

Central Automation Billing System

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ABSTRACT:The concept of automatic billing system is introduced using RFID and ZigBee communication. The Zigbee module will send the purchased product information to the Central Billing System. RFID tag/sticker is provided with each product to identify its data type. The total amount for each individual cart is calculated once the information is received from the central billing system. The main aim is to avoid queue in malls and supermarkets by the use of this central automated billing system.

KEYWORDS: RFID, ZIGBEE module, Raspberry Pi, 8051 microcontroller.

I. INTRODUCTION

RFID is expected to play a dominant role in the near future in fields of computing and wireless technology. It is used for automatic identification, these system is constructed with single 8-bit or 16-bit microcontroller, ZigBee module, an RFID reader, EEPROM, and LCD and it is developed using python. RFID tags contain electronically- stored information and it's not compulsory to be in line of sight of user for its operation. Now a days super market is using barcode technology it contains information in visual pattern readable by a machine. The implementation of RFID in super market allows customer to obtain information about the product which they purchased. The RFID works on the basis of transmitting and receiving radio signals between readers and tags. Since each cart is attached with RFID reader, RFID reader sends its information automatically to the ZigBee receiver at the billing system. Consumer can get their bills for their purchase at the packing section according to their cart number. There is no need for cash collector, as recently many supermarkets have credit/debit card billing system. Visual basis is used in developing automated billing system.

This paper is organized as follows; section II describes the idea of this project, Section III describes the block diagram which consist of two sides called transmitter and receiver side. Section IV describes the flow chart and its explanation. Section V represents conclusion of automated billing system.

II. RELATED WORK

The main idea of this project is to reduce queue systems of customer to obtain information by using RFID reader for Automatic billing. It can read hundreds at a time when it is passed through the RFID reader even when the product is covered. Due to its main features like low cost, low power, low data rate, short range and simplicity spectrum zigbee is mostly considered to be favourable for smart grid applications [2]. The barcode technology has been used in the M-commerce to great extend due to its simplicity and method to present a huge data in a short time. It also improves mobile user experience by reducing their inputs [3]. Further improvement of automobile with transportation and road fee has been investigated a vehicle miles with use of RFID technology and collect data from equipped vehicles [4]. RFID technology can be used effectively in Agri-food industries for traceability. Internal and external systems used in sample sector for analysing the food enterprises [5]. The issues and challenges faced when developing the RFID systems has been discussed [6].

III. BLOCK DIAGRAM

[Wireless connection]

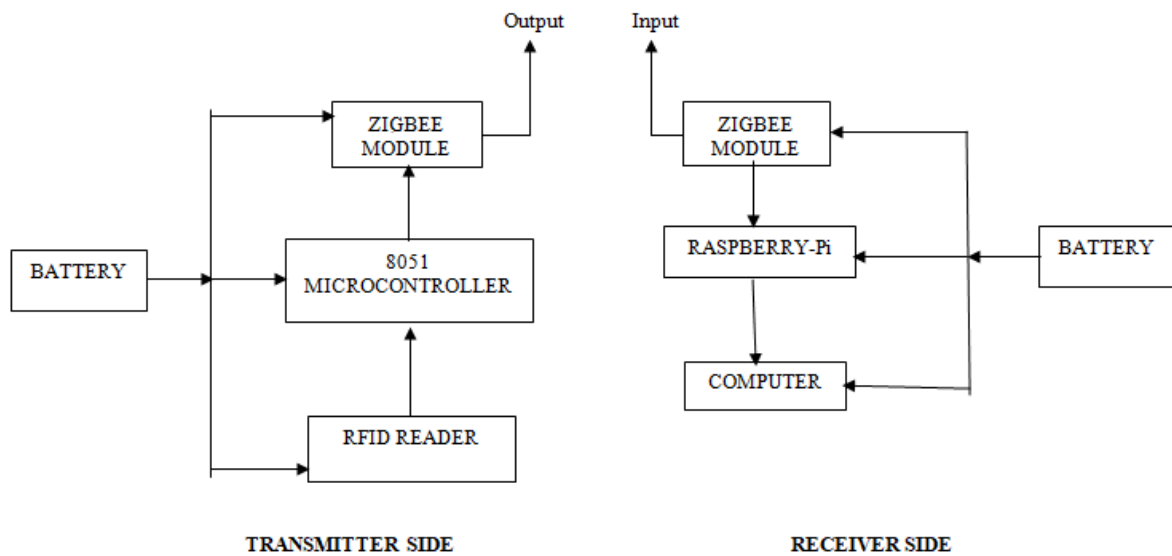


FIG.1 BLOCK DIAGRAM FOR BILLING SYSTEM

The system comes with two sections:

- 1. Transmitter side:** As shown in Fig.1, The data from the RFID tag is scanned by the RFID reader and the data is stored in the microcontroller which is powered by a 12V battery. After that the stored data is serially transmitted to the receiver side via Zigbee module.
- 2. Receiver side:** The data transmitted is received by the raspberry pi through a ZigBee module and the entire database is stored in it. Further the database is uploaded and displayed in the webpage of the computer.

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FLOW CHART

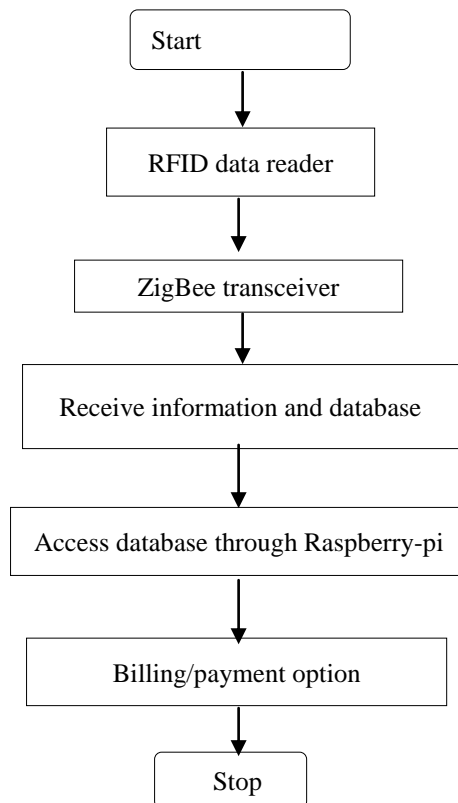


Fig.2 Flow Chart for billing system

IV. EXPERIMENTAL RESULTS



Fig.A Overall experimental setup

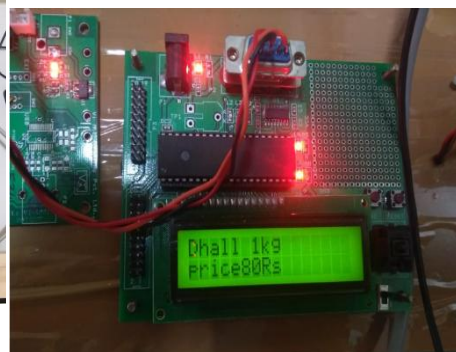


Fig.B output in Transmitter side



Material	Qty	Price
Sugar	1	30 Rs
Dhall	1	50 Rs
Auto	2	100 Rs
Total		210 Rs

Fig.C output in Receiver side

Figure 5.8 A. Overall experimental setup B. Output in Transmitter side C. Output in receiver side

Fig.A shows the circuit connection. The product information and price is displayed in the transmitter side as of in Fig.B finally the entire database is displayed in webpage as shown in Fig.C

V.CONCLUSION

The process of an automated billing system is servicing many customers at same time thus benefiting the retailers and customers as well. Thus, the traditional use of conveyor belt for tracking items can be eliminated by using this automataed billing system.

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