# Web Based Application and Data Mining Techniques for Large Shopping Malls

**Rahul Borkar[1] Sanketkumar Karve[2] Mahesh Landge[3] Mukesh Landge[4] Prof. Roma Kudale[5]**
[1,2,3,4]Student[5]Assistant Professor
[1,2,3,4,5]Department of Computer Enginnering
[1,2,3,4,5]Savitribai Phule Pune University, Maharashtra, India

*Abstract*— In Large shopping malls it is nearly impossible for customers to visit every shop in a single day. Moreover they are likely to be dissatisfied and complaint about lengthy billing process. Thus under consideration we come with a solution i.e., Shopping Malls provide a web based service for customers only inside mall. Devices which support wireless network (i.e., Wi-Fi) and web browser are used. It is impossible for big mall to explore complete mall and interested offers in a day. Thus, for customers, web service provides various feature like making check list of items to buy, interested offer and selective shops to visit. Upcoming or live offers are flash on display of customer. This service is also beneficial for shopkeepers. The data which is obtain form customers can be analyze (i.e., Mining data) which gives shopkeepers better understanding of customers' needs and demand

***Key words:*** E-commerce, Data mining, feature Selections, Online shopping

## I. INTRODUCTION

Visiting large shopping mall and exploring all the shops is impossible. Customer complains that they cannot find the shop which they are interested or with good offers. Moreover the billing process consumes lot of time and thus no time for visiting other shop. Whereas on the shopkeeper side the fail to understand customer interest and demand in order to increase the sale rate and shop development. To overcome this problem, we came with a solution of web services for shopping malls. It give us the opportunity to provide various feature to both customers and shopkeepers.

Build a web based services in large shopping mall. Every person in the mall can use the services if he/she has mobile device with wifi and web browser. For customer various services are provided like checklist, alert, notification of new offers, map of shopping mall, events etc. Online billing system is used which reduce the time consumption. For shopkeepers, Detail study of sale and product relation is provided. This will give them customer interest and demands. It will also help shopkeeper to develop their business as a whole, Malls is incorporate for the development and increase the sales rate.

### *A. Problem Statement*

Build a web based services for customer and shopkeepers which contains feature like checklist, item sets, alert, messages and notification regarding new offers and shops in mall. Make use of database to store customers shopping details and use mining techniques like basket analysis to items frequency. Use proper business automation techniques for shopkeepers for better understanding of customer's interest and demands.

## II. LITERATURE SURVEY

Web based services for the large shopping mall we are building the web page for the customer and also different database management algorithms are being used. The Web based shopping mall term is not had used till now, this term now we are using for managing the Large shopping malls. The term in it such as market basket analysis and other database management algorithms are already used .In this project we are combining different technology related to database management and web technology for managing large shopping mall. According to survey, Currently embedded automated services are used. Cisco is major manufacture of embedded system. But it is very costly and not so reliable. With the reference of mobile virtue mart application android and ios application are made dedicated to malls but it does not have data management facility. After studying the latest technology and most suitable with our project we choose web service ,data mining.

IEEE paper "A Web Services Shopping Mall for Mobile Users" by John A. MacDonald presented in 2006 , This paper proposes a protocol for authentication and payment between a consumer and a Web Service Provider that builds upon the Mobile Opera- tor relationship with the mobile subscriber. The proposed scheme enables the Mobile Operator to provide a trusted authentication service that allows a third party to implement an environment where Web Service Providers gain direct commercial access to the Mobile Operators subscriber base for the consumption of digital and physical products. Building a web services was in favour of mobile service providers, but we want to develop system to which will benefit customers and shopkeeper. Through this paper we collect a central idea on how to set up web services in shopping mall its advantages and pitfalls. It highlight the risk and scope of the project.

IEEE paper "Market Basket Analysis with Data Mining Methods" by Andrej Trnka in 2010,This paper describes the way of Market Basket Analysis implementation to Six Sigma methodology. Data Mining methods provide a lot of opportunities in the market sector. Basket Market Analysis is one of them. Six Sigma methodology uses several statistical methods. With implementation of Market Basket Analysis (as a part of Data Mining) to Six Sigma (to one of its phase), we can improve the results and change the Sigma performance level of the process. In our research we used GRI (General Rule Induction) algorithm to produce association rules between products in the market basket. These associations show a variety between the products. To show the dependence between the products we used a Web plot. The last algorithm in analysis was CS.O. This algorithm was used to build rule-based profiles. Using this paper we understand how can we obtain data and process it using one of effective

 

data mining technique. Association rule, Frequent item set, Support and confidence of item set and various relations.

Refereeing to the websites like www.virtumart.org we collect the basic detail on current technology and method used. We also refer to books like "Data mining" by Han, Kamber, Pei to understand the basic and foundation of the Data storage and mining process.

## III. SYSTEM ARCHITECTURE

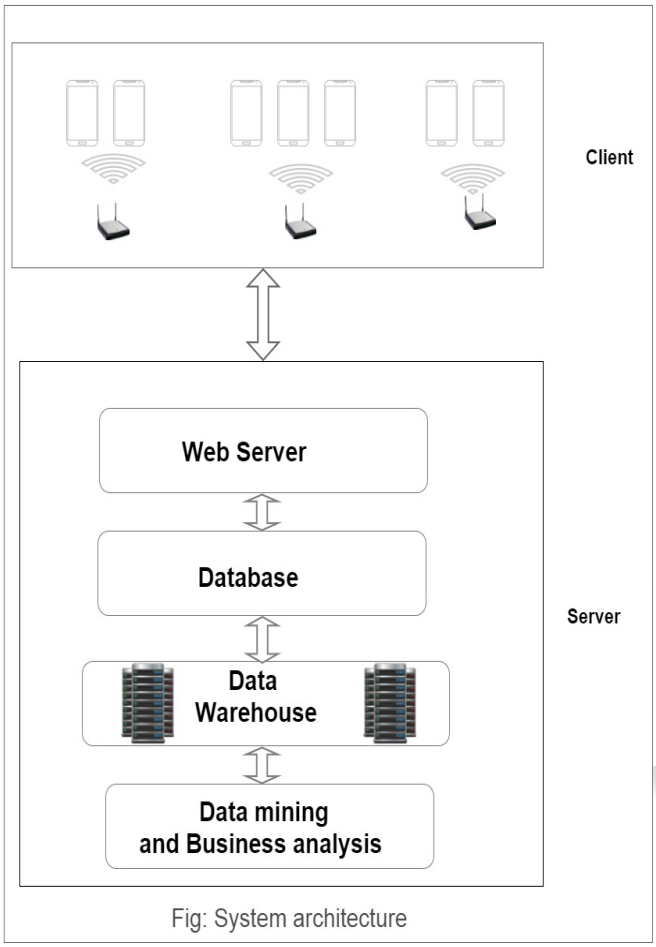


Fig. 1: System Architecture

System Implementation consist of various parts described as follows.

We are implementing our project by using Java Technology and MySQL database.

Various components of our system are

We all purchase the product by go to mall at that time after product selecting or collecting we send in row. At that time we spend more time to stand in row and then pay bill. That's case we provide solution to save that time.

Our system will save our time. Customer can see product details before he go to Shoppe or in the Shoppe he can select product and product add to his cart and pay online payment or create bill. Using that bill number customer can direct pay money on counter and save time to create bill.

Following are the three modules available in our system.

1) Admin
2) Shopkeeper
3) Customer

### *A. Admin Module*

Admin is main person who handle the all the system. He manages the system process authority and Shoppe management. Without admin authority no one can add product to system or no one can take counter cash.

Following are the roles of admin.

- Add Shoppe to the system.
- Add new user to the system like shopkeeper (not customer).
- Admin can give authority and remove authority of shopkeeper.

### *B. System Advantages to Admin*

- Admin can manage all the mall system using this site.
- Admin has all authority to provide shopkeeper authority and remove the shopkeeper authority.

### *C. Shopkeeper*

Shopkeeper is an important role after the admin in this system because shopkeeper uses this system to handle all customer transaction. Shopkeeper is connected between customer and admin through this system so shopkeeper role is important in this system.

Following are the roles of shopkeeper

- After get authority add product category and product with price and detail description. Product category is important because sorting the product to Customer to select and buy.
- After adding product category Shopkeeper add products with product details.
- When customer buy product and create bill that bill can see shopkeeper and check sales product. If customer not pays online payment that time shopkeeper only check created bill and take money from customer. In this process to shopkeeper need not to spend more time to create bill and take payment.
- Alert activation is the role of customer. If any customer requested to activate the alert like missing child in Shoppe.
- Shopkeeper can see the sales product ratio and sales product relation and arrange the Shoppe products.
- Add offers on product purchase are role of Shopkeeper.

### *D. System Advantages to Shopkeeper -:*

- Shopkeeper sees all sales report with graph so he easily understands the product selling relation and product selling ratio. Using this report shopkeeper can manage product arrangement and provides offer on not sales product.
- Shopkeepers save his time to create bill and take money from customer.
- Shopkeeper gives the alert to all customers using this site.

### *E. Customer*

This system purpose is to save the time of Customer and provide better service to the customer. In the mall Customer spend lot of time on counter so using this system customer save his important time. After take product Customer can quickly pay money using online payment system or directly show the bill on counter and pay money. In this case to the shopkeeper need not consume time to create a bill.

 

On this site provides products so the offer customer can buy that product without spending more time.

## IV. CONCLUSION

Web based service for large shopping mall is project dedicated to solve the problem by large shopping malls. Usually customer complaint that the are not satisfy by mall services and lot of time is loss billing and searching the items. Where as the shopkeeper claim that the don't understand customer interest and demand in order to provide them better services.

Survey was done on the recent technology used in malls. Android and ios application are used but they are limited to certain devices and requires internet. Whereas, embedded system are very costly and not so efficient.

Web services are provide to all people visiting the shopping malls. Every person with the mobile device with wifi and web browser can use this service. Various feature are provided for both shopkeeper and customers. Recent technology like web services, data mining techniques and business automation.

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