Smart rationing for public distribution system (PDS) using RFID and GSM module for preventing smuggling of goods.

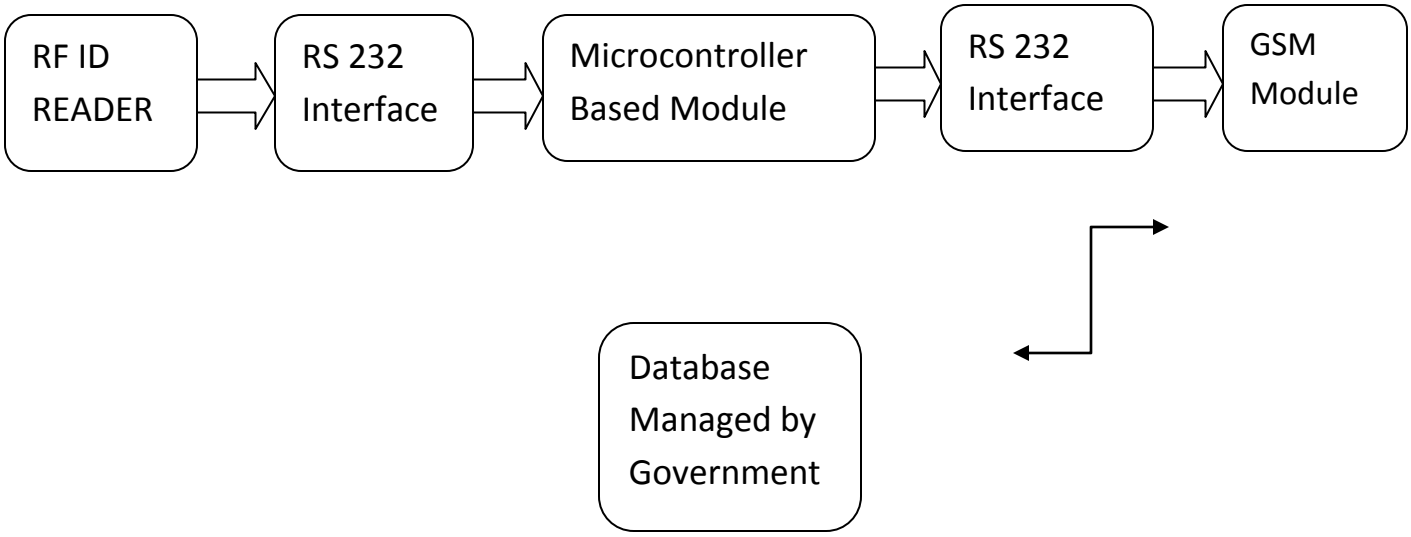
Abstract

Public distribution system i.e rationing distribution is one of the widely controversial issues that involves corruption and illegal smuggling of goods. All these happen because every job in the ration shop involves manual work and there are no specific high-tech technologies to automate the job. Because of involvement of manual work there are lots of illegal activity occurs. The illegal activities are like, wrong entry in register of shop about the amount of products that given to the people, sometimes there are chance of distribution of low quality products than actual products provided by government for poor people, people do not have idea about how much quantity of goods provided by government to them etc. In this paper we propose the concept about to replace manual work in public distribution system (rationing distribution system) by automated system which will be install at the ration shop. In this automated system we replace the convectional ration card by smart card in which all the details about users are provided including their "AADHAR" number which is used for user authentication. This prompted us to interface smart card reader (RFID Based)to the microcontroller(AT89C51) and PC via RS232.Government should have control over all transaction happen at ration shop, to involve government in the process we connected the system which is at ration shop to the government database via GSM module(SIM900D) and RS232.

INTRODUCTION

The government having the UID number called "AADHAR" number and all related information such as contact number; bank A/C related information etc of every resident in India. Using the AADHAR number and contact details the government will send a message (SMS) to respective person, before sending the products allotted to him/her in the respective ration shop. The message contains the information about the quantity and quality of the product which government provided for particular person in the ration shop. People who accessing the ration shop for subsidies rationing products will be given the smart card based ration card. This card is RFID based card in which all the details about the users are given such as AADHAR number, name of family members, their profession, age etc. The system which installed at the ration shop having three subsection i.e. smart card interfacing to microcontroller, microcontroller and display, GSM module interfacing to microcontroller as well as government database. The person has to swap the card on the system placed at ration shop. After that the system will ask for the AADHAR number for user authentication. The user has to enter their respective AADHAR and press enter, as soon as the user press enter the GSM module send signal to government database for user identification. The user will be valid If it's respective AADHAR number get match and if he/she taking the subsidies product first time after getting message(SMS).Once user is valid then respective detail information will be send by government database to the system placed at shop. This information contains the detail about quality and quantity of product that government allotted for that particular person. In this policy government send product (rice, wheat, kerosene, palm oil etc.) to rationing shop in form of seal packets instead of the sack. The packet size of 1Kg,2Kg,4Kg,8Kg,1Lit,2Lit,4Lit,8Lit etc. If user is valid then shopkeeper provides the product allotted to him/her by government.

Block Diagram:



1. RFID READER: It is block which detects the RFID TAG when user present and send the user AADHAR(UID)number to microcontroller module for further processing.

The RFID READER used having following specification:

Parameters	Value
Input voltage	9 to 15 V AC/DC
Data speed(Output)	9600 BPS 8 bit data No parity bit One stop bit
Signal level(Output)	Level define by RS232
Detection Range	25 to 30 cm.
Tag indication	By LED AND BUZZER

2. RS232: This module provides the required interfacing between RFID reader microcontroller & GSM Module microcontroller.

GSM MODULE: It is the block which serves in order to exchange of information between microcontroller and government database.

The GSM MODULE used having following specification:

Parameters	Value
Datarate	9600 baud CSD
Service Support	GSM data transmisson, SMS
Status indicator	1 LED,Alarm
Antenna Impedance	50 ohms
Digital I/C Output	8 TTL outputs, 8 TTL inputs w. 10K pull-down
Operating temperature range	Operating temperature range