Google Cloud

H2S

AI for Impact

APAC Hackathon 2024

A social-first initiative

Registration Deadline: Sun 17 November 2024

Team Details

Team name: ***Algo Avengers***

Team leader name: ***Ahmed Zubair Hussain***

Problem Statement: ***AcciGuard*** addresses the lack of real-time hazard alerts for drivers in accident hotspots by using Gemini AI to provide customized, actionable safety insights, helping prevent accidents through AI-driven awareness.

Brief about the idea

AcciGuard is an interactive map application designed to enhance road safety by alerting users when they are near accident hotspots. This web-based tool allows users to visualize known accident-prone areas on a map and receive real-time alerts if they come within a certain proximity to these hazardous locations.

AcciGuard is a safety-first app that alerts drivers when entering accident-prone areas in a city. Now enhanced with Gemini AI, it offers "Hazard Awareness Alerts" that inform drivers of potential hazards and provide actionable insights to reduce risks. This integration provides personalized hazard warnings, helping drivers and local authorities improve road safety at critical points.

Opportunities
How different is it from any of the other existing ideas?
How will it be able to solve the problem?
USP of the proposed solution
Here’s a brief overview of each topic for AcciGuard:

Opportunities:
AcciGuard can play a crucial role in enhancing road safety by leveraging AI to deliver personalized alerts to drivers. It aligns with the global focus on smart city solutions, accident prevention, and real-time data analytics, opening doors for partnerships with municipalities, insurance companies, and transportation agencies seeking proactive safety measures.

How Different from Existing Ideas:
Unlike traditional navigation systems that only indicate traffic or general conditions, AcciGuard's Gemini AI integration provides highly specific, context-aware hazard alerts as drivers approach high-risk zones. It combines real-time location data with AI-generated recommendations, making it more interactive and safety-focused than standard GPS-based apps.

Problem-Solving Approach:
By using AI to analyze and alert drivers about hazards in real time, AcciGuard minimizes the risk of accidents in known hotspots. The app empowers drivers with actionable insights, improving situational awareness and enabling preventive measures before entering potentially dangerous areas.

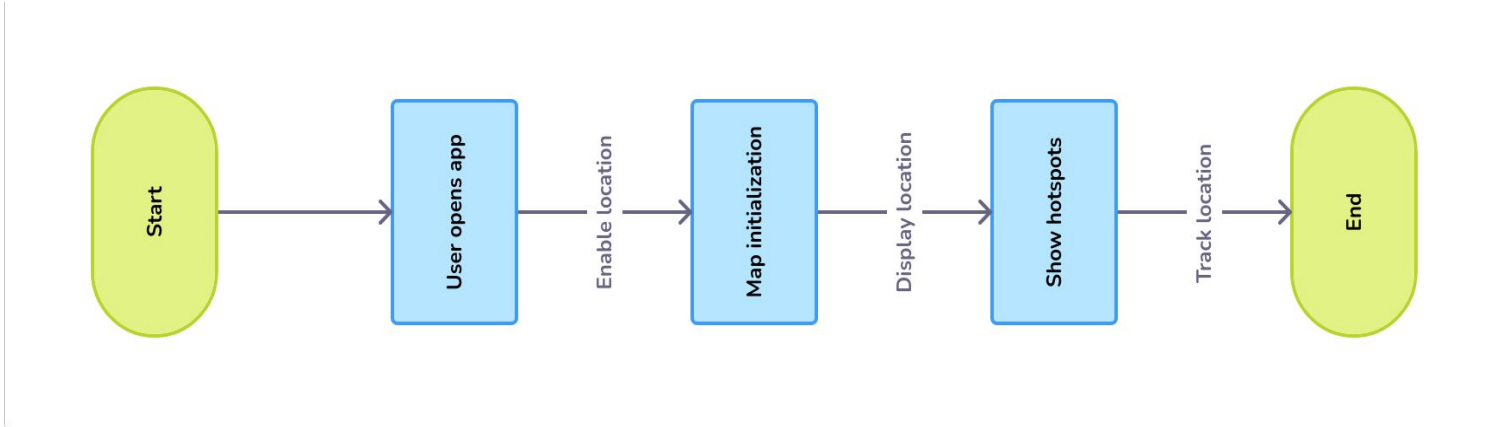
Unique Selling Point (USP):
AcciGuard’s USP lies in its Gemini AI-powered "Hazard Awareness Alerts," which deliver tailored, location-specific hazard insights that go beyond basic warnings. This AI-driven approach helps drivers make informed decisions, contributing to safer driving practices and potentially reducing accidents significantly in critical areas.

List of features offered by the solution

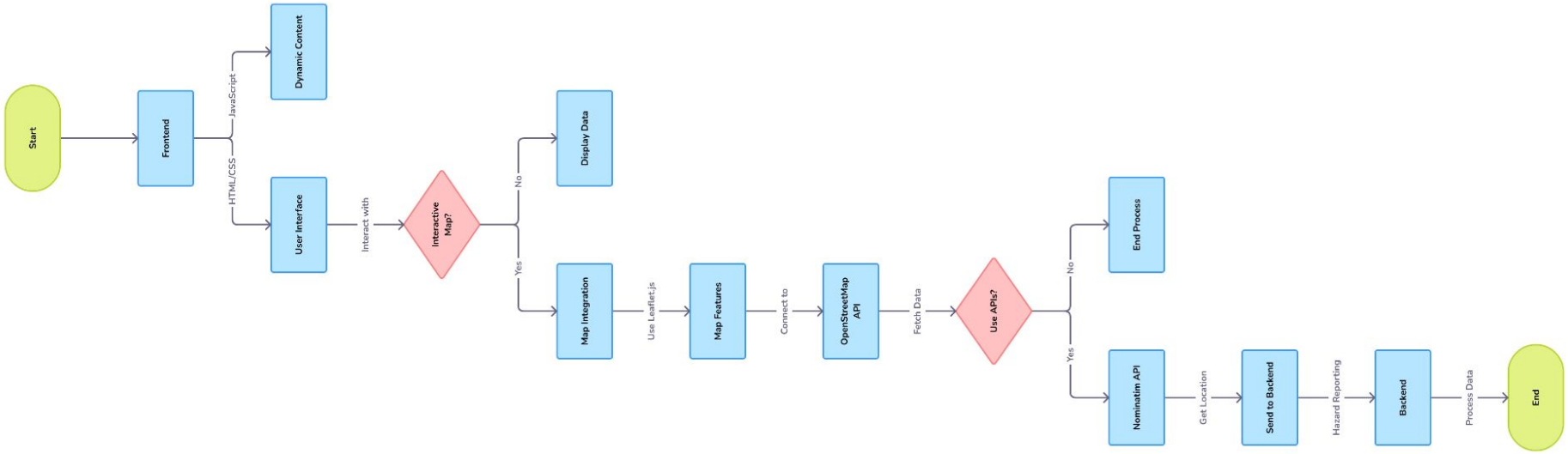
Features

1. **Real-Time Accident Hotspot Alerts**
   AcciGuard warns drivers as they approach known accident-prone areas, promoting safer navigation and helping to reduce collision risks.
2. **AI-Powered Hazard Awareness**
   Through Gemini AI, AcciGuard provides tailored recommendations based on specific hazards (e.g., potholes or sharp turns), offering actionable insights that allow drivers to adjust their speed or route accordingly.
3. **User-Reported Hazards**
   Drivers can report hazards they encounter, such as roadblocks or wet surfaces, enabling the app to generate up-to-date alerts for other users in the area. This community-driven feature enhances real-time data accuracy and supports collective road safety.
4. **Safety Tips and Recommendations**
   AcciGuard offers AI-generated advice to both individual drivers and authorities, suggesting ways to mitigate accident hotspots, which can lead to policy adjustments and improved road conditions.

Process flow diagram or Use-case diagram



Architecture diagram of the proposed solution



Technologies to be used in the solution

1. HTML & CSS
2. JavaScript
3. Leaflet.js
4. OpenStreetMap API
5. Gemini AI API
6. Nominatim API

Use case of Vertext/Gemma/Gemini or any of the Google Gen AI tools used

In the AcciGuard project, **Gemini AI** is used to enhance driver safety by delivering real-time "Hazard Awareness Alerts" as drivers approach accident-prone areas. The AI provides location-specific, actionable recommendations, like speed adjustments for sharp turns or warnings for high-collision zones, improving situational awareness. Gemini AI also generates insights from user-reported hazards, which can be valuable for authorities aiming to enhance road infrastructure and safety. This AI-driven approach differentiates AcciGuard by offering personalized safety guidance, fostering a proactive approach to accident prevention.

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Thank You