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FULLY AUTOMATED RATIONSHOP MONITERING SYSTEM

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***Abstract*—in now a day's Public Distribution System(PDS) contains lot of corruptions like materials theft, stock maintenance…etc. So this thesis suggest an approach to automate all the manual jobs in ration shop and the whole thing from data entry to weighing to hammering is prepared by machines and the people have no hand in that. This provides high reliability and there brings a sense of truthfulness to the people. Further, as all the data allocation is prepared by the computer and it can keep track of all the data and the entire process of data maintenance is taken care of by the PC and hence no possibility of mistakes and practically no manual work. This scheme used to reduce the workers burden and easily maintain the stock details. Here instead of a Ration card, an Aadhar card will be used for the purpose of allow and afterward the user's finger print will be matched for authentication. After that the consumer to select the materials and then dispense the materials based on ARM controller. After dispensing the materials the government head office receives the delivery Report from the PC with the help of GSM. Finally the stock details are maintained in database and update the details regularly to the government portal.**

***Index terms*— Aadhar card, fingerprint recognition, PC, Keypad, ARM microcontroller.**

I. INTRODUCTION

Public distribution system (PDS) is launched in India on June 1997. The fair price shops are mainly used to distribute the goods with low cost or free of cost. It is a concern of India's public distribution System implanted by Government of India, which distributes rations at a subsidized cost to the poor. In India approximately 500000 fair price shops are available. Here the Major commodities distributed include essential food grains, so much as wheat, rice, sugar, and kerosene, from side to side a system of public distribution shops constituted in several states across the country. The central and state governments joint the responsibility of regulating the PDS. While the central government is obligated for procurement, storage, conveyance, and majority allocation of food grains, state governments holds the province for distributing the aforesaid to the consumers through the ingrained network of Fair Price Shops (FPSs). State governments are also responsible for functional obligation, including allotment and identity of families below the poverty line, issue of ration cards, superintendence and monitoring the functioning of FPSs. The Indian ration card is the authority of the Indian peoples. This is mainly used for buying supported food and fuel (LPG and kerosene). It is an important livelihood tool for the misfortunate, providing proof of personal identity and link with government databases. India's public distribution system (PDS) runs based on the ration card, including its purpose of identification, eligibility, and entitlement.The poverty lines are identified depends upon the annual income of that particular family. Depends upon the family incomes the ration card color is decided. The different colors of ration cards are navy blue (BPL), white (APL) and orange (AAY). A below poverty line (BPL) correspondence bearer should be collected 35 kg of food grain and the card holder above the poverty line should be collected 15 kg of food grain as per the norms of PDS. Up to the age of 12 years, a half unit ration materials are issued and full unit ration materials is issued in case of age more than 12 years. In fair price shops presently the peoples are facing so many problems like corruption, wastage of time and no proper material distribution…. etc. to overcome this problem here we proposed to dispense all the materials automatically and also maintain the stock details properly.

II. RELATED WORK

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Badgujar, MonaliR.rathi and ShitalR.tambe [1] proposed the "automation in rationing system using GSM and RFID technology". They introduce RFID card instead of traditional smart ration card for the purpose of authentication. If consumer enters into ration shop, first they will read our RFID card in a RFID reader. After that the consumers selects the quantity of goods and collect the goods automatically. Kashinathwakade, pankajchidrawar and dineshaitwade [12] develop the normal ration shop into the "smart ration distribution and controlling". Here subscriber has to utilize the RF based ID card to collect ration from dealer. With the help of PDA device the ration shop worker will collect amount easily after selection of quantities. Lastly GSM used to send the bill details and quantity details to the consumer. In "An overview of automatic rationing system" Jaidrahul.A, Kadamchetan.K and Kokareaniket.S [8] bring in RFID based smart card instead of conventional ration card for the purpose of secured material distribution. This system is mainly used to reduce the man power and also to avoid the corruption. Here AVR microcontroller is used to distribute the materials automatically. Ashwinilanjudkar, poojamhalaskar and pallavishinde [9] are planned the "intelligent government rationing system" for the function of dispense materials properly. This system used Aadhar card for authentication. At this time Aadhar card is used to show the user details like name, address and bank details…etc and web camera is used for face identification and security purpose. After that GSM sends message to consumer. In "mechanized government rationing system" priyankav.mane and uroosahippargi [7] improved the normal ration shop with automatic bill payment process. at this timeas an alternative of ration card an Aadhar card will be used for security function. If customer scan the Aadhar card means the processor will display the consumer's details and to verify the user with help of fingerprint. Then the user will select quantities and pay the amount. After the material distribution, GSM sends message to consumer phone. SmithaR.jagdale et.al. [11] recommended the "microcontroller based efficient ration distribution system" for automatic material distribution. This system uses the RFID card instead of traditional ration card. Here RFID card provides all the details of user and easily identifies the quantity details of that particular consumer. Here ATMEL microcontroller is performed to distribute the materials and GSM module used to link the PDS shop database to the government database. Suraj V.S.et.al. [19] Propose the normal PDS into the "automization of rationing system". Thus system used to replace the manual work in public distribution system with the help of RFID card. This RFID card is used for authentication and identifies the consumer's details easily. User to select the materials and collect the goods automatically. Then GSM is used to update the stock details and to alert the consumer regarding the arrival of goods. M.elizabethsherine and shinusadeyone [20] suggest "NFC based stock maintenance and billing system with auto alert to customers". This method used to maintain the stock details automatically and also intimating the customers on arrival of new stock in the stores. At this time NFC tag is used to communicate with the customers and distribute the materials automatically. Subsequently GSM sends message to customers. S.vennalVenkatraman [17] initiates "ration whiz" to automate the ration distribution system using PLC module. This automatic ration Materials distribution scheme replaces the conventional ration card by food card. This system used to distribute the materials automatically. At this time stock details connected to the government database through GSM modules, which supplementary sends the current information to the government and the consumer. S.Deepika.et.al. [18] planned "A prevention and automation of PDS using RFID and facial recognition camera". Christo Ananth et al. [6] discussed about an eye blinking sensor. Nowadays heart attack patients are increasing day by day."Though it is tough to save the heart attack patients, we can increase the statistics of saving the life of patients & the life of others whom they are responsible for. The main design of this project is to track the heart attack of patients who are suffering from any attacks during driving and send them a medical need & thereby to stop the vehicle to ensure that the persons along them are safe from accident. Here, an eye blinking sensor is used to sense the blinking of the eye. spO2 sensor checks the pulse rate of the patient. Both are connected to micro controller.If eye blinking gets stopped then the signal is sent to the controller to make an alarm through the buffer. If spO2 sensor senses a variation in pulse or low oxygen content in blood, it may results in heart failure and therefore the controller stops the motor of the vehicle. Then Tarang F4 transmitter is used to send the vehicle number & the mobile number of the patient to a nearest medical station within 25 km for medical aid. The pulse rate monitored via LCD .The Tarang F4 receiver receives the signal and passes through controller and the number gets displayed in the LCD screen and an alarm is produced through a

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buzzer as soon the signal is received. A.N.madur et.al. [21] suggested "replacing traditional PDS with smart PDS" with the help of RFID card. This card easily identifies the user's quantity details. User to select the materials with the help of keypad. After that ARM controller used to distribute the materials automatically. At that time the updated stock details are send to the customer mobile based on GSM module.

III. PROPOSED METHOD

Fair Price Shop (FPS) involves corruption and prohibited smuggling of goods. All this happens because every job in the ration shop involves manual work and there are no exact hi-tech technologies to automate the job. This concerns the illegal entry in the registers of the shop about the amount of goods given to the consumers. The second apprehension is the weight of the goods that are given to the people. Further, there is always difficulty for the verifying officials go through the stocks available and the commodities given in a register and find out the irregularities. To overcome these problemswe introduce the smart ration materials distribution for Distribute the ration materials automatically without any manpower. Here Fig. 1 explains the basic working module of smart ration distribution.

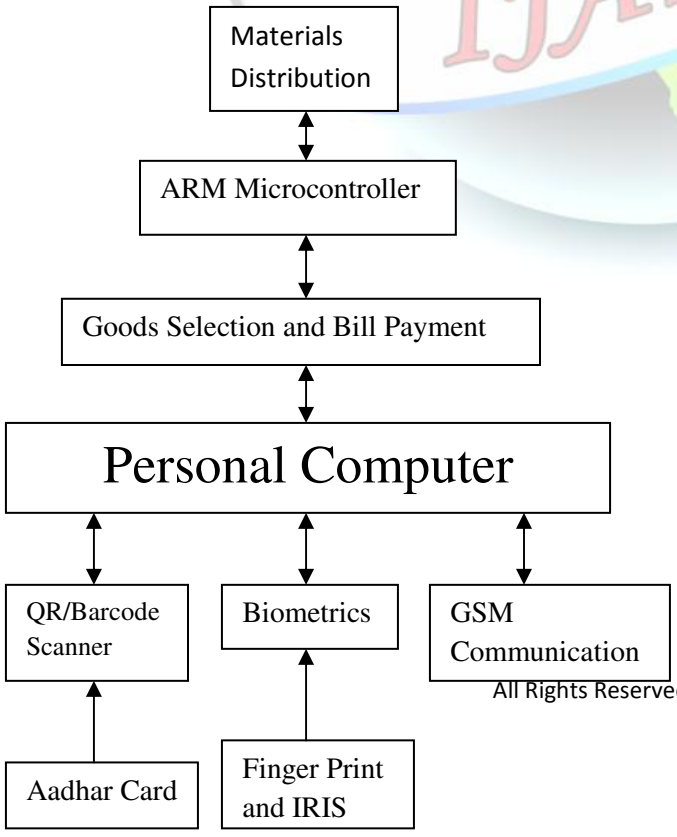

Fig. 1 Basic Module of Smart Ration Materials Distribution

IV. SYSTEM WORKING

If user comes into Fair Price Shop Means first they scan our Aadhar card with the help of barcode scanner and then users thumb our finger print and show our Retina for the security purpose. After that the data base provides user's commodities details and available stock details. At that time user select the goods and pay the amount with the help of debit card. After payment status verification the microcontroller sends instruction to the hardware components and distributes the materials properly. Finally the worker sends the stock details to the government head office and also send the distribution items details to the consumer phone with the help of GSM interface. For this kind of process we avoid the corruption and also distribute the materials properly. Here fig. 2 shows the working method of smart ration materials distribution system.

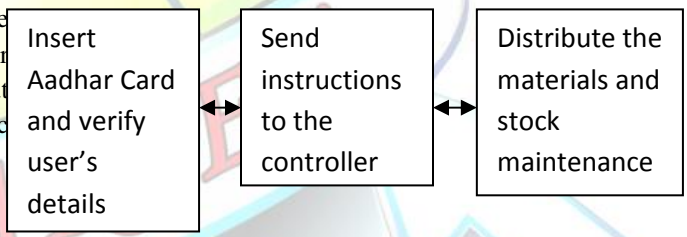

Fig. 2 working process of ration distribution

V. BLOCK DIAGRAM DISCRIPTION

A. Aadhar Card

The Aadhar card consists of user's details like name, Age, Address, etc……, and also this Aadharcard contains user's bank account details, user's photo identity, finger print and retina. So this card is mainly suitable for secured materials distribution and also easily identifies the consumer details.

B. Biometrics

Here biometrics is used for proper and highly secured materials distribution. In smart ration

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materials distribution we use both the finger print matching and retina matching for distribute materials correctly with correct person and avoid the corruption.

C. Finger Print Recognition

To recognize the finger print we mainly use the Advanced Minutiae Based Algorithm. This algorithm is mainly developed by Suprema Solutions. This consist two processes. They areFeature Extractor and Matcher. For capture the image in finger print they consider two main technologies. Those are

1. Optical – use light refracted through a prism
2. Capacitive-based – detect voltage changes in skin between ridges and valleys

Fig. 3 basic module of finger print identification

VI. SOFTWARE DISCRIPTION

A. KEIL SOFTWARE

We utilize KEIL µ vision4 software for programming the LPC2148 microprocessor. The software solves the intricateeffort facing embedded software developers. The µ Vision IDE sets all compilers, assembler, linker, and memory options.

B. FLASH MAGIC

Flash Magic is a PC tool for programming Flash base microcontrollers /microprocessors from NXP via a serial or Ethernet Protocol while in objective hardware. The use of flash magic is to download the .hex file to the ARM processor.

C. PROTEUS ISIS SCHEMATIC

Proteus Design suite is a powerful electronic design application available from Lab centre Electronics. It offers a range of design including: schematic capture Mixed modeelectronic circuit simulation, Microprocessor and microcontroller simulation PCB design with manual and autrouter options Graph –based simulation.Proteus 8 is one of the most tools for circuit designing and simulation.

VII. RESULTS AND DISCUSSION

A. SOFTWARE SETUP

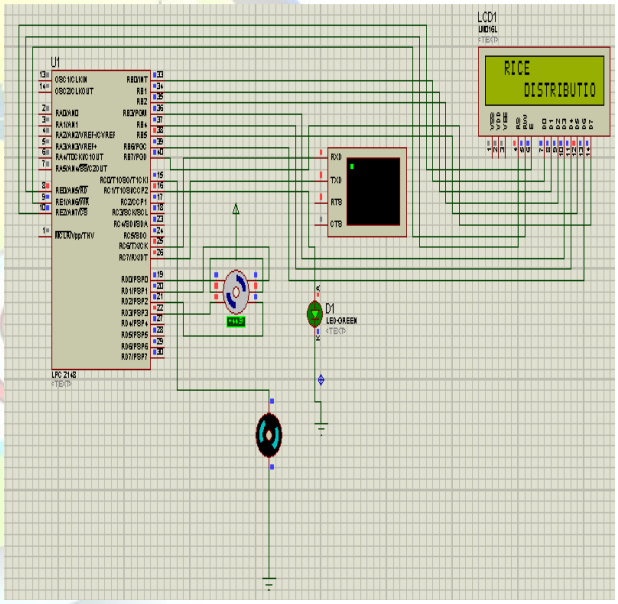

Fig. 5 Smart Ration Materials Distribution

First Microcontroller receives commends from PC. At that time controller sends instruction to virtual terminal. Here virtual terminal is controls both the motor and LCD. Then stepper motor will rotate means user collects rice and sugar. Otherwise relay switch at as 1 and with the help of solenoid valve user receives kerosene and oil. If any problems occur in machine means the buzzer automatically ON. With the help of the LCD the user easily identifies the process.

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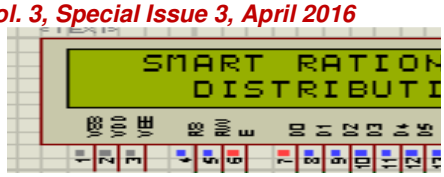

Fig. 6 LCD Display

VIII. CONCLUSION

In Fair Price shop (FPS) several drawbacks are there like material robbery, corruption, malpractices, long waiting time to collect materials, low processing speed. To overcome above problems the mechanized rationing scheme is needed. Here the automatic ration shop concerned Aadhar card and controller for distributing the materials. At this time ration card is changed by Aadharcard and send the stock details to government head office using GSM module. Here all the works are done automatically without any manpower. So this proposed system used to avoid the corruption, goods theft, forgery and also they reduce the user's waiting time. This system also suggested to maintaining the stock details properly and updating the details easily. They provide a secure, safe and efficient way of fair price shops.

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