Smart-Toll

Seamless Journeys, Smart Tolls

GPS-Based Toll Collection

- Traditional toll collection involves manual toll booths, leading to congestion and delays.
- The introduction of FASTag has improved toll collection with automatic deductions.
- However, GPS-based toll collection aims to further enhance efficiency and user experience.
- This presentation explores the need for GPS-based toll collection and how privacy protection plays a pivotal role in its implementation.

Need for GPS-Based Toll Collection

GPS-based toll collection addresses some challenges of FASTag:

- Recharge Hassles: FASTag requires users to maintain funds, leading to queues if they forget to top up.
- Multiple Tags: Users with multiple FASTags face confusion and double deductions
- Connectivity Issues: Poor network coverage can lead to transaction failures with FASTag.
- Precise Toll Charges: GPS-based toll collection calculates tolls based on distance traveled, eliminating the need to pay for the entire toll road.

Geolocation API

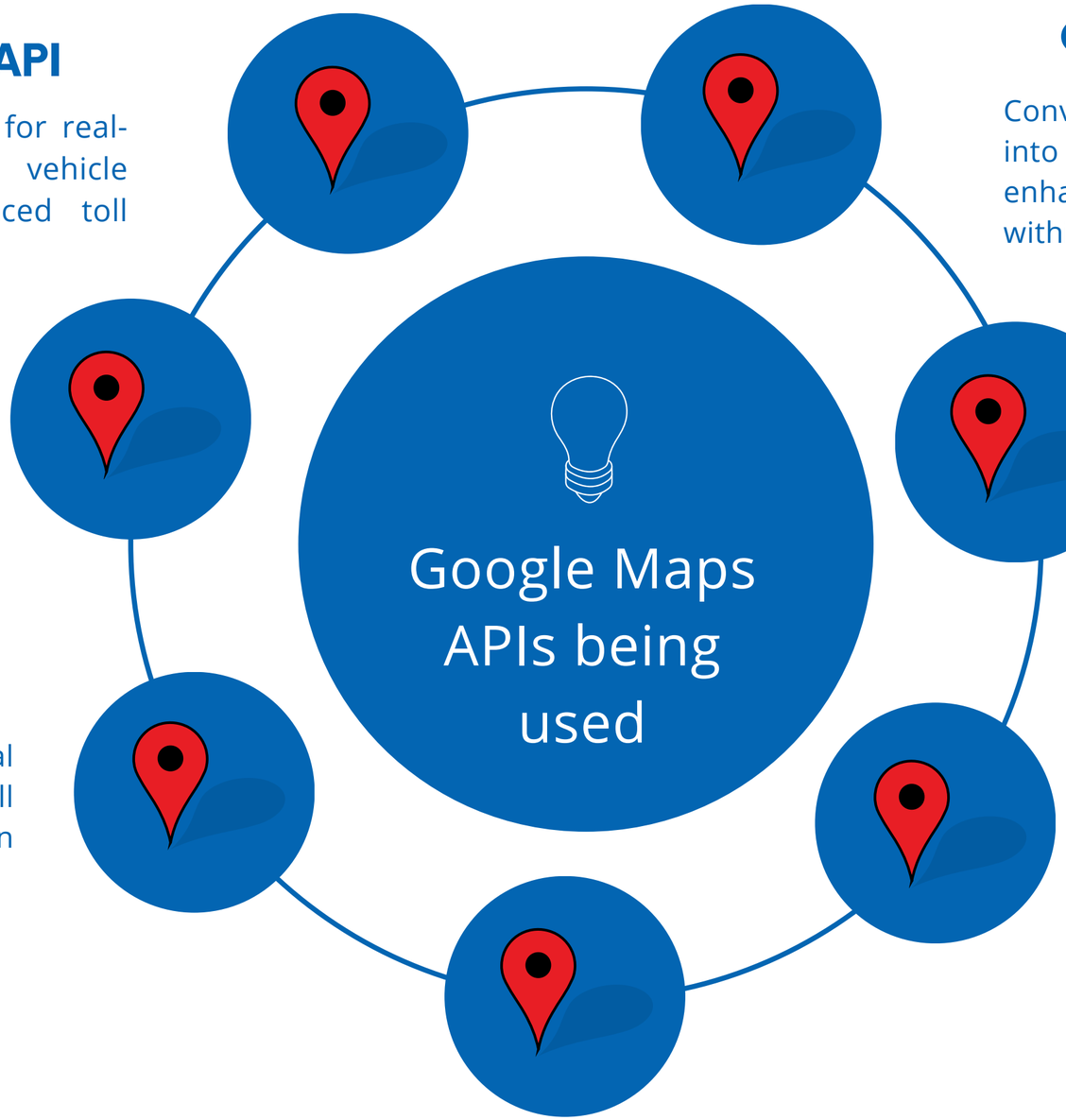
Utilizing Geolocation API for real-time tracking of users' vehicle positions within geofenced toll zones.

Maps SDK

Integrating these SDKs for creating user-friendly, interactive maps displaying toll zones and routes on Android and iOS platforms.

Routes API

Calculates and provides optimal routes to users, considering toll zones and providing navigation instructions.



Geocoding API

Convert addresses or place names into geographic coordinates to enhance location-based services within the GeoToll app.

Directions API

Provides step-by-step navigation directions to guide users through toll zones and ensure efficient routes.

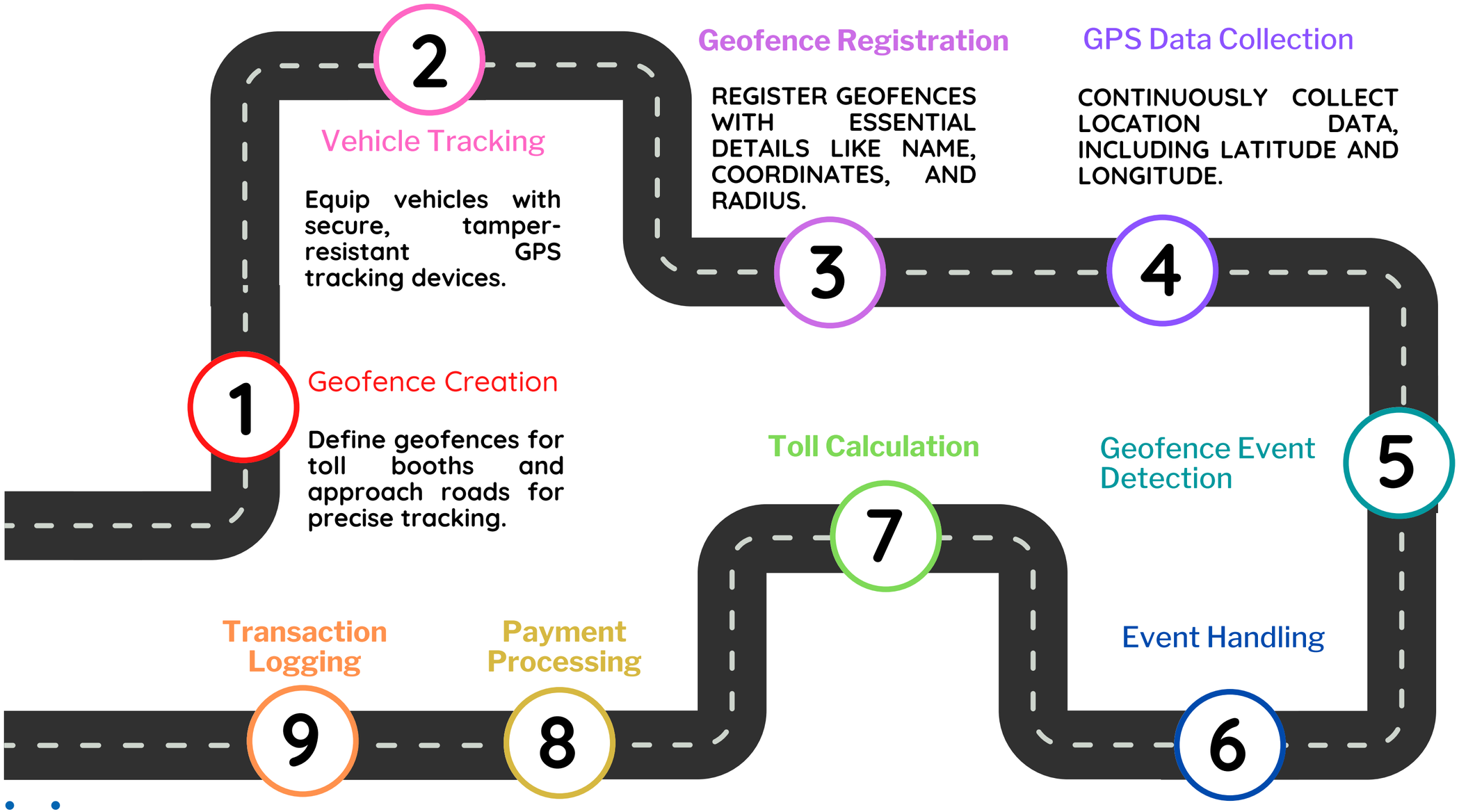
Distance Matrix API

This API to estimates travel distances and times for route planning and toll fee calculations.

Maps JavaScript API

Builds a web-based interface for users to access GeoToll services and view maps in a browser.

BUSINESS LOGIC



Process Flow

1. Vehicle Start and Encrypted GPS Activation

The GPS device activates and collects encrypted location data when the vehicle begins its journey.

3. Toll Zone Recognition and Calculation Initiation

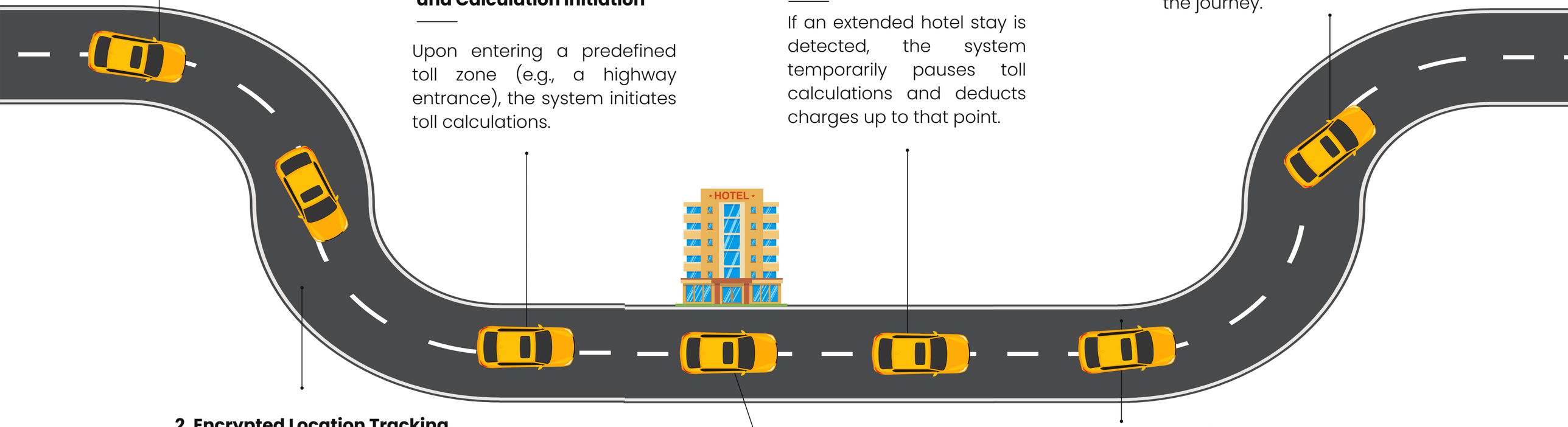
Upon entering a predefined toll zone (e.g., a highway entrance), the system initiates toll calculations.

5. Toll Calculation Pause and Temporary Deduction

If an extended hotel stay is detected, the system temporarily pauses toll calculations and deducts charges up to that point.

8. Destination Arrival and Transaction Summary

Toll calculations are finalized upon reaching the destination or exiting the toll zone, and users receive a transaction summary detailing the toll charges for the journey.



2. Encrypted Location Tracking and Data Transmission

Encrypted location data is continuously transmitted to the central server in real-time.

4. Detection of Extended Car Stop at Hotel

The system monitors GPS data for signs of an extended stop at the hotel , or any other place, detecting the vehicle's stationary status for a predefined period.

6. Toll Calculation Resumes Upon Departure

When the vehicle leaves the hotel premises, the system resumes toll calculations based on the new location data and the point of departure from the hotel.

Thanks.....