



Offline AI Learning Platform

SHIKSHA SETU

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The Digital Divide in Rural India

The Challenge

Over 70% of rural schools in India struggle with limited or no internet connectivity, creating a significant barrier to modern education. Students in these communities are systematically cut off from the digital learning revolution that's transforming urban classrooms.

The Impact

Without access to online resources and AI-powered tools, rural teachers cannot personalise learning or effectively track student progress. This creates a widening education gap that threatens to leave millions of students behind.

Our Vision: Education for Every Student



Offline AI Learning

Enable students to access AI-generated educational content without requiring internet connectivity.



Interactive Education

Leverage speech and vision AI models that run locally on devices for hands-on, engaging learning experiences.



Teacher Empowerment

Provide educators with comprehensive analytics and progress tracking tools to support every student's journey.



Introducing Shiksha Setu

An offline-first AI learning platform designed specifically for low-connectivity environments. Shiksha Setu brings the power of artificial intelligence directly to rural classrooms, working seamlessly without internet access.

1

On-Device AI Models

TensorFlow Lite models run locally for quizzes, explanations, and image-based learning

2

Multilingual Support

Content available in regional languages to ensure true inclusivity

3

Smart Syncing

Progress data stored locally and automatically synced when connectivity is available

Powerful Features for Offline Learning

1

Offline AI Tutor

An intelligent chatbot trained on comprehensive educational datasets generates personalized explanations and quizzes entirely offline, adapting to each student's learning pace.

2

Smart Visual Learning

Image recognition technology identifies real-world objects and explains related concepts, connecting classroom learning to everyday life.

3

Voice Interaction

Speech-to-text capabilities support students who struggle with typing, making education more accessible to diverse learners.

4

Progress Tracker

Comprehensive teacher dashboard displays student scores, engagement metrics, and learning patterns to inform instruction.

5

Sync-on-Connect

Seamlessly syncs all student data and progress to the cloud whenever internet connectivity becomes available.

Built on Robust Technology

Component	Technology
Frontend	Flutter for cross-platform mobile development
Backend	FastAPI for efficient API management
AI Models	TensorFlow Lite for on-device inference
Database	SQLite for offline storage + Firebase for cloud sync
Voice/Language	Google Speech API / OpenAI Whisper
UI Design	Figma / Canva for user experience design

AI That Works Anywhere



Natural Language Understanding

Answers student questions with contextual, accurate responses



Text Summarisation

Simplifies complex content for easier comprehension



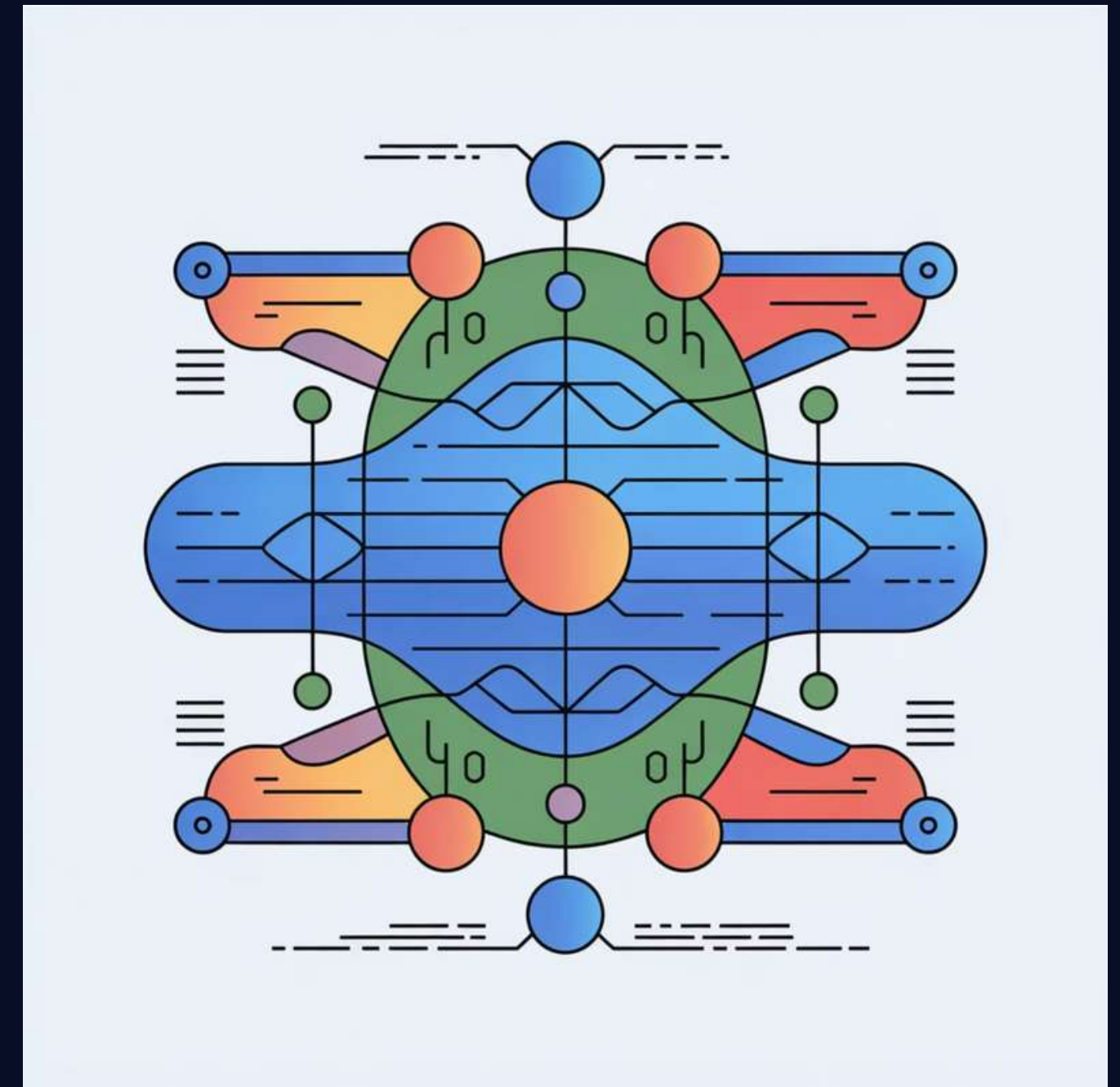
Image Classification

Powers visual learning modules with object recognition

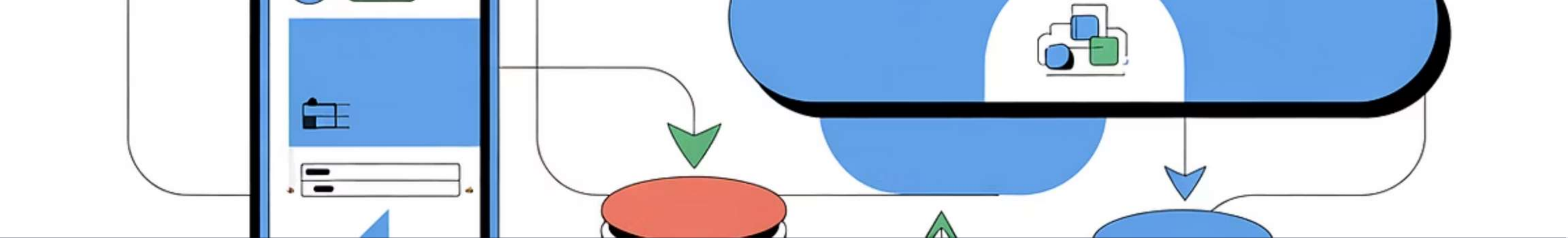


Speech Recognition

Enables hands-free voice input for accessibility



Optimised for Performance: All models are compressed using TensorFlow Lite quantisation techniques, ensuring smooth performance even on low-end devices common in rural schools.



System Architecture

1

Student Interface

Flutter mobile app with intuitive, accessible design

2

AI Processing

On-device TensorFlow Lite models for instant responses

3

Local Storage

SQLite database maintains all data offline

4

Cloud Sync

Firebase synchronizes when connectivity available

This architecture ensures students never experience interruption in their learning, whether online or offline. The system gracefully handles connectivity changes without data loss or disruption.

Creating Lasting Impact

Bridge the Gap

Closes the urban-rural education divide by providing equal access to AI-powered learning tools regardless of internet availability.

Enable Innovation

Brings AI-based learning to areas previously excluded from educational technology advances.

Reduce Costs

Eliminates dependency on expensive online ed-tech subscriptions and data charges.

Promote Inclusion

Delivers content in local languages, ensuring cultural relevance and comprehension.

Scale Easily

Deployable to any region with minimal infrastructure or setup requirements.



Building Tomorrow's Education Today

Our Roadmap Forward



National Content Integration

Partner with DIKSHA and NCERT to align with national curriculum standards and provide government-approved content.



Personalized Learning Paths

Develop AI algorithms that create individualized learning journeys based on each student's strengths and needs.



Teacher Training Modules

Build AI-powered professional development resources to help educators maximize platform effectiveness.



Government School Pilots

Launch pilot programs in regional government schools to demonstrate impact and refine the solution.

Thank You !