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Smart GPS Based Bus Tracking System with Real Time Updates using QR Code

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Abstract: *Public transportation plays a vital role in urban mobility, yet challenges such as unreliable schedules, lack of real-time updates, and seat availability issues often lead to commuter dissatisfaction. To address these challenges, this project presents a Smart GPS-Based Bus Tracking System that provides real-time updates, seat availability status, and efficient delay management using QR codes and proximity sensors. The system leverages GPS technology to continuously track buses and display their real-time locations on a user-friendly mobile or web interface. To enhance commuter convenience, proximity sensors installed on bus seats detect occupancy, ensuring that users can check seat availability before boarding, reducing unnecessary crowding and improving comfort. Additionally, a QR code-based system is implemented for efficient delay management. Passengers can scan QR codes placed at bus stops or inside buses to receive instant updates regarding estimated arrival times, delays, and route deviations. This feature enhances communication between transit operators and passengers, ensuring a more predictable and stress-free commuting experience. This project scopes with sustainable Development Goals comes under SDG-9 (Industry, Innovation and Infrastructure)*

Keywords: Bus Tracking, GPS Technology, Proximity Sensors, Real-Time Updates, QR Code

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