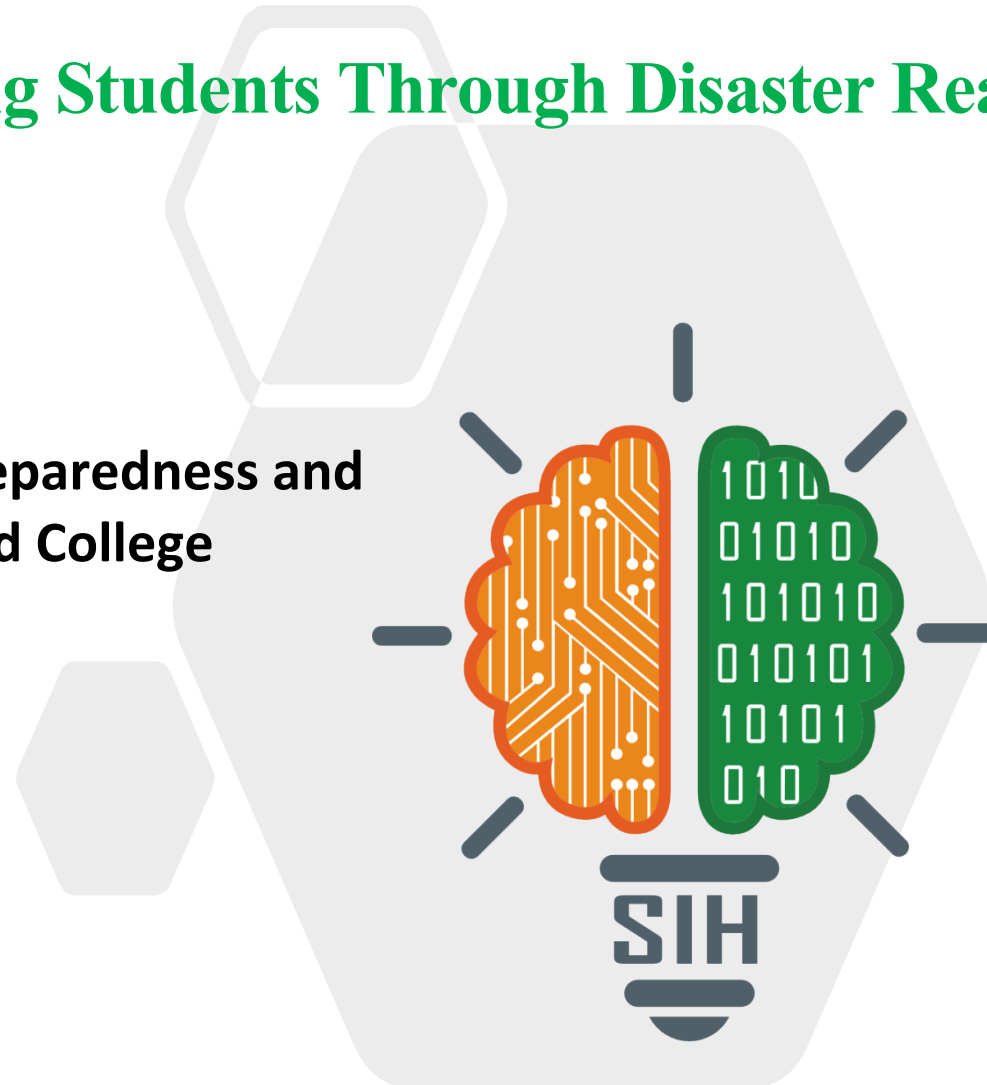# SMART INDIA HACKATHON 2025



## "Madadgaar" – Protecting Students Through Disaster Readiness

- **Problem Statement ID –** SIH25008

- **Problem Statement Title-** Disaster Preparedness and Response Education System for Schools and College

- **Theme-** Disaster Management

- **PS Category-** Software

- **Team ID-**

- **Team Name-** Igniters

# Madadgaar

**Madadgaar** is a digital solution designed to revolutionize disaster preparedness in Indian schools and colleges. Its core mission is to transform a reactive, paper-based approach into a **proactive, technology-driven one**. The platform leverages a **gamification engine** and **AI-driven personalization** to make learning about disaster safety engaging and effective for students. It provides **real-time, hyper-local alerts** and virtual simulations, equipping students and staff with the practical knowledge needed to respond to emergencies.

## ❖ Proposed Solution

- Uses a **Third Person Gaming Simulator** to make disaster preparedness engaging, tailoring content to individual student progress for maximum retention.
- Provides **real-time, hyper-local alerts** by integrating **geospatial data** to give users actionable, location-specific warnings for immediate threats.
- A secure **SaaS platform** that offers a **common operational picture (COP)**, allowing administrators to manage and coordinate emergency response from a single dashboard.
- A **low-bandwidth optimized mobile app** ensures accessibility for all users by sending SMS through FCM tokens.

## ❖ Uniqueness

- Uses **Machine Learning** to adapt to each student's learning style, turning passive learning into a **behavioral-driven, gamified experience.**
- Provide **predictive, real-time alerts** by integrating **geospatial APIs**, to give users precise, location-specific threat information. .
- A **SaaS dashboard** that unifies communication, asset tracking, and **real-time updates** into one centralized view for **coordinated operations**.
- The platform works in disconnected or low-bandwidth conditions, maintaining critical functions when networks fail during disasters

# TECHNICAL APPROACH
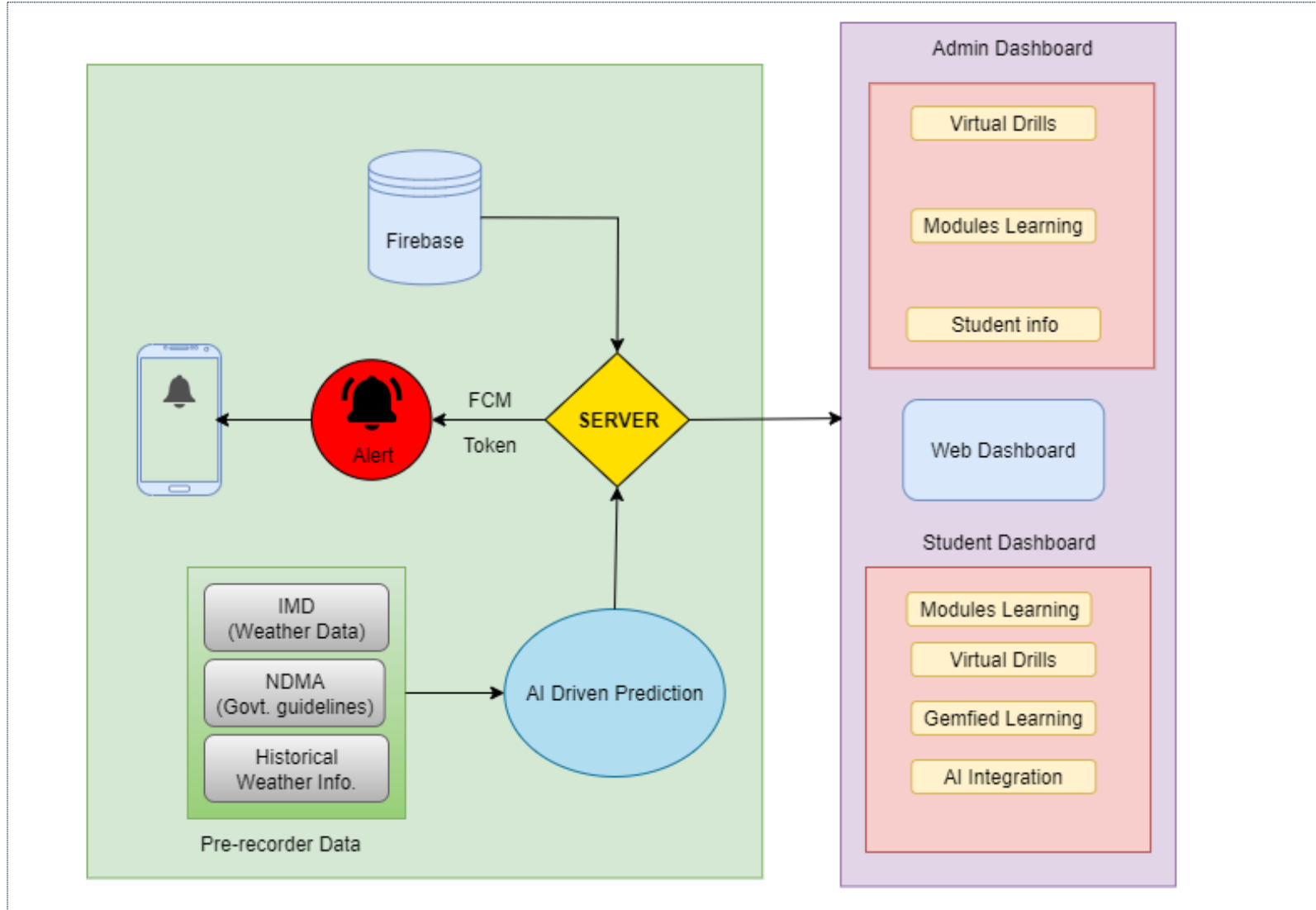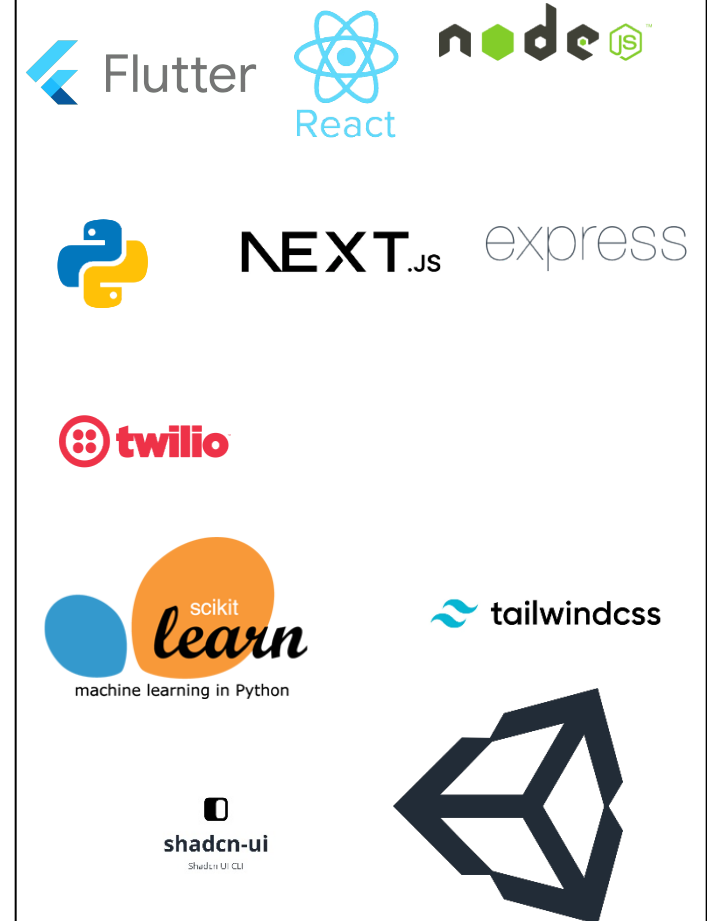
## ❖ Feasibility of the idea

- Uses **mature, proven technology** (cloud, mobile apps, geospatial APIs) for **low-risk development**

- **Strong market need** and **problem-solution fit** validated by NDMA reports and high disaster risk indices

- **Scalable cloud platform** supports growth from single schools to **nationwide deployment**

- Economically sound through **subscription model** and **government/CSR funding** with clear safety ROI

## ❖ Potential challenges & Overcomes

- Challenge: **Lack of digital skills** among teachers. Solution: Provide an **intuitive UI/UX** and extensive **teacher training programs**.

- Challenge: Inconsistent **internet connectivity** and power. Solution: Implement **offline-first functionality** and partner with telecom providers.

- Challenge: Institutional **budget constraints** and resistance to change. Solution: Use a **tiered pricing model** and secure **government/CSR partnerships**.

- The risk of **data breaches** of sensitive information. Solution: Strict adherence to the **DPDP Act** with **encrypted data models** and **parental consent**.

# IMPACT AND BENEFITS

## ❖ Potential Impact

- **Prepares** students, teachers, and staff for disasters, reducing panic, confusion, and potential casualties.

- Can be **deployed** across schools and colleges nationwide, creating a **unified** disaster-readiness **ecosystem**.

- **Extends safety** awareness to parents and communities, ensuring **preparedness** beyond campuses.

- Directly supports **NDMA/SDMA** safety guidelines, aligning with **national disaster** management goals

## ❖ Benefits of the solution

- **Multilingual** content and offline-first alerts ensure accessibility in rural, hilly, and low-connectivity areas.

- **Automated Alert** via SMS, WhatsApp, and IVR guarantees **timely communication** during emergencies.

- **Smart dashboards** track safety scores, drill participation, and preparedness gaps for schools & authorities.

- Builds confidence among parents, institutions, and **government bodies** with transparent and proactive safety practices

# RESEARCH AND REFERENCES

- Video Game: https://www.stopdisastersgame.org/game/
- IMD: https://mausam.imd.gov.in/
- https://idl.iscram.org/files/brunadiirr/2021/2395_BrunaDiirr_etal2021.pdf
- Investigating the impact of technology-supported 3E learning model in disaster education.(2024). https://doi.org/10.1007/s10639-024-12731-x