

Smart Rationing System Using ARM 7

A.N.Madur¹, P.N.Matte²

¹G.H.Raisoni College of Engineering & Management, Chas, Ahmednagar, India.

² Department of Electronics and Telecommunication Engineering.

Abstract

Today's public distribution involves corruption & leakage of goods. Because of this, the food article doesn't reach to poor people completely. It happens because the PDS system is manual. Actual quality food doesn't reach to people, even they didn't know quantity of food assign to them by government. In this paper we propose to replace manual PDS with smart PDS at ration shop. The apparatus we are designing is cost effective and can prove helpful to Govt. of India's PDS System and to various other disciplines. In terms of feasibility it is a vast concept and an interesting task to perform and totally feasible in all aspects technical as well as other. Automation in the distribution field allows utilities to implement flexible control of distribution systems, which can be used to enhance efficiency, reliability, and quality of service.

Keywords- ARM7, GSM, RFID, PDS.

1. INTRODUCTION

Computerization of PDS means smart PDS, would be taken up as a Mission Mode Project (MMP) under the National e-Governance Plan (NeGP) (July 2007). In this paper to minimize drawback of TPDS, it is replaced with smart PDS i.e. automation of PDS done. The word Automation means doing the particular task automatically in a sequence with faster operation rate. This requires the use of microprocessor together with communication network and some relevant software programming. Application of automation in distribution system level can be define as automatically monitoring, protecting and controlling operations through intelligent electronic devices. The advantages of automation application at distribution level are distribution automation enhances the efficiency and productivity of a utility, and also provides quality and reliable supply to the consumers.

2. LITERATURE SURVEY

2.1 IT based solution approach for PDS:

The State Government can provide the grain through PDS at the notified subsidized price or provide cash transfers of the subsidy amount to

designated BPL households. It has also been recommended that when a cash transfer is made, it should be to a bank account in the name of the oldest women member of the household. A significant part of the challenges in the PDS system emanates from Bogus (ration cards belonging to fictitious families) and Shadow (genuine ration cards used by someone else) ration cards in the system. If the bogus cards can be substantially weeded out and a mechanism put in place to positively confirm and track the individual beneficiary off take on a monthly basis, the problems relating to PDS leakages, Transparency and Transportation would get resolved, as leakage would become more difficult to hide.[8]

2.2 UID & PDS System:

After digitization of requisite information, enrolment of the individuals is carried out as per the UID requirements. The digitized database will contain ten finger biometrics and photographs of all family members. This enrolled data would be sent to the UIDAI (Unique Identity Authority of India) for de-duplication and issuance of a UID, which will be printed on the ration card for each member of the family. Appropriate action can be taken against families that have a resident who has appeared in another ration card. Reasons for family members do are not enrolled has to be determined followed by appropriate action. The inclusion of all families in the beneficiary database is important for an effective elimination of Shadow and Bogus cards. A strategy to issue APL cards by linking it to other forms of benefits including LPG needs to be adopted to make the beneficiary database comprehensive. To support enrolment into the UID database, the central government will mandate that the UID numbers of each family member should be recorded in the ration card and the database should be made available. The UID program will create a database of all unique residents in the country. The PDS system currently serves the largest number of residents in India and efforts are underway to improve the efficiency of the system.

The benefits of UIDAI system are improved coverage & data updating. The UID program, the benefits consists are Better Identification, off take Authentication, Legislative Support, Technology

Support, Duplicate and Ghost Detection, Domestic LPG Linkage, Support for PDS reform.[8]

2.3 Distribution system automation:

The word Automation means doing the particular task automatically in a sequence with faster operation rate. The benefits of distribution automation system implementation can be classified in three major areas are as follows:

- Operational & Maintenance benefits

1. Improved reliability by reducing outage duration using auto restoration scheme
2. Reduced man hour and man power
3. Accurate and useful planning and operational data information
5. Better fault detection and diagnostic analysis
6. Better management of system and component loading

- Financial benefits

1. Increased revenue due to quick restoration
2. Improved utilization of system capacity
3. Customer retention for improved quality of supply

- Customer related benefits

1. Better service reliability
2. Reduce interruption cost for Industrial/Commercial customers
3. Better quality of supply.[7].

2.4 Replacing PDS with cash transfer:

That the average poor household holding a BPL or AAY ration card purchases less than half the TPDS grains allowed indicates serious dysfunctions in the system. One would expect that few households eligible for a cash transfer would abstain from collecting money. Thus, the underutilisation problem would be resolved. As is the case now, many ration cardholders only have access to one FPS and therefore little ability to avoid cheating and bad service. With cash, they would be able to choose freely, not only which shop to buy grain from, but also the quality and variety of their preference. Cash transfers will also give households more flexibility to buy food items other than rice and wheat, which may encourage more balanced and nutritious diets. Perhaps most importantly, migrant workers, who are presently not allowed to use ration cards outside their place of residence, would be able to withdraw cash anywhere [1].

The Case for Cash Transfers: The main advantages with the differentiated CT scheme suggested here are that

- (1) about two-thirds of all households can be covered,
- (2) the transfers to the poorest are huge compared to the actual transfers embedded in the TPDS,
- (3) The impact on income distribution is progressive,
- (4) The risk of large exclusion errors is eliminated,

(5) The scope for corruption and fraud is diminished,

(6) Operational costs are slashed,

(7) No poverty lines

(8) No central caps are required

(9) Objections from the one-third of households left out

would probably be muted as they may prefer not to be brandished as poor, and

(10)The overall budget can be held at the level of the present TPDS.

The most frequent argument against a CT scheme was, argued that in order to receive a transfer, households need not only a unique digitised identity card, but also a bank or a post office account, which about half the rural population in India lacks, according to the National Bank for Agriculture and Rural Development (NABARD). However, such accounts are no longer necessary for being able to receive cash.

2.5 Strengthening of PDS and Capacity Building

This Scheme has three components:-

(a) Curbing leakages/diversion of Food grains meant for TPDS by use of new technologies.

(b) Generating awareness amongst TPDS beneficiaries about their entitlement and redress mechanism.

(c) Capacity building

(c i) PDS-Evaluation, Monitoring & Research

(c ii) PDS-Training

The Department of Food & Public Distribution is operating the following eight Central Sector Plan Schemes and four IEBR Schemes including new schemes introduced in 11th Five Year Plan (2007-12).

I. Central sector schemes:

(1) Construction of Godowns and Railway Sidings in the country including North Eastern Region & Sikkim by Food Corporation of India/State Govts.

(2) Integrated Information System for Food grains Management (IISFM)

(3) Computerisation of Public Distribution System (PDS) Operations

(4) Strengthening of Public Distribution System and Capacity Building:

(5) National Sugar Institute, Kanpur

(6) Consultancies, Training and Research

(7) Warehousing Development & Regulatory Authority

(8) Village Grain Bank Scheme

II. Internal and extra budgetary resources (i.e.b.r.)schemes:

(i) Construction of Godowns by CWC

(ii) Purchase of Railway Wagons

(iii) Investment in Rail side Warehouses through subsidiary 'CRWC' Ltd.

(iv) Contribution to the Share Capital of the State warehousing Corporations[2]

2.6 Web enabled ration distribution system:

To overcome one of the corruption problem involve in ration distribution system through Hooper valve to control openings of ration outlet etc. no involvement of any person directly with distribution system, also whether kerosene disposition is also sensed at web site using proximity sensor through web giving a clear idea about delivery of it.[3]

2.7 Bar-coded ration cards:

Issue of new BARCODED RATION CARDS having 2D barcode on it. BARCODE contains some crucial information of Ration card.

i) The BIOMETRIC data of at least 1 member/card is captured as per ISO standard (ISO 19794-4 and 19794-2 (minutiae))

ii) Establishing the identity of a person through convergence of Ration Card data with EPIC, BPL, GAS, Electricity, Job Cards and Khedutkhatedar .Food coupons to the beneficiaries to avail the commodity covered in Public Distribution System. The food coupons can be printed from e-gram/cyber café on biometric verification of beneficiaries.

3. Main Problems in The Conventional PDS System:

- i) Illegal Usage
- ii) Cannot able to get the accurate quantity of supplies
- iii) Over crowd
- iv) Cannot able to get the material at any time
- v) Processing speed is slow
- vi) Selection of households – Targeting
- vii) Bogus cards

viii) Hijacking of ration cards

ix) Poor quality of supplies

x) More than the prescribed rates are charged

xi) Ration shop do not open every day, nor do they keep regular hours. Even on the days that the shop is open, ration card holders stand in long queues.

xii) FPS dealer may declare “No Stock “even when sufficient stock is available.

xiii) Due to the human operations the working hours of the ration shops are restricted; so that the user is unable to get the material at any time i.e. 24 * 7

To overcome those problems, we are going for the automation of ration shop

FPS automation cover following:

a. Beneficiary Authentication – the objective is to ensure that TPDS commodities are issued to the intended eligible beneficiary only. This authentication can be done by using suitable technology which is feasible at the FPS level.

b. Commodity Issuance – In order to ensure that right quantity is issued to the intended beneficiaries, commodity issuance transactions may need to be automated. This would bring transparency and also help the States/UTs in recording and reporting the stock position at a FPS in an automated manner.

4. Proposed System

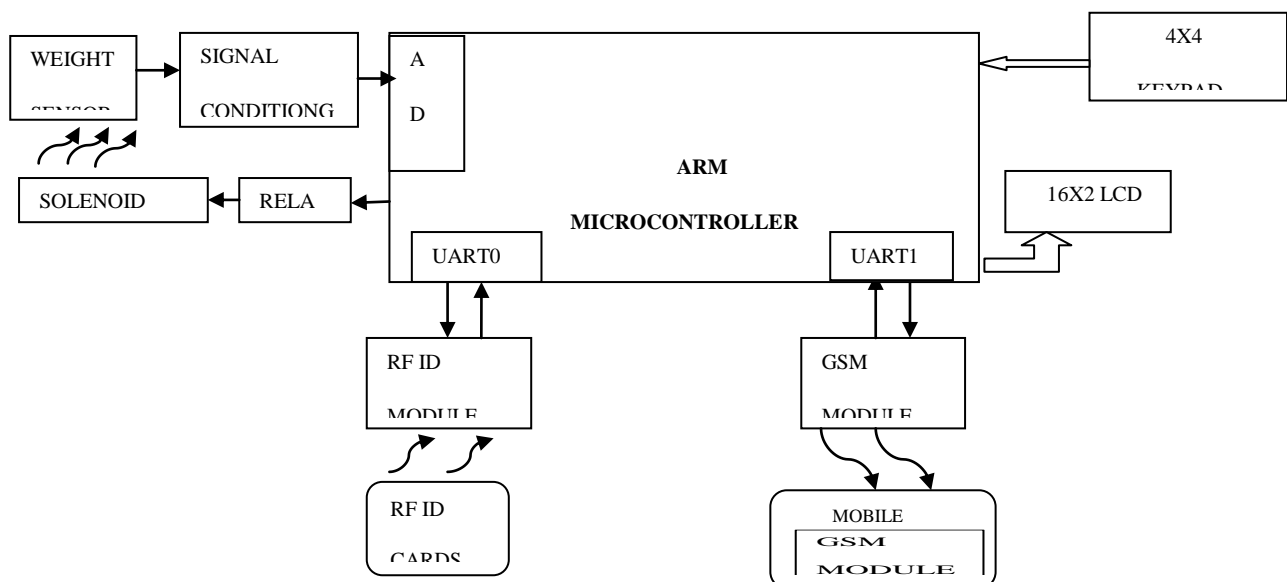


Fig 3.1: Block Diagram of Proposed System

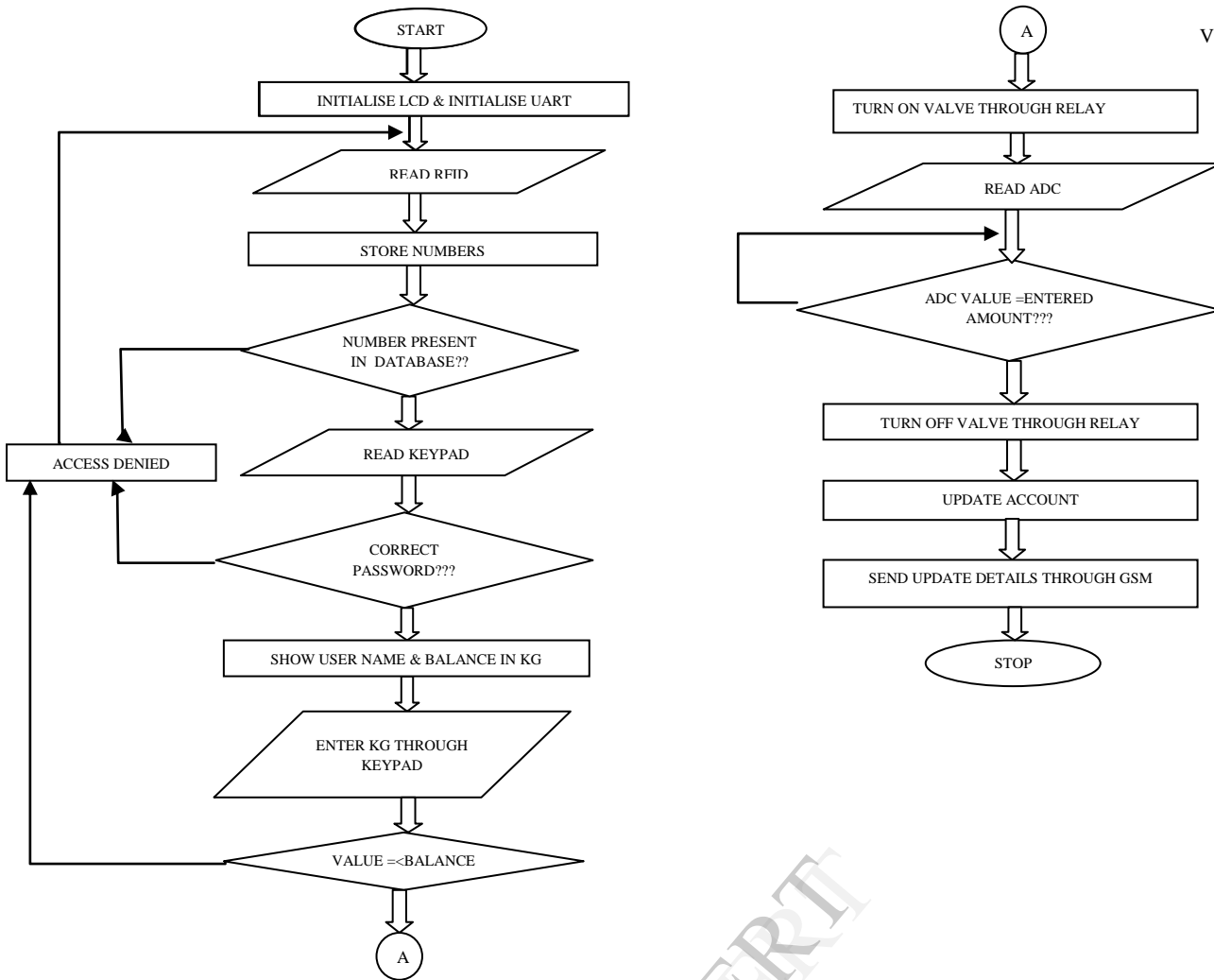


Fig 3.2: Flow Chart of Proposed System

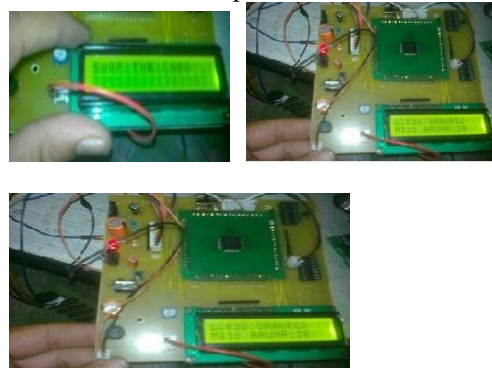
Advantages:

1. Increased corruption in the Govt. As well as market sector can be prevented if system becomes automated
2. Increased adulteration in consumables can be prevented
3. The problem of hoarding at Govt. Super Bazaars (PDS Stores) that gives rise to price hike can be prevented
4. Cost effective approach
5. Time saving approach

5. Result

This system is based on Radio Frequency Identification of customer. Here each customer is provided with RFID cards. In traditional ration card system, customer can take his quota by showing ration card at shop at once, but in this system, by using RFID and password. First user is authenticated, Then system shows the balance of person. User will enter the amount of Kg he want to withdraw. System checks his account. If the

user will have sufficient balance to withdraw the current amount, system will open the valve. Through valve grain will come and it will be put on weight sensor. Once the count will reach to the entered amount controller automatically shutdown the valve and update the account of the customer. We can send this update account information to customer's mobile using GSM module. In this system we made the data base of customers with their account details, password etc.



Conclusion

As this system is a propose system we can see that by using such a system we can avoid corruption in ration/public distribution system to a large extend. This system has greater scope in future. As there is no manual data stored and all information is stored in database, the higher authority can check the details as and when it's necessary through the use of servers.

References

- [1] Peter Svedberg; "Reforming or Replacing the Public Distribution System with Cash Transfers".
- [2] Ministry of Consumer Affairs, Food and Public Distribution Department of Food and Public Distribution, Annual Plan 2011-12.
- [3] Neha Pardeshi, Trupti Desale, Prajakta Bhagwat, Ruchali Ahire;" Web-Enabled Ration Distribution and Controlling" ISSN: 2277-9477, March 2012.
- [4] Rajnish Mahajan; "Bar-coded Ration card & Public Distribution System" 13th July 2012
- [5] T.R.Sreenivas,"A case of supply chain management of Public Distribution System operations in the Chhattisgarh state of India", 3 - 7 September 2012.
- [6] Umang Sharma; Vaibhav Kumar; Vikalp Chauhan" Electronic Ration Distribution system".
- [7] Palak Parikh, "**Distribution System Automation**".
- [8] "UID AND PDS System".

IJERT