



Aadhar Enabled Automatic Ration Distribution System using RFID, GSM and Fingerprint

M. Vimala M.E.,(Ph.D.)¹, P.Thaaamaraiselvi², I. Sumaiya Begum³, M.Vidyadhari⁴
Assistant Professor¹, BE Student^{2,3,4}

Department of Electrical and Electronics Engineering
R.M.K Engineering College, Chennai, India

Abstract:

Automation plays an increasingly important role in the global economy and in daily experience. Automation is to control the industrial machinery and processes, reducing the need for human intervention. In this project we are going to implement the automation in the ration shop. Already, ration cards are provided with different colors. For each color maximum amount of materials are already a pre-defined one. We are using the finger print sensor and RFID card reader for security in the person's personal details where the smart card (RFID card) is aadhar linked. The major benefit are avoiding the use of other person's card, avoid malpractice in measuring the quantity and also avoids other malpractices that are taking place in present ration shops. By implementing this, there is a regular supply of beneficiaries to people under poverty line.

Key words: GSM Modem, fingerprint scanner, LCD, Buzzer, PIC microcontroller.

I. INTRODUCTION

The Indian food security system was established by the Government of India under February 1944, during the Second World War, and was launched in the current form in June 1947. Major commodities distributed include staple food grains, such as wheat, rice, sugar and essential fuels like kerosene, through a network of fair price shops (also known as ration shops) established in several states across the country.

Food Corporation of India, a Government-owned corporation, procures and maintains the PDS (public distribution system). In coverage and public expenditure, it is considered to be the most important food security network. However, the food grains supplied by the ration shops are not enough to meet the consumption needs of the poor or are of inferior quality. The average level of consumption of PDS seeds in India is only 1 kg per person per month. The PDS has been criticised for its urban bias and its failure to serve the poorer sections of the population effectively. The targeted PDS is costly and gives rise to much corruption in the process of extricating the poor from those who are less needy. Today, India has the largest stock of grain in the world besides China, the government spends Rs. 750 billion (\$13.6 billion) per year, almost 1 percent of GDP, yet 21% remain undernourished. Distribution of food grains to poor people throughout the country is managed by state governments. As of 2011 there were 505,879 fair price shops (FPS) across India. glucose levels in the blood exceed the prescribed limit, insulin is administered into the blood stream through the infusion device.

II. COMPONENTS REQUIRED

GSM Modem, fingerprint scanner, LCD, Buzzer, PIC microcontroller, four panel relay, RFID card reader RS232.

RFID Card Reader RS232



Figure.1. RFID Card Reader

Radio frequency identification (RFID) is one method for Automatic Identification and Data Capture (AIDC). RFID tags are used in many industries. An RFID system consists of three components: an antenna and transceiver and a transponder. The antenna uses radio frequency waves to transmit a signal that activates the transponder. When activated, the tag transmits data back to the antenna. An RFID reader's function is to interrogate RFID tags. The means of interrogation is wireless and because the distance is relatively short; line of sight between the reader and tags is not necessary. A reader contains an RF module, which acts as both a transmitter and receiver of radio frequency signals. The transmitter consists of an oscillator to create the carrier frequency; a modulator to impinge data commands upon this carrier signal and an amplifier to boost the signal enough to awaken the tag. The receiver has a demodulator to extract the returned data and also contains an

amplifier to strengthen the signal for processing. A microprocessor forms the control unit, which employs operating system and memory to filter and store the data. The data is now ready to be sent to the network. A Radio Frequency Identification Reader (RFID reader) is a device used to gather information from an RFID tag, which is used to track individual objects. Radio Frequency waves are used to transfer data from the tag to a reader. The RFID tag it must be within the range of an RFID reader, in order to be read. RFID technology allows several items to be quickly scanned and enables fast identification of a particular product, even when it is surrounded by several other items.

III. GSM MODULE

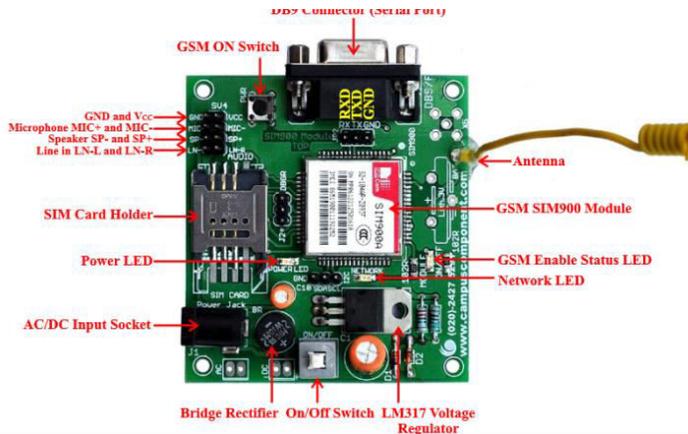


Figure.2.GSM Module.

GSM (Global System for Mobile) / GPRS (General Packet Radio Service) TTL-Modem is SIM900 Quad-band GSM /GPRS device, works on frequencies 850 MHZ, 900 MHZ, 1800 MHZ and 1900 MHZ. It is very compact in size and easy to use as plug in GSM Modem. The Modem is designed with 3V3 and 5VDC TTL interfacing circuitry, which allows User to directly interface with 5VMicrocontrollers (PIC, AVR, Arduino, 8051, etc.) as well as 3V3 Microcontrollers (ARM, ARM Cortex XX, etc.). The baud rate can be configurable from 9600-115200 bps through AT(Attention) commands. This GSM/GPRS TTL Modem has internal TCP/IP stack to enable User to connect with internet through GPRS feature. It is suitable for SMS as well as DATA transfer application in mobile phone to mobile phone interface.

IV. WORKING

The smart ration distribution based on RFID technology. Instead of ration card everyone will be provided with an RFID card. If the customer have to buy any ration material, he has to show the ration RFID tag card to the RFID reader kit. The user will be having a unique number & the reader will recognize it. The recognized RFID number will be given to the microcontroller, which compares the input number with the database are programmed in the controller will recognize the data coming from RFID by comparing it with the database. Once the user is identified, the microcontroller will check whether the user had already bought the ration item of to that month. If not, then the ration item to be dispensed will be displayed on the LCD screen. The user has to enter the details of the item he wants to purchase. If the user selects the ration item for purchasing purpose, then the controller will calculate the price of the items & and it will be delivered as a message through GSM. If the person details are

correct, then microcontroller will start the servo motor mechanism to dispense the items.

V. CONCLUSION

Ration forgery is one of the most difficult challenges faced by the food distribution department. There may be chances where ration is delivered to the beneficiaries and false records are noted down, regarding the delivery by commission agent. And there is probability of him (commission agent) selling the commodities in open market with extra profit etc. Therefore, the proposed system is more secure and transparent then the normal existing system. Entry of fallacious data in the ration database can be avoided with the use of smart cards and additional security is provided by the biometric authentication. The commission agent is only responsible for entering the quantity of the commodities, where as updating and deducting is solely handled by the server (food department). Maintaining the database is also helpful for sending messages to the beneficiaries about the ration delivery. It is anticipated that the proposed project will create transparency in public distribution system as the work becomes automatic and also it makes the system free from irregularities.

VI. FUTURE SCOPE

- For the ease of use, an application can be built for the same
- Kiosk can be developed for the beneficiaries to check the commodities available.
- Automatic weighing system can be implemented at the FPS.

VII. REFERENCES

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