The Apprentice Project | TAP Buddy

THE APPRENTICE PROJECT

About the Organization

The Apprentice Project (TAP) is an innovative non-profit organisation that **equips children with 21st century skills through an AI-powered WhatsApp chatbot, TAP Buddy.** TAP Buddy delivers choice-based, co-curricular learning pathways in STEM, Coding, Visual Arts, and Financial Literacy to build core cognitive skills—**critical thinking, problem-solving, creativity, and decision-making**—for Grades 4–12 in India's government schools.

Problem Statement (use case specific)

India's NEP 2020 and WEF reports show that children need **21st-century skills—critical thinking, problem-solving, creativity, STEM, and financial literacy**—to succeed in a digital economy. But in I**ndia's 250 million** public school system, these skills are rarely taught or measured. Teachers are not trained for them, classrooms are overcrowded, and exams reward memorisation. Schools also operate on a one-size-fits-all model despite every child learning differently.

AI enables scale by giving each child **personalised activities through a direct-to-child channel,** while teachers act as facilitators. **Image- and voice-based LLM** can evaluate 21st-century skills by r**eviewing student projects and explanations** against clear rubrics, giving quick and fair feedback for continuous measurement.

It also **strengthens teacher capacity** by offering simple guidance, model explanations, and examples that help teachers understand and teach these skills

AI Solution Description

TAP Buddy is an **AI-powered WhatsApp learning platform** that delivers personalized, adaptive 21st-century skill development through videos, quizzes, projects, and instant AI feedback using LLMs, computer vision, RAG, and predictive analytics. Students learn directly on WhatsApp, teachers receive training and dashboards, and governments access real-time block/district reports through an integrated LMS–CRM system. The platform works online enabling low-cost, at-scale delivery across schools and states.
Refer to the demo video linked in slide 2 for additional information.

Tools and techniques Used

- LLM-based conversational engine for child-friendly feedback and doubt resolution
- RAG (Retrieval-Augmented Generation)
- Computer vision pipeline using OpenCV + ResNet-50 for image feature extraction
- FAISS for similarity search and plagiarism detection
- Neo4j graph database + Llama Index for linking submissions to curriculum/rubrics
- Predictive analytics for engagement, drop-off, and performance forecasting
- Personalized Adaptive Learning (PAL) engine using rule & data-driven clustering
- Behavioral science–based nudge system (stickers, reminders, pacing cues)
- A/B testing and rapid experimentation framework
- Multilingual pipeline integrated with Bhashini for Indian languages

Key Features of tech solution

- Choice based learning:Students pick electives(STEM,Coding,Arts, Finance).
- Personalized Adaptive Learning: Adapts difficulty & pacing for each learner.
- AI Image/voice Recognition: Rubric-aligned evaluation for student projects at scale.
- Interactive Learning Videos: Using Plio for micro-interactions and in-video checks.
- AI Doubt Resolution: LLM-driven real-time support for students and teachers.
- Data Dashboards: School/block/state dashboards for governments and teacher views.
- Predictive Modelling: Early warning system for disengagement and low skill mastery.
- Behavioural Nudges: Stickers, reminders, and rewards to activate and retain learners.

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Impact (Qualitative and Quantitative)

- Current user base: 100,000 children
- No. of active users: 61,000 (61% of the base)
- Impact of solution: 24-25 End line reports
    - Average mastery week on week:
    - Coding – 54 % | Science – 59 % | Financial Literacy – 65 %
    - Creativity: 42.6 % of students improved from baseline to endlin
    - Problem-solving: 50.8 % of students improved over 6–8 months
    - Decision-making: 43.5 % of students improved from baseline to endline

Plan for roll-out and sustainability

Systems scale: By 2028–30, TAP aims to serve 5 million learners(12-15 states) through embedded state deployments where TAP Buddy will run on government servers aligned with SCERT curricula and will be integrated into district dashboards.
Product scale: TAP Buddy functions as a configurable AI platform—adaptive across subjects, grades, and languages. As users grow, cost per child drops, with roadmap priorities in right-leveling, Indic-language AI feedback, and teacher dashboards.
At scale The AI-enabled platform will operate at ~₹100 per child per year keeping per child cost low.
Ecosystem scale: TAP will open its rubrics and assessment APIs to NGOs and CSR partners, enabling others to deliver the model under their own brands, multiplying reach without added delivery costs.
Over the next five years we aim to make **21st-century skill learning a permanent part of India's public education system**—affordable, data-driven, and run by the government itself.

Additional documents

- *Presentation provided earlier:* *https://docs.google.com/presentation/d/1fVyFceCdEpdGrbTwg7lDTqJPZeI84DlKjcWD5Rm5LSo/edit?usp=sharing*
- *Solution Demo Videos:* *https://drive.google.com/file/d/1jw4VyYcpmH4wiHcE750Tc0lg313tmKPc/view*
- *User Testimonials:* *https://youtu.be/Lh4XBVbcvTY?si=Z7nS4kHRSJgSZEYB*
  https://www.youtube.com/watch?v=N3afdDjX6DY