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Survey of Automatic Rationing System using PIC Microcontroller

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Abstract- In fast moving world all the public and private sectors are changing to automation process. So, there is a need for introducing the automated rationing system for distributing the various products like rice, sugar, kerosene, etc ... This helps to reduce the illegal smuggling of products in the ration shop. Also it helps to reduce the manual work. The appropriate amount for purchased product is automatically taken from the consumer's account. In the conventional rationing system there are some drawbacks such as inaccuracy in product quantity, illegal selling of goods, making wrong entries in the register (that are maintained in the ration shop). To overcome this demerits the system at ration shop is connected to the central database of the government. This maintains the transparency of the public distribution system which helps to provide direct communication between government and people.

Keyword: RFID reader, PLC, GSM, PIC microcontroller

INTRODUCTION

Automatic ration distribution system replaces the manual work in the ration shop. Mostly People suffer due to the corruption and time consumption. In this system we use smart card instead of ordinary ration card. The automatic rationing system installed at the ration shop contains three interfaces namely keyboard, billing printer and GSM. All these are interfaced to the microcontroller. Here we are using PIC Microcontroller to interfaced PLC and government database. The person needs to swipe the card on the radio frequency identification system placed at ration shop counter. The smart card contains the details about the family members and bank account. At the same time, the reference message is sent to the user via the GSM module. If the reply from the user is yes the process will continue else the process will terminate. Once the user move in to the process all the available products for his/her card will be displayed. Then the user have to select the product by using keyboard. After fraction of seconds the appropriate amount will be displayed. Then if the user press enter the message containing one time password (OTP) will be generated and sent to the user. After getting the OTP from the user the automatic transaction is done. Central database would be updated automatically after every transaction made by the users then the billing printer provides the receipt to the user and the products are issued.

Literature Review

Shivabhakt Mhalasakant Hanamant [1] "Automization of Rationing System". In this paper the ration shop distribution system is atomised and the database at one main control station is maintained and database is updated. So the shopkeeper cannot cheat the consumer. The smart card is used for authentication and using PIC microcontroller the automatic distribution is done. For updating data base, GSM is used is used to alert the consumer about the arrival of goods and to inform the people about the allocation of goods by the Government.

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consumer by GSM. When the user confirms to access the card the controller checks whether there is enough money in the bank account to buy the goods. If it is available then it ask for the password. The controller matches the password with the database. If the password is valid the products allocated for the card will be displayed. Then the consumer can select the required products. The appropriate money is calculated. Then the OTP along with the amount details is sent to the consumer. Once the consumer enters the OTP the automatic money transaction is done. The transaction receipt details will be displayed in the LCD. Without any manual interference the pic microcontroller gives the information to the PLC. If the first input given by the consumer is rice means, then it checks whether the object is present to collect the rice then the dc motor will automatically run until the desired quantity of weight is reached. After collecting the rice the alarm circuit turns on. This alarm indicates us to keep next bucket. After pressing start button the solenoid valve opens if the next product is kerosene. The same process takes place for the further products. After collecting all the product the receipt is generated automatically in the bill counter. Central database would be updated immediately after every transaction made by the user. This will be helpful to maintain the transparency and also provide direct communication between the people and the government.

Conclusion

This system is used to avoid the corruption in the ration shop and also it has the great scope in the future. There is no manual work so it is impossible to make wrong entries in the register which makes easier to maintain database effectively. It also provides safe, secure and efficient public distribution system. The system is transparent so it has control over prices of some commodities in the open market.

Future Scope

For better authentication of subscriber, a biometric system such as finger and palm print detection, eye ball movement scanning, etc...Also the better quality of service can be provided by using image processing.

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