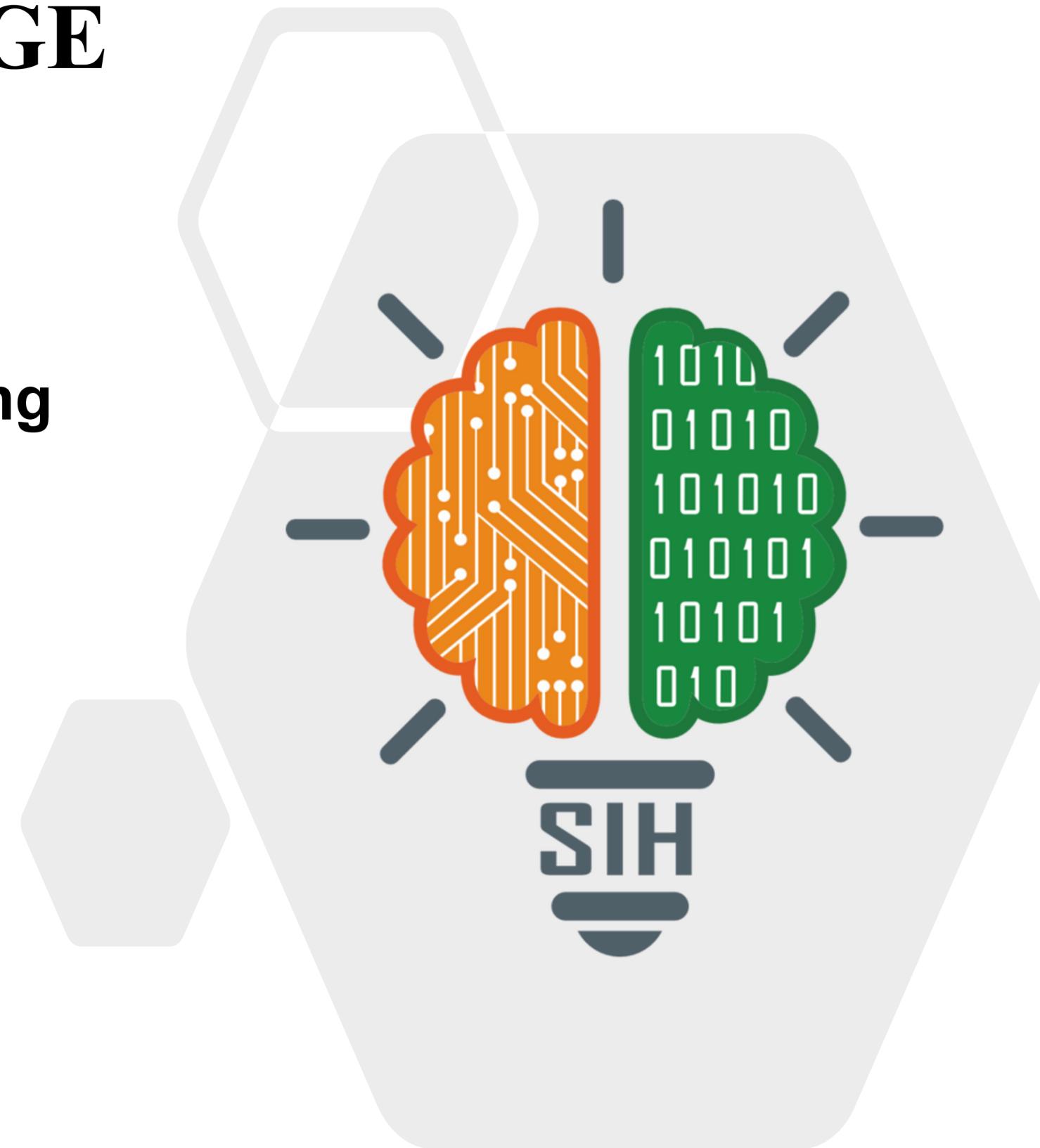


## TITLE PAGE

- **Problem Statement ID – SIH25048**
- **Problem Statement Title- Gamified Learning**

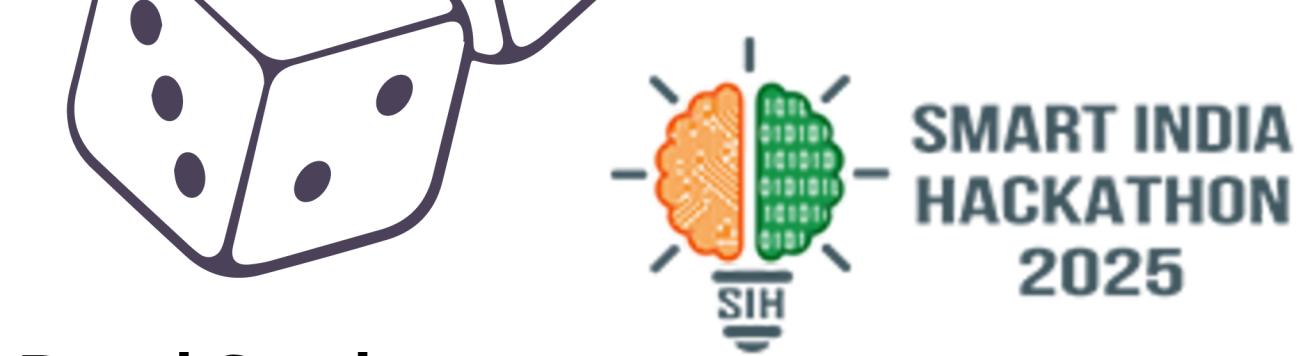
**Platform for Rural Education**

- **Theme- Smart Education**
- **PS Category- Software**
- **Team ID-**
- **Team Name- Quantumcoders**





# IDEA TITLE



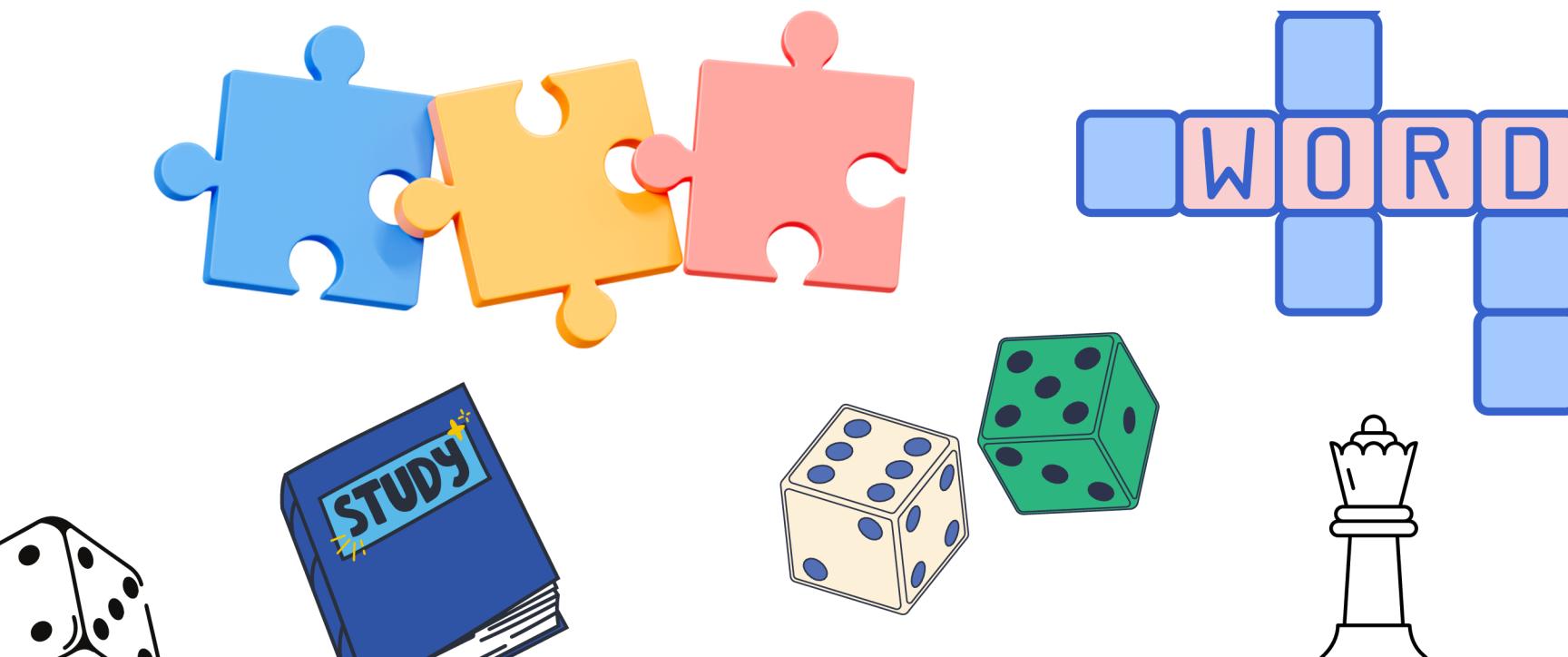
## EduQuest – Gamified STEM Learning Platform for Rural Students

### Proposed Solution

- Develop an interactive gamified learning platform for rural students (Grades 6–12).
- Focus on STEM subjects through games, quizzes, puzzles, and simulations.
- Provide multilingual content to ensure inclusivity across regional languages.
- Enable offline access with data sync when internet is available.

### Addresses the Problem

- Increases student engagement through **rewards, leaderboards, and challenges**.
- Breaks **language barriers** by delivering localized educational content.
- Solves connectivity issues in rural areas with **offline features**.
- Supports **teachers dashboards** for monitoring progress.



### Uniqueness of the Solution – EduQuest

- **Multilingual support** (English, Hindi, Odia) for inclusive learning.
- **Teacher-Student collaboration hub** for doubt solving, progress tracking, and badge assignment.
- **Offline-first approach** with data sync for rural areas with poor connectivity.
- **Gamified reward system** with coins, badges, and levels (Bronze, Silver, Gold).



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## SOFTWARES

### FRONTEND

- React
- TypeScript
- Vite

### BACKEND

- Node
- JavaScript

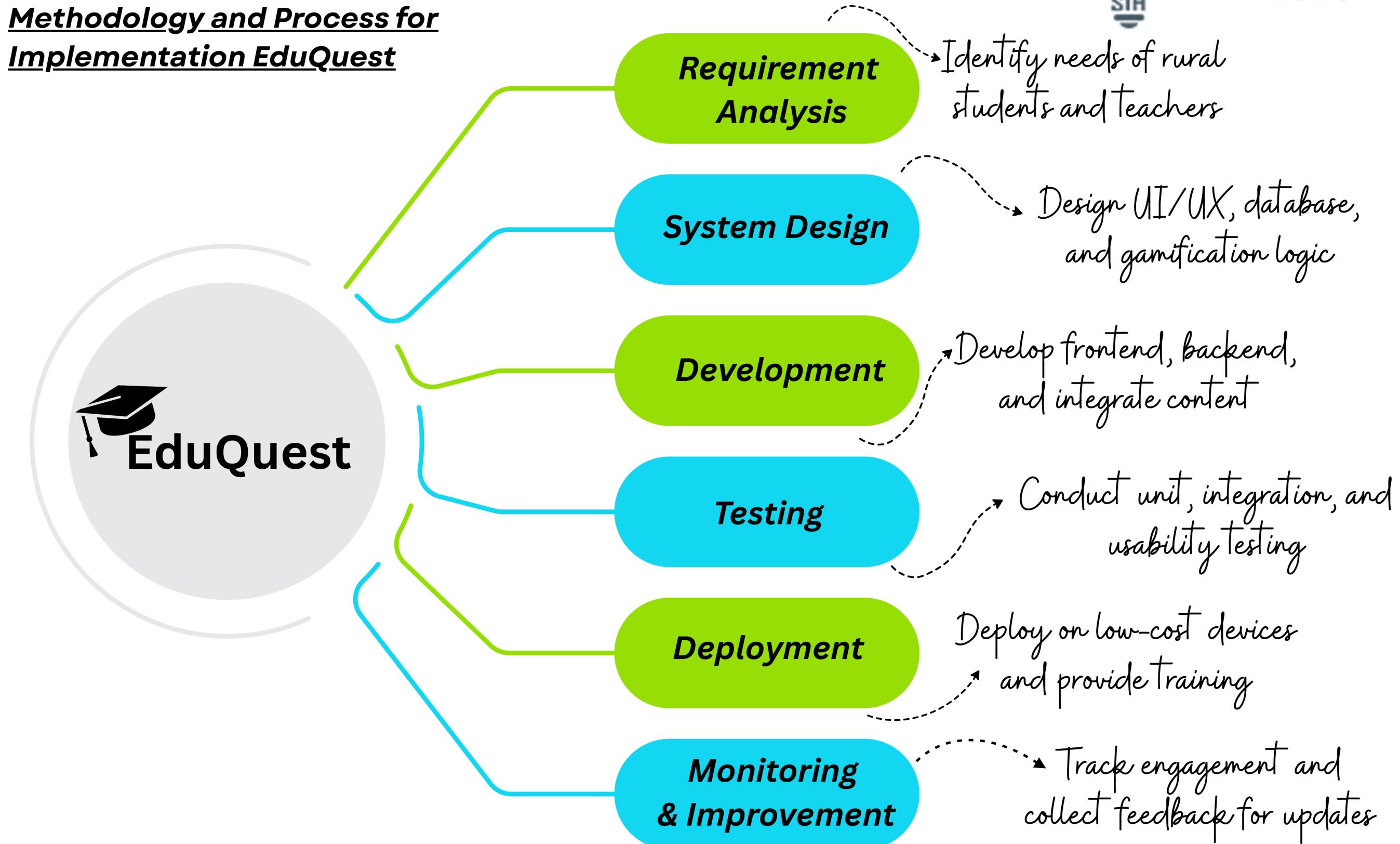
### DATABASE

- SQLite3

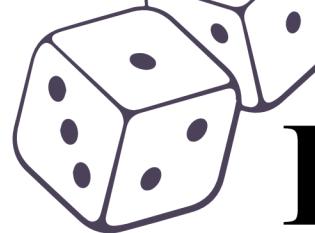
# TECHNICAL APPROACH



### Methodology and Process for Implementation EduQuest

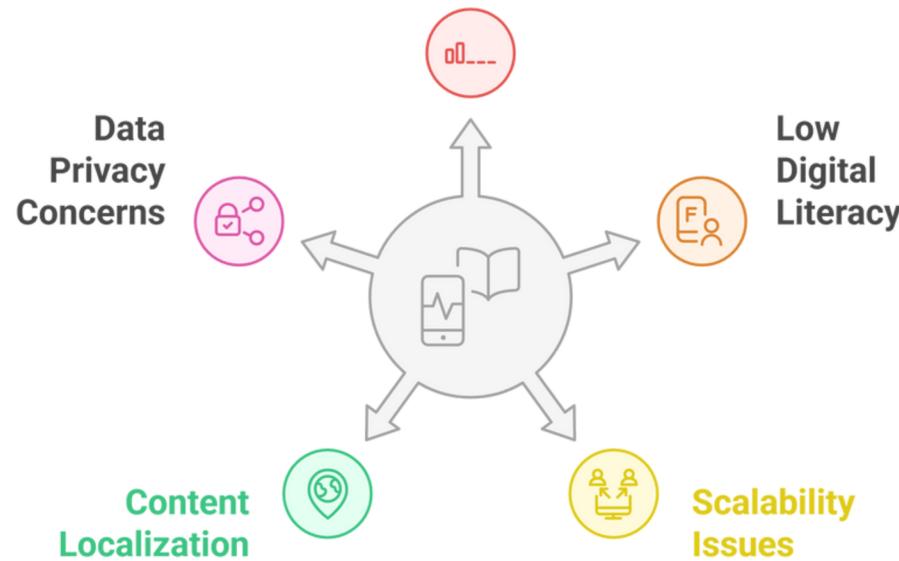


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# FEASIBILITY AND VIABILITY

Limited Internet  
Access



## ANALYSIS OF THE FEASIBILITY OF THE IDEA

- Technically feasible using **open-source tools & lightweight frameworks**.
- Platform works seamlessly on **low-cost devices (mobile, tablet, desktop)**.
- **Cost-effective** – requires only basic infrastructure for deployment.
- **Scalable design** – easy integration of new features & regional languages.
- **Operational feasibility** – user-friendly for both students & teachers.



## POTENTIAL CHALLENGES

- **Limited internet access** in rural/remote areas.
- **Low digital literacy** among students and teachers.
- **Scalability issues** when handling large numbers of users.
- **Content localization** in multiple regional languages.
- **Data privacy & security** concerns in student/teacher profiles.

## STRATEGIES TO OVERCOME CHALLENGES

- **Offline-first design** with auto sync when internet is available.
- **Capacity building** – training workshops for teachers & awareness drives.
- **Cloud-based infrastructure** to ensure scalability and performance.
- **Partnerships with local educators** for accurate translations.
- **Secure authentication** (OTP, encryption) for safe data handling.
- **Gamification & rewards** to maintain long-term engagement.

# IMPACT AND BENEFITS



## POTENTIAL IMPACT ON TARGET AUDIENCE

- Increases STEM learning engagement among rural students (Grades 6–12).
- Bridges the digital divide by providing offline, gamified learning access.
- Empowers teachers with analytics to track student performance.
- Encourages multilingual learning, promoting inclusivity.

### Academic Performance with Gamified Learning



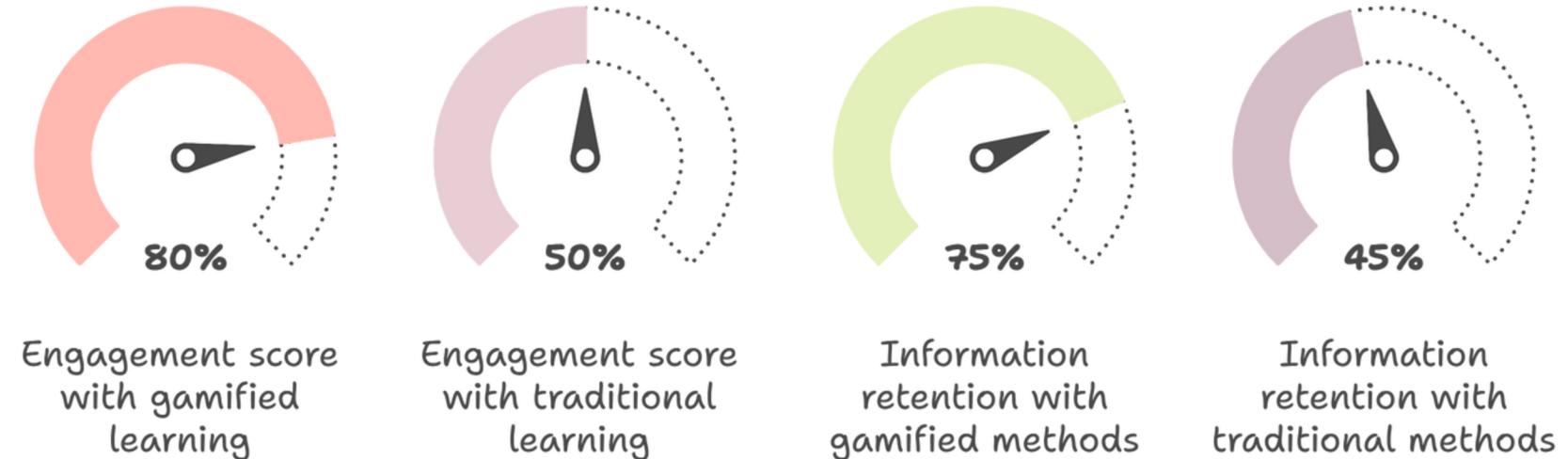
### Collaboration with Gamified Learning



### Student Motivation with Gamified Learning



## Gamified vs. Traditional Learning Outcomes



## BENEFITS OF THE SOLUTION

- **Social:** Improves quality of education in underserved areas, fosters equal opportunities.
- **Economic:** Cost-effective, scalable on low-cost devices, reduces dependency on expensive solutions.
- **Environmental:** Digital learning reduces paper usage and promotes eco-friendly education.
- **Long-term:** Builds curiosity, problem-solving, and critical thinking skills among students, nurturing future innovators.

# RESEARCH AND REFERENCES



- *National Education Policy (NEP 2020)* – Ministry of Education, Govt. of India  
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- *NESCO: ICT in Education* – Technology for inclusive learning  
👉 [en.unesco.org/ict-education](https://en.unesco.org/ict-education)
- *ASER Report (Annual Status of Education Report)* – Rural learning outcomes in India  
👉 [asercentre.org](https://asercentre.org)
- *UNESCO: ICT in Education Policies & Guidelines*  
👉 [gcedclearinghouse.org](https://gcedclearinghouse.org)
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