

Development Phase Report

Report Period : August 21, 2024 to September 12, 2024

Project Title: AIKO (AI-powered Knowledge Organizer)

Project Manager: Dr. P. B. Jawade

In-house Guide: Dr. D. J. Chaudhari

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Executive Summary: The AIKO development phase has concluded with the successful integration of frontend and backend services, including advanced neural search capabilities. Despite an unexpected one-month reduction in the project timeline, communicated with only three weeks remaining, the team delivered core functionalities. This abbreviated schedule necessitated strategic adjustments to our original project scope, including the deferral of certain planned features and a streamlined testing process. The project has met its critical developmental milestones and is on track to deliver a secure prototype upon completion of the testing phase.

Current Task Progress:

Task Description	Development Phase
Scheduled Completion	October 7, 2024
Actual Completion	September 12, 2024
Status	Completed
Remarks	Scope adjusted due to timeline reduction

Accomplishments:

- Implemented and finalized core UI components
- Achieved seamless frontend-backend integration
- Adapted project scope to meet revised deadline

Challenges & Mitigations:

- The project deadline was unexpectedly shortened by one month, with notification received only one week into the final month of development. This significant reduction in available time posed a substantial risk to the planned scope and quality assurance processes.
 - We made judicious decisions regarding feature implementation and testing depth, focusing on essential elements to ensure timely delivery. We implemented a revised project scope that prioritized core deliverables while regrettably limiting our capacity for extensive feature development and thorough testing
- The already existing communication stack for Large Language Model Integration was too slow for our requirements.
 - We re-implemented the communication stack to improve system responsiveness and ensure compatibility with our neural search capabilities. This adjustment significantly enhanced system performance and user experience.
- The state management features for Svelte 5 contained bugs that affected the user experience.
 - We conducted a detailed code review and implemented fixes for such state management issues, submitting pull requests to the upstream repository.

Planned Activities for Next Phase:

- Conduct rigorous testing of neural search capabilities
- Identify and address edge cases and unexpected behaviors
- Assess feasibility of implementing deferred features in future releases

Financial Summary:

Description	Budgeted Amount	Amount Spent This Phase	Total Expendi- ture
Hosting	₹1,300	₹536	₹1,072
Machine Learning	₹21,000	₹8,000	₹18,000

Risk Assessment:

Primary risks identified during this phase include potential challenges in integrating diverse data sources, ensuring scalability for large knowledge bases, and maintaining high performance for complex search queries. The abbreviated testing phase due to timeline constraints introduces an additional risk of undetected quality issues. These risks have been factored into our requirements and will be continuously monitored throughout the testing phase. We recognize the need to stay current with rapidly evolving AI technologies, which may require periodic reassessment of our technical approach. Moving forward, we will implement strategies to mitigate these risks, including targeted testing of critical functionalities, scalability stress tests, and regular technology reviews.

Conclusions & Recommendations:

The AIKO project has successfully concluded its development phase, delivering a functional prototype with smart neural search capabilities. Low-level re-implementation of the communication stack, coupled with refined frontend-backend linkages and enhanced backend services, has markedly improved overall system responsiveness. The project has met all its development milestones. The Project Guide, noting the system's positive user experience, recommends focusing future efforts on further enhancing UX and performance to develop AIKO into a marketable product.

Approval:

Dr. D. J. Chaudhari

Project Guide

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