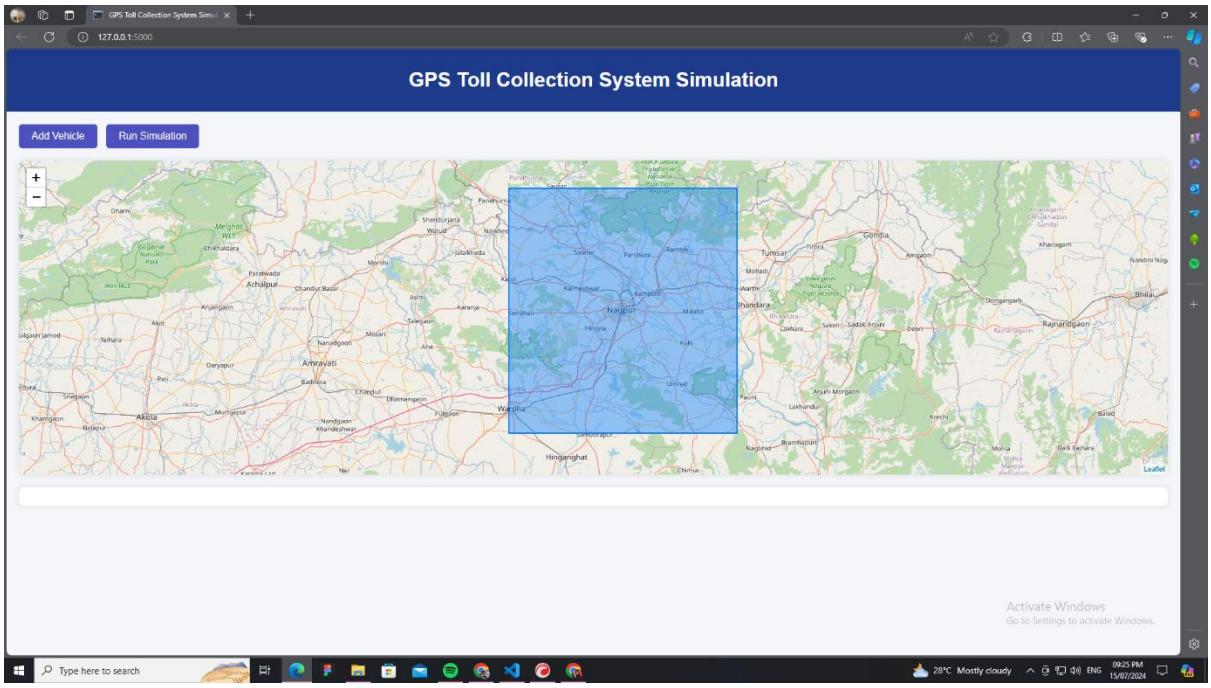
Intel Unnati Program

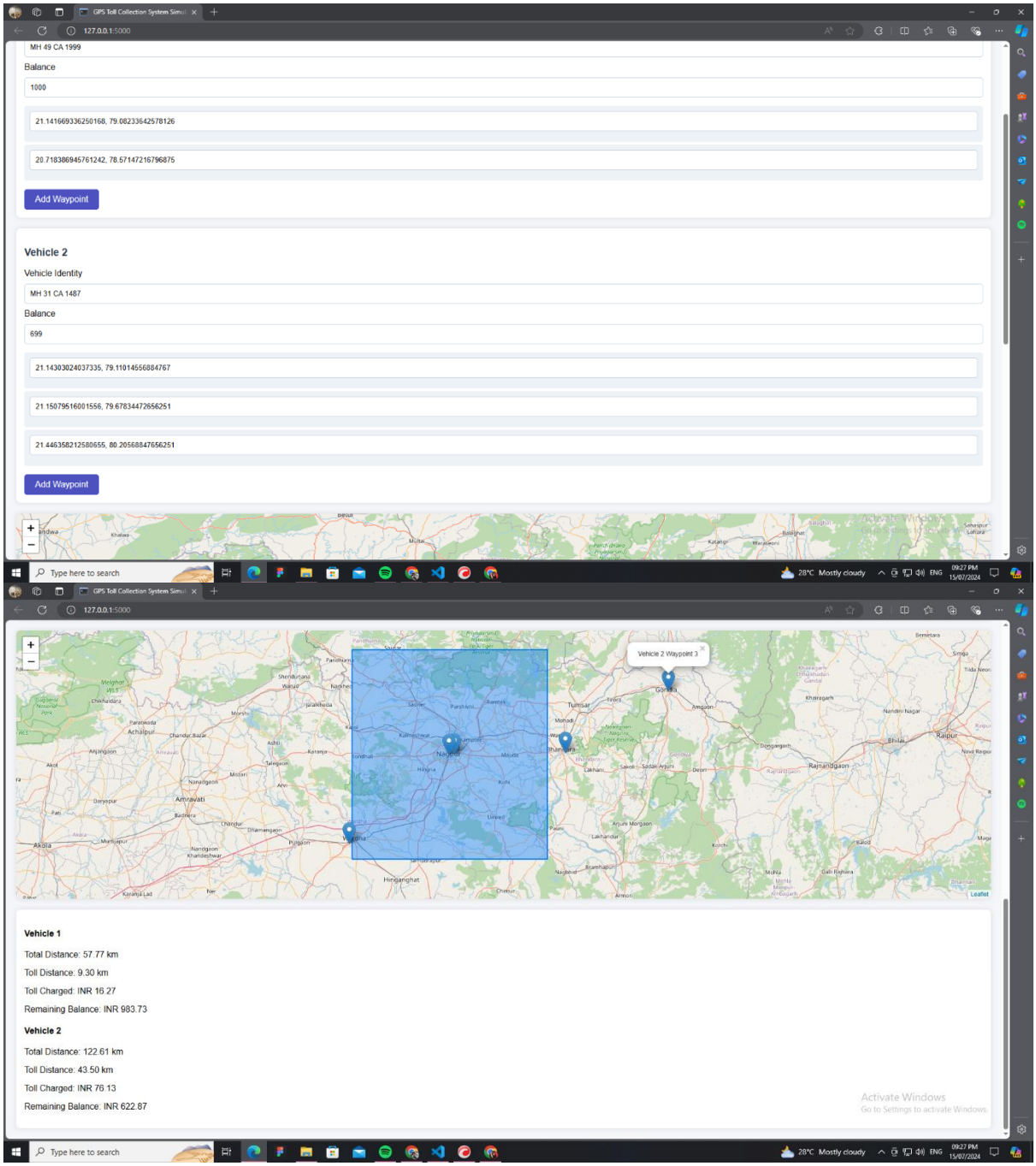
Problem Statement : GPS Toll based System Simulation using Python

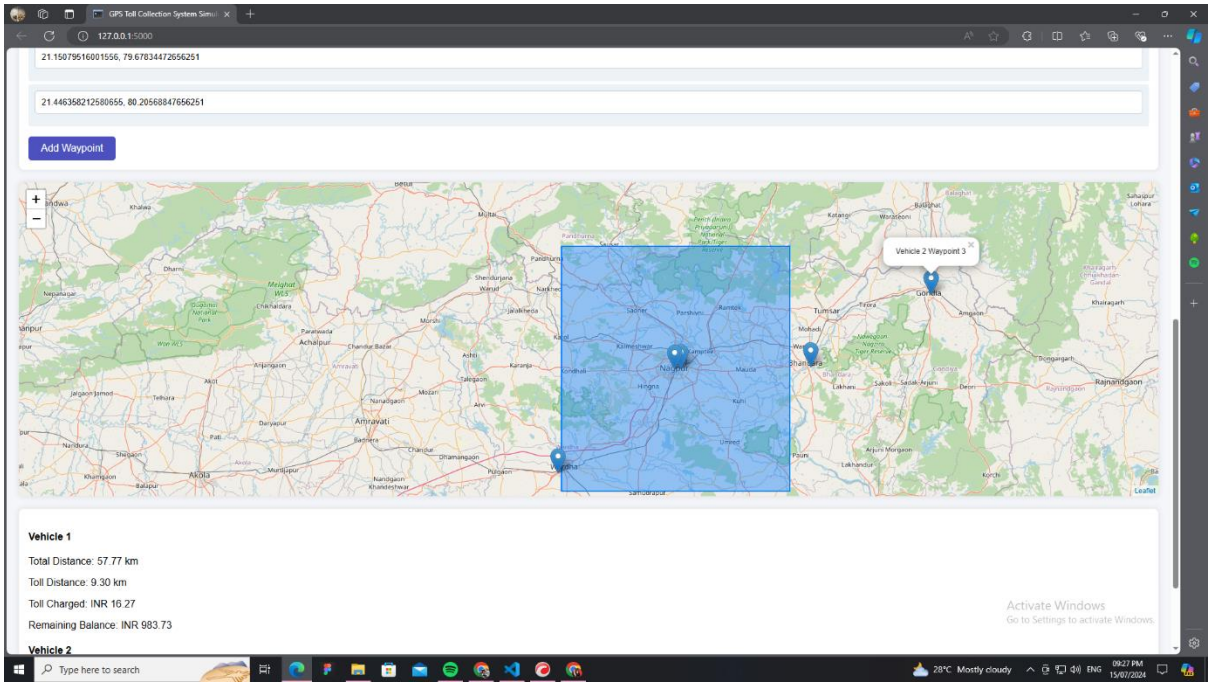
Unique Idea Brief : GPS Toll Collection System Model an online tool that uses GPS data to simulate and examine vehicle tolls. The system generates precise results, tracks vehicle itineraries, and computes tolls inside designated zones. Its responsive, eye-catching design, vehicle management with individual IDs, and dynamic map interface for waypoint setup are among its highlights. Perfect for government organizations, transportation businesses, and researchers.



Features Offered :

1..Mark locations on a map and add waypoints.
2 .Vehicle Management: Register numerous vehicles, each with a distinct ID.
3. Toll Calculation and Simulation: Dynamic computation of toll charges and distance.
4 .User-Friendly Design:** An eye-catching color scheme and a responsive user interface.
5.Detailed Results: Shows charges, remaining balance, toll mileage, and total distance traveled.


MH 49 CA 1999
Balance
1000
21.141669336250168, 79.08233642578126
20.718386945761242, 78.57147216796875
Add Waypoint
Vehicle 2
Vehicle Identity
MH 31 CA 1487
Balance
699
21.14303024037335, 79.11014556884767
21.150795160015556, 79.67834472656251
21.446358212580655, 80.20568847656251
Add Waypoint
Vehicle 2 Waypoint 3
Vehicle 1
Total Distance: 57.77 km
Toll Distance: 9.30 km
Toll Charged: INR 16.27
Remaining Balance: INR 983.73
Vehicle 2
Total Distance: 122.61 km
Toll Distance: 43.50 km
Toll Charged: INR 76.13
Remaining Balance: INR 622.87
Activate Windows
Go to Settings to activate Windows.



Processflow :

1. Map Interaction: On the map, the user places waypoints for driving routes.
2. Vehicle Addition: The user enters the starting balances and vehicle IDs.
3. Run Simulation: The user starts the simulation, and the system starts calculating tolls and distances.
4. Display of Results: The system provides comprehensive results for the travel and toll costs of each vehicle.

Conclusion :

The simulation of the GPS toll collection system successfully illustrates a complete method for tracking vehicles, figuring out tolls, and displaying routes on a map. By utilizing several geospatial tools such as Simpy, Leaflet.js, Flask, and others, the system guarantees precise toll calculation and instantaneous vehicle tracking. This project offers a useful resource for logistics and transportation planning by demonstrating the possibilities of advanced toll management and route optimization.

This project is not to the point, but I'm sure it helped me learn new things. It was a great journey with you all, although I have my exams going. While this program started and ended, I tried to do my best. Thank you once again.