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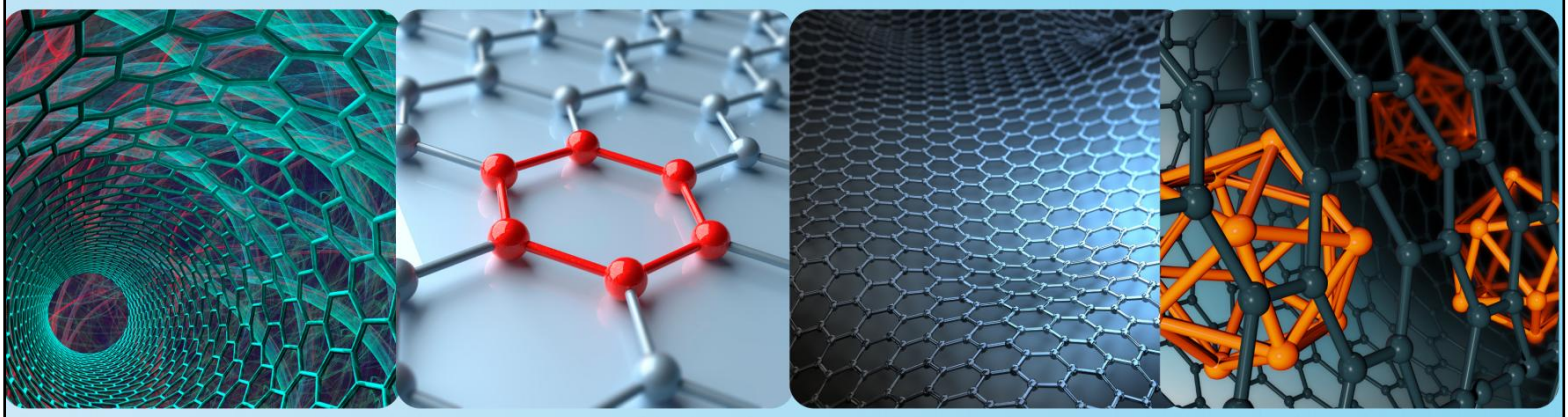

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CONTENTS

IOT BASED FOOD RATION SYSTEM ON AADHAR CARD USING ESP32 MICROCONTROLLER

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Abstract:

Due to the avoidance of a covid-19 situation, people are now accustomed to using the internet and mobile phones. As you know, India is on its way to digital India. In this paper, we want to address the need to streamline the ration distribution system in both rural and urban areas. When food grains such as wheat and rice are given, there is a chance that they will not be distributed properly. When food grains are available at the ration distribution center. Because the majority of the beneficiaries are farmers or workers, they do not receive accurate information about this when the distribution will initiate. To overcome such illegal activity and problems, we proposed an Aadhar card-based rationing system based here on ESP32. When the Smart Ration Distribution system is activated, the Camera module scans the QR code As a substitute to the ration card, the Aadhaar card is being used. When the data is correct, the existing data system will immediately display the number of food grains allowed to the user on a monitor. In our project, we replaced manual work in distribution centers with smart measuring automatic electronics devices powered by ESP32, which accurately measure goods and update stock data in the main database, which can be accessed by both common localities and government mainstream invigilators for distribution centers from their head office. As a result, this project ensures a corruption-free ration center operating system, as well as improved consumer-government communication.

Keywords: ESP32, Web Camera, Aadhar card

Introduction:

In this paper, we have proposed the Smart Ration Distribution System by using ESP32 .Public Distribution System (PDS) is an Indian food security system. It is administered by the Indian government's Ministry of Social Development, Food and Public Enterprises in collaboration with state governments, and it provides subsidised food and non-food products to India's underprivileged. Basic food grains including grain, rice, sugar, and kerosene are some of the major commodities supplied, which are distributed through a number of community distribution channels, also known as shops, that have been established in various states around

the country. The Food Enterprise of India, a government-owned enterprise, obtains and manages the Government Distribution System.

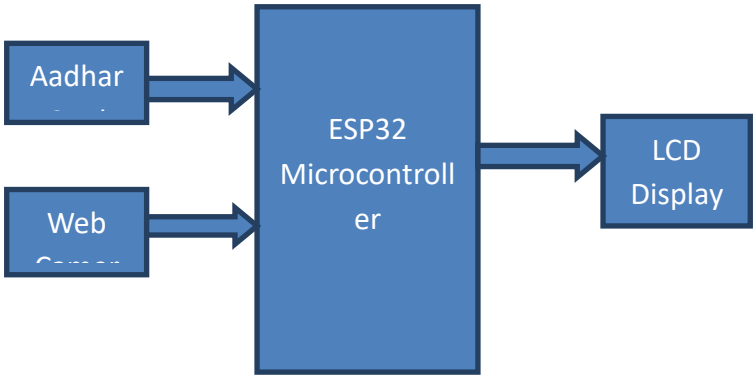
The main reason for using this Smart ration distribution system is to remove the drawbacks of the existing system and makes the system faster and accurate, also provide the proper information to the Government to reduce corruption and increase transparency.

Several schemes have augmented the number of people aided by PDS, but the number is still extremely low. In this system our main focus is to remove the drawbacks of the existing system and reduce corruption. In our system is ESP32 is a main controlling unit, web camera is used to scan Aadhar card QR code is compared the information to database.

Proposed Work:

In this proposed system our main aims to eliminate the flaws in the current system and reduce corruption. Our proposed system is simple and less time-consuming. In our system, ESP32 is a main controlling unit, and the Camera module and GSM are interfaced with it. Here Camera is used to scan the QR code which is already present on Aadhar card and the information which we get scanning Aadhar card QR code is compared with the information already stored in the database. GSM is a communication technology that enables users to send and receive data. When the system first starts up, it will send out a notification about its availability. All registered users are subject to GSM rationing. We went with the ESP32, which is a minicomputer.It will be compared to data recorded in the database. After the information is matched with the stored information in the database, the computer will automatically display how many grains are allocated to that specific person and supply grains such as Wheat or Rise. The weight sensor is used to measure this grain. The user's grains are displayed on the screen, and the distributor is unable to adjust them. After the grain has been distributed successfully, the data is automatically kept in the government server. This will eliminate any paperwork, and the distribution will be completely transparent. This will helps the government to better management of the grains stocks and Poor people will get the grains as per the government allocated them.

Block Diagram:



Methodology:

i. User will give his/her Aadhar card and ration card to the ration vendor.

ii. Database will be created at server end.

iii. Details of the customer when entered will be stored in database.

iv. We have used HTML and PHP coding to create a registration form.

v. Arduino Uno board will be used for implementing the hardware part of the project

vi. Once the customer gives his Aadhar number to the vendor, an OTP will be sent to the registered number.

vii. Standard quantity of ration commodities is saved in the microcontroller ESP32.

viii. Once the OTP is entered, and the required amount of ration will be given to the user.

Advantages:

i. Reduces the requirement of man power.

ii. Needs less time for measuring the goods.

iii. It has high precision and accuracy, as it measures time for distribution.

iv. Reduces spilling of ration commodities while measuring them.

v. The vendors cannot give less quantity of goods to the customers.

vi. It stores the record of the distribution of goods.

vii. It uses the Aadhar card UID number for determining the quantity of goods allotted for the customers.

viii. As it uses details of Aadhar card, the government can track the record of the distribution of goods, provided if a server is maintained.

ix. The customer can withdraw the goods any time in the allotted time span, as the shopkeeper has no part in distribution.

Future Scope:

The developed Aadhar Card-Based Ration Card System using Aadhar Identification and GPS technology will significantly improve the current manual process of ration card system and will reduce the security issues and malpractices.

In addition, a number of other are gained by having an online web-based system. acting as a central repository of user ration and personal information. firstly the users can view and modify their personal information at any time with ease. Secondly they can view their ration details and the details of the shop in which they are intended to buy. The accessing can be done from any computer via web browser, as long as they are connected to the Internet. This way, no specific software installation is required. The shopping details are also processed and updated automatically with less risk of data loss, compared to a manual filing approach.

Conclusion:

The Ration Distribution System (RDS) is one of India's most contentious issues, involving mismanagement, corruption, and illicit activity in both rural and urban areas. In Existing Ration Distribution System (RDS) the food grains like wheat, rice, etc. are given to the Ration cardholder manually. And there will be chances that grain not properly get distributed. Similarly, any residual grains will be sold to the user illegally, and the current system lacks transparency. We attempted to digitise the system, which we refer to as a smart rationing system. We can provide excellent products and good grains with this technology, and the procedure will be less expensive and time-consuming. The Distribution device supports Aadhar card integrationThis requires less hard work as compared to other devices. It could also be optimized to reduce the chances of adulteration and fair weight policy.

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References:

1. Miss. Reshma Arote, Miss. Komal Nawale, Miss. Monika Shinde, Prof. P. A. Bansode, Prof. V. B. Bhamare, "Smart Rationing System using Aadhar Card", Imperial Journal of Interdisciplinary Research (IJIR), Vol-3, Issue-12, (2017) ISSN (O): 2454-1362, Pg. No: 59-64.
2. S.Valarmathy, R.Ramani, Fahim Akhtar, “Automatic Ration Material Distributions Based on GSM and RFID Technology”, I.J. Intelligent Systems and Applications, 2013, 11, Published Online October 2013, Pg. No: 47-54.
3. K. Balakarthik, ”Closed-Based Ration Card System using RFID and GSM Technology,’’ vol.2, Issue 4, April 2013, Pg. No: 328-334.
4. A. N. Madur, P. N. Matte, “Smart Rationing System Using ARM 7”, International Journal of Engineering Research & Technology (IJERT), Vol.2 Issue 10, October – 2013, Pg. No: 3611-3615,

5. Rajesh C. Pingle and P. B. Borole, "Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities," HCTL Open International Journal of Technology Innovations and Research, vol. 2, Mar 2013, Pg. No: 102-111.
6. Yogesh Kumar Sharma, K. B. Shiva Kumar, "Multi Modality Biometric Assisted Smart Card Based Ration Distribution System", International Journal of Application or
7. Innovation in Engineering & Management, 2014, Vol. 3, Issue 6, Pg. No: 382-392.
8. Gyanendra K Verma, Pawan Tripathi, "A Digital Security System with Door Lock System Using RFID Technology", International Journal of Computer Applications (IJCA) (0975 – 8887), Volume 5– No.11, August 2010, Pg. No: 6-8.
9. Vikram Singh et. al. "Smart ration card", Journal of Global Research in Computer Science, Volume 4, No. 4, , April 2013, Pg. No: 172-174.
10. Ministry of Consumer Affairs, Food and Public Distribution Department of Food and Public Distribution, Annual Plan 2011 12.
11. PIC Microcontroller and Embedded System using assembly & C for PIC18- Muhammad Ali Mazidi,Rollin D.Mokinlay,Danny Causey.