

## **Paperless automated railway ticketing system for Sri Lanka using the electronic national identity card**

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### **Abstract**

Trains are a popular mode of public transport used by daily commuters in Sri Lanka. The paper based ticket is still commonly used for train travel in many countries, including Sri Lanka. For each trip, a commuter is required to purchase a paper ticket, which is 0.74 mm thick (equivalent to the thickness of 15 A4 sheets) and 1.04 g in weight. The average number of tickets issued per month from the Colombo Fort railway station is above 300,000. The production cost per ticket is Rs. 10. The ticket is collected soon after the commuter exits a station, which is then discarded. At present, some countries use a debit card exclusively for train travel as a paperless method. The aim of this research is to replace the existing paper based train ticketing system of Sri Lanka with an automated paperless ticketing system which enables a reduction of the annual paper waste generation and would be convenient for both the commuters and the staff of the Railway Department. From the beginning of 2016, it is proposed that the Electronic National Identity Card (e-NIC) to be used in Sri Lanka. The research presents an alternative system of paperless ticketing where the e-NIC is used to replace the traditional train ticket, thereby decreasing the amount of paper waste generated and increasing the efficiency of the purchase and the use of train tickets. In addition to eliminating the production cost of tickets, the proposed method enables the reduction of the time spent on ticket purchase, increase in convenience and decrease of security issues related to the train tickets. This would help to prevent ticket fraud. The system, which can be identified as a Green Computing Technique is developed using Java and MySQL database. This is proposed to be used in Sri Lanka, and can be implemented globally wherever the e-NIC is available.

**Keywords:** Automated train ticketing, paperless ticketing, paper wastage, electronic national identity card, green computing, Java