REAL-TIME SUPPLY CHAIN VISIBILITY & ETA PREDICTION SYSTEM

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Introduction and Problem Statement :

This project focuses on designing a real-time vehicle tracking system that enhances transparency and efficiency in supply chain operations by providing live location tracking and dynamic Estimated Time of Arrival (ETA) prediction.

Traditional logistics systems lack real-time visibility, leading to delivery delays, poor route monitoring, and limited customer communication. This results in operational inefficiencies and reduced customer satisfaction.

Proposed Solution and Key Features:

We propose a web-based system that:
* Simulates GPS data streams.
* Processes real-time vehicle movement.
* Calculates dynamic Estimated Time of Arrival (ETA).
* Detects and alerts on route deviations.
* Displays all information through an interactive map and a chatbot interface.
* Real-time vehicle location tracking
* Live ETA calculation and updates
* Route deviation alerts (geofencing)
* Interactive chatbot for instant user/customer queries

Technology Stack

Frontend: HTML, CSS, JavaScript, Leaflet.js (Mapping)

Backend: Python, Flask (Web Framework)

Libraries: Geopy (Geocoding/Distance Calculations)

Conclusion

This system provides a scalable, efficient, and user-friendly solution for real-time logistics monitoring and offers significant value by turning reactive logistics into proactive supply chain management. It can be extended for large-scale enterprise applications.