Cloud Computing Based Automatic Ration Distribution System

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Abstract: This paper presents cloud computing based automatic ration distribution system. Ration distribution is a system, where major essential commodities in a large scale are provided to all economically backward families. It is done through Central and State Government. In public distribution system, there are much chances of corruption and illegal activities because it involve all manual work. It happens because of absence of technology. In our methodology, customers inputs the data as per their requirements. System will check the individual customer credentials including customer identification, ration to be provided, stock available and automatically ration will be distributed to individual. We have used Cloud Computing technology to store and manage all the data. This System will be used at Ration distribution shops. Hence, it will consider all social, economic and general aspect in respect of technical and day to day routine.

Keywords : Automatic, Barcode Scanning, Cloud computing, GSM Technology, Secure.

I. INTRODUCTION

Major food, oil and fuel is distributed to economically backward families by Government at subsidized rates through ration shops. Every month fresh stock from Government arrives at these shops and the same will needs to be distributed to public, but the owner of most ration shops are doing malpractices and the allotted quantity of ration is not distributed to authorized people. To avoid these fraudulent activities, this system is developed, which incorporates the following features.

1. System is secured through Barcode scanner authentication of a particular user.

2. User has to select the ration wise ration code and input the quantity as needed.

3. System will issue the message of available ration to individual customer.

4. System will automatically distribute the ration.

In traditional public distribution system the Biometric scanning is used for the security purpose [1]. It generates the major disadvantage in case of farmers. As farmers are continuously in the working state, their finger prints are damaged. So, while taking their finger prints at PDS, they are not matched. Hence it will produce the unwanted error. Hence we are using Barcode scanner instead. RFID tags are also used in many systems but it is very costly and it requires large mechanism for proper operation [6].

The aim of this system is to build an automatic and secure system to protect the individual customer's interests through countering the malpractices. The main purpose of our system is to implement Barcode mechanism for authentication of the user, which in turn reduces the widespread corruption, misuses of cards and to reduce the time complexity of the manual data entries. The system is used to protect the products of fair price shop in black markets.

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II. **Literature Survey**

In literature survey, we are analyzing the various methods or technologies which are previously implemented and we are trying to overcome their problems.

In the previously implemented system in 2019 entitled with "E- Rationing Distribution System"[1], the system uses the Arduino UNO, Biometric machine and GSM Module for processing the customer data . Due to continuous monitoring and data collection, the system will play an important role in disaster management.

The second system was in 2018 entitled with "An Automated Approach to Public Distribution System Using Internet of Things"[3]. The system ensures the identification of the user with biometric and comprises of touch screen facility, automatic vending machines for disposal of food grains and online payment systems to overcome many issues in the present system.

The another system is in the year 2017 entitled with "Biometric Enabled Ration Card Security System for Public Distribution System"[4]. To overcome the issues, utilization of a technology which linkage of UID with the PDS, use of biometric enabled smart cards for the beneficiary identification. There must be a Public Private Partnership (PPP) to develop the system.

III. **Block Diagram & Description**

The block diagram consist of Raspberry-Pi 3B processor, 4*3 Keypad, Barcode Scanner, LCD display, Buzzer, DC motor, L293D Motor Driver, GSM module, MAX 232.Firstly, we can scan the Barcode which is stick on the users ration card by using Barcode scanner. After confirmation of profile of user, LCD display can shows the availability of dispatch. If profile of user do not match with the system buzzer will turn ON . At that time OTP will send through the GSM module to the user's mobile phone for verification. At any critical situation due to some technical problems if OTP is not received by user OTP will be resend to the user.
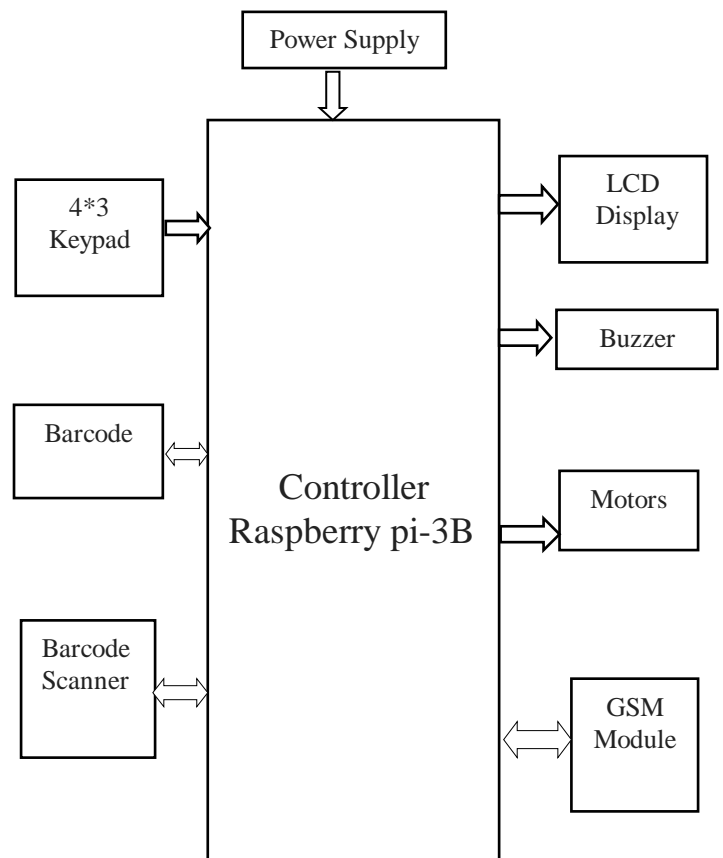

Fig 1.Block diagram of system.

User should enter that OTP on display through keypad. After verification of OTP the user should enter the quantity of the product by its requirement. All the data of each and every single user is stored on internet platform. After entering the quantity of the product processer should turn on the motor through motor driver. There are different motors used to provide the accommodations according to user requirement.

Finally various accommodations are provided to users according to requirement automatically. Our system provides fully automation than conventional Public Distribution System. Our system overcomes the problems in the conventional PDS like corruption, time complexity, security, data management.

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IV. Results

User Name	Barcode Validity	Available Ration	Dispatched Ration	Remaining Ration
User 1 (APL)	Valid	R=500Kg S=500Kg K=500Li	R=5Kg S=3Kg K=1lit	R=495Kg S=497Kg K=499lit
User 2 (BPL)	Valid	R=495Kg S=497Kg K=499Li	R=10Kg S=5Kg K=3Li	R=485Kg S=492Kg K=496lit
User 3	Invalid	-	-	-

Table no. 1

In this section, we are going to discuss the results expected from the system. In the above table, how the data is stored in the system is shown after distribution of Rice (R), Sugar (S), Kerosene (K).

The below fig shows the parameter display. It shows the data for the Valid customer on the LCD display when the barcode is scanned.

User 1

Name :- ABC

RationCard No. :- 123

Mob no.:-9876543210

Adhar Card no.:1234

When the invalid barcode is scanned then the system displays the following message.

User 2
Invalid User

The invalid user is automatically pushed out of the process. After completion of distribution process the user get the message from system which is shown below.

User 1

Available ration:
R:500 kg S: 500 kg K:500 lit

Allotted ration:
R: 5 kg   S:3 kg K:1 lit

Remaining ration:
R:495 kg S:497 kg K:499 lit

- APL and BPL Quantity Distribution :

Category	Ration type	Rate Per Kg	Quantity Per month Per Family
BPL (Below Poverty Level)	Wheat	5 /-	35 Kg
	Rice	6 /-	
APL (Above Poverty Level)	Wheat	7.20	15 Kg
	Rice	9.60	

Table no. 2

- For Kerosene : For BPL Card holders only.

No. of Persons on Ration Card	Kerosene (Liter)	Rate Per Liter (in Rs.)
1 Person	2 L	15.05
2 Person	3 L	
3 and more Persons	4 L	

Table no. 3
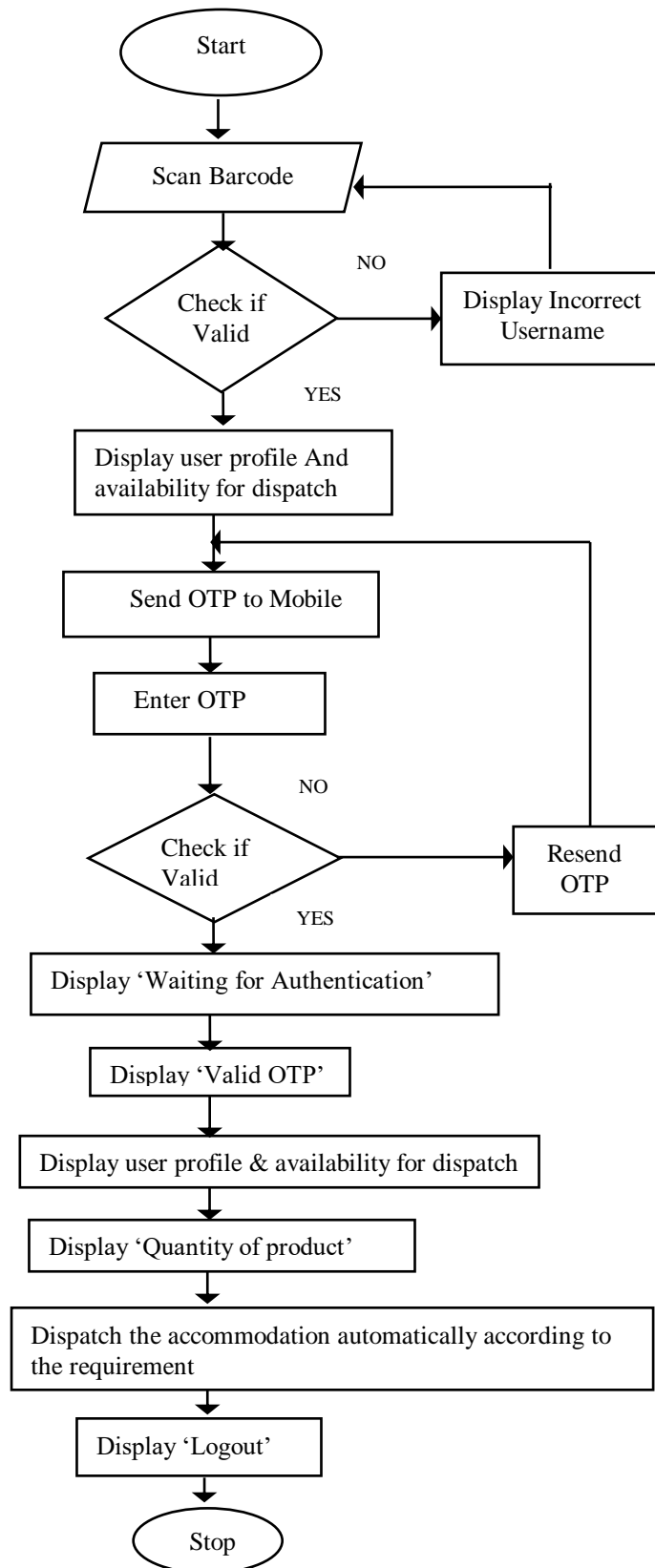
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V. Software System Design

Fig.1 Flowchart

VI. Conclusion & Future Scope

By adopting this automated system, the user will get accurate amount of ration with accurate weighment. Hence, it will minimize the human interference in the process. In this system user's security is also taken care. The data of dispatched ration is provided to user. It will reduce the processing speed, waiting time and also the material theft. It also has some more advantages like paper work reduction, systems cost effectiveness including proper maintenance of data. So, it overcomes all the drawbacks of traditional ration distribution system.

Project can be further extended by making the payment online of purchased commodities. Thus, it will make system more automatic.

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