MoMe - Momentum for Me

Real-time Travel Risk Monitoring App

Monkey and River Hackathon 2025

Problem Statement

Drivers continuously travel through hazardous weather and situations that are difficult to navigate, for example, hail, heavy rain, flooding, and high winds. Thus, there is a need to receive timely notifications to best avoid these situations. There is a lack of applications that give effective alerts that a user can truly benefit from it in the bets way possible, therefore, avoiding road accidents, vehicle damage, which can lead to an increase in insurance claims.

Key issues:

- No proactive weather hazard alerts for drivers
- Insurance claims surge during storms and hail events
- Limited awareness of real-time risks on travel routes

Our Solution

MoMe is a smart travel assistant that:

- Tracks the driver’s journey in real time (Tracks the user’s real-time geolocation and travel route.)
- Pulls in live weather data to detect risks like hail, rain, wind, and floods (Pulls data from weather APIs to detect hazardous conditions ahead.)
- Alerts users before entering high-risk zones (Sends non-intrusive, timely alerts with clear instructions to reduce risk.)
- Offers a user-friendly, intuitive dashboard
- Integrates (simulated) insurance rewards and gamification.

Goal: Reduce preventable insurance claims and promote safe, informed travel.

Key Features

- **Live GPS route monitoring**
- **Real-time weather alerts** based on forecast + radar data
- **Travel Risk Score** (based on route severity + vehicle vulnerability)
- **Smart alerts** that are actionable and non-intrusive
- **Vehicle profile customization** (e.g., hail-prone vehicles)
- **Historical route risk analysis**
- **Gamified experience** (badges for safe detours, storm avoidance)
- **AI-driven predictions** (rule-based for now)
- **Offline support** with cached hazard data

Tech Stack

Layer	Technology Used	Why this Stack?
Frontend	React (JavaScript) – responsive, modern UI	Lightning-fast UI updates, component-based architecture
Backend	Node.js + Express – RESTful APIs and risk logic	Rapid backend dev with shared JS context
Database	AWS RDS (PostgreSQL or MySQL) – secure, scalable storage	Scalable, real-world deployment
Deployment	AWS (EC2 or Elastic Beanstalk) – full-stack cloud hosting	Scalable, real-world deployment
Maps & Routes	Google Maps API or Leaflet with Geolocation	Free tier with good coverage + hourly forecast
Weather Data	OpenWeatherMap API – real-time weather hazard detection	Free tier with good coverage + hourly forecast
Authentication	JWT (JSON Web Tokens) – secure login system	Easy to implement + secure session handling
CI/CD	GitHub + AWS CodePipeline or simple CLI deploys	

Innovative Aspect:

- Route-aware weather prediction: Instead of generic forecasts, our system analyzes weather conditions along the user's inputted travel path, not just their current location, but the whole journey, and dynamically updates.
- Dynamic risk scoring: We introduce a risk level (Low, Moderate, Severe) based on intensity and proximity of weather events to inform decision-making, and give clear, intuitive advice to the user for the best routes forward.
- Intelligent rerouting: The app suggests safer alternate routes in real-time using traffic, hijacking, and weather data from real users and stored data.
- Offline fallback (optional): Recent weather warnings and cached routes remain accessible even with poor connectivity.
- Detecting areas with high traffic, for example, marathons, festivals, concerts, etc., and giving the best routes.
- Tracks hot zones for carjacking, to help high-risk vehicles from being disadvantaged in these areas.
- Voice Mode

Target User

We designed MoMe with the following personas in mind:

- Urban commuters in storm-prone regions
- Rural and long-distance drivers
- Delivery drivers navigate daily unpredictable conditions

Innovation & Differentiation

What Makes Us Unique	Description
Proactive	Alerts before danger, not after
Customizable	Vehicle profiles to tailor risk logic
Risk Scoring Engine	Combines weather, timing, location

What Makes Us Unique	Description
Offline Mode	Cached hazard data for poor-signal areas
Gamified Insurance Simulation	Points, badges, discounts for safe behavior
Scalable and Inclusive	Multilingual potential (Zulu, Afrikaans, Xhosa)

Real-World Impact

- Helps **reduce insurance claim volumes**
- Increases **driver awareness and safety**
- Enables **insurers to simulate rewards** for good behavior
- Creates **anonymized travel data** for analytics and urban planning

Software Requirement Specifications