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Electric Vehicle Management and Tracking using AI and IoT

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Abstract:
Technology has come a long way, and now many problems can be solved with the help of new developments in the field. With this technology, we can finally put an end to the suffocating effects of air pollution. Air pollution is on the rise due to the widespread use of automobiles powered by internal combustion engines. By replacing internal combustion engines with electric motors, we can end our reliance on polluting fossil fuels and ensure future generations have access to clean air. Electric vehicles are similar to machines in that they are powered by a rechargeable battery. To what extent an EV functions depends on its battery. Voltage, current, and temperature are the indicators of battery health. These factors are used to calculate the state of charge (SOC). These results are tracked by a BMS (Battery Management System). This article details how to create an EV monitoring system that makes use of AI and IoT to collect data from the vehicle's battery and send it to the cloud. Using a cloud-based smartphone app, we can track how well the battery is doing.

☰ Contents

I. Introduction

Electric automobiles (EVs) help reorganize transportation by removing gasoline-powered autos. Daily EV use promotes a cleaner, healthier environment. There will be less air pollution, making it easier to live a carbon-free lifestyle. Because they emit no pollution, EVs will help global warming. The UK and most industrialized nations like the US use EVs to produce emission-free surroundings. Even in poor countries like India, EVs eliminate emissions. Artificial intelligence (AI) will program computers to think and act like humans, eliminating the need for humans. Industry relies on AI substantially. Industry 4.0 is driven by the Internet of Things. The Internet of Things [1] collects and processes data from sensors, networks, actuators, databases, and cutting-edge service delivery mechanisms. AI and IoT will highlight the gap between the virtual and physical worlds, as seen in autonomous vehicles (AVs). This article examines how AI and IoT could benefit self-driving cars [2]. VPPs have power generators, energy storage, and flexible consumers. When correctly implemented, VPP will make EV energy distribution more stable and equitable. This study starts an AI-based EV integration system. This system predicts electric vehicle battery life using federated learning and ANN. The methods in this article reduce EV power fluctuations. [3].

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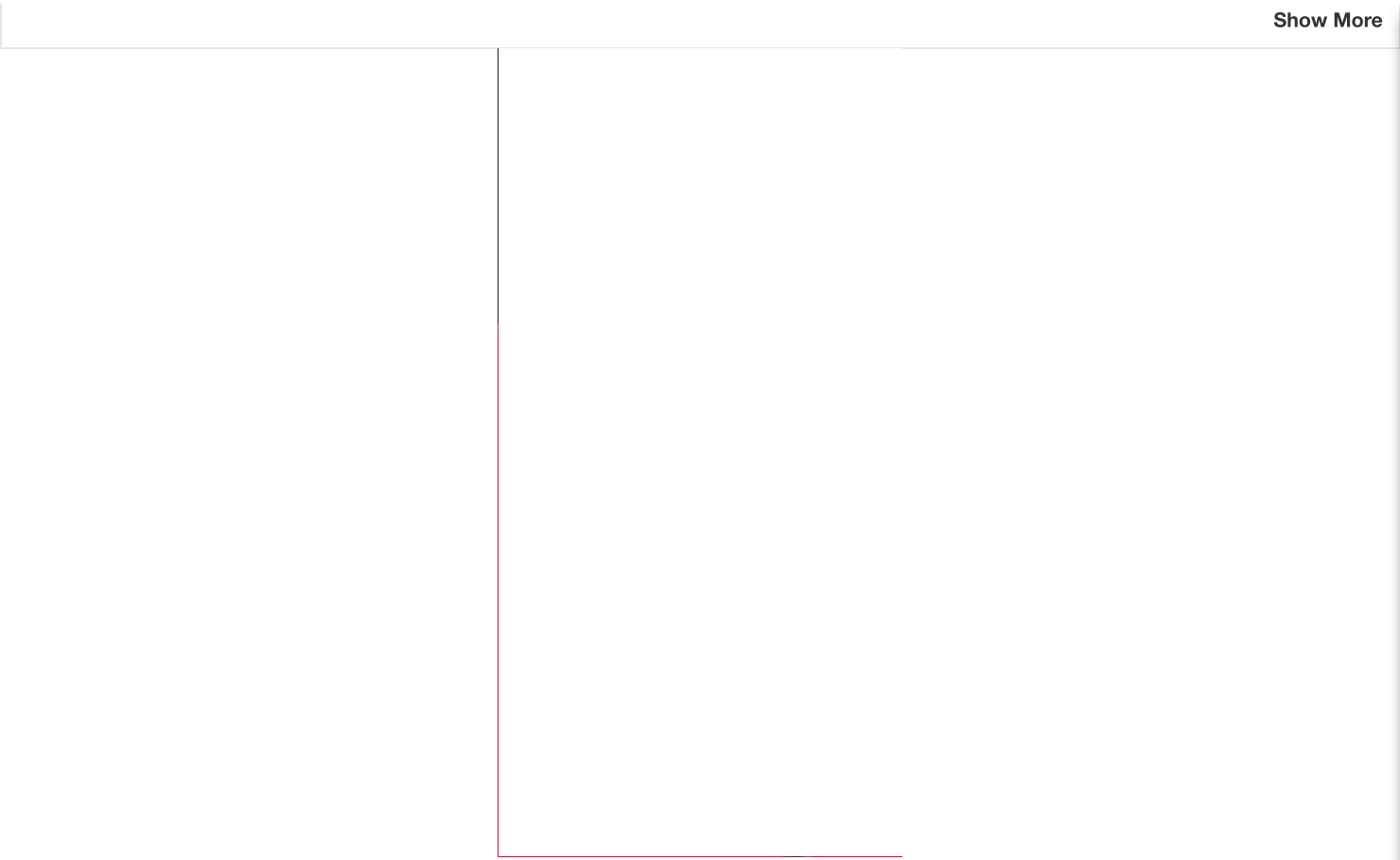
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