IJIREEICE ISSN (O) 2321-2004, ISSN (P) 2321-5526

International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering

Impact Factor 8.021 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 3, March 2024

DOI: 10.17148/IJIREEICE.2024.12316

QR Based Smart Rationing System

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Abstract: Ration distribution is essential thing of the Persons which are from economically backward class. But the fraudulence in the distribution of ration is becomes the serious Problem Nowadays. The fraud in the ration distribution is takes place by distributing ration to the unauthorized person. even the authorized customer doesn't have an idea about it. So, to minimize the human intervention and fraudulence in the ration we proposed QR based ration system. In which when the customer scans the QR based ration system. In which when the custome4r scan the QR which is unique for each customer they get ration and passage also the distributor also gets the information about it in the form of message.

Keywords: QR codes, ration distribution, fraud, Human intervention, Stock availability.

I. INTRODUCTION

The ration distribution system in India faces the fraudulence activities in the distribution which makes the injustice with the persons which really need it. so, in this system we try to bring transparency in the ration distribution, reducing human errors, reduce the chances of fraudulence activities. Now days the ration card is only document for ration distribution so, distributers keep fake ration cards with them and give it to beneficiary peoples and makes the personal profit.

This system uses QR codes to provide details about distribution to customers, distributors which brings the transparency by automating the process this system reduces the chances of human errors and fraud. This system also provides the information about the stock availability to the distributors which helps him to make the records.

II. METHODOLOGY

1) Analysis of needs: -
Detect the requirement for rationing system.

2) Technology: -
Choose the proper QR based technology considering transparency and reliability.

3) Desing of system: -
Make the appropriate design of the architecture including database, user interface.

4) Generation of QR code: -
Generate the unique QR code for each customer which includes beneficiary's ID and relevant data.

5) Distribution process: -
Train the distributers as well as customers that how to use QR based rationing system.

6) Data Management: -
Manage data collected through system which includes beneficiary information distribution record etc.

7) Monitoring and evaluation: -
Monitor and evaluates the stock availability.

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III. BLOCK DIAGRAM

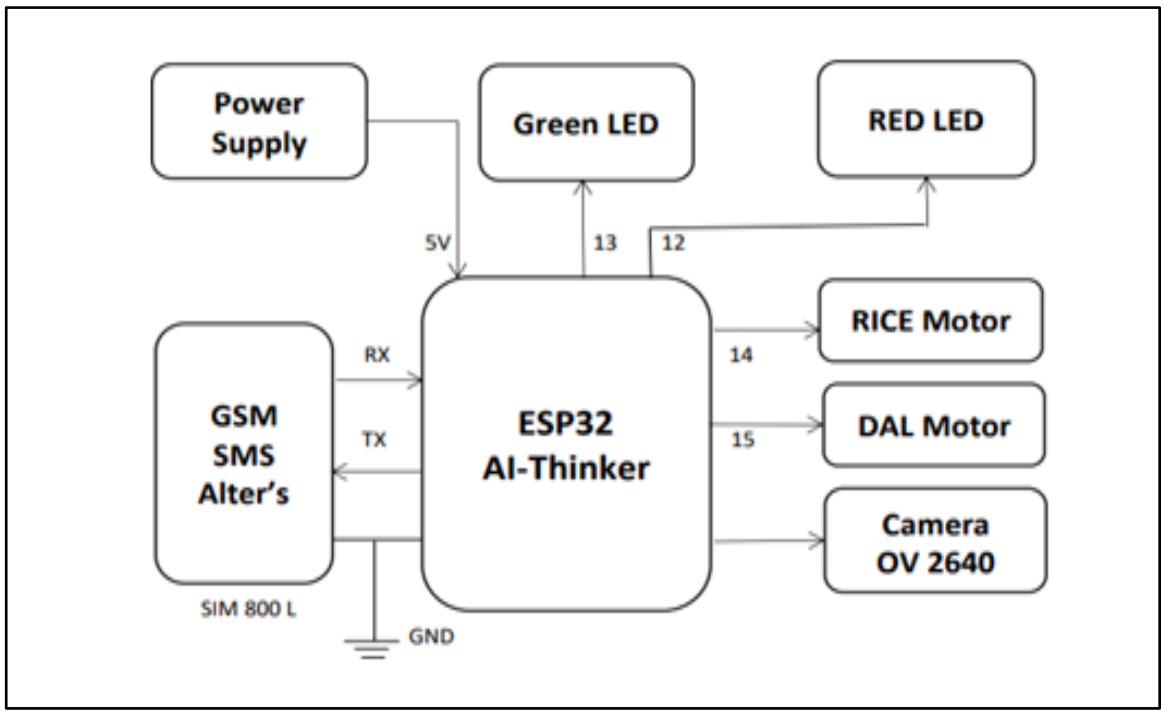

Fig.1 Basic block Diagram

The over fig.1 appears the square graph of QR Based Shrewd Apportioning Framework utilizing ESP32-CAM and GSM. The Venture bargains with both Computer program and Equipment components. here we are utilizing two engines, QR codes, ESP32 camera module, LED's, GSM Card, channel, Capacitor, control supply.

GSM SIM800 Module GSM (Worldwide Framework for Portable communication) may be a computerized portable communication framework. With the assistance of GSM module interfaces, Able to send the grains amount that got to be upgraded at government side this SMS will be comprising the subtle elements of client and his obtained esteem which sum is subtracted from Proportion Capacity utility. GSM module is given by SIM800 module, employments the portable benefit provider and sends SMS to the individual specialists as per modified informational.

CAMERA MODULE-ESP32 The ESP32 Based Camera Module is created by AI-Thinker. The controller is based on a 32-bit CPU & includes a combined Wi-Fi + Bluetooth/BLE Chip. It features a built-in 520 KB SRAM with an outside 4M PSRAM. Its GPIO Pins have bolster like UART, SPI, I2C, PWM, ADC, and DAC.

DC Engine Two DC engines can be driven at the same time, Engine 1 for rice control and Engine 2 for dal control. Full stack amps in 120- and 240-volts electrical DC engines. The current within the engine is relative to the engine torque. Driven is utilized for sign reason when to check QR code. Control supplies have a control input connection, which gets vitality within the frame of electric current from a source, and one or more power output or rail associations that deliver 5V to the stack.

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IV. CIRCUIT DIAGRAM

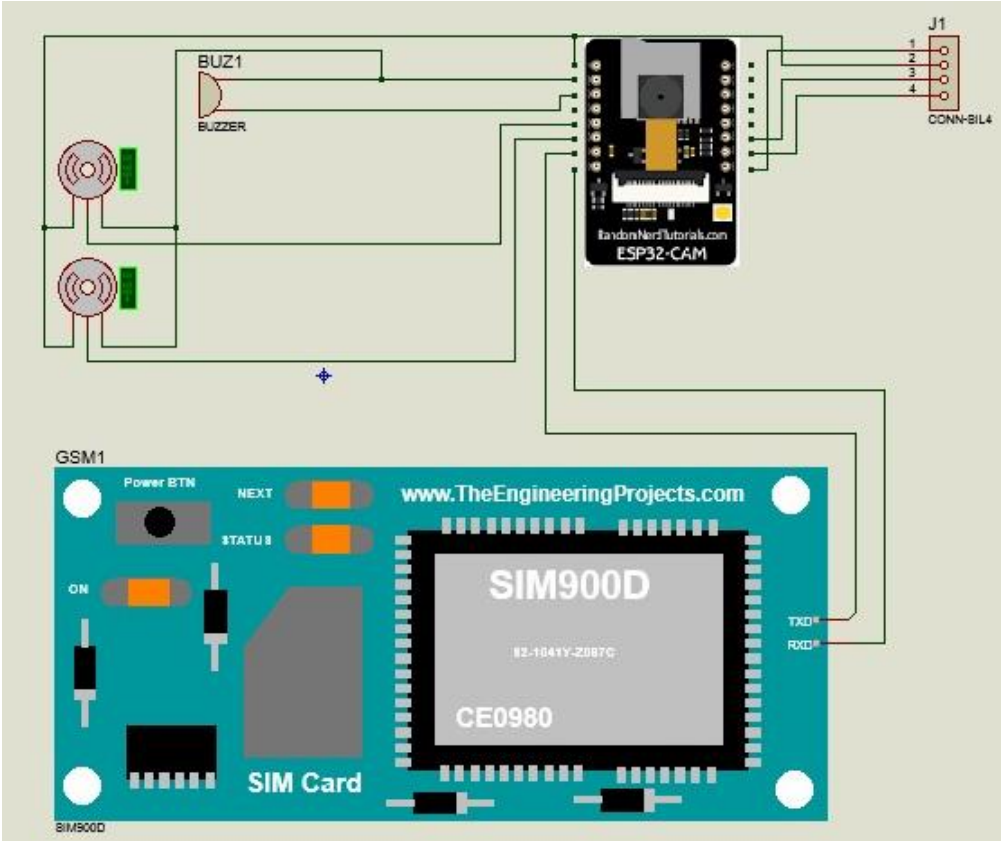

Fig.1 Circuit Layout

Working on QR-based smart rationing involves developing or implementing systems that utilize QR codes to manage the distribution of rations or food supplies efficiently. This typically involves creating QR codes for individuals or households that contain relevant information such as their ration entitlements or personal details. Then, these QR codes are scanned at distribution points to authenticate and allocate rations accordingly. It's a digital solution aimed at improving the transparency, accuracy, and speed of ration distribution processes. A QR-based smart rationing system using ESP32 would typically involve the following components and steps:

- **ESP32 Development Board:** The ESP32 will serve as the microcontroller to handle QR code scanning, data processing, and communication with other devices.

- **QR Code Scanner:** You'll need a QR code scanner module or sensor compatible with the ESP32 to scan the QR codes on ration cards or other identification documents.

- **Database:** Set up a database to store information about ration cardholders, including their details and entitlements.

- **Server/Cloud Connectivity**: ESP32 should be capable of connecting to a server or cloud platform to verify the scanned QR code against the database and retrieve relevant information.

- **Authentication:** Implement authentication mechanisms to ensure only authorized users can access their entitlements.

- **Entitlement Verification:** Once authenticated, verify the user's entitlements (such as the quantity of rationed goods they're eligible to receive).

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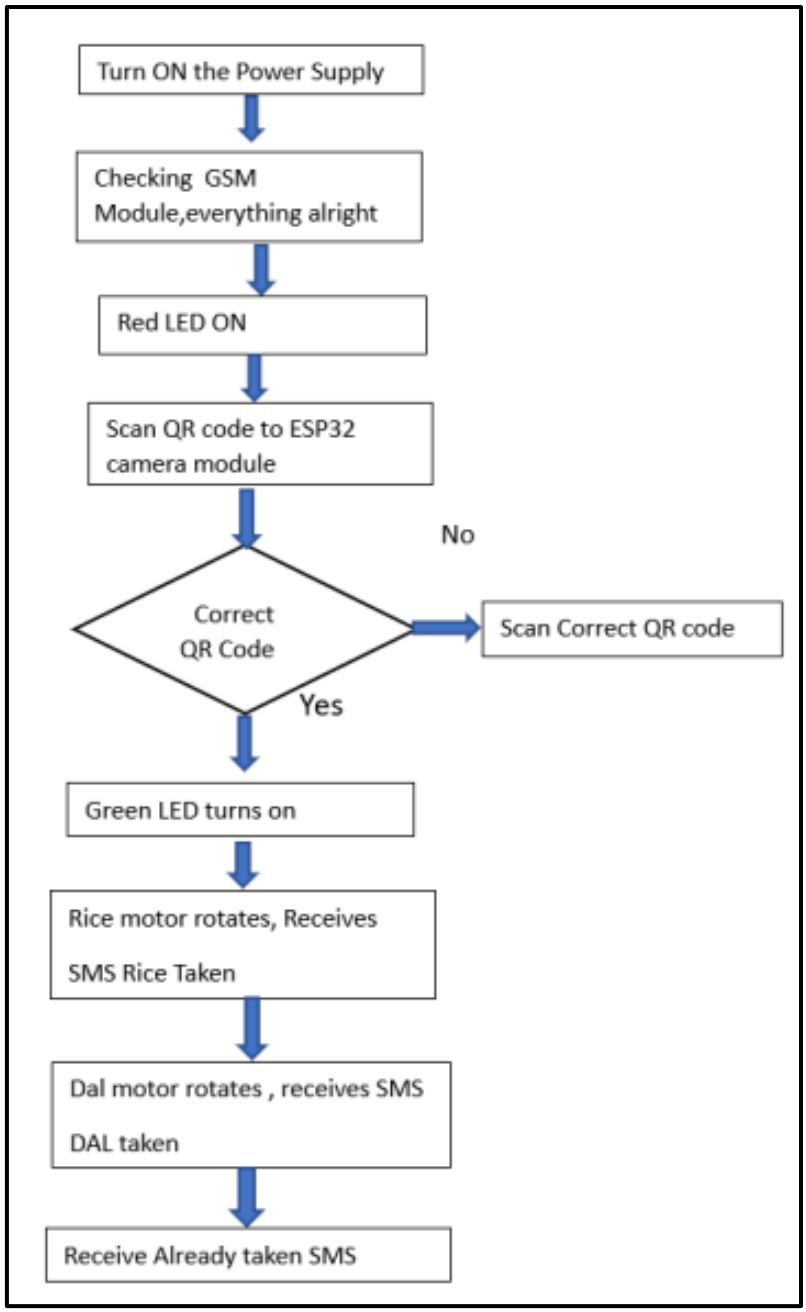
- **Dispensing Mechanism:** Interface the ESP32 with a dispensing mechanism (e.g., a motor-controlled valve) to dispense the rationed goods.

- **User Interface:** Develop a user interface for the system, which could be a simple LCD display or a mobile application that communicates with the ESP32 over Wi-Fi or Bluetooth.

- **Integration with Existing Systems:** If applicable, integrate the smart rationing system with existing government rationing systems for seamless operation.

- **Testing and Deployment:** Thoroughly test the system to ensure reliability, accuracy, and security before deploying it in real-world scenarios.

V. FLOW CHART



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VI. CONCLUSION

In this system we proposed QR based smart rationing which overcome the drawbacks which are present in the existing ration distribution system. we have displayed a novel approach to make strides the existing manual-based open dispersion frameworks utilized for disseminating fundamental commodities to people in financially weaker areas. We proposed a QR-code based E-Ration dispersion framework that diminishes the potential for false exercises by empowering following and checking of stock accessibility and conveyance. Our proposed framework utilizes advanced E-government advances and minimizes the dependence on human mediation to guarantee precise and opportune conveyance of fundamental commodities to those who require them most.

ACKNOWLEDGMENT

It is matter of great satisfaction and pleasure to present the report on, “QR BASED SMART RATIONING SYSTEM”. With great pleasure we express our deep sense of gratitude to our project guide **Dr. T. B. Mohite-Patil**. for their valuable guidance, discussion and constantencouragement for successful completion of project work. He gives us suggestions and constructive criticism from time to time in friendly manner, which perhaps his unique characteristic We wish extended thanks to all staff members who directly or indirectly helped us for completion of our project.

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