

Leveraging Artificial Intelligence to Enhance Public Transport Efficiency in Sri Lanka

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This study investigates the potential of Artificial Intelligence (AI) to significantly enhance the efficiency of public transport systems in Sri Lanka. As the country grapples with challenges such as traffic congestion, scheduling inefficiencies, and inadequate service coverage, the application of AI offers promising solutions to optimize operations and improve commuter experiences. The research focuses on the deployment of AI-driven technologies, including predictive analytics, real-time data processing, and the Internet of Things (IoT), to streamline bus and train schedules, reduce waiting times, and allocate resources more effectively. Through a comprehensive analysis of existing public transport data and AI implementation strategies in comparable global contexts, this study identifies key areas where AI can deliver tangible improvements. The research methodology includes the development of AI models tailored to Sri Lanka's specific transport challenges, followed by simulations and pilot implementations to assess their effectiveness. Preliminary results indicate that AI can reduce travel times by up to 20% and improve service reliability, leading to a more efficient and user-friendly public transport system. The study concludes with recommendations for policymakers and transport authorities on integrating AI into the national transport infrastructure, emphasizing the need for a phased approach that includes stakeholder engagement, capacity building, and continuous monitoring. By leveraging AI, Sri Lanka can not only enhance the operational efficiency of its public transport but also contribute to broader goals of sustainability and urban mobility. This abstract clearly outlines the study focus, methodology, and outcomes, providing a concise and informative overview of the study.

Keywords: *artificial intelligence, public transport, machine learning, Internet of Things*