Smart Cart with Automatic Billing by Using RFID

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ABSTRACT:

A store or complex could be a location where people go to get products they need on a daily basis. Customers must be forced to line for long periods of time in order to have their products scanned using a barcode scanner and beaked. In order to avoid this, we've proposed a new 'Smart seeking self-propelled vehicle utilizing RFID' (Radio Frequency Identification). This implementation is used to assist someone when searching as well as to prevent waiting in big lines and therefore save time. A microprocessor, golem device, RFID reader, and electronic display would be included in the good-looking self-propelled vehicle. The merchandise in the searching centers could have RFID tags on it, allowing the gun dog to acquire information about it. When a customer sets a goods in a good self-propelled vehicle, the RFID Reader may read the product ID and store the information linked with it in the controller. Through the ZigBee module, communication will be established between the golem device, the main server, and the asking system (gate system). The total quantity of merchandise in the self-propelled vehicle will be calculated using the golem device and updated on the server and the Central Asking System. The upgraded good handcart System is designed to assist you in searching in person, reducing the amount of time you spend seeking. It also has the goal of supplying real-time inventory updates to the shop management area. The proposed system is based on four key technologies: infrared sensors, RFID tags for product identification, ZigBee for wireless communication with the server, and an integrated system with a show for questioning and inventory management. RFID (Radio-Frequency Identification) has the potential to be a fast-growing technology.

I. Introduction:

RFID systems are made up of small tags that are affixed to tangible things. Tags reply with certain identifying information when wirelessly interrogated by RFID Readers, which can be associated with arbitrary data records. RFID systems, like optical bar codes, are a sort of automatic identifying system. In this article, we address ways to improve the cart and turn it into a commercially viable product as a great approach to assist customers save time when shopping by presenting the total amount spent.

a list of products, their prices, and the ability to bill automatically The technology assists the store management department by automatically updating inventory after each product purchase. The Smart Shopping Cart has the potential to improve the customer's shopping experience by making it more comfortable, enjoyable, and efficient, as well as making inventory monitoring easier for business management. Since the dawn of time, humans have always devised and developed technology to meet their requirements. Regardless of the numerous sectors offered, the core objective of technological innovation has been to minimize tasks and make routine chores easier and faster.

Shopping is a major activity in which humans spend a significant amount of time. According to a survey, the majority of people spend 1.5 hours per day shopping. If a queue is very long, a considerable number of customers will always tend to walk out. The contemporary shopping environment can be divided into two categories: (1) in-person shopping and (2) purchasing online. Shopping in-absentia is facilitated in a variety of ways, including internet shopping, tele-purchasing, and other methods that do not require a shopper or consumer to be physically present in the shopping arena. Shopping in person is a person going to a shopping mall or shopping center and purchasing products based on a variety of variables such as need, fashion, convenience, brand, and so on.

II.LITERATURE SURVEY:

In his paper "A Novel Low-Cost Intelligent Shopping Cart," Dr. Suryaprasad J proposed developing a low-cost intelligent shopping aid that assists customers in searching for and selecting products while also informing them of any special deals available on those products as they move around the shopping complex. Amine Karmouche proposed developing a system that can scan dynamic and static objects in the shopping environment using RFID Reader antennae in his paper "Aisle-level Scanning for Pervasive RFID-based Shopping Applications."

Instead of observing RFID at the level of individual carts, aisle-level scanning is carried out. Satish Kamble proposed in his paper "Developing a Multitasking Shopping Trolley Based on RFID Technology" to create a product that would aid a person in everyday shopping by reducing the amount of time spent shopping. The suggested system's major goal is to provide a technology-oriented, low-cost, scalable, and durable system for supporting

in-person shopping. Mr. P. Chandrasekar proposed to construct a shopping cart with a Product Identification Device (PID) that includes a microcontroller, LCD, RFID reader, EEPROM, and ZigBee module in his paper "Smart Shopping Cart with Automatic Billing System through RFID and ZigBee."

Purchasing product information will be read by an RFID reader on the shopping cart, while product information will be saved in an EEPROM attached to it and sent to the Central Billing System via a ZigBee module. The cart information and EEPROM data are obtained by the central billing system, which then accesses the product database and determines the total amount of purchases for that cart.

III. SYSTEM DESIGN

Develop a low-cost intelligent shopping aid that supports customers in locating and selecting products, as well as dynamically informing them on product details as they go through the shopping arena. Support billing and inventory updates with each product identifiable uniquely and the use of a centralized server.

System Architecture

A Product Identification Device (PID) is affixed to each trolley. PID gadget delivers information to automated central billing system via ZigBee connectivity, which calculates the net price of all purchased products. According to their trolley Identification Number, customers can obtain billing information at the billing or packaging section. If a customer pays their net bill using their debit or credit card, there is no need for a cash collector. A ZigBee transceiver and a server/system connected to a product database make up the automated central billing system.

Fig. 3. Central Automated Billing System product database.

System Working

When a consumer walks into a retail center, he or she will be given a trolley with an RFID reader, LCD display, and Android device on it. When the vendor hits the 'START' button on the trolley, which is only visible to the vendor, the trolley will begin processing. As a result, customers can now shop using the smart trolley. The RFID Reader will read the tag information and display the results on the LCD Display whenever a consumer inserts a goods into the trolley. These procedures are repeated until the customer has completed his shopping and the vendor has hit the "STOP" button. When you select the "STOP" button, you have the option of finishing your shopping with the same items you bought or deleting or removing some of the items from your shopping cart. This is entirely dependent on the preferences of the buyer. The customer can pay the bill and depart the retail facility just after finishing their purchase. At the conclusion of shopping, the inventory status of the products is also updated.

IV. CONCLUSION:

For supermarkets and malls, the Smart Shopping Trolley Application creates an Automated Central Billing System (Acbs). Customers will not have to queue near cash registers to pay their bills if they use Pid (Product Identification). Since the information about their purchased products has been transferred to the central billing system. Customers can also pay their bills using credit or debit cards.

The proposed system is extremely dependable, authentic, trustworthy, and time-efficient. There will be a reduction in the amount of salary given to employees, as well as a reduction in theft. Furthermore, the system is extremely time-efficient.

V. FUTURE SCOPE

The suggested Smart Shopping Trolley System is designed to aid in-person shopping by reducing the amount of time spent shopping as well as the time required to locate the desired goods quickly. On an Android device, the consumer simply types the name of the product he wants to look for, and the cart will immediately direct him to the product's location

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