

Electric and Autonomous Public Transportation: Challenges and Opportunities

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Abstract: *This research explores the transformative potential of electric and autonomous public transportation in urban environments, employing a multifaceted methodology. Public perception indicates optimism regarding these technologies, albeit with concerns about safety and reliability. Traffic data analysis reveals improved traffic flow and reduced accidents in areas with autonomous vehicle trials, highlighting potential gains in road safety and congestion reduction. Technical assessments underscore the energy efficiency and cost-effectiveness of electric buses, alongside advancements in battery technology, though autonomous vehicles face challenges in adverse weather and complex urban settings. Policy and regulation recommendations emphasize standardized safety regulations and adoption incentives. Case studies demonstrate reduced emissions, improved air quality, and cost-effective public transit. Stakeholder insights emphasize collaboration, while traffic simulations illustrate potential traffic benefits. Public engagement fosters community ownership, and environmental and economic assessments confirm sustainability and cost-effectiveness. This research offers a comprehensive roadmap for policymakers and stakeholders in shaping sustainable and efficient urban transportation systems.*

Keywords: electric and autonomous transportation, urban mobility, public perception

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