International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 07 | July 2020 www.irjet.net p-ISSN: 2395-0072

Research Paper on Localized E-commerce and Recommendation System

Dr. Nita Thakre[1]
Department of Computer Technology,
Priyadarshini College of Engineering, Nagpur, India

Aakash Shende[2]
Department of Computer Technology,
Priyadarshini College of Engineering, Nagpur, India

Prashant Roy[3]
Department of Computer Technology,
Priyadarshini College of Engineering, Nagpur, India

Vedant Santoshwar[4]
Department of Computer Technology,
Priyadarshini College of Engineering, Nagpur, India

Aditya Upadhye[5]
Department of Computer Technology,
Priyadarshini College of Engineering, Nagpur, India

Pratik Paraye[6]
Department of Computer Technology,
Priyadarshini College of Engineering, Nagpur, India

Abstract - *In today's world, AI is getting better and better in predicting people's behavior more efficiently and accurately. E-commerce is no exception. Right from finding the shortest path possible to deliver the product, to providing more relatable suggestions to the user, AI is integral to e-commerce business model. Recommendation system of the e-commerce websites/applications is the best example of AI at work. Recommendation system processes the user data and provides the results that the user is searching for. It has made the search engine of the e-commerce websites/applications more powerful and to the point, filtering out the results that the user may not be interested in.*

***Key Words*: BFBiz.net, E-commerce website, online shopping within the city, Delivery, Electronic, etc.**

1. INTRODUCTION

E-commerce is all about selling and buying of goods and services over the internet. Before e-commerce, it was done without internet physically in the markets but after the arrival of e-commerce in India our life has become more comfortable because of its number of advantages. The services offered by e-commerce are online shopping of anything 24x7 and at any place, customers can find the products on e-commerce websites which is not available in physical markets, it reduces cost and time, without stepping out of home we can get our product at home. But, due to e-commerce the revenue generated by local vendors is decreasing day by day. People prefer to the offers provided by the online stores to save money by comparing different stores. The latest report says that India has approximately $16.8 billion Mobile Commerce market size and mobile commerce is set to become the primary way to shop online in India. It is already used for 46% of transactions one of the highest rates in our report series. Mobile commerce will expand at a compound annual growth rate of 31.2%, to reach a value of $49.8 billion by 2021. To deal with the problems of local stores we are making an E-commerce website "BFBiz.net" where the required products will be shown from the nearest store within the city from the user's location by comparing the prices of different stores within the selected distance. This will make the goods sell and the delivery can be done very fast within the same day. Also, customer base for local vendors will be increased, resulting in more profit for them.

2. LITERATURE SURVEY

The concept of recommendation systems emerged in mid-90s. In past 15 years there has been a tremendous boom in the development of recommendation sites. The people using the recommendation systems are increasing exponentially making it crucial for these systems to generate recommendations that are close to the items of user's interest.

Micheal Pazzani [1] proposes recommending data sources for news articles or web sites after learning the taste of the user by learning his profile data. Paper describes collaborative structure of different websites based on ratings given to those websites.

Balabanovic, M. and Shoham [2] discuss that 'personalized recommendation systems' are widely used in e-commerce websites to provide users with recommendations. It suggests that Hybrid approach is the best possible way for recommendation to user rather than using only content-based filtering or only collaborative based filtering.

Satya Prakash Sahu, Anand Nautiyal, Mahindra Prasad [3] presented a best possible precision and have presented a comprehensive comparative analysis by selecting Content Based Filtering, Collaborative Based Filtering, Hybrid Content-Collaborative Based Filtering, k-mean clustering and Naive Bayes classifier among

various machine learning techniques which can be used to conclude the recommendation system.

3. PROS & CONS

- **Highly relevant:** As the system uses the preferences of the user, it is able to show only the relevant data which the user may find interesting. It is very helpful in narrowing down the search results for that user.

- **Transparency:** Transparency is another important aspect of Content-Based filtering. As the user can know the reasons for which the products are recommended, it makes the system more trustworthy. As oppose to the Collaborative-Based filtering in which products are recommended by preference of other users. The process of recommending the products is open to the user.

- **User Friendly**: While the system waits for some initial inputs, it is relatively faster in recommending the items. Gradually over the time, after hundreds or thousands of search results it recommends the products more precisely and accurately to the user.

- **New items can be recommended more quickly**: In Collaborative-Based filtering new items may not be recommended immediately as the users may not have look for that item. As oppose to this, in Content-Based filtering items can be recommended more quickly. Content-Based filtering does not require the users to interact with the object in order to recommend them as it is based on individual preferences.

- **Faster Delivery:** Due to involvement of honeycomb structure, delivery is improved drastically. It is due to the fact that products displayed on the website are sold by the nearest possible neighbors.

- **Delivery amount will be required:** As products are bought from local sellers delivery amount for limited purchase will be required and it may increase according to location of the seller.

- **Offers will be limited:** This is due to the fact that our website doesn't have any warehouse hence product will be directly transferred from seller to customer.

4. PROPOSED SYSTEM

4.1 Technologies

- PHP
- SQL
- Bootstrap
- HTML
- CSS
- JavaScript
- JQuery
- Ajax
- Machine Learning

4.2 Proposed Methodology

In this the user will be shown the products from its nearest locations within the same city. The products will be recommended according to the search history of the user. The products will be given discounts by the seller on his personal choice based on profits of both seller and customer.

Here are languages that we have used and underlying reasons:

- **PHP:**
  Open Source, ML libraries are easily available also it is probably the most used programming language for developing webpages. It's a highly scalable, functional, and **object oriented language**.

- **SQL:**
  Communication with Database, SQL is structurally simpler database language that does a lot of heavy processing for the relational database. SQL also provides JOIN Clause which enables developers to access data from different tables at same time.

- **Bootstrap:**
  Lightweight and customizable. Responsive structures and styles hence we have mobile ready website.

- **HTML:**
  For document design and display on web page.

- **CSS:**
  For Designing Web pages and make them user friendly.

- **Machine Learning:**
  It is used for recommending products to the users based on their search history and one's interest.

- **Ajax:**
  It is used to create dynamic webpages where only part of whole web page is updated, if needed, without reloading entire webpage.

- **JavaScript/jQuery:**
  Client-side interaction that works on almost every web browser. It also makes websites launch super-fast and provides the end users with enhanced user experience (UX).

5. ARCHITECTUTRE:

5.1 Activity Diagram

Given a diagram shows all the steps through which user, seller, manufacturer and delivery person goes through whenever the order is placed.

1. **Customer Module:** Here, the customer will be able to login or signup their account, search for the required product and can buy the product.

2. **Seller Module:** Here, the seller can do two things either "Accept or Reject the order" or "Give the order to refill stock".

3. **Delivery Person:** After the confirmation of the product from customer the seller sends the details to the nearest delivery person.

4. **Manufacturer:** It receives order from the seller for refill of stock and then it delivers the products to sellers.

5.2 Deployment Diagram:

Deployment diagram represents the overall architecture of the system. A node which is denoted by Cube is use to represent the software and hardware of the system. In the diagram the user device, web server, payment gateway and database server are represented using the node. The straight lines joining the nodes are communication paths or links through which the nodes communicate with each other. An artifact represents the source files, executable files, database tables and output files. In the diagram artifacts are used for representing the website's source file, the Apache server database file and transaction execution of the payment gateway. A dashed array which represents the dependency between artifacts is use to show website artifact is dependent on the database artifact. Any changes made in the database will be reflected in the website. A component is an executable piece of the system, in the diagram browser has been depicted using a component.

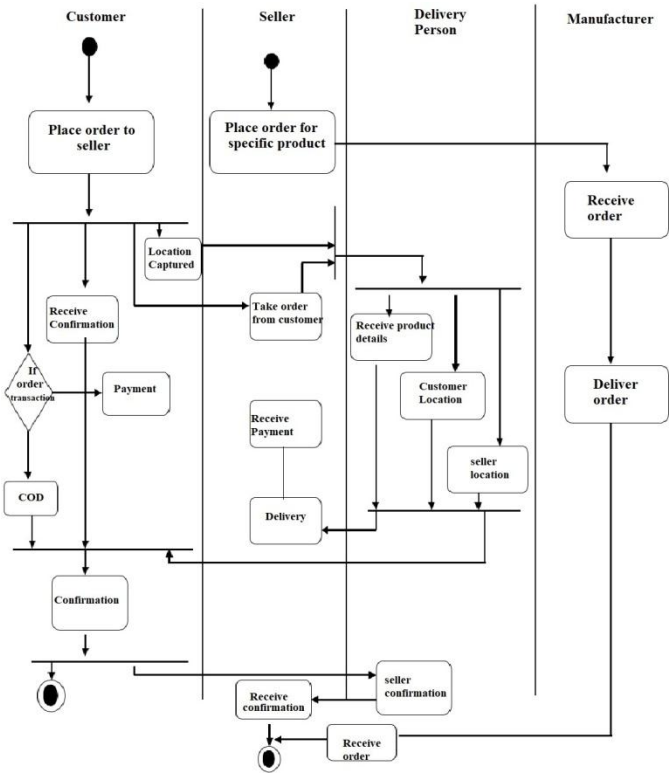

Fig -1: Activity Diagram for Proposed Work

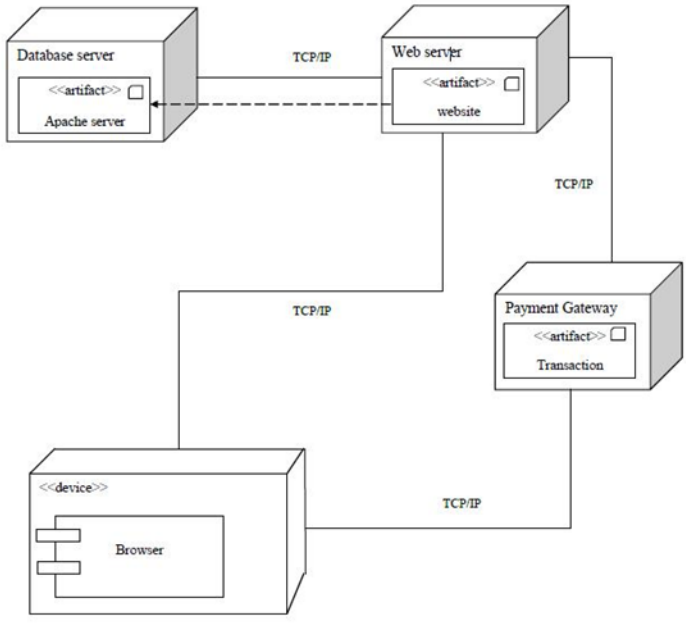

Fig -2: Deployment Diagram for Proposed Work

5.3 Data Flow Diagram:

At first seller must Login into their account. Seller, in their account adds products and listings of the product which they are going to sell in their shop. They add their add products data into the site BfBiz.Net. When the stock gets

low, the seller may give orders to manufacturer for the stock refill. Seller, Customer and Manufacturer first have to create an account into BfBiz.Net. All the user and seller can update as well as retrieve information from the database server of BfBiz.Net. User can place order to Seller for a specific product through our website. User first searches the product from websites search engine and when they find the suitable product they order for it. Users searched data goes to our database for further recommendations. The most frequently searched data or the product which is stored in their wish list are stored in the recommendation system which are then recommended to the user later when they start a new session. The recommendations are then displayed on the front landing page of the user.

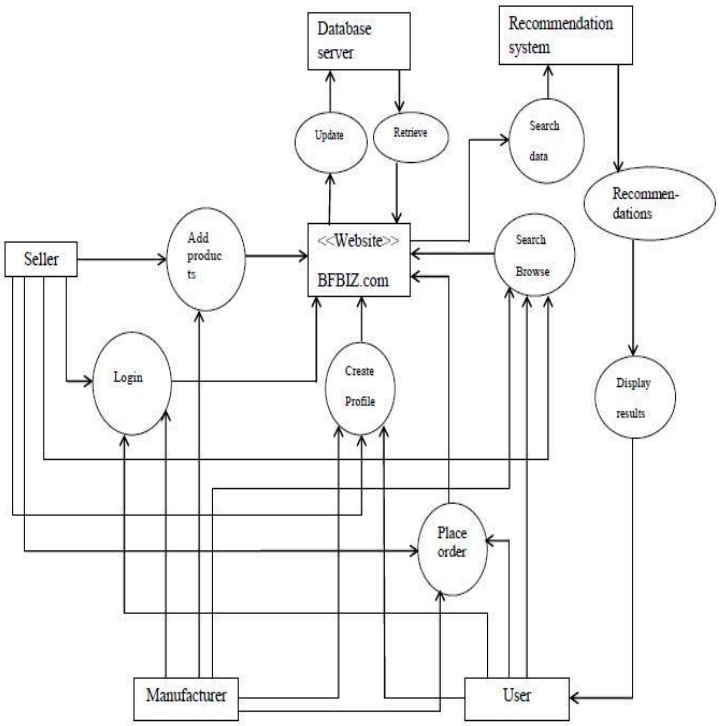

Fig -3: Data flow Diagram for Proposed Work

6. Algorithm for Searching and displaying of Products from Database:

1. Make different tables for groups of possibly searched keywords by the user for ex: colors, brands, product name.
2. Separate all the keywords entered by the user in search box.
3. Search every keyword in every table and extract all the necessary data such as product id, color id, brand id.
4. Display all the products with that product id, color id or brand id.
5. Highly relevant product must be displayed first and then products with lesser matching characteristics.

7. FUTURE PLAN

- To implement the system in different cities of India for the facilitation of the local shops and to enhance the delivery system using Honeycomb Structure.
- Here each cell will represent an area and will have its own delivery person to hand over the parcel to another cell to reach the final destination.
- Website will be open for certified self-help groups, so that they can sell through our site and target larger customer base.
- Different Module for delivery person so that new people can join in.
- Recommend Products using users search history on the web browser.

8. CONCLUSIONS

- The delivery system is faster, as it delivers the package within few hours and uses honeycomb structure for delivery of the package. Product displayed on the website would be displayed according to the location of user and location of seller.
- The other recommendation systems use historic data of the current user and user data of other users with same preferences, while our current system requires less historic data and operates on real time using the inputs of current user.
- Improved focus on locally available vendors and not only on established sellers

9. REFERENCES

[1] Pazzani Micheal (2004), "A framework for Collaborative, Content-Based and Demographic filtering".

[2] Sahu Satya, Nautiyal Anand, Prasad Mahendra (2017), "Machine Learning Algorithms for Recommendation System –A comparative Analysis".

[3] Balabanovic, M. and Shoham, Y. (1997).Fab Content-Based. Collaborative Recommendation. Communications of the ACM 40(3), (66–72).

[4] Agrawal R., Imielinski, T. and Swami, A. (1993). Mining association rules between sets of items in large databases. In Proceedings of ACM SIGMOD-93, (pp. 207–216).

[5] Basu, C., Hirsh, H., and Cohen, W. (1998). Recommendation as classification: Using social and content-based information in recommendation. In Proceedings of the 1998 National Conference on Artificial Intelligence (AAAI-98), (pp. 714–720).

[6] Breese J., Heckerman D., and Kadie C. (1998). Empirical analysis of predictive algorithms for collaborative filtering. In Proceedings of the 14th Conference on Uncertainty in Artificial Intelligence (UAI-98), (pp. 43–52).