Project Name: -" **EV CHARGING STATION SLOT BOOKING "**

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Abstract— The increasing adoption of electric vehicles (EVs) has highlighted the need for efficient charging infrastructure. However, EV users often face challenges such as long waiting times, unavailability of charging stations, and lack of real-time updates. This paper presents the development of an Electric Vehicle Charging Slot Booking Application,designed to streamline the charging process by enabling users to locate nearby charging stations, check availability, and book slots in advance. The system integrates real-time data analytics, location-based services, and secure payment gateways to enhance user experience and optimize resource utilization.

The application is built using web technologies (React, Node.js), with backend (Node.js with Express for server-side operations). It integrates real-time GPS-based location tracking secure payment gateways to enhance user experience and optimize charging station utilization. For database we used MongoDB for managing data. JSON web tokens for secure user sessions.

This research paper also discusses the technical challenges faced during development, such as data synchronization, backend scalability, and user authentication, along with proposed solutions.