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Public Distribution System Using Aadhaar Card

Amogh Kamerkar[1], Sonali Mhatre[2]
[1](Extc,Atharva College Of Enginnering,India)
Prof.Nilesh Gode
[2](Electronics and Telecommunications, Atharva College Of Enginnering,I ndia)

Abstract: *The Public distribution system also called as the ration distribution system is meant to distribute the commodities to the poor people manually. The present PDS system involves a lot of malpractices and also it consumes lots of time. To overcome these problems we can use the Aadhaar card based PDS system. The Aadhaar card is used instead of the ration card, which consist of all the details of the card holder. The proposed system replaces the manual work in the ration shop. The main objective of the designed system is the automation of the ration shop to provide transparency. The customer needs to enter their aadhaar card number and then the system checks the number and validates the information. Validation is done by the system from the online aadhaar database using the Internet. Local database created in the internal memory of Raspberry Pi 3, will hold the purchase history of every customer to enable controlled distribution of resources. After the verification of the aadhaar card number, the system will ask for customer's fingerprint. Once the fingerprint is verified the customer can enter the desired amount of ration needed. The proposed system aids to control malpractices which are present in ration shop by replacing manual work with automatic system using the aadhaar card. Every customer has their aadhaar card. The customer enters his/her aadhar card number which is interfaced with the microcontroller. Once the customer's aadhaar card number is verified, the system asks for their fingerprint. After the fingerprint is scanned and verified, the system asks the customer to select appropriate material and quantity of material through keypad. Based on material chosen by the customer, appropriate circuitry will be activated and customer gets the material. This proposed Aadhaar card based automatic ration shop system would bring clarity in public distribution system and become helpful to prevent malpractices.*

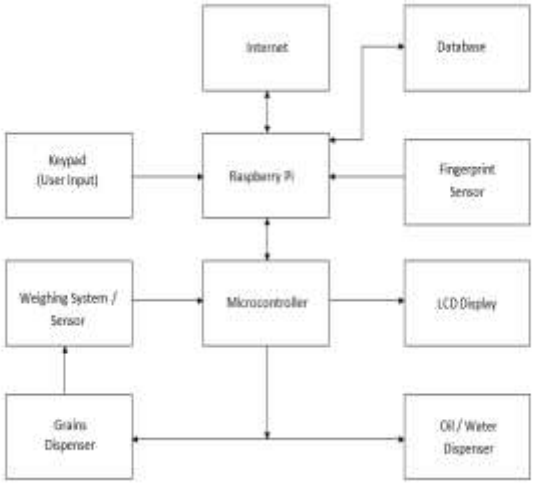
Keywords: *Raspberry Pi 3, Public Distribution System, Aadhaar card, Fingerprint.*

I. INTRODUCTION

India's Public Distribution System (PDS) is the largest retail system in the world. Public distribution system provides a ration card issued under an order or authority of the State Government for the purchase of essential consumer materials like rice, wheat, kerosene and oil. State Government issues distinctive ration cards like yellow ration card, saffron ration card and white ration card depending on the family's annual income. The consumer material is supplied to ration card holders in the first week of every month by ration shopkeeper.

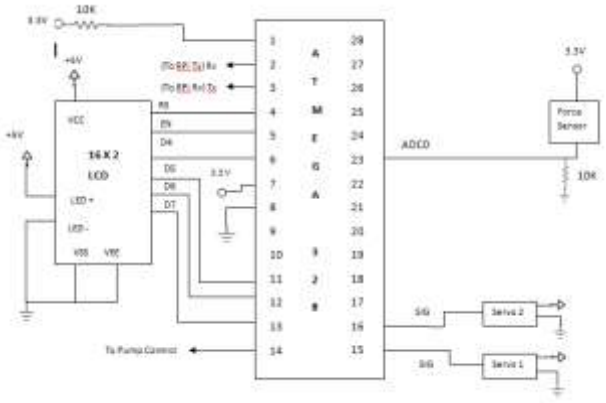
Public Distribution System is one of the widely controversial issues that involve malpractice. The manual intervention in weighing of the materials leads to inaccurate measurements or it may happen that the ration shop owner illegally uses customer materials without prior knowledge of ration card holders.

II. BLOCK DIAGRAM OF PROPOSED SYSYTEM



III. BLOCK DIAGRAM DESCRIPTION

The block diagram of Public Distribution System using Aadhaar card is shown in Fig.1. In this system we use an Atmega 328 microcontroller, 16x2 LCD display, Raspberry Pi 3, fingerprint sensor and keypad. The proposed system demonstrates distribution of solid as well as liquid consumer materials that is grains such as wheat, rice and sugar and liquid such as kerosene and oil. Keypad, weighing system/sensor, fingerprint sensor acts as inputs to the system and LCD is used for displaying ration stock and related activities. The microcontroller outputs are used to drive the sole3, fingerprint sensor and keypad. The proposed system noid valve.

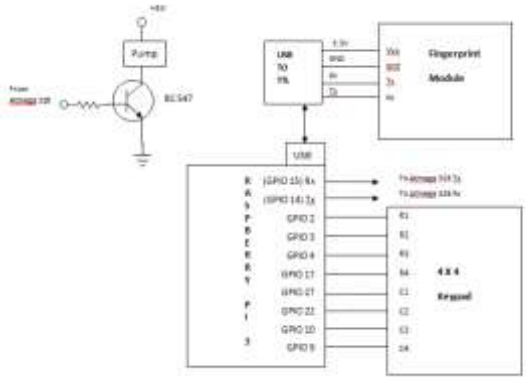


IV. ALGORITHM

Algorithm of the proposed system is:

1.Every consumer has owns an Aadhaar card which will be needed in our system.
2.At the time of ration distribution at the ration shop, first the consumer enters his/her Aadhaar card number.
3.Validation is done by the system from the online Aadhaar database using the Internet.
4.Once the verification is successful, consumer is asked for their fingerprint.
5.After the fingerprint is matched, the consumer is asked to select type of material and quantity required through the keypad.
6.Based on the type of material chosen, the solenoid valve is activated and the level indicator is checked for proper quantity.
7.After collecting proper quantity of material solenoid is disabled.

V. CIRCUIT DIAGRAM



VI. CIRCUIT DIAGRAM DESCRIPTION

The circuit diagram of Public Distribution System using Aadhaar card is shown in Fig.2 which shows the connectivity of the microcontroller to the components like LCD, force sensor, servo motor, etc. and shows the way in which they are connected to one another. The components used in the system are Raspberry Pi 3, Atmega 328, USB to TTL – CP2102, Fingerprint sensor GT 511, Force sensor – FSR402, Servo motors MG995, Water pump 5v, 16x2 LCD display, keypad 4x4, 5v Power adaptor, USB wire, 8GB SD card. The diagram also shows Raspberry Pi 3 connected to USB to TTL, fingerprint sensor and the keypad. In this system, we are using the python language for coding and the firebase database.

VII. USER AUTHENTICATION HARDWARE

The image shows the main hardware of the proposed system. It involves a fingerprint sensor attached for user fingerprint authentication. A keypad is used for getting number input from the user. Aadhaar Card based user authentication and product purchase options for the user. Fingerprint authentication is used as primary method of user authentication.

The complete process is automated so as to prevent frauds, corruption and unfair distribution in the rationing process. The payment system is automatic and authentication based. This system ensures a genuine purchase system for the user and keeps a monthly track of user purchases.

VIII. ADVANTAGES

1.In this system the manpower is removed which is required to distribute the ration material.
2.The system we are designing is cost effective.
3.This is an automation technique which can be implemented in day to day disciplines and effectively replace the current PDS.
4.Due to this automated system chances of corruption is reduced.
5.It is a vast concept and is feasible in all aspects technical as well as other.

IX. APPLICATIONS

1.In this system, we will remove the manpower to distribute the ration material like sugar, rice, wheat, etc.
2.It will take less time to distribute and the consumer can take the ration anytime like an ATM machine.
3.The concept is to automate the Ration Distribution System, A Government of India initiative process in which a fixed amount of ration is provided monthly to the consumer.
4.The apparatus is cost effective and can prove helpful to the Government of India.

X. FUTURE SCOPE

1.Because of automation of this system, the chances of corruption is reduced which is a common practice in this industry.
2.Factors such as Adulteration, Hoarding, Price Hike of ration goods can be easily eliminated using this approach.
3.Trading of Real Time Data so that the government authority can trade the record of stock easily and system will be paperless.

XI. CONCLUSION

1.The current PDS has drawbacks like weight of the material may be inaccurate, due to human mistakes, low processing speed, long waiting time at ration shop to get material and theft in ration shop.
2.If the materials are not bought at the end of the month by the consumer, they will sell to others without any intimation to the government and consumer. To overcome the above problems our system plays an important role.
3.This proposed system can provide a safe, secure and efficient way of public distribution system.
4.This proposed project definitely paves way for a corruption reduced India in the future.
5.This new technology gives solution and this work will make a great change in public distribution system and provides benefit to the government about current stock information and reduce the manpower.

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