

## **Problem We Are Solving**

Education in rural and underprivileged areas faces multiple challenges, including a lack of access to quality learning resources, outdated teaching methods, and limited student engagement. Many students struggle to retain knowledge due to passive learning methods and the absence of interactive content. Additionally, digital learning solutions remain inaccessible to many due to infrastructural constraints.

Traditional teaching methods lack personalization and fail to keep students consistently engaged. There is a need for an interactive, scalable solution that makes education more accessible while encouraging lifelong learning habits.

## **Our Solution**

Shiksha Sarathi makes learning more engaging, accessible, and effective for students in rural and semi-urban areas. By integrating structured daily lessons with interactive learning, the project ensures that students receive dynamic, bite-sized educational content every day.

## **Technical Implementation**

Shiksha Sarathi is powered by Alxplain agents, which generate contextual content and quizzes. The Llama 3.2 70B language model handles text generation, decision-making, and web search. The generated output is refined before being passed to another model that creates quizzes, ensuring a structured learning flow.

Data is fetched dynamically from the Alxplain API and rendered on a React + Vite frontend, designed for lightweight performance and speed. QR codes are dynamically generated and linked to specific lesson content via a simple backend service. User progress and lesson completion data are stored locally on the user's device to ensure accessibility even in low-connectivity environments. The application includes error handling for API requests and loading indicators for a smooth user experience.

Optimized for low data usage and low-end devices, the web app delivers an efficient and seamless learning experience.

## **How Location-Based Learning Works**

QR codes are placed in books, newspapers, and commonly visited community spaces to seamlessly integrate learning into daily life. When a student scans a QR code, the Smart Digital Educator generates educational content tailored to that specific location or context.

- **Learning from Real-World Interactions:**
  - **At a Historical Place** – The QR code unlocks insights into the site's history, architecture, and cultural significance.

- **At a Shop or Market** – Students explore basic business principles, inventory management, and financial literacy, making commerce education practical.
- **Inside Books & Newspapers** – QR codes in textbooks provide simplified explanations, additional resources, and real-life applications, while those in newspapers explain key events with historical and analytical context.

By embedding knowledge within real-world locations, this feature ensures students actively learn rather than passively consume information.

### **Lesson of the Day (LOTD)**

To keep students engaged, Shiksha Sarathi offers a structured daily learning experience, helping students build consistent learning habits.

#### **Daily Learning Structure:**

- **New Lesson Every Day** – A fresh, well-structured topic is provided based on key subjects and learning progress.
- **Engaging Video Explanation** – Each lesson includes a high-quality educational video, making concepts easier to understand.
- **Easy-to-Read Notes** – Concise, structured notes with simplified explanations, summaries, and key takeaways.
- **Auto-Generated Quiz** – Multiple-choice questions reinforce learning and test understanding.

#### **Tracking Progress & Rewards**

- **Streaks** – Encourages students to maintain daily learning habits.
- **Badges & Achievements** – Milestones are rewarded to keep students motivated.
- **Leaderboard & Ranking** – Students earn points and climb rankings, fostering a sense of achievement and competition.

#### **Seamless Learning Experience**

- **One Scan, Complete Learning:** A simple QR scan opens a structured learning path—watch the video, read the notes, take the quiz, and track progress.
- **Adaptive Learning:** Lessons adjust based on student performance, ensuring personalized educational growth.
- **Scalable & Accessible:** Works without heavy apps, making it lightweight and usable even in low-resource environments.

## **Beyond Rural Education**

Shiksha Sarathi extends beyond rural learning. It enhances education in schools, libraries, and community centers, supports government and NGO programs for literacy and skill development, and is useful for museums, vocational training, and public information displays.

### **In Short:**

Shiksha Sarathi makes learning a daily habit with the Lesson of the Day (LOTD), providing fresh content every day. Location-based learning connects education to real-world experiences, offering relevant knowledge based on a student's surroundings. Progress tracking, streaks, and rewards keep learners engaged and motivated, making education continuous, accessible, and interactive.