



Google Developer Group
On Campus

TechSprint



Leveraging the power of AI



Team Details

- a. **Team name:** Innovexa
- b. **Team leader name:** T . Balu
- c. **Problem Statement:** Disaster Preparedness and Response Education System for Schools & Colleges

Problem statement

- ❖ During disasters such as fires, floods, and earthquakes, many students and individuals do not know how to react correctly.
- ❖ Disaster preparedness is mostly taught through textbooks, instructions, or guidelines, which do not provide practical experience.
- ❖ Physical disaster drills are risky, expensive, and difficult to conduct frequently for large groups.
- ❖ Due to this lack of practical training, people panic during real emergencies, make unsafe decisions, and fail to follow proper safety procedures.
- ❖ There is a critical need for a **safe, practical, and engaging disaster preparedness learning approach** that helps individuals understand *how to respond correctly before a real disaster occurs*.

Addressing Problem

- ❖ **Safe learning environment:** Eliminates risks of physical disaster drills while ensuring practical preparedness.
- ❖ **Boosts awareness:** Helps students visualize and practice correct responses, reducing panic in real emergencies.
- ❖ **Personalized training:** Different disaster modules for different regions (floods, earthquakes, fires).
- ❖ **Higher engagement:** Interactive simulations keep students more engaged than paper-based guidelines.
- ❖ **Repeatable practice:** Students can practice disaster response multiple times to build confidence and accuracy.

Innovation and Uniqueness

- **Virtual drills on-demand:** Students can practice anytime, anywhere.
- **AI-powered adaptive learning:** System evaluates student performance and suggests improvements.
- **Inclusive accessibility:** AR mode available on smartphones, ensuring low-cost adoption.
- **Gamified safety scores:** Track preparedness levels with leaderboards.



Key features of the solution

- **Interactive disaster simulation modules** for emergencies such as fires, floods, and earthquakes.
- **Step-by-step evacuation guidance** to train users on correct safety procedures.
- **Gamified learning system** with points, badges, and leaderboards to encourage active participation.
- **Performance tracking dashboard** to monitor preparedness levels and learning progress.
- **Region-specific training scenarios** tailored to different geographical disaster risks.
- **Repeatable virtual practice sessions** allowing users to train anytime without physical risk.

Technology Stack

Frontend:

HTML, CSS, JavaScript, React.js

Gamified Learning Logic:

JavaScript-based scoring system, levels, badges, and leaderboards

Google Technologies

Backend & Database (Google):

Firebase Authentication, Firebase Firestore

Hosting (Google):

Firebase Hosting

Version control :

GitHub



Firebase Authentication





Process Flow of the Solution



Future Scope & Vision

While this project is developed as a functional prototype, its real strength lies in its potential impact. If integrated into educational systems, this platform can help students clearly understand disaster preparedness from an early stage.

With continued development, students and educators can expand this foundation into more advanced solutions, driving greater awareness, innovation, and large-scale adoption.

Over time, such initiatives can contribute to building a more prepared society and ultimately help **reduce loss of life during real disasters**.

Disaster preparedness education can inspire students to contribute meaningfully to disaster management and community safety.

Scalability & Accessibility

- ☐ Support for **multiple languages** to increase inclusivity.
- ☐ Mobile and low-bandwidth versions for **rural and remote regions**.

Snapshots of the MVP

SELECT DISASTER SCENARIO

Choose your training environment. Each scenario provides unique challenges and learning objectives.



Learn to respond to seismic emergencies and building collapses

- Immersive 3D Environment
- Real-time Decision Making
- Expert Voice Guidance

SELECT EARTHQUAKES



Master water emergency response and evacuation procedures

- Immersive 3D Environment
- Real-time Decision Making
- Expert Voice Guidance

SELECT FLOODS



Practice rapid coastal evacuation and safety protocols

- Immersive 3D Environment
- Real-time Decision Making
- Expert Voice Guidance

SELECT TSUNAMIS



Train in fire suppression and emergency evacuation

- Immersive 3D Environment
- Real-time Decision Making
- Expert Voice Guidance

SELECT FIRE ACCIDENTS

PERFORMANCE FEEDBACK

Scenario: Earthquake Training

OVERALL PERFORMANCE

69
/ 100

DEVELOPING

You performed better than 55% of trainees

DETAILED ANALYSIS

Response Time	18%
Decision Accuracy	75%
Safety Compliance	87%
Communication Skill	78%
Leadership Rating	88%

Project Links & Demo

1. GitHub Public Repository -
2. Demo Video - <https://drive.google.com/file/d/1-iwEyRoDCSOlyxUBQKqhxWSTAvxLJdkc/view?usp=sharing>
3. MVP link - <https://tinyurl.com/Virtual-Trainingsimulation>



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Thank you!

