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(57) Abstract :
The proposed invention is a smart charging station for electric vehicles, integrating an advanced deep learning-based charging management system. The system is designed to optimize the charging process intelligently, using historical and real-time data related to the state-of-charge (SOC) and health of the battery, user behavior and preferences, and grid load conditions. The deep learning algorithms allow for predictive safety measures, reducing risks such as overheating or overcharging. The system enhances user experience by offering real-time updates, predictive completion times, and personalized charging schedules. Additionally, it interacts intelligently with the grid, enabling vehicle-to-grid (V2G) services and adjusting charging speed during peak demand periods. The system's adaptive and future-proof design is compatible with evolving battery technology, changes in user behavior, and advancements in grid conditions.

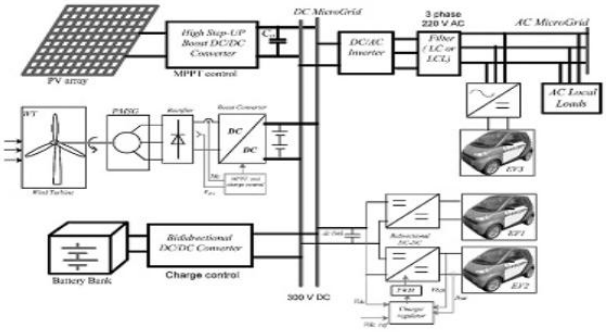

Figure 1: Functional flow diagram of proposed invention

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