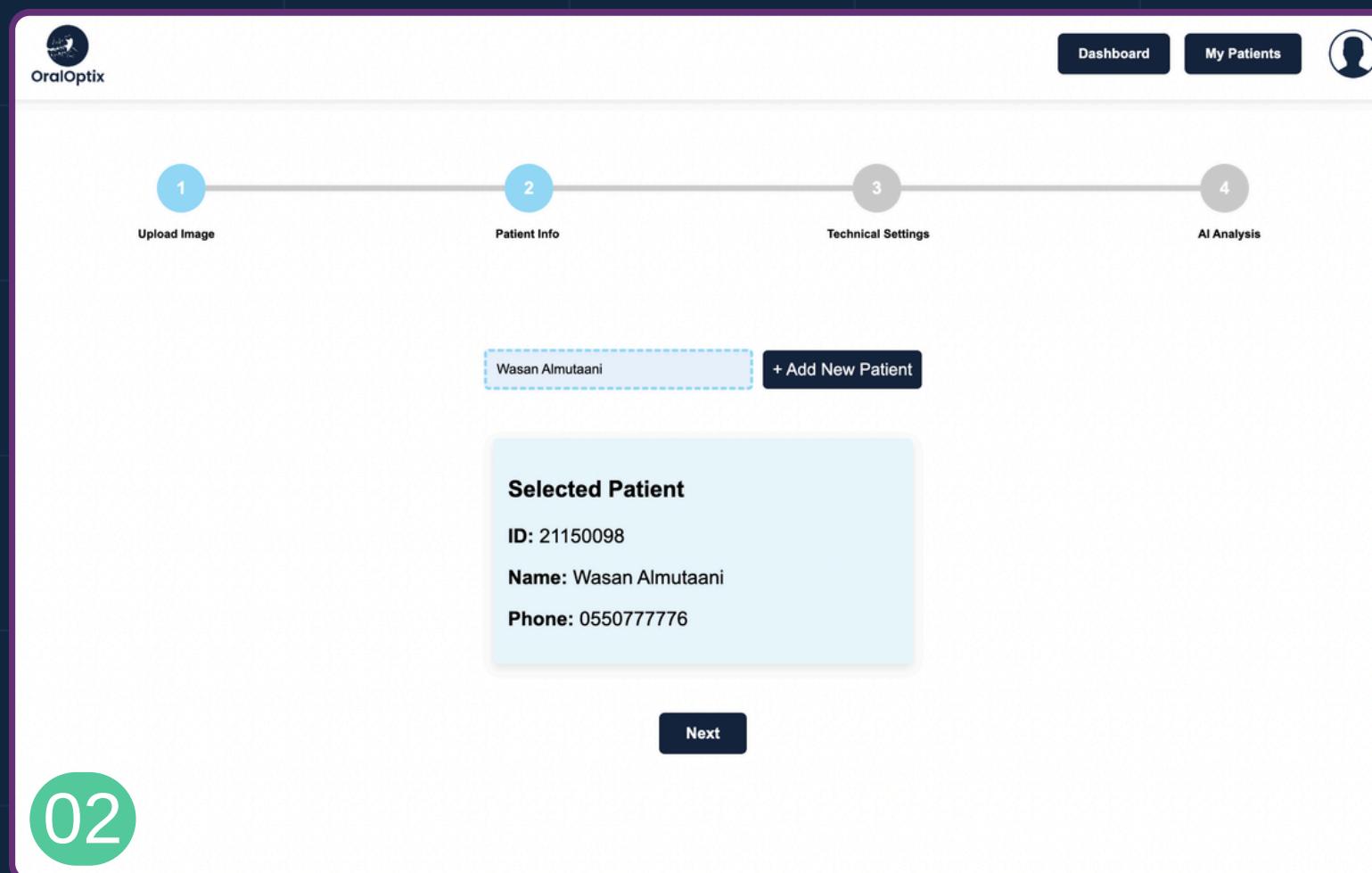
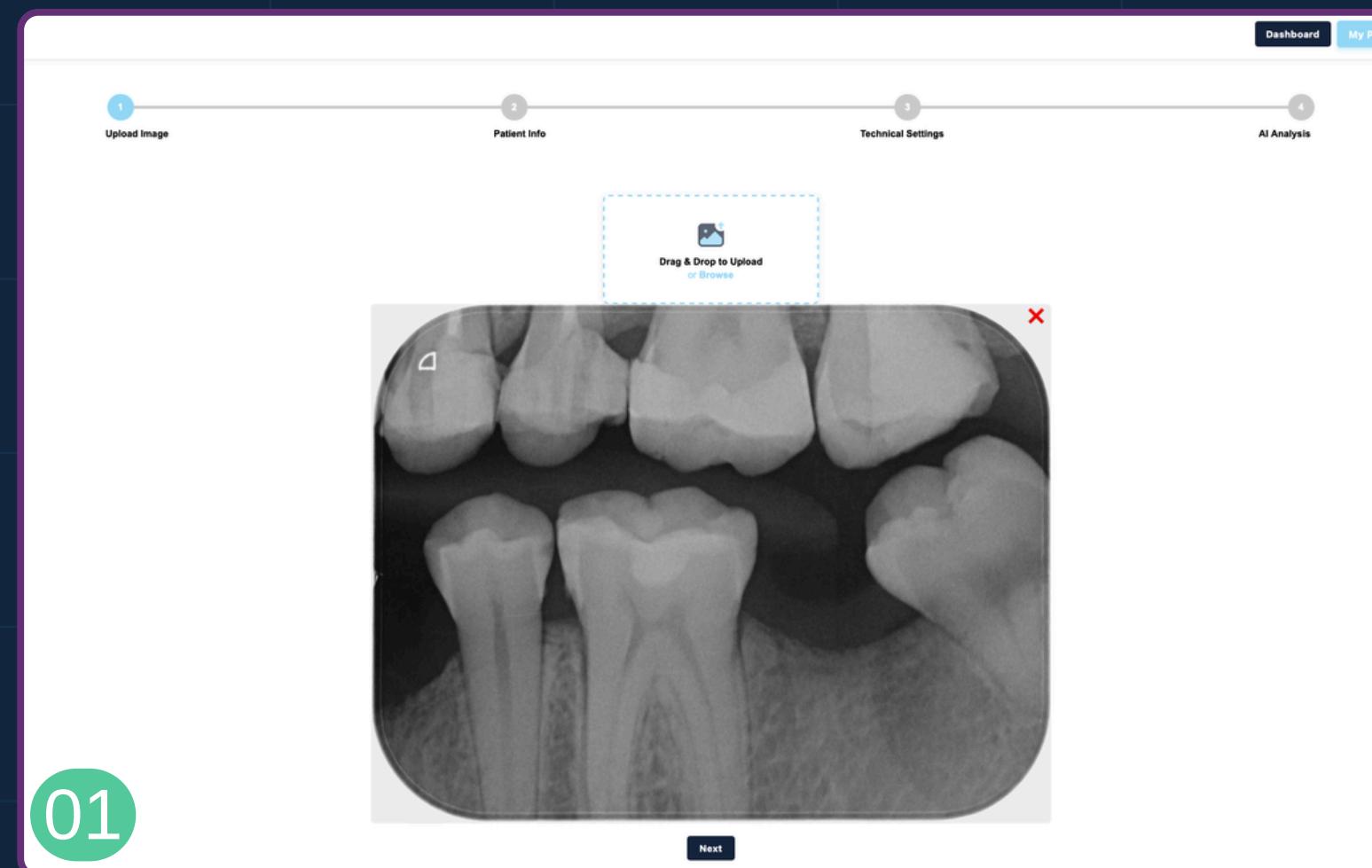
4

AI Analysis

Drag & Drop to Upload
or Browse

Next





System Workflow

Results Page



Classification	Errors Detected	Technical Settings
 Diagnostic with issues	<ul style="list-style-type: none">[X] AOI covered[X] Peeling of plate OAOI[X] Receptor position[X] cone cut (OAOI)[X] cone cut (WAOI)	<ul style="list-style-type: none"> mA setting 46 kVp setting 85 Exposure time 74

[View report PDF](#)



System Workflow Report Page

REP-75676.pdf
Page 1 of 2

REP-75676.pdf

Medical Imaging Center
Department of Radiology
Radiograph Quality Assessment Report
Report ID: REP-22 | Date: 2025-04-28 09:38 AM

1. Patient Information

Attribute	Details
Patient Name	Miriam Basia Mccray Dejesus
Patient ID	P-5
Radiograph ID	RAD-22
Radiograph Type	Bitewing
Examined by	rafa balkhdhar

2. Radiograph Classification

Classification Status	Result
Diagnostic Status	Diagnostic with issues

3. Technical Imaging Parameters

Parameter	Value
Exposure Time (ms)	74 ms
Milliamperere (mA)	46 mA
Kilovolt Peak (kVp)	85 kVp
Error Detected	Yes

4. AI-Bitewing Errors detector

Detected Errors
AOI covered



Classification

Errors Detected

Technical Settings

Diagnostic with issues

AOI covered

Peeling of plate OAOI

Receptor position

cone cut (OAOI)

cone cut (WAOI)

mA setting 46

kVp setting 85

Exposure time 74

Detailed Errors

Save, Share, and Print



System Workflow Report Page

Medical Imaging Center
Department of Radiology
Radiograph Quality Assessment Report
Report ID: REP-22 | Date: 2025-04-28 09:38 AM

1. Patient Information

Attribute	Details
Patient Name	Miriam Basia Mccray Dejesus
Patient ID	P-5
Radiograph ID	RAD-22
Radiograph Type	Bitewing
Examined by	rafa balkhdhar

2. Radiograph Classification

Classification Status	Result
Diagnostic Status	Diagnostic with issues

3. Technical Imaging Parameters

Parameter	Value
Exposure Time (ms)	74 ms
Millampere (mA)	46 mA
Kilovolt Peak (kVp)	85 kVp
Error Detected	Yes

4. AI-Bitewing Errors detector

Detected Errors
AOI covered

- 
- Patient and user Information
- 
- Classification Results
- 
- Technical Parameters
- 
- Detected Errors
- 
- Save, Share, and Print



System Workflow

Patient Management Page

OralOptix

All Patients

Show 10 entries

ID	First Name	Last Name	Mobile No.	Sex	Action
11234567	Airi	Satou	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Angelica	Ramos	658543469	Female	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Ashton	Cox	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Bradley	Greer	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Brenden	Wagner	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Brielle	Williamson	658543469	Female	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Bruno	Nash	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Caesar	Vance	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Cara	Stevens	658543469	Female	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
11234567	Cedric	Kelly	658543469	Male	<input type="radio"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>

Search: Type to search...

New Patient

Previous Next

Showing 1 to 10 of 20 entries

New Patient

ID First Name

Middle Name Last Name

Gender Female Male Age

Phone Number

Upload a file or enter patient medical details here.



System Workflow

Patient Management Page

OralOptix

Dashboard My Patients

All Patients

Show 10 entries

ID	First Name
11234567	Airi
11234567	Ang
11234567	Ash
11234567	Bra
11234567	Bre
11234567	Brie
11234567	Bru
11234567	Cae
11234567	Cara
11234567	Cedric

New Patient

ID:

First Name:

Middle Name:

Last Name:

Gender: Female

Age:

Phone Number:

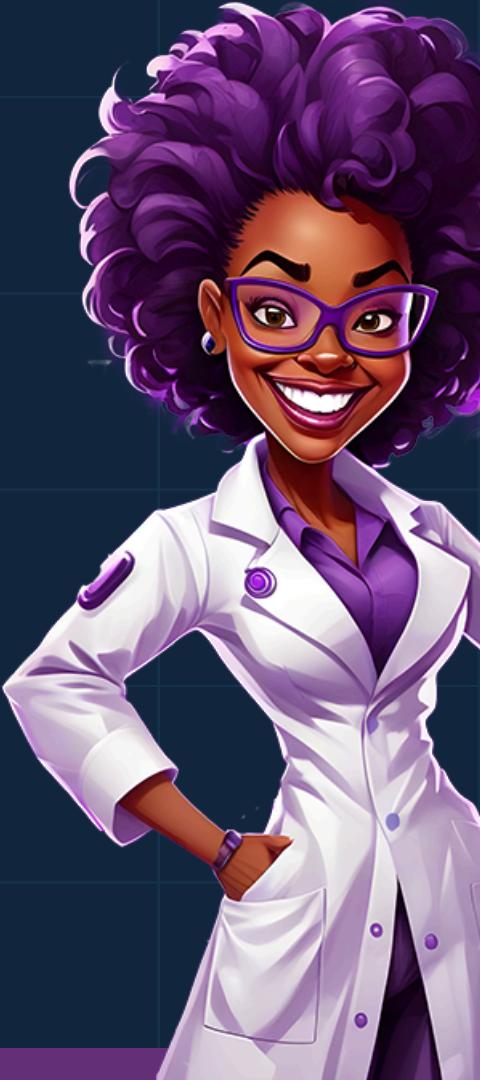
Upload a file or enter patient medical details here.

Upload File

Save

Showing 1 to 10 of 20 entries

Next



System Workflow

User Profile Page



OralOptix

[Dashboard](#) [My Patients](#) 



User Profile

ID

Enter your ID

Middle Name

Enter your middle name

Email Address

Enter your email

First Name

Enter your first name

Last Name

Enter your last name

Password

Enter your password

Save



Skills and Lessons

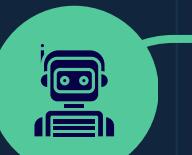
Technical Skills



new tools and languages.



full-stack development



UI (user interface) and UX (user experience)

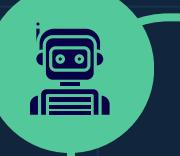
Project Management Skills



Planning



frequincly meeting



Preparing for presentation

Challenges and Difficulties



Dataset Challenges

There was a delay in obtaining enough labeled images, and some types of errors were rare, which affected model training and required the use of data augmentation techniques to improve performance.



AI Model Development Challenges

Selecting the best model was challenging, as Vision Transformers needed more tuning than CNNs, and the small dataset caused overfitting, which was addressed with regularization, data augmentation, and validation.



Integration of Components

Integrating the AI model with the web system and ensuring real-time analysis and smooth display required careful coordination between the back-end and front-end to maintain system stability.



Unexpected Technical Issues

Unexpected technical issues, like data preprocessing errors, model performance changes, and integration bugs, caused delays and required adjusting the plan and redistributing resources to keep the project on track.



Time Management Challenges

There was a delay in obtaining enough labeled images, and some types of errors were rare, which affected model training and required the use of data augmentation techniques to improve performance.



Thanks

Do you have any questions ?