# CS 297 REPORT

# Enhancing the Chat Features in Yioop

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# Introduction

Modern communication platforms are continuously evolving to align with user expectations for seamless, interactive, and versatile experiences. Yioop, an open-source, PHP-based search engine, already demonstrates robust functionality by supporting the creation of discussion groups, blogs, and wikis. However, its chat feature currently lacks the enriched messaging capabilities that characterize contemporary communication tools. The project titled "Enhancing Yioop's Chat Feature with Audio Messages, Markdown Support, and Generative AI Chatbot" addresses this limitation by introducing advanced functionalities to elevate the user experience significantly.

The proposed enhancements focus on three pivotal features:

- 1. Audio Messaging: Providing users the ability to record and share voice messages within conversations, enhancing the immediacy and richness of communication.
- 2. Markdown Support: Enabling rich-text formatting for improved clarity, expressiveness, and customization in chat interactions.
- 3. Generative AI Chatbot Integration: Utilizing AI technology to deliver summarized search results and generate concise, contextually relevant responses to user queries, thereby enhancing the informational utility of the chat system.

The project implementation follows a structured methodology, beginning with research and exploration of Yioop's existing codebase. Development is undertaken incrementally, with distinct phases allocated to each feature. Key deliverables include the implementation of wiki access controls, markdown parsing and rendering capabilities, prototypes for audio messaging, and the initial integration of a generative AI chatbot. This phased approach ensures systematic enhancement while maintaining alignment with the broader objective of enriching user interaction. The final project outcomes are documented in a comprehensive report detailing the processes, challenges, and contributions to Yioop's functionality. The enhancements provide a significant step forward in making Yioop's chat system more interactive, engaging, and competitive within the rapidly evolving digital communication landscape.

## Deliverable #1

#### Access control for wiki

To familiarize myself with the Yioop codebase, my initial task was to set up the codebase locally and successfully run it. This process helped me understand the directory structure, coding style, and the overall architecture of the platform.

Once I was comfortable with the environment, the next task focused on enhancing the permissions system for wiki pages. Currently, Yioop's permissions allow members to read, comment, start threads, or edit a wiki page, with edit access being granted to all users if permissions are set accordingly. The objective of this deliverable was to introduce an editor-specific permissions list, enabling only a selected subset of users to have edit rights to a wiki page. This feature enhances content security and ensures that only authorized users can make changes.

The end result looks like the following:

We create 3 users: a,b,c, and login as a to create a new group

And add edit permissions to a (owner, implicit), and b Now, a can edit the page:



We login with b to confirm the same thing:



And c is not able to edit the wiki:



# Deliverable #2

# Markdown Parsing

The second deliverable focused on integrating Markdown support into Yioop's chat system to enhance message formatting capabilities. Markdown enables users to add text styling such as bold, italics, lists, and links, improving message clarity and expressiveness. The implementation involved writing a markdown parser from scratch, ensuring seamless rendering of formatted messages in the chat interface. This feature provides users with a richer, more flexible way to communicate, particularly in technical or collaborative discussions.

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|        | Page Type: Standard                           |    |
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|        | Page Theme: No auxiliary theme -              |    |
|        | Table of Contents: 2                          |    |
|        | Render as Markdown: 🜌                         |    |
|        | Title:  |    |
|        | Author:                                       |    |
|        | Meta Robots:                                  |    |
|        | Meta Description:                             |    |
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|        | Meta Properties (such as Open Graph)          |    |
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In the page settings, I added a checkbox to render content as markdown:

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#### Markdown syntax guide

Headers

[root]

This is a Heading h1

This is a Heading h2

This is a Heading h6

Emphasis <em>This text will be italic</em> <em>This will also be italic</em> <strong>This text will be bold</strong> <strong>This will also be bold</strong> <em>You <strong>can</strong> combine them</em>

# Deliverable #3

# Adding Audio Messages in the chat

The third deliverable aimed to introduce audio messaging capabilities within Yioop's chat system, allowing users to record, send, and playback voice messages. This feature enhances communication by enabling more expressive and personal interactions. The implementation involved integrating audio recording and playback libraries, designing a user-friendly interface for audio controls, and ensuring efficient handling of audio files within Yioop's infrastructure.

I added a button in the UI to start recording:



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# Conclusion

The project aimed at enhancing Yioop's chat feature with audio messages, Markdown support, and a generative AI chatbot has shown how adding new features can enrich Yioop's chat system, making it more engaging and useful for its users. The first deliverable focused on better access control for wikis. It allowed administrators to specify who can edit content, enhancing security and making collaboration smoother. The second deliverable introduced Markdown support, giving users more flexibility to format their messages and make communication clearer, especially in discussions that need structured text.

Adding audio messaging with the third deliverable brought a new, personal touch to the platform, enabling voice messages to make conversations more interactive. The fourth deliverable laid the groundwork for integrating AI by getting myself acquainted with the chatbot codebase, setting the stage for future enhancements that could make the chat system smarter and more responsive.

The comprehensive report and presentation for CS297 documented the project's progress from start to finish, serving as a thorough record of what was accomplished and a guide for future work.