

Smart Rationing System

**Vedant Pandit Jadhav¹, Harshada Bharat Kadam²,
Manasi Digambar Pandit³, Prof. G. P. Brahmkar**

Student, Department of Electronics and Telecommunication
Professor, Department of Electronics and Telecommunication
NBN Sinhgad Technical Institute Campus, Pune, India

Abstract: *The Smart Ration Distribution System is an embedded, hardware-based solution designed to eliminate corruption, manual errors, and inefficiencies in the Public Distribution System (PDS). It replaces the traditional paper-based process with a technology-driven setup that uses RFID smart cards, microcontrollers, and LCD displays to automate the identification of beneficiaries and distribution of food grains. Each user is provided with a unique RFID card containing personal details and monthly entitlements. At the ration shop, the card is scanned to access real-time data, allowing users to view available stock and remaining ration balance on the LCD screen. Through simple push-button inputs, users can select the quantity of items they wish to collect. The system then automatically updates the central record, ensuring accurate, tamper-proof data and eliminating fake entries or unauthorized claims. Operating in offline mode, it is both cost-effective and suitable for rural areas. This system promotes transparency, security, and efficiency, ensuring that government subsidies reach only the rightful beneficiaries. Future integrations may include biometric authentication and blockchain technology for improved scalability and security.*

Keywords: Smart Ration System, RFID Smart card, Microcontroller, LCD Display

