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Web Development Model on Smart Shop: A Real Time Platform Connecting Local Retail with Digital Convenience

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Abstract: *The "SmartShop: The "A Real-Time Platform Connecting Local Retail with Digital Convenience" project is to develop a web site that will connect customers with shops where they can find products they need and buy them. The platform provides real-time access to the inventory of the shop, which reduces the challenge of identifying available items in a shop, making shopping more enjoyable. The users can search stores around them, check products that are available in those stores and even order for products online which is advantageous. A unique feature of the store that the 'Buy Now, Pick Later' enables the customer to be able to place an order for a particular product and then make arrangements to go and pick the products at a convenient time. To the owners of shops, the given application offers a number of effective features for managing the stocks and selling activities and makes them more ordered. The transaction history feature is advantageous for Shop customers as well as for Shop owners since it is providing the record of past transactions. Altogether, the project contributes to the development of local producers and offers buyers the opportunity to make purchases comfortably and fast but still to keep the focus on local stores' advantages comparing to the internet shops.*

Keywords: Real-Time Platform, Digital Convenience, Inventory Management, Store Locator, Product Availability, Buy Now, Pick Later

I. INTRODUCTION

A. Motivation and Scope

The SmartShop platform is intended to be a solution that will help bring together a local store and the convenience of online shopping by allowing customers to see what is available in their nearby store at the moment. It improves shopping by giving the choice of shopping physically and or ordering online with convenient ways of collection.

B. Need to study

The information presented in the case of SmartShop is relevant because it shows how independent stores can create applications to retain their market share against giants like Amazon. The convenience of an updated inventory and additions such as Buy Now, Pick Later, all make the process easier and more efficient for the customer. Awareness of the effects enables one unveil how local businesses can effectively implement inventory management, operational efficiency and customer satisfaction. Furthermore, the project creates jobs locally and helps small businesses – the personal approach to buying goods can become a basis for further digital retail initiatives.

II. LITERATURE SURVEY/REVIEW OF LITERATURE

E-commerce and the enhanced usage of online shopping have changed the retail industry over time. However, local stores remain relevant in the society as they provide personalised services, products are easily accessed and are key in boosting the local economy. One of the biggest problems faced by the small and local businesses is the ability to provide the same level of convenience and selection as the giants of e-commerce. Therefore, it is vital for the digital solutions to find ways of penetrating the local retail spaces for survival and business expansion.

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E-commerce Integration and Local Retail: Some empirical research has been conducted to investigate various facets of the application of information technologies to support the local retail industry to improve competitiveness. Verhoef et al, 2015 raises concerns on how organizations should embrace omnichannel retailing which involves the use of both online and offline strategies for retailing. It is meant to act as a strategy to close the gap between the physical store and the various demands for digital convenience. The concept like 'click-and-collect' (where consumer can purchase online and collect in store) has been successfully applied in many sectors like grocery and fashion selling as described by [Brynjolfsson et al., 2013].

Real-Time Inventory Access: An important benefit of using digital technologies in the retail outlets is the possibility of accessing real-time stock information of stores. Real time inventory has been used to enhance productivity and control stock outs as well as offer the customers with accurate stock status information. [Zhang et al., 2020] also established that real-time inventory information improves customer satisfaction and narrows the gap that has often been attributed to conventional in-store shopping experiences. Since SmartShop and similar platforms allow customers to view what is available at nearby stores, they make shopping more enjoyable as well as help local businesses become more effective.

Customer-Centric Shopping Experience: One of the most important objectives of the contemporary retail systems is the management of customer experience. According to [Klaus, 2013], there is a need for customers to attain a proper shopping journey that involves the use of the digital and physical planes for the benefit of the consumers. The scheme of operations initiated by SmartShop, called "Buy Now, Pick Later," is a perfect example of this approach, which lets customers order certain products online and then pick them up at a later time. This feature is beneficial not only to the customer, but also helps to minimize the time that the customer has to wait for their order pick up from the store, another disadvantage of traditional shopping. According to research by [Huang & Benyoucef, 2013], such flexible models increase both satisfaction and repeat purchase rates, as they offer customers the best of both worlds: a digital convenience that is locally available.

Shop Management and Efficiency: At the retail level, digital platforms provide improved means for handling inventory, as well as sales and customer activities. This paper also reveals that an inventory management system that is connected to the actual sales data, as explained by [Kumar et al., 2018], can enhance stock management and reduce losses. The SmartShop feature of the transaction history helps in this aspect due to the fact that it offers information on customer's purchases whereby, shop owners can be in a position to monitor the trends. These tools do not only reduce business transaction costs but also offer great business intelligence for the shop owners to enhance their sales and purchase management.

Supporting Local Producers and Sustainable Retail: The other important concept underpinning SmartShop is that of promoting local suppliers and small enterprises. From [Osterwalder & Pigneur, 2010], we learn that digital platforms are cheap to implement for small businesses and can extend market coverage without the need for vast structures. In this way, such platforms contribute to the sustaining of local producers and consumers' relationships. Also, the ability to make a purchase online along with the opportunities given by the physical stores lets domestic outlets remain strong competitors in the global Internet market.

Moreover, the empirical literature show that the omnichannel shopping, which is the blending of both online and offline shopping destinations, termed as phygital retail, seems well accepted among consumers who want to leverage the convenience of both online and offline retail formats [Pantano et al., 2020]. Also, the mobile app and platforms for local store shopping have also revealed that the use of technology appeals to the younger generation and who prefer fast and convenient shopping [Ladhari et al., 2017]. The application of integrated technologies, for the shop owners integrated digital tools as the automated stock control and the marketing tools tailored for each client improve business flexibility and competitiveness [Chaffey, 2015]. SmartShop's strategy of providing real-time information on stock availability and multiple options for pick up reflect one of the emerging trends of generating new retail patterns that are more sensitive to customer needs. For these local retail businesses, these platforms have become crucial with regard to the changing dynamics of the market due to digital transformation.

Also, [Hernández et al., 2020] continue the line of thought regarding the need for immediate and effective communication between consumers and retailers for the purpose of improving the customers' satisfaction and loyalty. SmartShop like features that allow the seamless transition of interaction and immediate access to stock status have been

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found to enhance the customer relationship. This is in line with the current general trend of segmentation of markets where retailers target customers with specific needs based on their data [Malthouse et al., 2013].

Thus, the literature supports the proposition that the adoption of digital technologies in local retail stores can enhance the value for consumers and organisational performance. SmartShop solutions that integrate real-time inventory information, focus on customers through 'Buy Now, Pick Later' options and efficient business tools are a worthy answer to the gap between traditional retailing and e-tailing. These innovations do not only improve local purchases, but they also support the longevity of small business establishments

III. RESEARCH GAP

Although omnichannel and real-time retail platforms have attracted increasing attention, literature on the integration of local retail with digital convenience is still scarce, especially for small-scale businesses. Although prior research addresses digital technologies for big players, there is less concerning their applicability for small shops with constrained budgets. Furthermore, there is a lack of knowledge of the concrete issues that local retailers can experience implementing real-time inventory control system and other 'Buy Now, Pick Later' flexible customer-oriented features. Moreover, it also explained that more studies should be conducted to determine the effect of such platforms for the growth of local economy and customer buying trends. Last but not the least, the applicability of these solutions in other geographic locations and other businesses is an area that has not been considerably investigated for..

IV. RESEARCH METHODOLOGY

The system in the SmartShop project can be proposed to build an overall digital system to help local retailers and customers to know each other's status and help them to find the products and services they need easily. The system is designed to help local stores overcome the competition of massive online stores by offering tools for enhancing customer relations and business performance.

A. Proposed System

Customer Interface: The customer interface is easy to use, and it is optimized to let customers search for products, to also view real-time inventory status for local stores, and to help customers place orders for products, for store pick-up. Key features will include:

Product Search: An option that will enable a user to search for products in different local stores that they intend to purchase.

Real-time Inventory Updates: Customers can get the current stock position of products in stores within their region so they are not guessing.

"Buy Now, Pick Later": One of this feature is that users can order products online and pick them up at their own convenient time at the store since they do not have to spend so much time in the store.

Order History: It is also convenient for users to check their previous purchases and place an order for the products again.

Store Ratings and Reviews: Customers can also provide feedback to help others make the right decision as regards the store and the product.

Retailer Interface: The retailer interface lets shop owners to handle their products and customers' purchases and transactions seamlessly. Features include:

Inventory Management: Stores can also make changes to quantities as and when, providing customers with up to date information on stock status.

Sales Dashboard: There is a wide range of features that generate a unique sales and customer analytics dashboard allowing retailers to make the proper business decisions.

Order Management: Retailers can enter customer orders and handle the "Buy Now, Pick Later" orders and view orders status.Transaction History: Business people can be able to get elaborate transaction records in their shops for accounting and stocking purposes.

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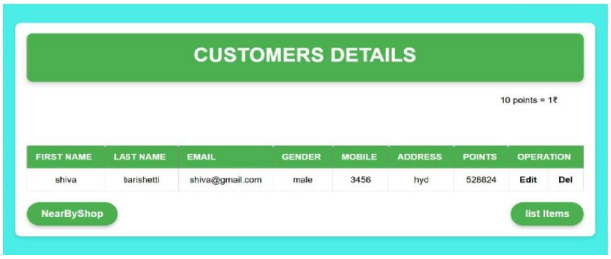


Fig a: Customer login

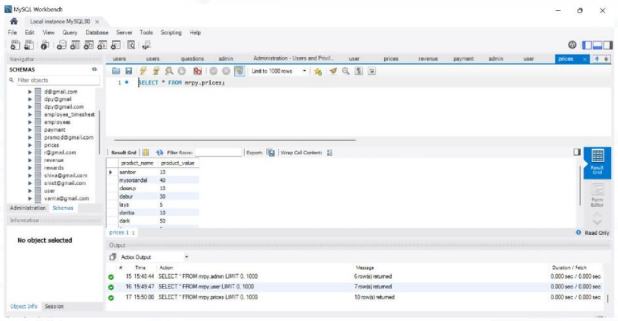


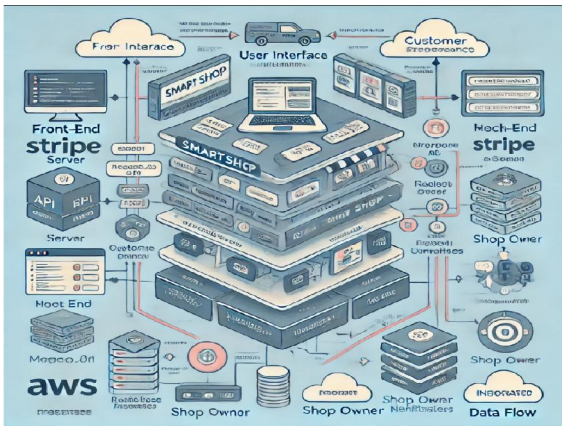
Fig b: Creating local retailers data base

B. System Architecture

The work here presented includes a multi-tier system architecture, with distinction between clients and interfaces, applications and business rules, and database layers.

Frontend Layer: This layer is in charge of presenting the user interface to the customers and any retailer that forms part of the supply chain. It will be developed with the modern technologies for web interfaces like React or Angular to provide user-friendly interface which is friendly for both desktop, tablet or mobile. Backend Layer: The backend shall be in Node.js to offer business logic, in that it will process requests from users, update inventory and manage orders. Frontend and external systems will be interfaced through the APIs. Database Layer: MySQL or PostgreSQL will be used to store the details of products, transaction history and the user data. As for updating customers, Web Sockets or Firebase will be utilized in order to display fresh stock data in real time.

Payment Integration: Payment for some products bought through the platform will be done through secure payment gateways such as Strip or PayPal.



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C. Implementation

It is therefore planned that the implementation of the SmartShop project will happen step by step to guarantee that each part is designed, installed, and tested properly. The requirement gathering phase will start the project where specific information from the customers and retailers will be gathered from the questionnaires, interviews and focus group discussions. From these impressions, the architecture of the system and its interface will be developed, that will include the principles of its simplicity, the ability to update inventory in real time and secure methods of payment processing.

The next phase of the development will include the creation of frontend and backend of the platform. The frontend will be developed using HTML5, CSS, MY SQL with choices like React or Vue.js to facilitate across many devices and the backend will be using Node.js or Django to capture the business logic. WebSockets or Firebase will support real-time data in providing customers with updates on stock availability within a product. Furthermore, it will include features such as Stripe to deal with secure payment methods such as online payments.

In the testing phase, unit testing will be done, integration testing will be done and user acceptance testing (UAT) will be done to ensure that the platform works as required. This phase will also also involve load testing to test the system under heavy traffic condition.

After testing, the platform will run in a cloud environment like AWS or Google Cloud, so there will be no difficulties with scaling. After that, there will be a constant analysis of the performance during which various analytics tools will monitor customer actions and retailers' sales. According to these suggestions, further enhancement will be made on the performance, UX and the features offered in the successive cycles.

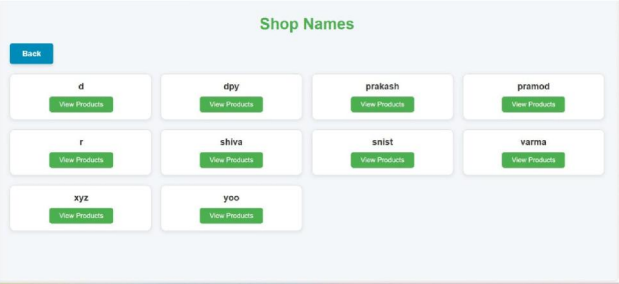

Fig c: selecting near by local retailer

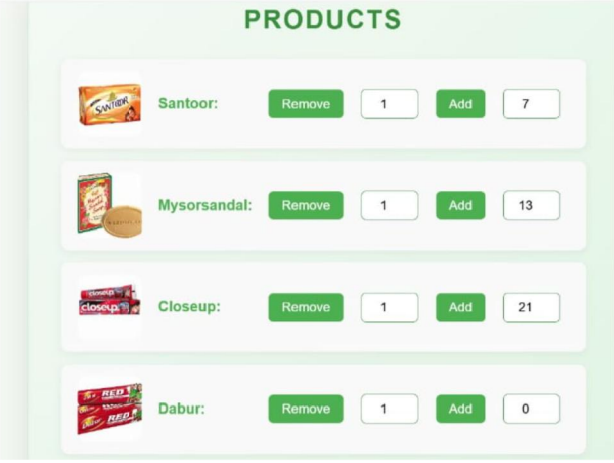

Fig d: selecting the products

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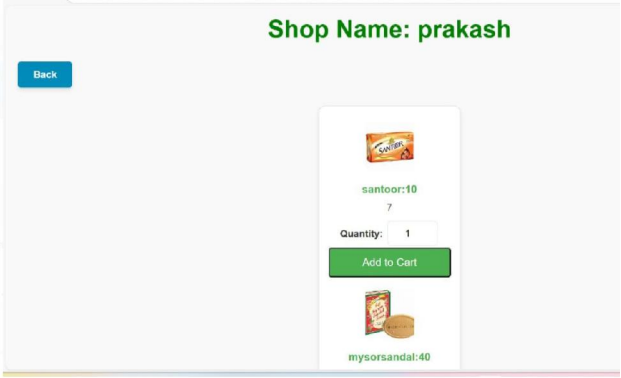

Fig e: purchasing product from local retailer prakash

D. Key Functionalities

Real-Time Inventory Management: One of the key components of the platform is real-time inventory management which will guarantee timely reflecting of availability of products as the purchase is made or the stock is adjusted. This feature will minimize the risks of out-of-stock products, and make the purchase decisions of the customers more informed. Order Flexibility: Some of the special services include the "Buy Now, Pick Later" that enables a customer to order a product online and have the order picked from a store at his or her convenience. This
feature is designed for improving customer satisfaction by providing the opportunity to receive their items at any convenient time. Multi-store Product Search: Customers are able to look for a particular product in different stores within their region making the possibilities of finding a certain product in particular stores without having to move from one store to another easier. Transaction History: Transaction histories will be available to customers as well as to retailers. It can be convenient for customers to reorder a product that they have bought before, good for retailers to keep track of sales.

E. Results:

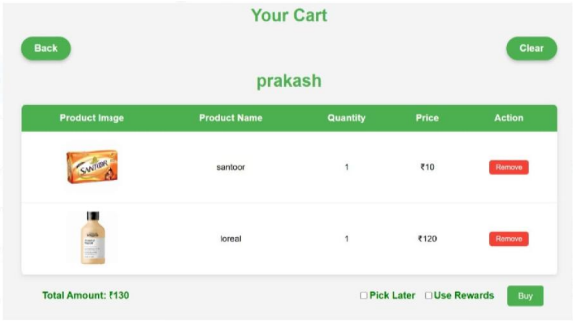

Fig f: Customer viewing cart

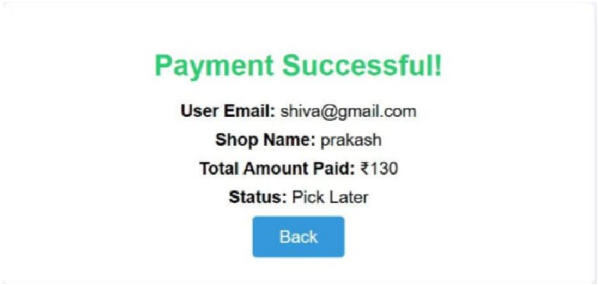

Fig g:Customer payment to retailer

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F. Conclusion

In the proposed SmartShop system, the customers are expected to have better shopping experience by being able to view the stock position of the nearest store, order online easily and have a variety of ways to pick their orders from. For local retailers it provides an effective way to track products, orders and customers and ensures their success in the context of growing online retail sales. Integrating all these features, SmartShop offers a complete solution to meet the need of connecting the local retail and the online convenience store.

G. Feature enhancement

Subsequent releases of the platform could include options such as AI recommendation of products to purchase, machine learning that adapts the price of products automatically or more options for payment processing such as mobile payments and cryptocurrencies. It has also the potential to extend delivery solutions besides the already piloted feature called “Buy Now, Pick Later”.

REFERENCES

[1] Secure NFC Application for Credit Transfer Among Mobile Phones by David M. Monteiro, Joel Rodrigues and Jaime Lloret [Computer Engineering and Applications Vol. 1, No. 1, June 2012]

[2] A Generic Model for NFC-based Mobile Commerce by Hsu-Chen Cheng, Jen-Wel Chen, Tain-Yow Chi & Pin-Hung Chen [ISBN 978- 98-5519-139-4, FEB15- 18, 2009, ICACT 2009]

[3] Shopping Application System With Near Field Communication (NFC) Based on Android by Emir Husni, Sugeng Purwantoro [2012 International Conference on System Engineering and Technology, September 11- 12, 2012, Bandung, Indonesia]

[4] Verification of Receipts from M-Commerce Transactions on NFC Cellular Phones by Jungha Woo, Abhilasha Bhagav-Spantzel, Anna Cinzia Squicciarini, Elisa Bertino [AUG 2010]

[5] Near field communication forum. http://www.nfcforum.org