

Visvesvaraya Technological University, Belagavi – 590018



PROJECT PROPOSAL  
ON

**Rural Learn: The Future of Rural Learning**

*Submitted in partial fulfillment of the requirements for the degree*

**BACHELOR OF ENGINEERING  
in  
COMPUTER SCIENCE & ENGINEERING**

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**DEPT. OF COMPUTER SCIENCE AND ENGINEERING  
ST JOSEPH ENGINEERING COLLEGE  
An Autonomous Institution**

(Affiliated to VTU Belagavi, Recognized by AICTE, Accredited by NBA)

**Vamanjoor, Mangaluru - 575028, Karnataka**

**2024-25**

# 1 Project Title

An AI-Powered Tutor for Enhancing Rural Education Using Intelligent Learning Systems

## 2 Problem Statement

In many rural areas, students face significant barriers to accessing quality education due to limited infrastructure, lack of trained teachers, and language constraints. This project aims to leverage artificial intelligence to create a personalized tutor[3] that provides interactive learning experiences. The system will support AI based interactions, adaptive learning paths, and offline functionality[2], ensuring students can continue learning even without stable internet access [1].

## 3 Objectives

1. To develop an AI/ML model that efficiently analyzes and learns from large datasets.
2. Develop an AI-powered tutor that offers personalized learning experiences.
3. Ensure offline access through local data storage and periodic cloud synchronization.

## 4 Software / Hardware Requirements

- Programming Languages: Python (ML), JavaScript (Frontend), Dart (Flutter)
- Frameworks: Flask/Django (Backend), TensorFlow Lite (AI models)
- Database: SQLite (Offline), Firebase (Cloud Sync)
- Tools: Android Studio, Visual Studio Code, Git
- Machine Learning Libraries: scikit-learn, pandas, numpy, Whisper AI (Speech Recognition)

## 5 Methodology

1. **AI-Powered Learning System:** Develop a smart tutor that adjusts lessons based on how well students are learning.
2. **User-Friendly Mobile App:** Create an easy-to-use app with a simple interface for students to access lessons and tests.
3. **Performance Tracking:** Build tools to track student progress and provide feedback to help them improve.
4. **Offline Access:** Store learning materials locally using SQLite so students can study even without the internet.
5. **Cloud Updates:** Sync student progress and update learning content through Firebase when internet access is available.

## 6 Expected Outcome

1. Students will have access to a personalized AI tutor that helps them learn at their own pace.
2. The mobile app will be easy to use, making learning more accessible.
3. Students will receive instant feedback and progress tracking to improve their learning.
4. Learning will be available offline, ensuring uninterrupted education.

# References

- [1] A. Kumar, S. Patel, and R. Singh, “Mindcraft: Revolutionizing Education through AI-Powered Personalized Learning and Mentorship for Rural India,” arXiv preprint arXiv:2502.05826, 2024.
- [2] S. Kumar and D. Patel, “Offline-First AI Education: Bridging the Digital Divide in Rural Areas,” in 2023 International Conference on Educational Technology. IEEE, 2023, pp. 78–85.
- [3] W. Cao, Y. Liu, and L. Zhang, “AI-Tutor: Solution for China’s Disadvantaged and Rural Areas,” International Journal of Educational Technology in Higher Education, vol. 21, no. 1, pp. 1–18, 2024.