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“Smart Shopping System”

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Abstract

Now a day's purchasing & shopping at big malls has become a daily routine in metro cities. We can see a huge rush at these malls on weekends and holidays. This becomes even more when there are big offers and discounts. In malls, people purchase a variety of items and put them in the cart. After completion of purchase, one should need to go to the billing counter for billing purposes. At the billing counter, the cashier, by using a barcode reader, prepares the bill, which is a very time-consuming process. This results in a long queue at the billing counter. This work gives an overall idea to develop a system in a supermarket for shopping to overcome these problems. To gain this, every product in the supermarket should be equipped with QR code tags, and all the carts in the supermarkets should be equipped with a web camera for reading the tag and LCD screen. In this system, the customer one by one scans the QR code of the products and adds products into the cart; simultaneously, the product name and price will be displayed on the LCD screen, and automatically, the price gets added to the total bill. The system likewise enables the customer to trace the features of the purchased item on the LCD screen. If you need to remove a certain product from the cart, then you need to take the product and once again scan the QR code of that particular product, and then the cost of that specific product gets deducted from the total bill, and the same information is updated to the central billing unit through the web API (Application Program Interface). Therefore, the billing can be done in the cart itself, which saves the customer's time.

Index Terms: LCD screen, QR code, Barcode reader, Cart, Central billing unit, Web camera, Supermarket.

1. INTRODUCTION

Economic development and the communication, renovation in communication and information technologies have triggered an uprising in worth, knowledge, and approach in realistically all territory of human comprehension, extremely carving the so-called "Age of knowledge and information". The minimarket industry area in this day and age is exceptionally valuable in the global economy, with its current advancement in technological, social, economic, and political terms. Modelling is one of the largest suitable and multiple businesses over the world wide. Periodically, purchasers face

over the past few years. Extensive structural change has materialized, with outcome on the issue with respect to the imperfect information regarding product and waiting at the billing counters. Therefore, enhancement is required in the classical billing system to upgrade the standard of shopping for the customers. With this set-up, the consumer will have the details about the price of each and every scanned product and the total price of the product. This set-up will save the time of the consumer and manpower needed in the supermarket. The smart shopping cart combines a shopping cart with a QR code reader set at the top of the shopping cart. It facilitates the consumer to self-scan

the barcode of the purchased items which he/she expect to purchase. If the consumer desire to withdraw any item that can be done by scanning the item again while take out from the cart. A smartphone mobile with an android application is used here. As soon as we are logged in, we are allocated with a cart id which will be used all over of our shopping. An android application provides us to set up the budget limit before we start our shopping. An android application makes count of all the scanned products of the specific cart and is linked with the mall's backend database which contains information of the items such as cost price, obtainable stock. If the shopping amount reaches near to the budget limit or goes far away of the budget limit then the consumer is notified through the same mobile application. The scanned items are automatically billed in the smart cart monitor, there by notably decrease turnaround time. The scanned items are also transferred to the mall's central billing system through a web API (Application Program Interface) this

mechanism, the uninteresting work of scanning and billing of each and every single item at the cash counter can be avoided. Finally, after the shopping and bill payment the bill is sent to the consumer's registered E-mail id through the same mobile application mentioned.



Fig: Smart Shopping Cart

2. OBJECTIVES

The prime objective of this work is to generate smart cart and android application which is connected through web API (Application Program Interface). To automatize the work of billing counter system using mobile application through scanning QR code of products and automatically bill gets generated. To lower the time complication of user's shopping system and make the system user friendly. To facilitate the consumer to place their budget limit before starting the shopping, and notify if consumer shops beyond limit.

3. LITERATURE SURVEY

In [1], The authors "S. Sainath, K. Surender, V. Vikram Arvind" proposed a model Automated Shopping Trolley for supermarket billing system in which the automated shopping trolley is a smart trolley which integrates a raspberry pie embedded chip with two barcode scanners and a battery kit to allow users to self check out at supermarket.

In [2], The authors "Galande Jayshree, Rutuja Gholap, Preeti Yada" proposed RFID based automatic billing trolley, with this model the system consists RFID reader and the products in the malls equipped with RFID tags. When a person puts any product in the trolley its code will be detected by RFID reader and the transferred to the pc by wireless RF modules.

In [3], the authors "Mr. Yathisha L, Abhishek A, Harshit R, Darshan Koundinaya" proposed a model automation of shopping cart to ease queue in mall by using RFID module and Zigbee module. In this system using RFID tags instead

of bar codes, whenever a customer puts a product into a trolley, it will get scanned.

In[4], the authors Dr. K. A. Shirsath-Nalavade, Aarti Jaiswal, Swati Nair, Gayatri Sonawane, Suchita proposed a IOT based smart shopping cart with automated billing and customer relationship management.

4. SYSTEM ARCHITECTURE

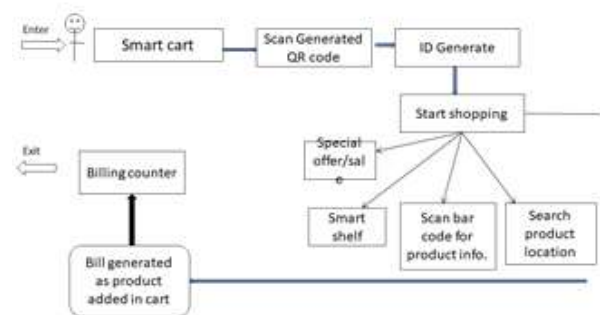


Fig: System Architecture

5. ADVANTAGES

This work has many advantages. This system decreases the manpower necessary at billing counter which in turn lessen the expenses bear by the authority. Consumers will have up to date of total shopping budget during the time of purchase. It will not only decrease the time spent at billing counter by ignoring consumer to stand in a large queue for bill generation and bill clearance but it will provide a user-friendly setup at the environment.

6. CONCLUSION

This type of system and application will supply a way for smart shopping. It will be a huge way to control customer inconvenience that are overlook during shopping, specially at the festive seasons. Consumer, simply by using their own smart phone application can lead everything within the shopping environment. Hence the items are scanned rapidly as soon as they are set into the shopping cart and without using papers bills are generated and sent to the consumer's registered e-mail which reduces the time of waiting in a large queue at the cash counter.

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