



QUADTHINK

CITISENSE: A SMART WEB APP FOR AUTOMATED BILINGUAL FEEDBACK PROCESSING AND DATA VISUALIZATION

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BACKGROUND OF THE CLIENT

- DOST-STII - IRAD (Information Resource and Analysis Division) department
- 4 Services:
 - Online Library Literacy Program
 - Hybrid Seminars
 - Tour and Orientation
 - Material Requests



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Current workflow

- Manual analysis of large volumes of feedback
- Lack of real-time and automatic visualization tools



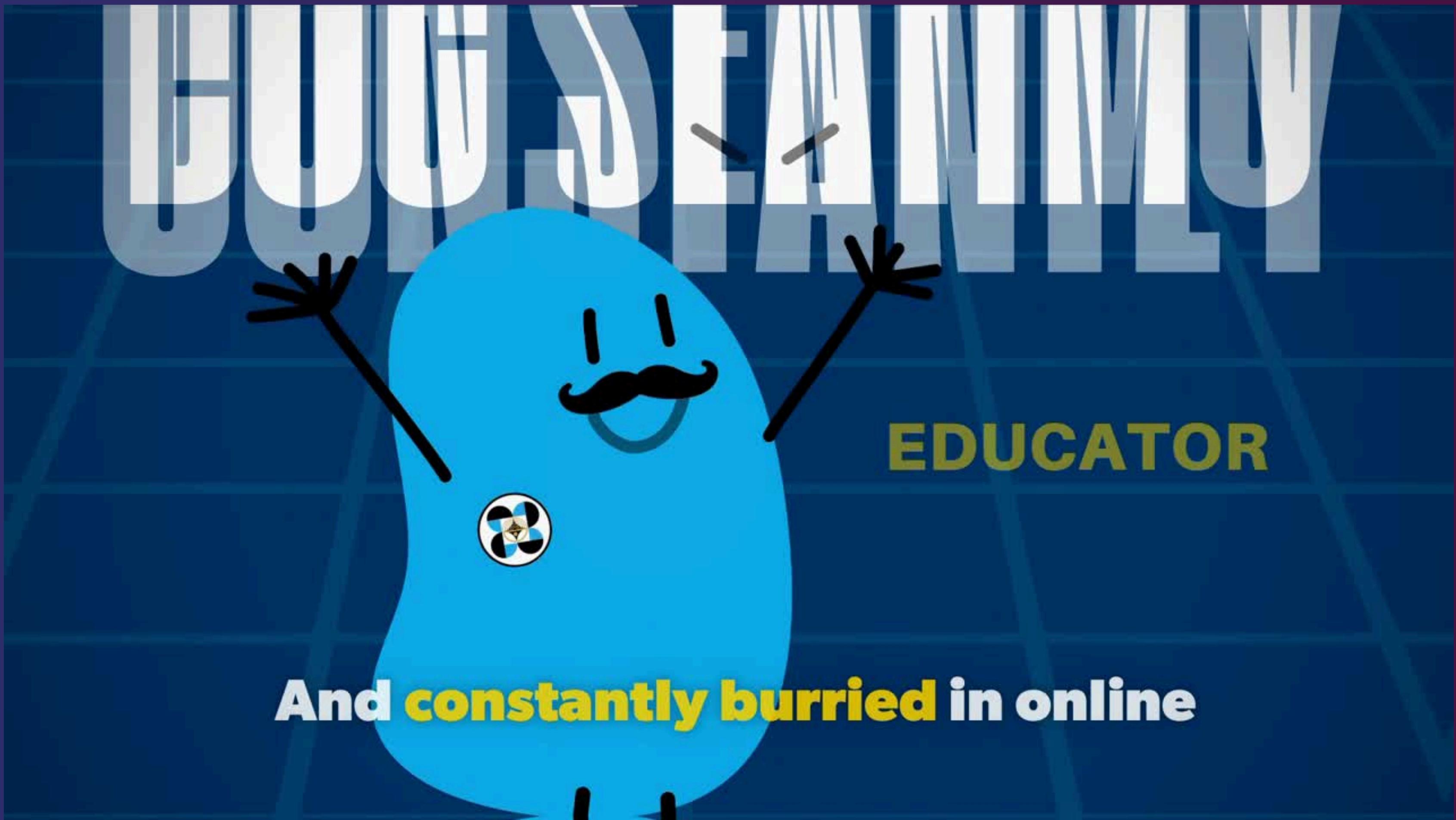
STATEMENT OF THE PROBLEM

- High volume, Manual process
- Language Complexity and Time Constraints
- Need for automation



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TEASER/ADVERTISEMENT



And **constantly buried in online**



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PROPOSED SOLUTION



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CITI SENSE

- bilingual sentiment analysis system
- categorizes responses into positive, neutral, or negative.
- real-time data visualization from sentiment results



PRODUCT OBJECTIVE

○ Main Objective:

- Develop CitiSense, a web application using NLP to automate sentiment analysis and visualization of feedback in English, Tagalog, or a combination of both.

○ Specific Objectives:

- Build a system that can sort feedback into positive, neutral, or negative in both English and Filipino feedback with a model classification accuracy of at least 80%.
- Turn feedback and sentiment results into real-time visualization dashboards, reducing manual work speed up feedback processing by at least 85%.
- Make sure the system fits well with DOST-STII's current process.





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PROJECT VISION





PROJECT SCOPE

- Web app for sentiment analysis and visualization
- Supports English, Tagalog or mixed-language input
- Uses NLP to classify feedback (positive, neutral, negative)
- Real-time dashboard for sentiment and keyword insights
- Integrated with DOST-STII IRAD's current feedback form
- Target users: data analysts, researchers, government staff

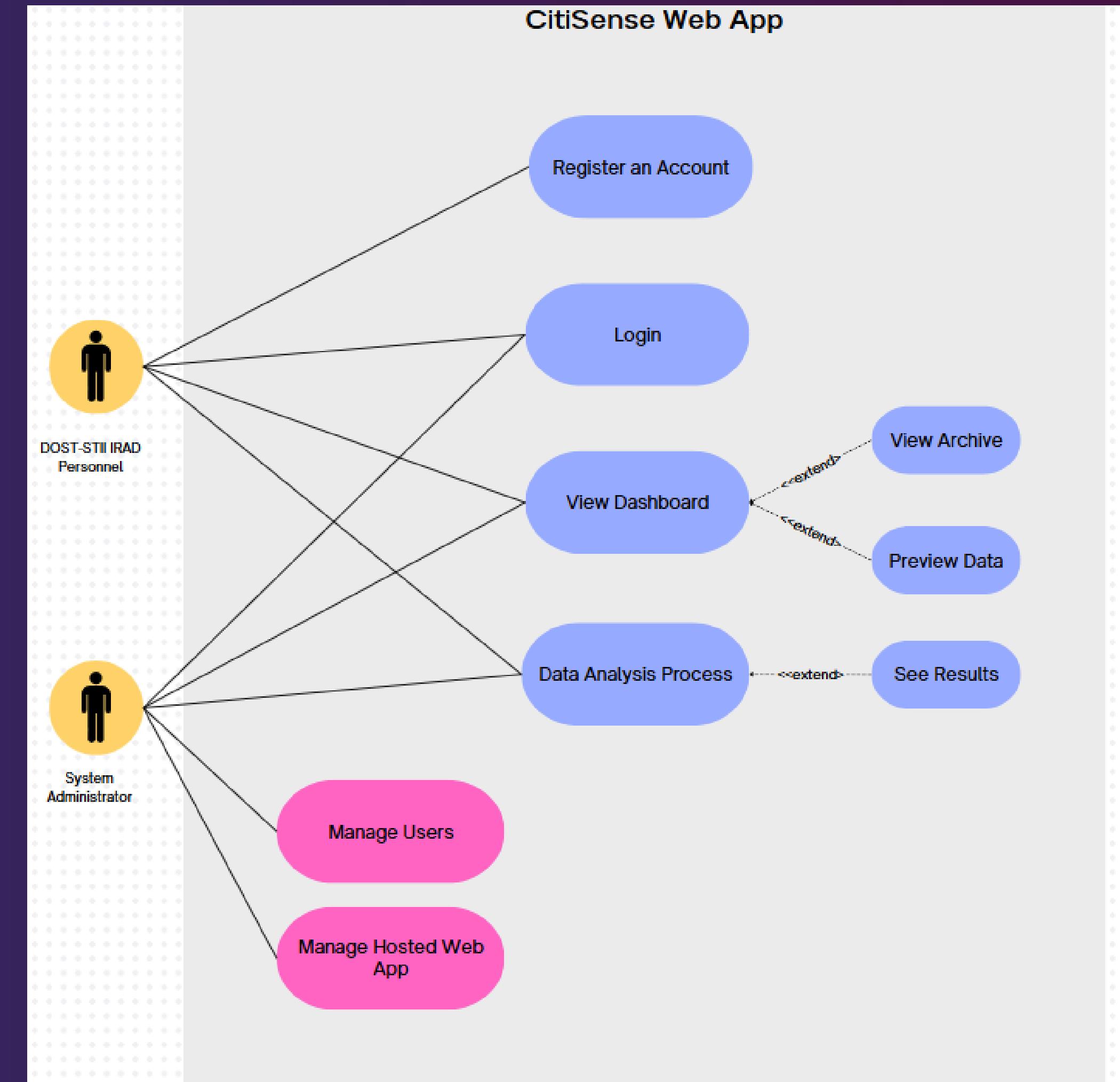
LIMITATIONS

- Only supports text input (no audio/image processing)
- Dialects or informal language may reduce accuracy
- Dependent on quality of training data
- Visualization limited to sentiment and keywords
- No integration with external real-time data sources



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USE CASE DIAGRAM





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PROJECT FEASIBILITY



ECONOMICAL FEASIBILITY

Estimated Costs

- Use of open source frameworks such as React for frontend and Django for backend
- NLP model trained specifically for Sentiment Analysis from HuggingFace will be used.
- As for hosting, Vercel's free tier for the frontend. For the backend, it will be hosted on Render or AWS

Anticipated Benefits

- More efficient approach to performing sentiment analysis on user feedback from events.
- Faster feedback-sentiment processing and visualization.
- Improve the service quality of events.



OPERATIONAL FEASIBILITY

Improve daily operations

- IRAD department is manually categorizing 6,000 user entries each quarter.
- CitiSense will streamline sentiment analysis of the current system of the IRAD department
- Leads to increase in efficiency and enabling fast delivery of actionable insights to stakeholders and decision-makers.

Risks and Challenges

- Poor model accuracy on classifying sentiment (positive, neutral, negative) on user feedback.
- Technical issues regarding hosting and deployment.



TECHNICAL FEASIBILITY

Is it achievable using available resources, tools and technologies?

- Uses widely adopted and known frameworks for both frontend and backend, React and Django.
- NLP model will come from the HuggingFace hub, a collaborative platform for sharing pre-trained models, with a focus on data science, Machine Learning, and Natural Language Processing.
 - HuggingFace comes with a trainer, that allows you to fine-tune your chosen NLP model to suit a more specific task or to improve metrics.



TECHNICAL BACKGROUND

Software

- React – JavaScript frontend development framework
- Django – Python-based backend development framework
- MySQL – database for storing feedback and sentiment results
- NLP models from HuggingFace – for sentiment classification

Hardware

- Developer laptops/PCs – used by QuadThink team for development
- DOST-STII IRAD desktop computers – used by staff for feedback handling
- Intranet server (DOST-STII IRAD environment) – for deploying and using the system.



TECHNICAL BACKGROUND

Peopleware

- Project developers (QuadThink)
- IRAD personnel (DOST-STII)
- Researchers and analysts

Network

- Intranet environment – where the app will be deployed and used (internal network)



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PROTOTYPE



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LOGIN



Department
of
Science
and
Technology

DOST-CitiSense

Email

Password

Login

[Forgot Password?](#)

[Sign in with Google](#)



DOST-CitiSense

Home

Dashboard

Archive

Preview data

Service ▲

Hybrid Seminar

Tour and Orientation

Material Request

Services	Session	Timestamp	Sex	Category	Offline Library Literacy Program			our key takeaways	Comments	Were there any aspects of the library	Suggestion for Improvement
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:57:44	Male	Librarian Staff	Academic Library	REGION XII
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:58:12	Female	Librarian Staff	Academic Library	REGION III
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:07	Male	Librarian Staff	School Library	REGION IV-A	NA				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:16	Female	Librarian Staff	School Library	REGION III	NA	N/A			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:16	Female	Librarian Staff	Academic Library	REGION IV-A	.				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:19	Female	Librarian Staff	School Library	REGION VIII	key performance indicators				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:23	Female	Students	Non-library Institution	REGION X	NA	NA			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:23	Female	Professors/ Instructors/	Non-library Institution	REGION IV-A	Many				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:24	Male	Librarian Staff	Special Library	REGION IV-A	thank you for the coolection	thank you for the			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 16:00:24	Male	Professors/ Instructors/	School Library	REGION IV-A	N/A				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:33	Female	Librarian Staff	Special Library	REGION X	My key takeaways from the	The hybrid format			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:38	Female	Librarian Staff	Public Library	REGION XI	.				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:40	Female	Professors/ Instructors/	School Library	NCR	VERY INTERESTING TOPIC	NONE			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:46	Male	Librarian Staff	School Library	NCR	Collection development is a	NA			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:46	Male	Private Employee	Non-library Institution	REGION X	To review the collection	Hopefully, in the			
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:46	Female	Librarian Staff	Special Library	NCR	NA				
Hybrid Seminar	The Art and Science of Collection Develo	8/20/2024 15:59:47	Male	Librarian Staff	Academic Library	REGION IV-A	Prioritize community needs				

IRAD1
iradDept@example.com



DOST-CitiSense

Name: Overall_Service

Hybrid Seminars: 3489 | Tour and Orientation: 920 | Material Request: 132 | Offline Library Literacy Program: 87

[Filter](#) [Export](#)

Home

Dashboard (selected)

Archive

Overall Sentiment

72%

Overall Sentiment by Gender

Male (green), Female (pink)

Service	Male (%)	Female (%)
Tour and Orientation	~65	~58
Hybrid Seminar	~45	~35
Material Request	~45	~68
Offline Library Literacy Program	~68	~75

Sentiment by Service

Negative (red), Neutral (orange), Positive (blue)

Service	Negative (%)	Neutral (%)	Positive (%)
Tour and Orientation	~10	~15	~75
Hybrid Seminar	~15	~20	~65
Material Request	~10	~30	~60
Offline Library Literacy Program	~5	~10	~85

Thematic Analysis of Suggested Improvements of All Services

Areas of Improvement	%
Internet Infrastructure	34%
Digital Literacy	25%
Cost of Technology	17%
Cloud Complexity	13%
Inclusivity and Access	8 %

Sentiment Trends Per Quarter

Q1, Q2, Q3, Q4

Negative (red), Neutral (orange), Positive (blue)

Quarter	Negative (%)	Neutral (%)	Positive (%)
Q1	~30	~25	~45
Q2	~25	~35	~55
Q3	~18	~38	~65
Q4	~20	~35	~60

IRAD1
IradDept@example.com



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VIEW ARCHIVE DATA

DOST-CitiSense

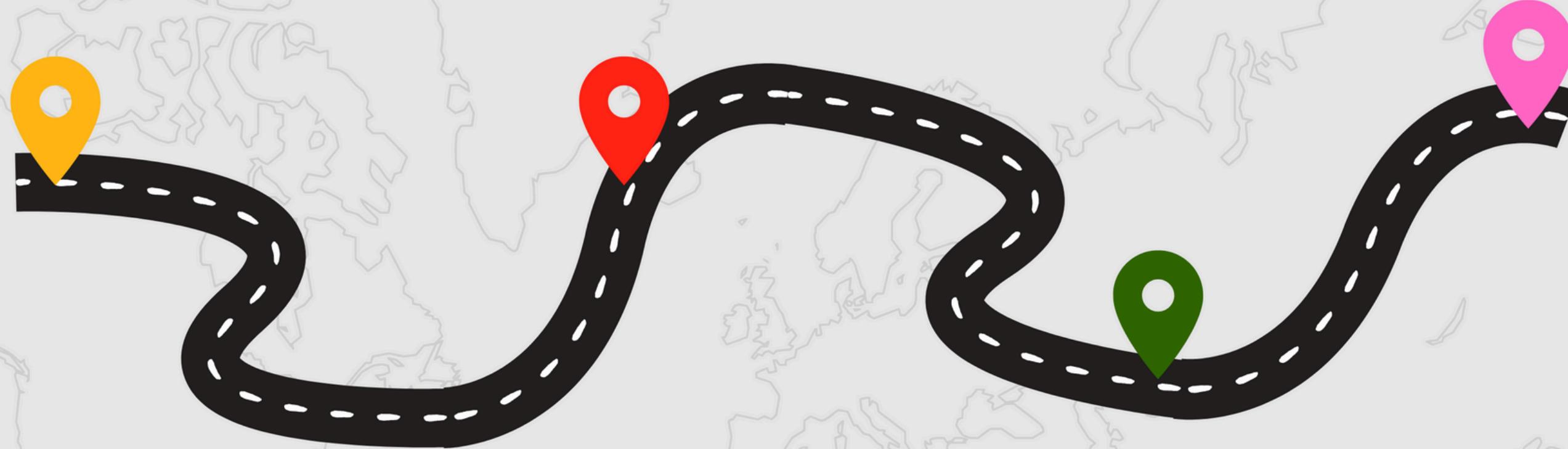
- Home
- Dashboard
- Archive

Archives

FILE TYPE	NAME	DATE ARCHIVED	ARCHIVED BY	
png	Q2_2025_Sentiment	7 min ago	IradDept1@example.com	
pdf	2024_Sentiment	12/30/2024	IradDept2@example.com	
pdf	2023_Partial	09/03/2023	IradDept5@example.com	
png	2021_Sentiment	12/29/2021	IradDept1@example.com	

IRAD1
IradDept1@example.com

PRODUCT ROADMAP



1

REQUIREMENTS GATHERING

(APRIL - MAY 2025)

Milestone: Finalize Documentation and Features Scope

- Conduct weekly stakeholder interviews and update
- Define core features
- Create documentation, including the **Product Documentation, Business Requirements Document, Software Release Plan**
- Create initial use cases & wireframes

2

DEVELOPMENT OF CITISENSE WEB APPLICATION

(JUNE 13 - OCTOBER 2025)

Milestone: Development Completion: October 31, 2025

- Completed UI/UX design for the **CitiSense** web application
- Fine-tune the selected **NLP Model** for core functionality
- Develop core features and backend/frontend integration
- Provide **weekly progress updates** to stakeholders
- Conduct **monthly sprint reviews** to gather feedback from the stakeholders and adjust priorities

3

TESTING AND DEPLOYMENT

(NOVEMBER 2025 - JANUARY 2026)

Milestone: CitiSense Testing, Deployment and Release Sign-off

- Development Testing Completion: **December 4 2025**
- UAT Completion: **December 13, 2025**
- Code Freeze: **December 14, 2025**
- Deployment Date: **January 6- 15, 2026**
- Release sign-off: **January 15, 2026**
- Resolve all bugs identified during testing
- Execute User Acceptance Testing (UAT) with stakeholders
- Deploy CitiSense to a production environment

4

POST-DEPLOYMENT MAINTENANCE

(FEBRUARY 2026 - JUNE 2026)

Milestone: Begin Post-Deployment maintenance

- Start providing bug fixes that happen after deployment.
- Further model fine-tuning

RELEASE PLAN

RELEASE INFORMATION

- Release name & version: CitiSense v1.0
- Target release date: December 13, 2025
- Release Type: Major Release

SCOPE AND FEATURES

- A real-time sentiment analysis web application with an:
 - Automatic sentiment categorization
 - Interactive visualization dashboard
 - Archive feature for storing and analyzing visual data over time.

RISK MANAGEMENT

- Rigorous testing (Unit, Integration, System, and UAT)
- Identify risks (technical issues, security issues)
- Mitigation Strategies
- Initiate rollback if needed

POST-RELEASE ACTIVITIES

- User feedback and formal reviews
- Monitor performance metrics
- Fix bugs

Release Process

- Communications (Viber, MS Teams)
- Testing
- Deployment (Vercel for frontend, and Render or AWS for backend)
- Maintenance (Post-release activities)



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THANK YOU!

