

# **IMPLEMENTATION OF RADIO FREQUENCY IDENTIFICATION FOR OPTIMIZATION OF LIBRARY SERVICES**

*(Case Study: Rainbow Library)*

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## **ABSTRACT**

*The Rainbow Library in Jlamprang Village, Wonosobo Regency, faces challenges in its administrative management, which still relies on a conventional recording system with catalog cards and registers. This results in inefficient and error-prone book identification, member data management, visit recording, and borrowing and returning transactions. This research aims to develop a library information system based on Radio Frequency Identification (RFID) technology that integrates RFID tags on books and membership cards to automate the identification process and expedite library transactions. Data collection methods included observation, interviews, and literature review, while the system development utilized a waterfall model approach. Test results demonstrated a system reliability rate of 98% across 50 scenarios, with significant improvements in time efficiency: 83.33% faster borrowing (from 180 seconds to 30 seconds), 88.19% faster returns (from 127 seconds to 15 seconds), and 90% faster visit recording (from 60 seconds to 6 seconds). The study concluded that the implementation of RFID technology has proven effective in optimizing library services through process automation, increased recording accuracy, reduced waiting times, and minimized data errors.*

**Keywords:** *RFID, Library Information System, Service Optimization, Efficiency, Automation.*