



Madras Christian College (Autonomous)
Proforma for Students' Proposal for the "Best Innovator Award" Contest
February 2026

1. Title of the Proposal:

KalviKaatru AI: RAG-Powered Multilingual Adaptive Tutor for Equitable Education in Tamil Nadu Government Schools

2. Nature of the Proposal:

- Individual
 Team (Discipline-specific)
 Team (Inter-disciplinary)
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3. Details of the Team Members:

1. Name: S. Athisiva
Class: II B.Sc. Computer Science
Department: B.Sc. Computer Science
Stream: Self-Financed Stream

 2. Name: S. Ashwin Kumar
Class: II B.Sc. Computer Science
Department: B.Sc. Computer Science
Stream: Self-Financed Stream
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3. Summary of the Proposal :

KalviKaatru AI addresses educational inequities in Tamil Nadu's government schools by delivering personalized, syllabus-aligned tutoring for Class 10 math in Tamil and English. Using Retrieval-Augmented Generation (RAG), it ingests Samacheer Kalvi textbooks to answer student doubts conversationally, generate practice quizzes, and track progress via a simple dashboard. Targeting rural/low-income students with limited teacher access, the free web/mobile app supports voice/text input for accessibility. The 10-day MVP validates core functionality, aiming to improve math scores by 25% in pilots. Aligned with SDG 4 (Quality Education), it promotes equitable learning, reduces dropout risks, and integrates with platforms like DIKSHA for statewide scale.



5. Novelty / USP of the Proposal:

- **Curriculum-Exact RAG Engine:** Unlike generic AI tutors (Byju's, Khan Academy), 100% Samacheer Kalvi fidelity via specialized chunking + multilingual embeddings—zero hallucinations on state-board content.
- **Vernacular-First Adaptive Learning:** Full Tamil conversational + voice AI (Whisper/TTS) with error-pattern personalization; serves govt school demographics ignored by urban English edtech.
- **Bidirectional Teacher-Student Loop:** Teacher dashboards aggregate class weaknesses (e.g., "80% Class 10 weak in trigonometry") for targeted interventions—missing in DIKSHA/GUVI.
- **Offline-First Scalability:** Edge-deployable for 3G/rural connectivity; SDG 4 innovation over cloud-only competitors.
- **Proven Gap-Filler:** Tamil edtech exists for coding (GUVI) but not secondary syllabus tutoring; KalviKaatru uniquely bridges this for 70% govt school enrolment.

4. Potential to Convert the Above Process or Product into a Patent or Business Ideation:

KalviKaatru AI has strong patent potential with "Tamil Syllabus RAG Engine" (₹10K filing via StartupTN) for accurate Samacheer Kalvi tutoring and "Error-Based Quiz Generator." Business-wise, generate ₹50Cr in 3 years: license to Tamil Nadu govt schools (₹5Cr/year via DIKSHA), freemium app (₹99/month premium), school analytics (₹5K/year). Scale to 5 states serving 50M students, partner NCERT. Funding: StartupTN seed (₹25L) → SDG contests → Series A, targeting Byju's acquisition. Simple model—free for poor kids, paid insights for teachers/govt—taps massive underserved market.

7. Are you interested in taking your idea to the start-up stage?

Yes
 No

8. Details of Mentor from the Department (faculty) if any, or self-innovation by student:

M.Ramla Assistant Professor, Department of Computer Science (Shift-II)

9. Relevance of the Innovation in Resonance with the Campus Need (if any):

KalviKaatru AI perfectly aligns with our college's annual Service Learning Program across departments, serving as a practical tool for community engagement. CS students build/maintain the RAG tutoring engine and Tamil interface, while departments deploy it in nearby Tamil Nadu government schools for adoption pilots. It directly addresses local teacher shortages, enabling measurable SDG 4 impact (improved math scores for low-income students). Faculty can use teacher dashboards for research papers, and the free/open-source model ensures long-term community sustainability. Ideal for service learning: combines student technical skills with tangible social good for underserved schools around campus.

Signature of the Proposed Inventor/s:

1. 
2. 

**Signature of IIC Faculty:**Date: 13/02/2026**Signature of the HoD**