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Wireless EV Charging Integrated with IoT Based Smart Parking Monitoring System

Prof. R. S. Shriwas, Dnyaneshwari More, Yashaswi Jambhulkar, Mayuri Tapake
Shweta Ghawat, Sakshi Meshram
Dr. Rajendra Gode Institute of Technology & Research, Amravati

Abstract: *Our project introduces smart parking stations with wireless chargers, strategically placed every 20-30 km along highways, to address range anxiety for electric vehicle (EV) drivers. These stations use IR sensors to detect parking occupancy and servo motors to automate entry gates, while an ESP8266 Wi-Fi module enables seamless IoT connectivity. Drivers can check real-time availability of parking and charging spots through an on-site display or remotely via the Blynk app. The wireless charging system operates like a phone charging pad—simply parking the car initiates charging without cables, with relays ensuring safe power management. The setup includes surge protection and energy monitoring to track individual vehicle usage. A key feature is the advance booking system, allowing drivers to reserve spots via the app, reducing wait times. Designed for easy installation, these stations could integrate solar panels or smart grids in the future for enhanced sustainability. By making EV charging more convenient and reliable, this solution promotes cleaner transportation and could accelerate the shift toward electric mobility. Affordable and user- friendly, it is suitable for rest stops, gas stations, or dedicated charging hubs*

Keywords: Smart Parking, Wireless Charging, Range Anxiety, IoT Connectivity, User-Friendly App

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