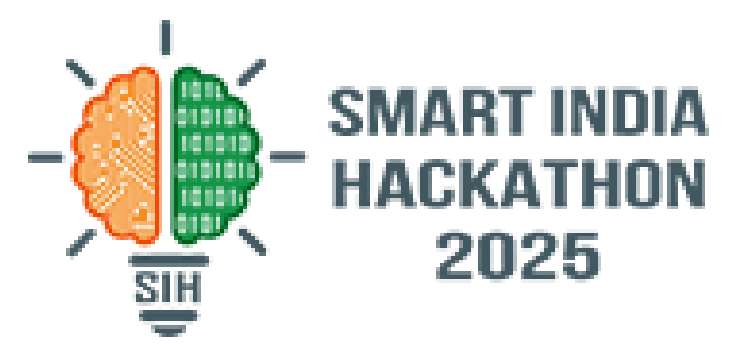# SMART INDIA HACKATHON 2025

- **Problem Statement ID – SIH 25123**

- **Problem Statement Title- "Student Innovation: Swadeshi for Atmanirbhar Bharat - Smart EducationTheme- Smart Education**

- **PS Category- Hardware**

- **Team ID- SIH25**

- **Team Name - REVIVERS**

IDEA TITLE

- Distraction-Free Video Platform – A custom web app (FocusTube) that uses YouTube's API to show only educational videos with a minimal interface (no ads, comments, recommendations, or shorts).
- Productivity & Learning Tools – Built-in focus timers, timestamped note-taking, and quizzes to help students stay engaged and reinforce learning outcomes.
- Raspberry Pi Integration – Acts as a captive portal in classroom Wi-Fi, automatically redirecting YouTube links to FocusTube so learners remain in a distraction-free environment.
- Teacher Dashboard & Analytics – Educators can curate playlists, assign videos, and track engagement (watch time, quiz results) while ensuring privacy with anonymized data.
- Innovation & Uniqueness – A hybrid of software + low-cost hardware, combining focus-oriented design, institutional enforcement, and lightweight scalability — unlike any existing ed-tech or YouTube feature.

TECHNICAL APPROACH

- Student Device → Connects to Wi-Fi (Raspberry Pi AP) → Clicks YouTube Link → Redirected to FocusTube Web App → Distraction-Free Player Loads → Teacher Playlist / Timer / Notes Enabled → Analytics Logged → Teacher Dashboard View

FEASIBILITY AND VIABILITY

- Feasibility – Technically practical (React/Node.js + YouTube API + Raspberry Pi), cost-effective (low hardware cost), and deployable at both individual and institutional levels.
- Key Challenges – YouTube policy restrictions, students bypassing controls, network load on Raspberry Pi, and user adoption resistance.
- Risks – Privacy concerns in data collection, incomplete removal of distractions due to API limits, and scalability for larger classrooms.
- Strategies – Use official APIs, provide browser extensions + captive portal for enforcement, optimize Pi/network setup, train users for adoption, and ensure privacy with anonymized analytics.

IMPACT AND BENEFITS

- Educational Impact – Improves student focus and learning outcomes by eliminating digital distractions, leading to better comprehension and retention.
- Social Benefit – Supports teachers, parents, and institutions in guiding students toward healthy digital habits and responsible content consumption.
- Economic Benefit – Low-cost, scalable solution using Raspberry Pi and open-source tools, making it accessible even for resource-constrained schools and colleges.
- Long-Term Value – Reduces time wasted on non-productive online content, indirectly boosting productivity and academic performance across communities.

RESEARCH AND REFERENCES

- YouTube IFrame Player API Documentation – For embedding and controlling YouTube videos in your web app.
- 🔗 https://developers.google.com/youtube/iframe_api_reference
- Raspberry Pi Captive Portal & Hotspot Setup – Guide for configuring Pi as WiFi hotspot and redirecting traffic.
- 🔗 https://pimylifeup.com/raspberry-pi-captive-portal/
- Pi-hole DNS Blocking & Redirection – Official documentation for DNS-level domain blocking and custom redirection.
- 🔗 https://pi-hole.net
- Research on Digital Distraction in Learning – Study on how multitasking affects focus and learning outcomes.
- 🔗 https://doi.org/10.1016/j.compedu.2012.10.003