Design and Implementation of an Advanced Bus Ticketing System using RFID and GSM Technology

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Abstract: *The rapid advancement of smart city technologies has increased the need for efficient and automated public transportation systems. This project focuses on the design and implementation of an advanced bus system with automatic ticketing, student pass facility, balance calculation, and SMS alert using RFID and GSM technologies. The proposed system enables passengers to travel cashless by scanning an RFID card, after which the fare is automatically calculated and deducted based on the destination. Student pass holders can verify pass validity electronically, reducing manual checking and misuse. An LCD displays ticket and balance information, while SMS alerts notify users about fare details, remaining balance, low balance warnings, and pass expiry. This system minimizes human intervention, reduces waiting time, improves transparency, and enhances overall passenger convenience, making it suitable for modern public transportation systems*

Keywords*:* RFID, Automatic Ticketing System, Student Pass, GSM Module, Cashless Transportation, Smart Bus System, SMS Alert.