International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

A Gamified Habit Challenge Platform

Abinash K[1], Ajaykumar S[2], Arunachalam S[3], Mrs. M. Malathi[4]

[1,2,3]Student, Department of Computer Science and Engineering, Adhiyamaan College of Engineering
[4]Assistant Professor, Department of Computer Science and Engineering,
Adhiyamaan College of Engineering

Abstract
In the modern digital era, maintaining consistent habits is a major challenge for individuals due to lack of motivation and accountability. This paper presents a Gamified Habit Challenge Platform designed to improve user engagement and habit consistency through gamification and community-based interactions. The system integrates features such as daily check-ins, streak tracking, leaderboards, rewards, and real-time updates. The platform is developed using React, Node.js, MongoDB, and Redis, ensuring scalability and performance. Experimental results show improved user engagement and reduced dropout rates. This system can be effectively applied in education, workplaces, and personal development environments.

Keywords: Gamification, Habit Tracking, Web Application, React, Node.js, MongoDB, Redis, Behavior Change

1. Introduction
Developing and maintaining positive habits is essential for personal and professional growth. However, individuals often struggle due to lack of motivation and support systems. Traditional habit tracking methods lack engagement and real-time feedback. This research proposes a gamified platform that integrates game mechanics and social interaction to enhance user participation and consistency.

2. Literature Review
Previous studies highlight that habit formation is influenced by motivation, repetition, and reward mechanisms. Research by Charles Duhigg and James Clear emphasizes behavioral loops in habit formation. Gamification techniques such as points, badges, and leaderboards have been proven to improve user engagement. Existing applications lack community interaction and real-time features, which this system aims to address.

3. System Architecture
The system follows a three-tier architecture consisting of frontend, backend, and database layers. The frontend is built using React, providing an interactive user interface. The backend is developed using Node.js and Express.js, handling API requests and business logic. MongoDB is used for data storage, while Redis enables real-time updates for streaks and leaderboards. The architecture ensures scalability, responsiveness, and efficient data handling.

4. Methodology

The platform allows users to register, join challenges, and perform daily check-ins. Gamification elements such as points, streaks, and leaderboards are integrated to enhance engagement. Redis is used to maintain real-time updates, while MongoDB ensures persistent storage. The system also includes an admin module for managing challenges and monitoring user activities.

5. Results and Discussion

The implementation demonstrates improved user engagement through gamification features. Users show increased consistency in completing daily tasks. Real-time leaderboards and rewards create a competitive environment, motivating users. The platform successfully reduces habit dropout rates and enhances long-term engagement.

6. Conclusion

The Gamified Habit Challenge Platform effectively enhances habit consistency using gamification and community interaction. The system demonstrates strong potential for real-world applications in education and personal development. Future enhancements include AI-based recommendations and mobile application development.

References

1. Silva et al., "Gamification and Habit Formation," 2024.
2. IEEE, "Gamification in Education," 2023.
3. ACM Digital Library, "User Engagement Techniques," 2023.
4. Springer, "Gamified Systems," 2024.