IDEATION AND STAKEHOLDER NEED ANALYSIS - INTERMEDIATE REVIEW

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1. Needs Analysis Research

The ideation of *Unicorn Chat* arises from analyzing existing ICT challenges highlighted in literature and industry reports. Research identifies several recurring pain points in AI-driven productivity tools:

- **Fragmentation**
  One major issue is fragmentation. Users often rely on multiple applications to complete tasks, such as messaging apps, project management tools, email clients, and research databases. Switching between these tools frequently interrupts focus and reduces efficiency. For example, a student may need to check emails, search academic resources, and collaborate on documents all at the same time. This constant switching wastes time and energy.
- **Limited Chatbots**
  Another problem is that most existing chatbots or digital assistants are reactive. They provide answers when asked but cannot plan or perform a sequence of actions on their own. This limits their usefulness, especially for tasks that require multiple steps or cross-platform coordination. Users often find themselves completing most of the work manually despite using a “smart” assistant.
- **Educational Accessibility**
  Students, researchers, and educators face challenges in efficiently retrieving and filtering relevant educational material. Many tools provide information in a scattered way, making it difficult to identify the most useful resources quickly. This slows down learning and reduces the effectiveness of academic research.
- **Developer Challenges**
  Software developers and teams also face repetitive tasks that reduce productivity. For example, GitHub is widely used for software development and project management. However, developers spend a lot

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of time performing routine tasks such as managing issues, assigning tasks, or organizing repositories. These are tasks that could be automated but are often not, leading to wasted effort.

The analysis shows a clear need for a solution that combines multiple functionalities, reduces repetitive work, and improves efficiency for users across different domains.

2. Problem Statement

Despite the availability of digital assistants and chatbots, a significant gap remains in the market. Most existing tools are:

- **Fragmented**: They operate independently without integrating different platforms.
- **Ecosystem-dependent**: Users are often locked into specific tools or software ecosystems.
- **Reactive rather than proactive**: They respond to user queries but cannot perform multi-step tasks autonomously.

As a result, users—including professionals, students, and developers—experience inefficiencies that could otherwise be avoided. There is a need for an affordable, open, and versatile system that can integrate various platforms, reduce repetitive work, and assist users in completing tasks more efficiently.

3. Ideation of Solutions: Unicorn Chat

Unicorn Chat is proposed as a solution to these challenges. It is an open-source, agentic chatbot designed to perform multi-domain tasks in a single

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interface. Unlike traditional chatbots that only answer questions, Unicorn Chat can plan and carry out complex workflows autonomously.

Innovative Aspects

- Unicorn Chat goes beyond static question-and-answer functionality.
- It can assist users in performing multi-step tasks without requiring constant supervision.
- It integrates multiple platforms into one interface, reducing the need for context switching.

Feasibility

- The solution leverages widely available frameworks and tools.
- Integration with platforms like GitHub allows developers to automate routine tasks such as issue management and code review.
- Browser automation tools enable the system to interact with web-based applications directly, performing tasks on behalf of the user.

Potential Applications

- **For Students and Researchers**: Quickly retrieve, organize, and filter academic resources.
- **For Professionals**: Automate email responses, scheduling, and cross-platform task management.
- **For Developers**: Automate repetitive coding and project management tasks, improving efficiency in collaborative projects.

4. Technology and Implementation

While Unicorn Chat does not rely on advanced AI in this context, modern programming and software practices make it feasible.

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Software Engineering

- Integration with platforms like GitHub and other collaborative tools reflects contemporary development practices.
- Automation scripts and task scheduling can reduce repetitive work for both individuals and teams.

System Design

- A modular interface allows users to access multiple functionalities in a single platform.
- Users can customize workflows to match their specific needs.
- Open-source design ensures accessibility and encourages community contributions for improvement.

5. Impact

The implementation of Unicorn Chat can bring significant benefits to users:

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- **Increased Productivity**: By automating repetitive tasks and combining multiple platforms, users save time and reduce context switching.
- **Ease of Use**: A single interface simplifies task management for students, researchers, and professionals.
- **Collaboration**: Developers and teams can streamline workflows, improving coordination and reducing errors.
- **Accessibility**: Open-source design ensures affordability and encourages customization to meet individual or organizational needs.