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Hatey Bazarey – A Novel Approach to Ensure Food Security In Lockdown Period Through An Android App

P Das¹, M Das², S Shaw³, J Saha⁴, S Sarkar⁵, S Malakar⁶, K Das⁷, S Sen⁸, P Biswas⁹

^{1,2,3,4,5,6}Student, JIS College of Engineering

^{7,8,9}Professor, JIS College of Engineering

E-mail: prithwijitd98@gmail.com

Abstract. The adverse effects of the Novel Corona Virus or COVID – 19 on countries like United States of America, Italy, and Spain depicts how fast this virus can spread due to our irresponsible living habits. Till date, social distancing is the only solution to prevent the communal outspread of this pandemic. Other than fighting Corona, Government's primary concern is to ensure proper food security for every citizen through Public Distribution System. But crowd management at such Fair Price Shops is a hectic job for the administration. Hence in this paper, we look forward to discussing a unique method of Public Distribution with the help of an Android App, named Hatey Bazarey, specially designed for Ration Dealers. Through this method, we aim to provide home delivery service of the lower-priced items as well as to keep a detailed record of the distributed items in a digital platform.

Key words: - Food Security, Public Distribution System, COVID-19, Social Distancing, Android App

1. Introduction

The Public Distribution System (PDS) program comes under a food management system to manage the scarcity of food grains for Indian citizens. It was introduced by the Government of India and the system was controlled by the Ministry of Consumer Affairs, Food, and Public distribution. The Central Government has collaborated with the State Government for the ease of distribution of food grains to the poor and needy. The Central Government collects, stores, and transports the bulk of food grains to the State Government. The State Government takes responsibility to distribute the food grains to the Fair Price Shops also known as Ration Shops. The Ration Shop provides food grains to the citizens of India at a subsidized rate. The PDS comprises staple food grains like rice, wheat, sugar, and fuel like kerosene, and some states also supply spices, edible oils, iodized salt, etc. The food grains are supplied all over India at a subsidized rate. The items of PDS are sold to the Ration cardholder at a low price as compared to the market price. PDS focus to provide essential food at a subsidized rate to the people and provide basic nutrition food to people so that they do not suffer from malnutrition.

But in this pervasive situation due to COVID-19, the whole system is disrupted. Along with all other systems of livelihood, the major impact on food distribution became a continuous provocation. But our 1st priority must be public protection against the contamination. For which the whole county is under lockdown, as a result, the food supply chain is in the forefront list. In this pandemic where thousands of lives are in risk due to lockdown, like transportation, mobility everything is restricted, the cost and prices of each and everything is sky rising, the government introduced many food-related advisories to ease the common people. For which food distribution system is the most important one, through which that food facilities are reaching to the public. Therefore, special care and safety must be taken for the food distribution system.



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2. Methodology

2.1 Android App – Overview

Our Hatey-Bazarey app provides a digital platform for the ration dealer to maintain a proper food grain distribution record. Every ration dealer can create an account and login to this app using the license registration number. He can upload the qty. of food grain sold against a Ration Card number. To store each purchase record, he needs to authenticate it by entering the OTP sent to his customer's phone through self-generated Web SMS.

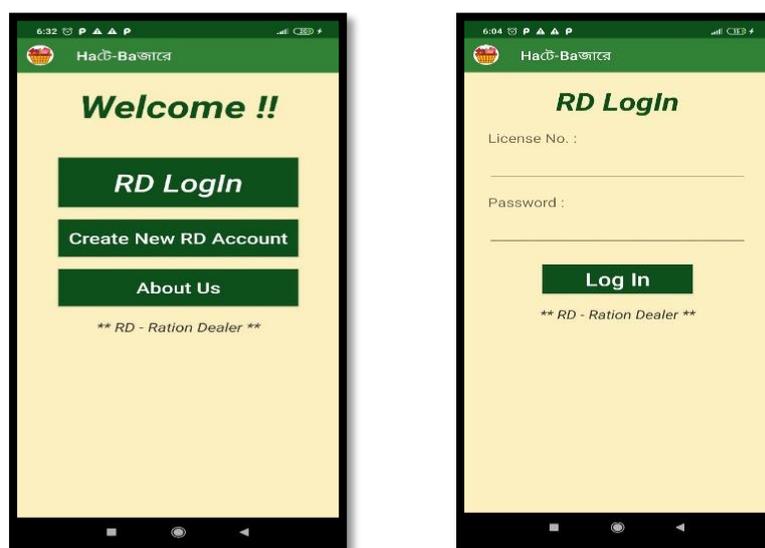


Figure 1. Login Page

2.2 Hatey-Bazarey Community

It comprises of socially responsible volunteers. This community will be further subdivided into smaller teams to work on different time-slots. Volunteers will be the residents from those respective areas, i.e., no outsiders allowed. They will maintain proper sanitization habits. They will assist the local ration dealer in carrying the food grains on a vehicle and distributing those items.

2.3 Android App – Detailed Procedure

The Hate-Bazarey android app, on receiving approval from the State and the Central Government, will be available on Google Play Store. On opening this app the first menu shown at the screen will contain login and register options for the Ration Dealers only. Hence the ration dealers can easily download this app and register themselves by providing certain details, such as full name, aadhar no., license no., mobile no., fair price shop no., address, and password. For regular login, he needs to enter his license no. and password. The Ration Dealer accompanied by the on-duty volunteers will carry the food grains on a vehicle. On reaching a locality, the Ration Dealer will go to each house to know their food grain requirements. Firstly, he will demand the Customer's ration card. In the app, he has to select the respective card category of the consumer, and then enter the ration card no. Thereafter the app provides an interface to set the quantity parameter of the respective food grains to be purchased.

Meanwhile, the volunteers pack the items accordingly. On proceeding to the next interface of the app, the ration dealer needs to enter the OTP sent to the customer's mobile no. linked to his ration card. Then the payment is done and the purchase record will be saved in respective tables of the dedicated database only if confirmed with the auto-generated OTP. Throughout this process, the Volunteers will maintain proper sanitization make sure that no public gathering occurs.

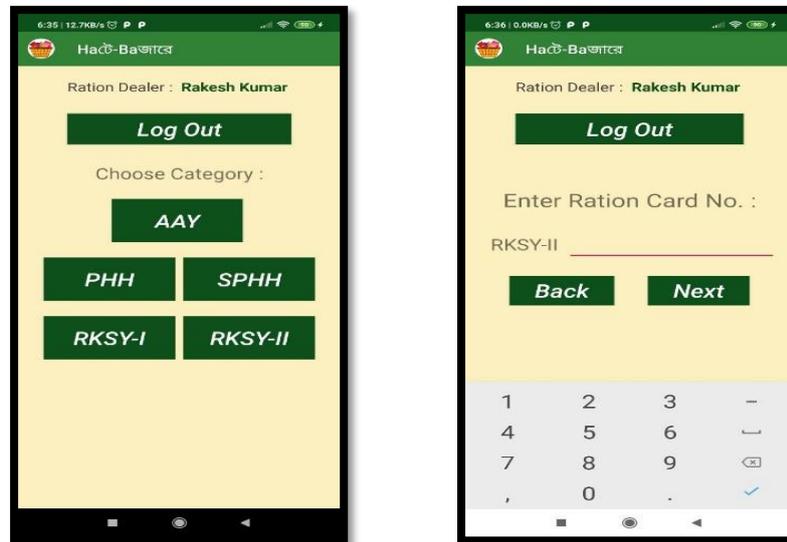


Figure 2. Working process

3. Experimentation

The problems that are generally faced by any ration dealer during the distribution of ration are given below.

- a) Demand Fluctuation
- b) Food quality
- c) Transportation and maintenance problem
- d) Ration Cards related issues

3.1 Demand Fluctuation

The fluctuation in demand with time can create problems for the dealers in PDS(Public Distribution System). The demands of items provided at ration shops are not always the same, some factors like season, festivals, or any occasions may affect the demand rate. In those situations, the crisis of demanded items may cause complications.

3.2 Food quality

There is always a question about the quality of goods provided at the ration shops. However, the food quality control system is not always in the hand of ration dealers but still, they always have to face problems of clarification against the quality of food, raised by the customers.

3.3 Transportation and maintenance problem

And another major problem dealers are facing during the transport of goods from FCI(Food Corporation of India) godowns to the ration shop because of high transportation costs. For example in case of any fair price shops in rural areas, most of the time the dealers have to transport the goods from FCI godowns located in urban areas or cities. The cost of which may create trouble for the

dealers. In the case of unsold items, the maintenance of the remaining stock is challenging for the dealers as ration shops are not equipped with any maintenance facilities.

3.4 Ration Cards related issues

As per government rules, customers have to carry ration cards with them to get the articles from the fair price shop as cards are categorized for different prices, but the different prices of the same articles for different cardholders create complications in PDS.

The problems that are generally faced by any customer during the distribution of ration are given below.

- a) Irregular Timing
- b) Food Quality
- c) Tracing Problem
- d) Engagement in Malpractices

3.5 Irregular Timing

The irregularity in the opening and closing time table is very tedious for the customers as they have to visit the ration shops several times and keep themselves updated.

3.6 Food Quality

Most of the time the goods or articles issued for the customers from ration shops are not satisfactory for quality purposes. The low quality of food items can further create health-related issues and put life in risk.

3.7 Tracing Problems

Once any items are out of stocks, there is no alternative way to get the information about the availability/tracing of that particular item. And for that customers have to visit again and again to the shop.

3.8 Engagement in Malpractices

Sometimes the dealers sell are food items to the market for more profits as a result the customers cannot fulfil their requirements. And also sometimes the uneducated customers are being cheated by less weighting of goods.

4. Results and Discussion

The Government introduced the Public Distribution System with certain objectives, i.e., to provide essential consumer goods at a cheap and subsidized rate and to maintain the minimum nutritional status of the population. But this system is usually claimed to be inefficient and rural-urban biasness. Leakages in this system lead to the prevention of reaching food grains to intended beneficiaries.

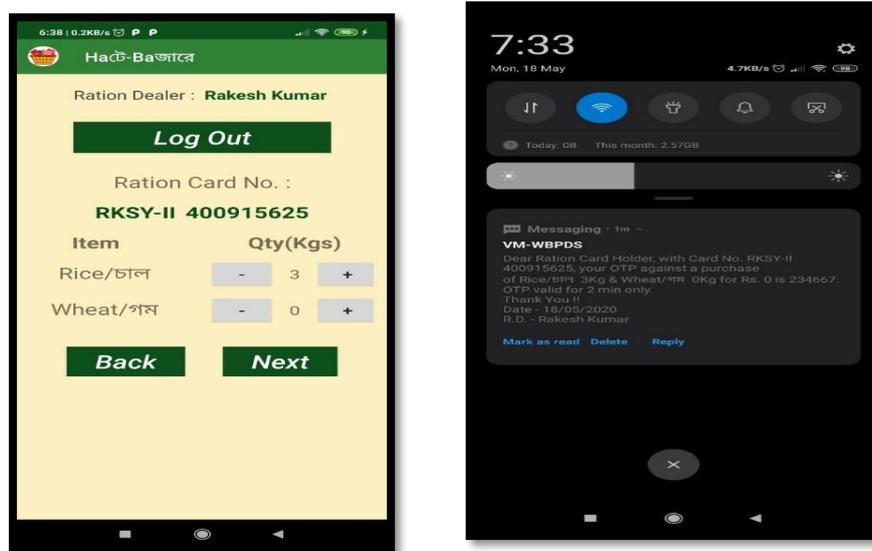


Figure 3. Features

5. Conclusions

Our existing Public Distribution System has some drawbacks, especially with tackling mob accumulation and digital transparency. Digitization prevents possibilities of corruption and leakages and induces substantial savings in the food subsidy bill. Thus during this pandemic period, based on a detailed survey and by analyzing the different drawbacks of the existing system, we can hopefully conclude that the proposed approach and android app will not only aid the government agencies but will also lead to improvised digitization of the system and in turn help to distribute the food grains efficiently to the citizens.

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