

INTELLIGENT CART SYSTEM

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Abstract - A product having societal acceptance is the one that helps comfort, provides efficiency and convenience in everyday life. Big shopping complexes are being developed in metro cities. Huge rush can be seen at these malls on holidays and weekends. People wanting to purchase products have to carry them in the trolleys. After finishing choosing the products, one proceeds to go to billing counter. At billing counter bill is generated by scanning the products manually using a hand assisted barcode scanner. This takes up a lot of time resulting in a long queue for billing. In this paper, we discuss a system "Intelligent Cart System" which is being developed to aid a person in day-to-day shopping in terms of reduced time spent while purchasing. The main objective of proposed system is to provide a technology-oriented approach which is pocket friendly, scalable, and rugged system for assisting shopping.

The developed system consists of 3 key modules

(a) Server Communication

(b) User Interface and display (UID), and

(c) Automatic bill generation.

Server Communication helps establish and maintain the connection of the customers shopping cart with the main server. UID provides the user interface to the customers for better understanding and billing module generates the bill in association with the Server. These modules are integrated into a software system and are tested to satisfy the functionality. The prototype developed is ready for commercial deployment.

Key Words: Intelligent Shopping, Shopping Cart, User Interface, Server Communication, Automatic billing.

1. INTRODUCTION

1.1 Project Idea

Idea behind the Project being developed is to solve the problems people are facing in the current shopping scenarios. This product will assist a customer in his everyday shopping by reducing the shopping time. It also

provides better assistance to the mall managers. This is an innovative product that will provide comfort and convenience to the shoppers and managers.

1.2 Motivation of the Project

i) While surveying we found that most of the people prefer to leave the shopping mall instead of waiting in long queues to buy a few products. People find it difficult to locate the product they wanted to buy, after selecting product they need to stand in a long queue for billing and payment. To try to solve the problems previously identified, we have developed our product.

ii) Another motivation is the use of smartphone for implementing shopping in shopping malls using better interface for users and to ease the process. To provide a technological view to solving the problem of manual shopping systems in malls.

2. LITERATURE SURVEY

We have reviewed Intelligent Shopping Cart by Raju Kumar, K. Gopalakrishna, K. Ramesha, International Journal of Engineering Science and Innovative Technology (IJESIT), Volume 2, Issue 4, July 2013].

In this paper they have made a hardware shopping cart. Inspired by their project we have developed our project completely based on software.

3. PROBLEM DEFINITION AND SCOPE

3.1 Problem Statement

A number of commercial shopping websites online offer large number of products to meet the shopping interest of large number of customers.

i) Basic problems with the existing systems are that they have non-interactive environment.

ii) Use of such laid-back user interface makes frequent posts back to the server to display results causing delay.

iii) The existing system results in too much rush in the mall while handling products and the space in mall.

iv) Existing System provides no detailed records of all users.

v) It is inconvenient for the customers to carry all purchased products and look other products.

3.1.1 Goals and Objectives

1. Goals:

- i) To develop an application that allows users to scan products and add to cart easily.
- ii) Saving place for arranging products in isles and decreasing the rush for buying products.
- iii) To provide user friendly and time saving experience to the consumer.

2. Objectives:

- i) The main objective of proposed system is to provide a technology-oriented approach which is pocket friendly, scalable, and rugged system for assisting shopping.

3.1.2 Statement of scope

The statement of scope is justified because a large number of customers are feeling the inconvenience. So our system can be:

- i) Can be used in malls easily.
- ii) With some more detailed study can be used widely all over the world.
- iii) All in one app.

3.1.3 Software Context

The system has a base of android application and website.

3.1.4 Major Constraints

The system is currently developed for smartphone users only.

3.2 Methodologies of problem solving and efficiency issues

- i) Here we are introducing intelligent cart system. In that our customer management module allows the administrator to maintain record of customers who have registered. It also allows keeping in touch with existing user using contact list. It also sends advertisement or offers to the user as per need.
- ii) Product Management features allows administrator to track inventory, maintain product availability, product sales and purchase etc.
- iii) From users perspective as well as Malls Manager Perspective, it is beneficial system that when user visit mall, he simply scan product name and it will also get added at admin side and user will get easily product and payment process. User can also view the reviews of the products.

3.3 Scenario in which multi-core, Embedded and Distributed Computing is used

Nowadays, every android phone has multiple core processors and embedded systems. Android smartphones that will be used by the consumer and the database

maintained on the manager's end will have distributed computing.

3.4 Outcome

- i) Less chaos, more comfort.
- ii) No more queues.
- iii) Time Saving
- iv) Budget handling
- v) Online bill payment
- vi) Easy verifications.
- vii) User friendly
- viii) Notifications regarding different offers and schemes.
- ix) Track monthly/yearly shopping budget.
- x) No additional hardware required

4. Detailed Design

4.1 Introduction

- i) This document specifies the design that is used to solve the problem of Product.
- ii) Main design of our product consist of a QRcode scanner which the user will scan.
- iii) Our system design will help the user to manage his own cart and bill.
- iv) Our design is user friendly on both the ends.
- v) Our system can be used in future with ease.

4.2 Architectural Design

A description of the program architecture is presented.

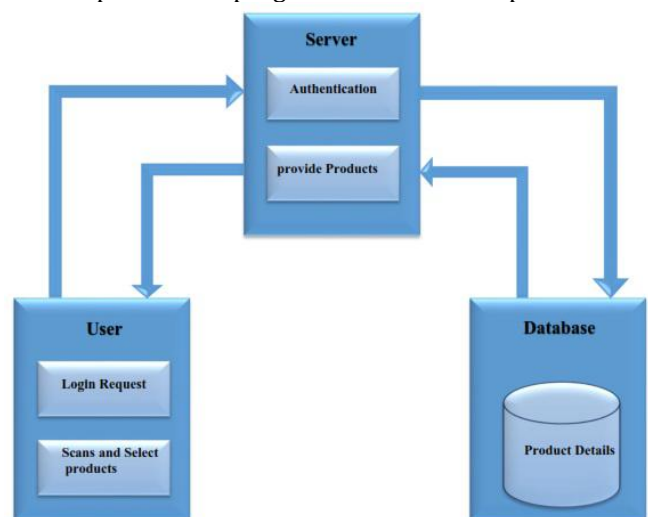


Figure 1: System Architecture

User registers on the system with detailed information. User name and password is also provided to the owner for login. User scans and selects the product he intends to buy and submits the list to the server. The server fetches the required product details from the database and displays them to the

user. The customer can also add, update and delete the products if required.

The admin also has to register with the system to add or update product details on the database. Admin gets to oversee the customers cart contents and dispatch the correct products to the assigned customers. The information of all users and employee is stored in the database at the server end which is accessible to only admin.

5. Comparison between Existing and Proposed System

Table -1: Comparison.

Existing system	Proposed System
Manual billing	Automatic billing.
Use barcode for billing.	Use QR code reader for billing on user end.
Human staff is needed for billing.	No human staff is needed for billing.
Difficult to track the product.	Easy to track the product.
Getting product information is difficult and time consuming.	Getting product information is easy and no extra time is needed.
It does not provide an automatic bill indicating the shopper about the changes in the total bill as products are added or deleted from the customer's cart.	The application will show the updated bill every time the shopper adds or removes any object from the cart.

6. Summary and Conclusion

The proposed system is helpful to both user and mall managers. The system is developed considering all issues related to all users included. Variety of customers can use this system if they know how to operate android smartphones. The product is user friendly, low-cost and does not need any special training. Our scheme would prove time saving and ease the shopping process for many people using the system. The advantages of the system make it more robust.

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