

Optimization of Railway Transit Operations through the Implementation of an Enterprise Resource Planning (Erp) System: Automating Concessionary Pass (Season Ticket) Issuance in the Sri Lankan Railway Network

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Lack of efficiency and integrity in the season ticket issuing process of Sri Lanka has been a crucial problem for years as most of the daily train travelers use season tickets. Efficient and reliable season ticket issuance is imperative for the Sri Lankan Railway to meet the needs of daily commuters and to improve operational effectiveness. This study proposes the development and implementation of an Enterprise Resource Planning (ERP) system to automate the season ticket issuing process, addressing the current inefficiencies and integrity issues prevalent in the manual system. The study will begin with a comprehensive analysis of the current season ticket issuing process, with the identified bottlenecks and areas for improvement. Based on the findings, the ERP system will be developed using agile methodology for iterative development, database management systems for data storage, and web technologies for User Interface (UI) design by incorporating features such as online application submission, digital document management, and automated billing for government departments. Moreover, the ERP system's frontend components will be built using React.js by November to provide a rich and responsive user experience. The database will be created using Firebase and allow data to be stored and synchronized in real time. Selenium will be used for automated testing, specifically UI testing across several browsers and devices. The implementation of the ERP system is expected to significantly enhance the efficiency and integrity of the season ticket issuing process including reduced waiting times and streamlined application procedures. Moreover, the automated billing system will minimize errors and ensure accurate accounting for government departments. Railway staff should be trained through workshops to make them technically savvy to operate the system. During the pilot deployment period, beta users faced some challenges in admitting the system and proper guidance and training avoided such challenges.

Keywords: ERP system, Concessionary Pass/Season Ticket, Sri Lankan Railway, Automation, Efficiency

Special thanks to the authorized personnel in Sri Lankan Railways, who helped in this study.