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SMART TROLLEY FOR FRAUD DETECTION

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Abstract — *Human life is changing due to advanced technologies of IOT. Once placed into a smart shopping cart, can be automatically read by a cart equipped with an RFID reader. As a result, charge can be conducted from the shopping cart itself, preventing customers from waiting in a long queue at checkout. Additionally, equipped with RFID readers, and can monitor stock, perhaps also updating a central server. Another advantage of this type of system is that inventory management becomes much easier, as all items can be automatically read by an RFID reader instead of manually scanned by employee. To the best of our knowledge, this is the first time a smart shopping system is proposed with security into account.*

Keywords: *RFID Tag, RFID Reader, Bluetooth Connectivity, LCD Display, Mobile Application, IR Sensor.*

I. INTRODUCTION

In traditional way of shopping where the customers choose their wished product and carry the products along with them. Then customer have to wait in long queues at the cash counter. To overcome this situation, RFID tag is attached to product and RFID reader connected to trolley. Customer place product tag near to reader while making purchase, system retrieve details of all products from shops database and generate bill. This bill can be sent to the customer's mobile through online banking service thus the user can make quick payment and leave the shop early. The RFID tag of the product is readed and move to the wish list if they are interested in choice of item by using the proposed mobile application. In order to develop an Android Application that uses a RFID reader for the purchasing and navigation of items for store that will be self-checking and automatic payment transaction. Here comes the term indoor navigation and RFID tag. Indoor positioning is still a challenging problem because satellite-based approach do not work properly inside buildings.

1. PROBLEM INGREDIENTS:

In this, User login into system then system will display best selling products. System also provide recommendation to user. User search required product in to database. System send product location to user. The customer place RFID tag of product near to RFID reader to add product into digital cart while making purchase, retrieve essential details of all products from shops database and generate bill. This bill can be sent to the customer's mobile through online banking service thus the user can make quick payment and leave the shop early. User can give rating to products and also view the rating of product. The customer place RFID tag of product near to RFID reader to add product into digital cart and move to the digital cart if they are interested in choice of item by using the proposed mobile application.

2. PRODUCT PERSPECTIVE:

In this system to reduce complexity we are using RFID Tags instead of Barcode .For every product their is separate RFID Tag in a mall. Each trolley will contain RFID Reader on it. The Bluetooth module is implemented on each trolley. Controller is used for storing purpose. LCD will display count of product purchased by the customer. If product is removed by the customer then updated count is displayed on LCD. To avoid any kind of fraud we are using BUZZER.

3. GOALS AND OBJECTIVES:

Goals:

Propose system will reduce the time require for purchasing the product in mall. Propose system suggest the product location to the user. Add product into cart by scanning product by the RFID Reader. Payment of purchased product is done online or by cash. This will reduce the time for purchasing product. Also save the energy of both i.e. customer and shopper. Also provide recommendation to user, user can view product information and view or provide rating to products.

Objective:

To reduce time required for purchasing product Notify the product location Minimize efforts require for billing system. Provide recommendation to user. User can view and provide rating to product Fraud Detection.
Display best selling products.

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4. SCOPE:

Scope of our project is as follows:

Propose system effectively used in shopping mall for notify towards expected product. It also reduce efforts of customer and shopper at the same time of bill amount. Propose system could be used in shopping mall for billing purpose. Propose system could be used in canteen, market, for selecting food, vegetables, fruits and bill payment. Propose system could be used for product recommendation and review ratings.

II. LITERATURE REVIEW

In[1], using ZIGBEE and RFID a communication between centralized and automated billing system is employed. RFID tag is mounted on every product, so that the reader can identify and catch the information of product. The information of purchased items is readed through a RFID reader and the information is sent to the billing counter using ZIGBEE module. This information gets added to the product Database and calculates total amount of purchasing of a particular product.

This system is focused on reducing queue in a store.

In[3], This Smart Shopping Trolley application creates automated billing system for malls by using PID the customer need not wait in a queue for the longer time. The product information is directly transferred to billing system. Customer can pay online. The system is time effective.

III. PROPOSED SYSTEM

In this, User login into system then system will display bestselling products. System also provide recommendation to user. User search required product in to database. System send product location to user. The customer place RFID tag of product near to RFID reader to add product into digital cart while making purchase, retrieve essential details of all products from shops database and generate bill. This bill can be sent to the customer's mobile through online banking service thus the user can make quick payment and leave the shop early. User can provide review rating to products and also view the rating of product. The customer place RFID tag of product near to RFID reader to add product into digital cart and move to the digital cart if they are interested in choice of item by using the proposed mobile application

3.1. ADVANTAGES OF PROPOSED SYSTEM:

- Propose system reduce the user shopping time
- Provide the navigation to user for better experience of shopping
- RFID tag helps to identify product uniquely.
- Users can explore more products.
- For fraud detection buzzer is used.

IV. SYSTEM ARCHITECTURE

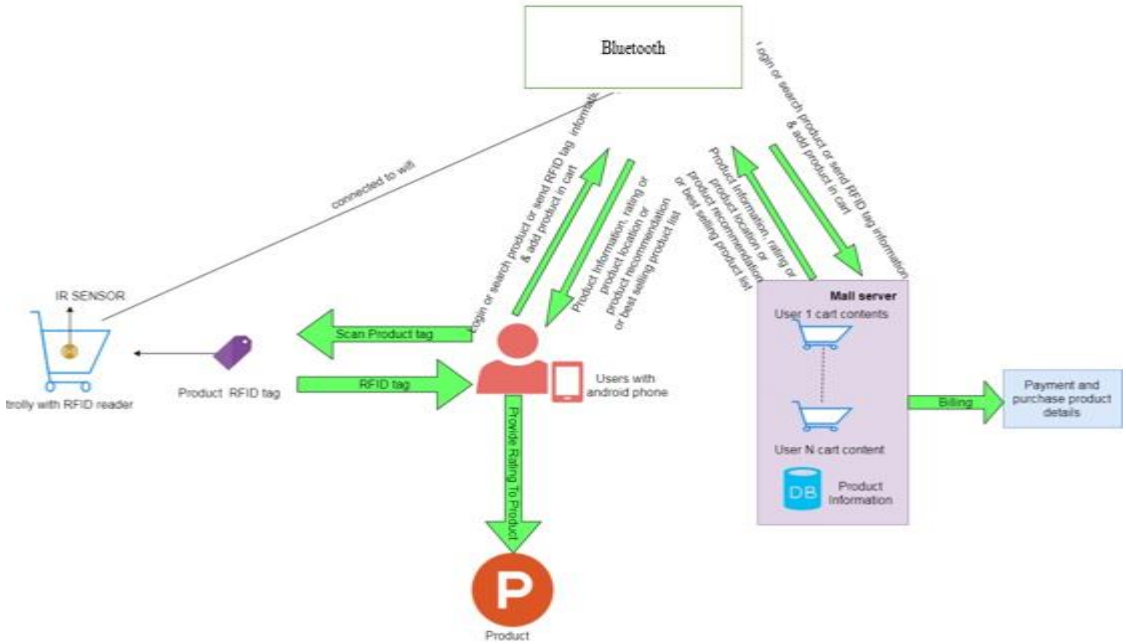

Fig1. System Architecture

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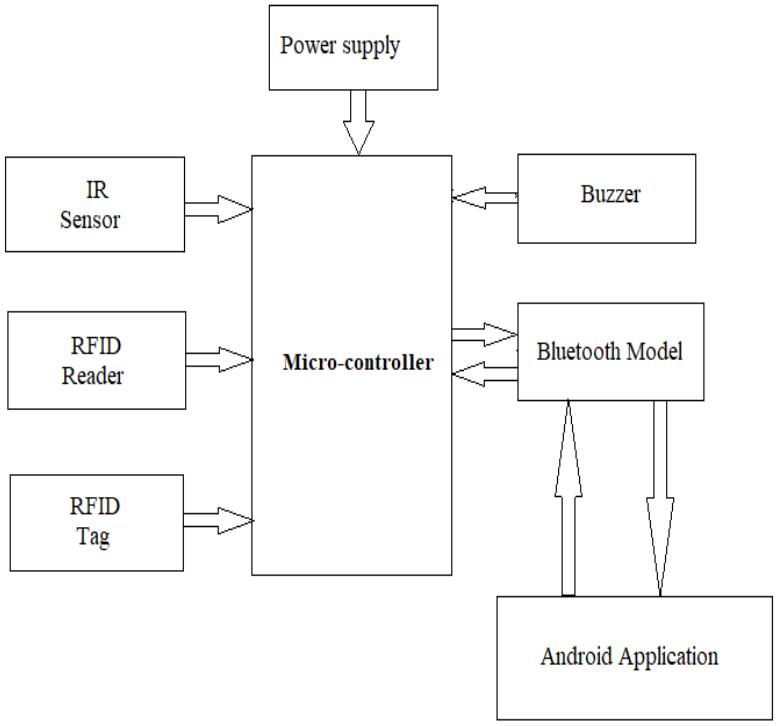

Fig2. Block Diagram

4.1. COMPONENTS OF Fig :

4.1.1. RFID Tags:

RFID Tags woks like Barcode scanning system to identify items. The data is transferred through radio frequencies from tags to reader. It is used for transmitting and receiving information.

Types of RFID tags:

1. Active tags:

Active tags have their own battery. It actively transmits and processes the incoming data.
Active tags can communicate with readers in the range of 100mtrs.They need much less signal from RFID reader as compared to others.

2. Passive tags:

They don't have their own battery source .Maximum distance capacity of communication range is 3mtrs or less than that with RFID reader. They are capable of holding something in range of 64 bits.

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4.1.2. RFID readers:

RFID readers catches the information of the RFID tags through antenna. It contains RF module that is transmitter and receiver of radio frequency signal.
There are fixed and mobile RFID readers in which fixed readers are not portable and they are permanently mounted on walls. On other hand mobile readers are portable as well as handheld device for RFID tags.

4.1.3. IR sensors:

Transmitters and receivers are used in this sensors. IR sensors uses infrared waves to communicate. It produces an arc in search of any obstacle. If no obstacle is found then process is continued. RFID Tags: RFID Tags woks like Barcode scanning system to identify items. The data is transferred through radio frequencies from tags to reader. It is used for transmitting and receiving information.

4.1.4. Bluetooth module:

It is a wireless technology which is connected to phones or other equipment. Bluetooth covers short distances.

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V. CONCLUSION AND FUTURE WORK

In this project "SMART TROLLEY FOR FRAUD DETECTION", name suggest that billing technique is improved. As compared to regular billing technique this system is less time consuming. It is more reliable. Here we conclude that the proposed system is time saving.

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