Virtual Internship 6.0

Presented By:
Keerthanraj B

NeuroFleetX: AI-Driven Urban Mobility Optimization

NeuroFleetX is an advanced AI-based urban mobility optimization system designed to revolutionize fleet operations. It achieves this through real-time tracking, automated trip workflows, and intelligent assignment algorithms, ensuring efficiency and responsiveness in dynamic urban environments.

Driving the Future: Our Core Objectives

AI-Powered Urban Mobility

Leveraging artificial intelligence to create more efficient and sustainable transportation networks within cities.

Optimized Trip & Routing

Intelligently assigning trips and optimizing fleet routes to minimize travel time, fuel consumption, and operational costs.

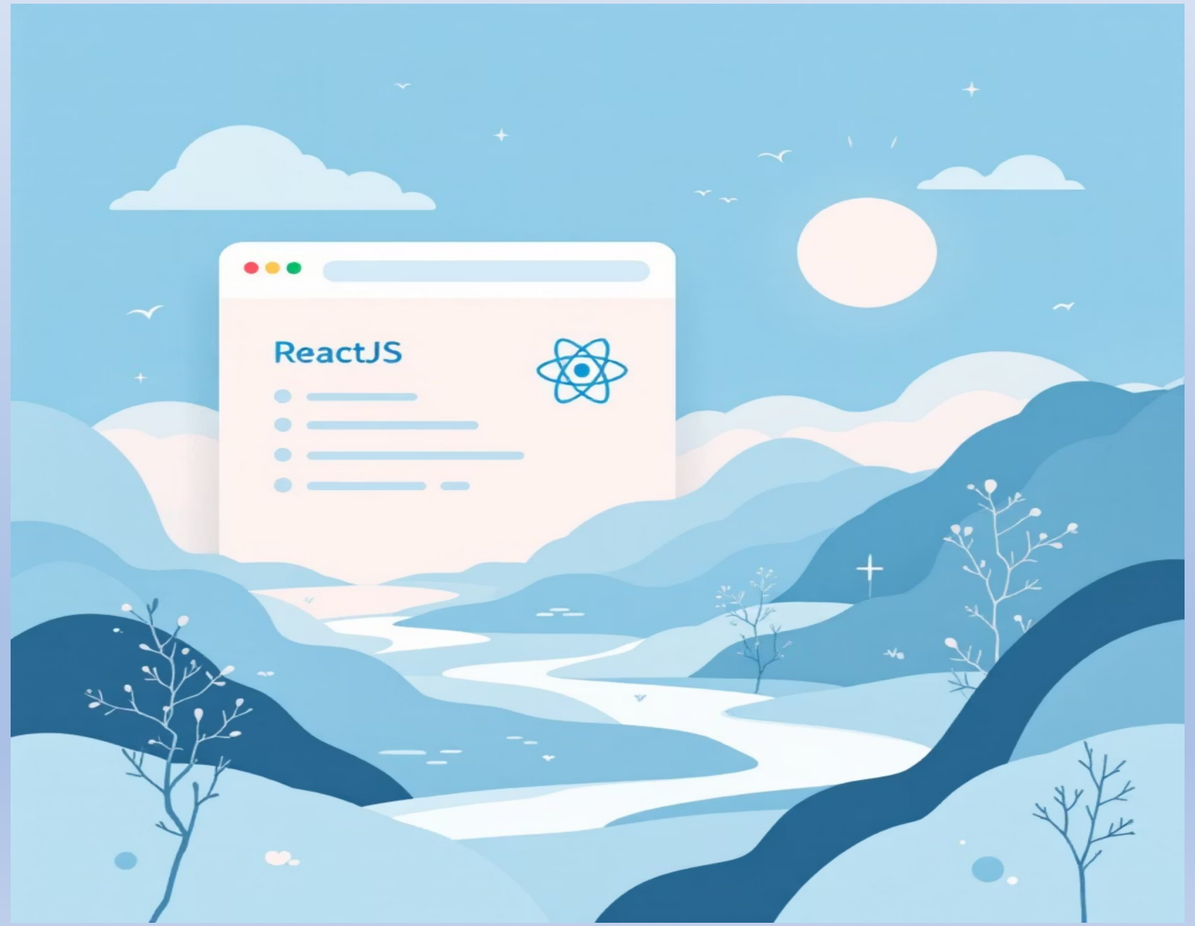
Enhanced Real-Time Visibility

Providing comprehensive, live visibility into vehicle locations and driver statuses for proactive management.

Technology Stack: Powering NeuroFleetX

Frontend & Real-time

- **React.js:** Dynamic and responsive user interfaces.
- **WebSocket:** Enabling instant, bi-directional communication for live updates.
- **Leaflet + OpenStreetMap:** Interactive and detailed live map tracking.



Backend & Data

- **Spring Boot:** Robust and scalable backend services.
- **MongoDB:** Flexible NoSQL database for efficient data storage and retrieval.

Sprint 1: Laying the Foundation

Authentication & Routing

Implemented secure user authentication and role-based access control, ensuring appropriate permissions for different user types.

Vehicle & Driver Management

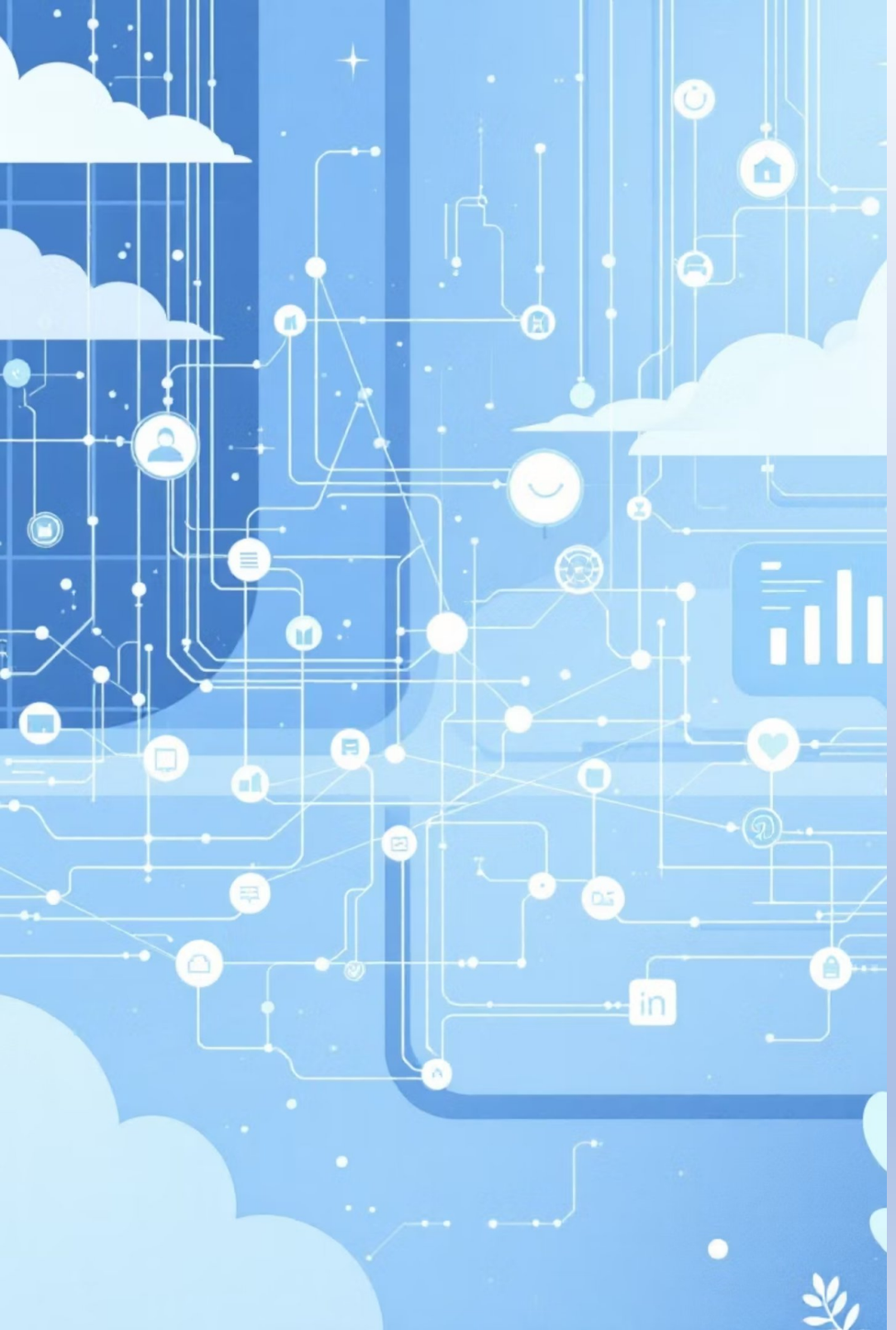
Developed core modules for adding, editing, and managing vehicle and driver profiles.

Dispatcher UI Foundation

Initiated the dispatcher user interface, focusing on intuitive design for efficient fleet oversight.

Initial Trip Workflow

Built the initial framework for trip creation, assignment, and basic workflow management.



Sprint 2: Intelligent Automation & Real-time Capabilities

01

Real-time Live Map Integration

Integrated WebSocket for dynamic, real-time vehicle tracking on an interactive map, providing dispatchers with immediate insights.

02

Auto-Assign AI Engine

Deployed the AI-powered auto-assignment engine, significantly improving efficiency in matching trips to available vehicles and drivers.

03

Analytics Dashboard Development

Created a comprehensive analytics dashboard, offering key performance metrics and operational insights.

04

Driver Trip Lifecycle Interface

Completed the intuitive interface for drivers, managing their entire trip lifecycle from acceptance to completion.

Development Timeline: Week-wise Progress

Weeks 1–2

Requirements gathering, architectural design, and initial UI setup.

Weeks 3–4

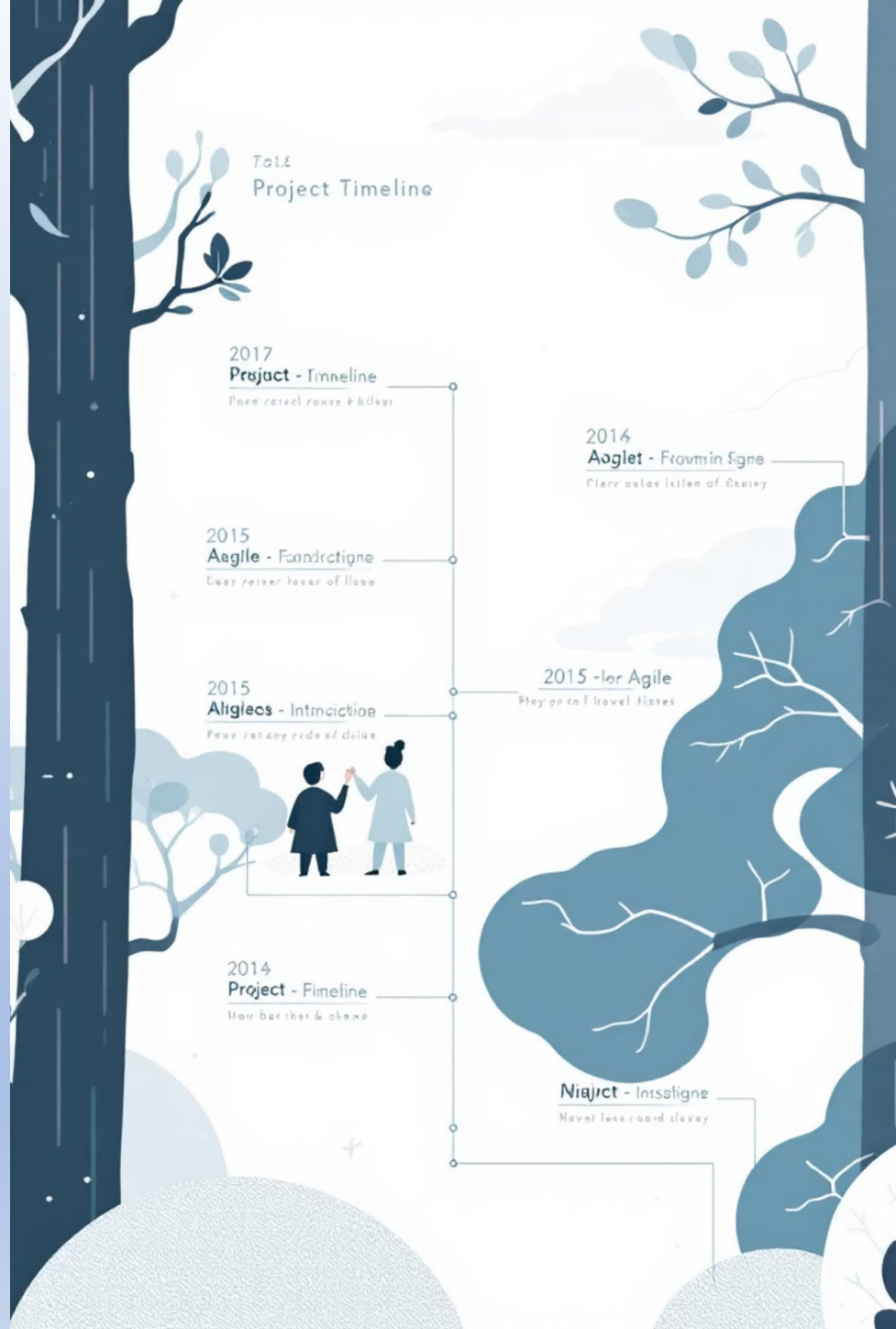
Development of vehicle and driver management modules, and the core trip system.

Weeks 5–6

Integration of real-time updates and live map functionalities.

Weeks 7–8

Finalization of the driver portal, comprehensive testing, and documentation preparation.



Milestone Completion: A Journey of Achievement

1

Milestone 1: Project Kickoff & Architecture

Defined project scope, established core architecture, and initiated development.

2

Milestone 2: Core Modules Prototype

Successful development and testing of initial functional prototypes for key system components.

3

Milestone 3: Mid-term Demonstration

Presented functional progress and gathered feedback for refinement.

4

Milestone 4: Final Submission & Presentation

Delivered the complete NeuroFleetX solution and presented its capabilities.

NeuroFleetX: A Comprehensive System Overview

Admin Portal

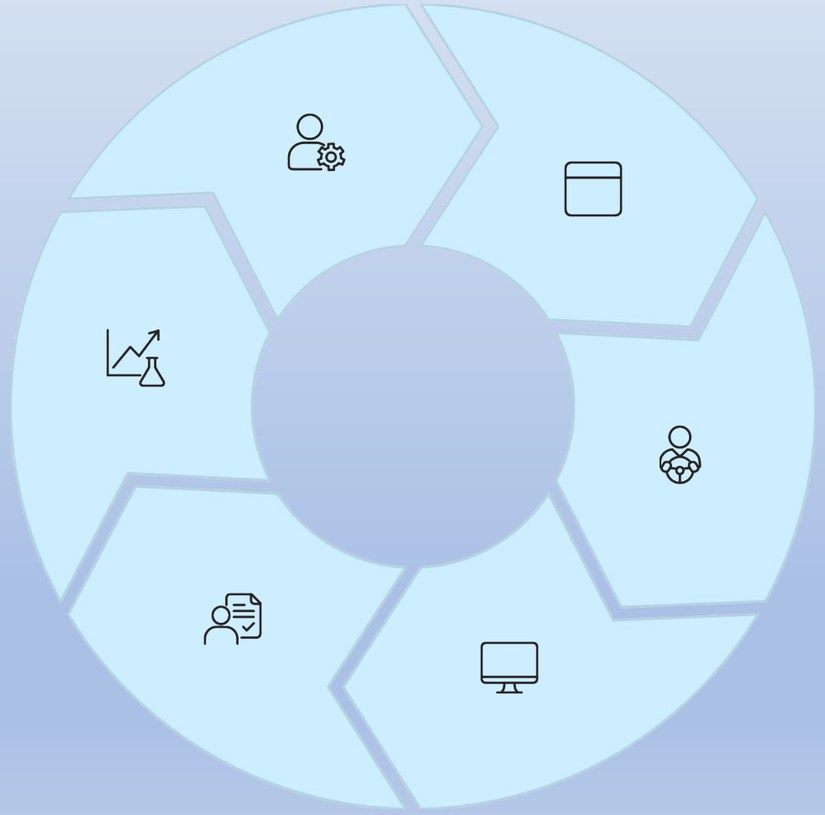
Centralized control and configuration for system administrators.

Performance Analytics

Dashboard displaying key metrics and operational insights.

Intelligent Trip Assignment

AI-powered allocation of tasks to enhance efficiency.



Dispatcher Portal

Real-time fleet monitoring and intelligent trip assignment.

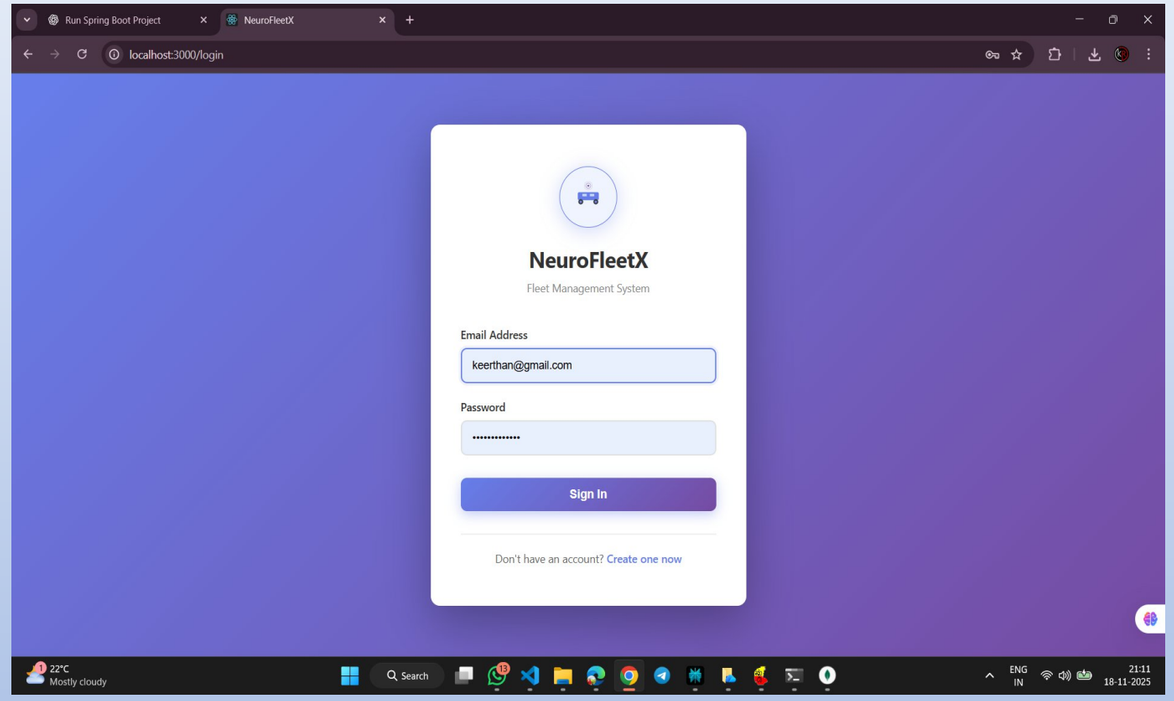
Driver Portal

Intuitive interface for trip management and navigation.

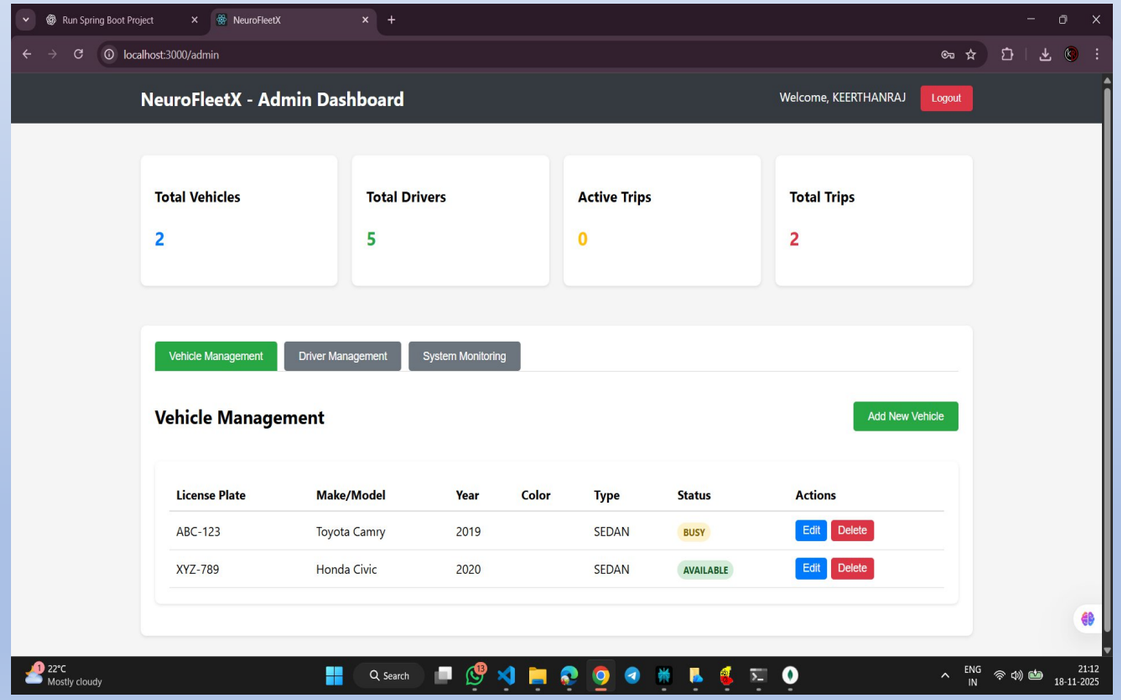
Real-time Fleet Monitoring

Live tracking of vehicles and drivers for optimal oversight.

Screenshots of NeuroFleetX

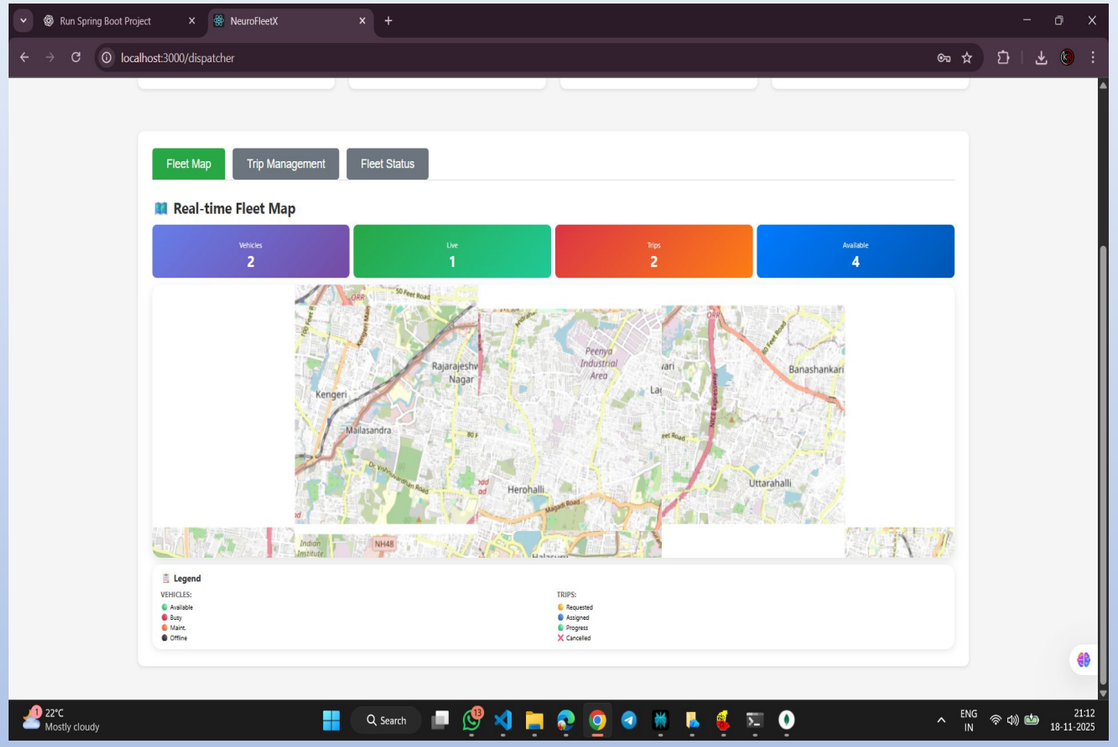


Login Page

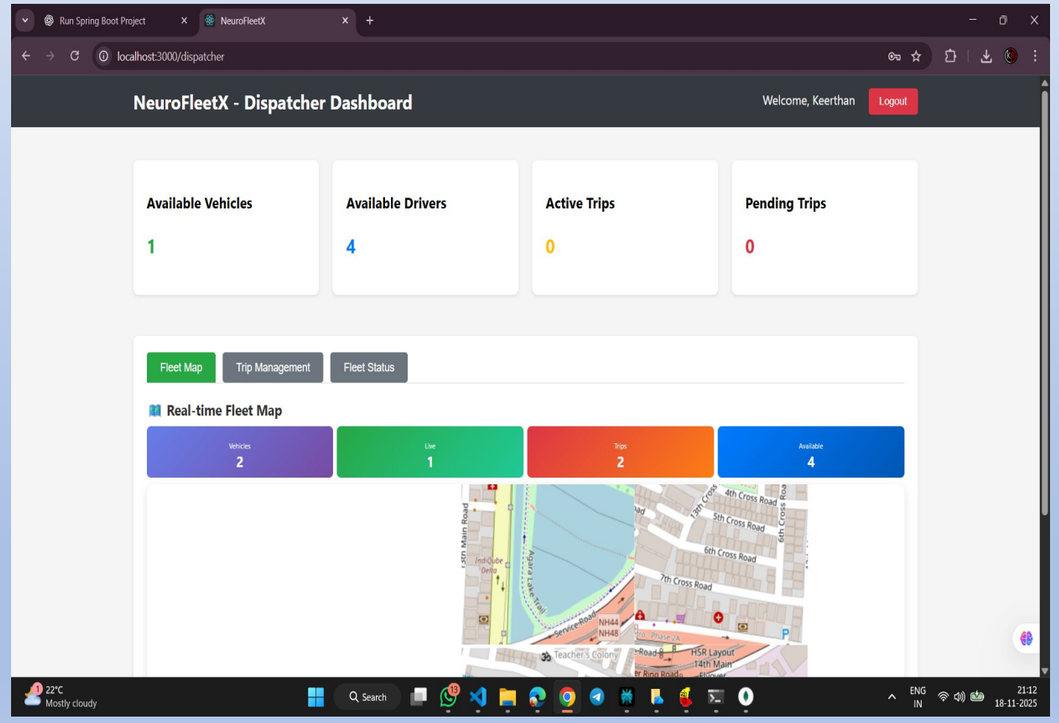


Admin Dashboard

Screenshots of NeuroFleetX

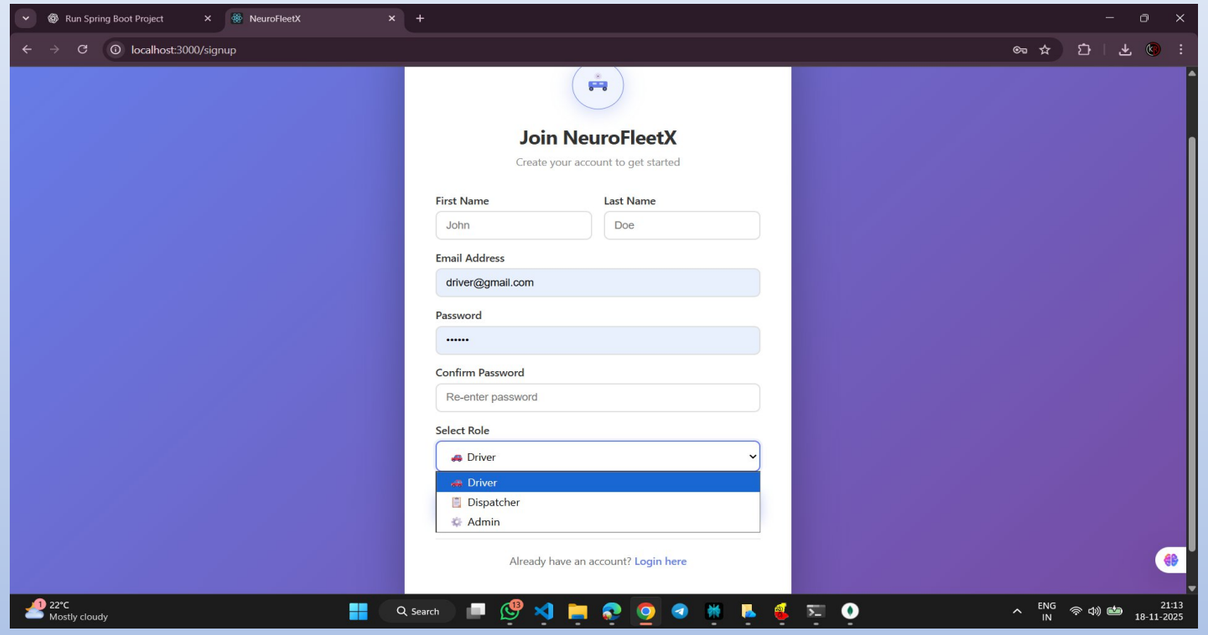


Real-Time Fleet Map

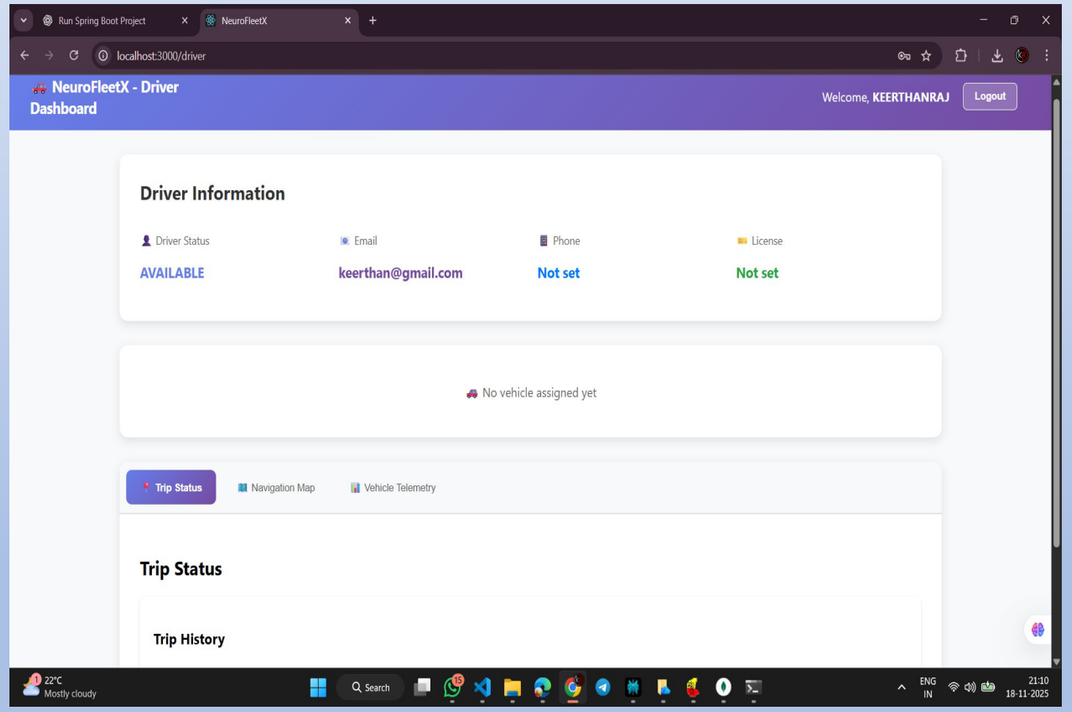


Dispatcher Dashboard

Screenshots of NeuroFleetX



Signup page with different Fields



Driver Dashboard

Conclusion & Heartfelt Acknowledgement

NeuroFleetX successfully stands as a compelling demonstration of an end-to-end urban mobility optimization solution, showcasing the power of AI in enhancing fleet management.

Special Thanks

Our profound gratitude extends to **Infosys Springboard** for providing the invaluable platform and resources, and to our dedicated mentors whose expert guidance and unwavering support were instrumental in bringing NeuroFleetX to fruition.