SMART BILLING SYSTEM

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Abstract

The goal of this study project is to fully automate the current manual approach by using computerized tools and software that meets their needs, protecting their important data and information can be stored for a longer period with the easy accessing and manipulation of the same. This is to facilitate all the people who are busy with their works and have less time to get their required goods and paying its bills without standing in a long queue in front of billing counter. This is a web application to register/login to select the grocery & products, scan the QR code provided on every item via online and pay the amount via online payment gateway PayPal. Smart Billing System, as declared above, can lead to error free, secure, reliable and fast management system. Instead of focusing on record keeping, it might help the user focus on their other tasks. Thus, it will help customers & organization in better utilization of resources.

Keywords: automate, computerized, Smart, Billing, online orders

I. INTRODUCTION

In our day-to-day life, over an average of about 98% people do shopping every day, does not matter whether it is of clothes or grocery. In today's haptic and busy life, most of the people prefer to shop via online mode. Online shops give us the opportunity to shop 24/7, and reward us with a **"no pollution"** shopping experience.[1] There is no better place to buy informational products. Due to the fact that you receive items directly from the manufacturer or seller and without the use of middlemen, it offers low bargains and better pricing than those that are offered online.[2]

The smart billing system does not settle with the credit supplier of the customer until the item selected by customer is picked from the inventory and bills are paid.[4] Therefore, customer can go offline and make changes to the order. In

addition, available services windows are presented to the customer as a function of customer selected order and payment types and further, the type of payment is assigned in accordance with customer's preference. [5]

The user doesn't require any special training to utilize this system. This alone demonstrates how user-friendly it is. Hence, this technique is an appropriate method to be used in places like supermarkets or crowded groceryshops and stores. [6] This will help in reducing work force & making a better, secured, reliable and fast experience for customers.

II. OBJECTIVE

To develop the smart billing system helps in maintaining records and products.

To facilitate the customers to go to the grocery shop, pick the product by hand to get assure about the quality and check the availability of that product on our grocery web application then scan the QR CODEto pay the bill without standing in a ques and wasting time in front of the billing counter.

The purpose of the projectis to fulfill the requirements of small and medium scale industries by maintaining, stock, and providing efficient billing system. Customers can use the **BAR CODE** to pay the bills frequently and in easy way. All the process will be surely safe and secured which will provide a better experience to the customer. This technique will help the customer to save the time and reduce the risk of fraud cases & being getting spoiled and faulted items.

III. LITERATURE REVIEW

Udita Gangwal *et al.* (2017) described a prototype has been made based on the idea of barcode scanner. The prototype uses a camera-based barcode scanner for implementation, which uses a small video camera to capture an image of the barcode and then use sophisticated Image Processing techniques to decode the barcode. We have used a webcam for this purpose, which issupposed to be fixed at the top, facing the slab attached to the cart. Limitation: they hadused barcode scanners which have problemin scanning. [7]

Sagar Sojitra *et al*. (2016) proposed the idea to decoding the QR codes, thereby launchinga URL in the web browser. This is because in today's retail environment, products come with label tags for unique identification and theft protection. Novelty underlies in the idea of linking retail item identifiers to network application. This also helps in exposing the customers to rather detailed information regarding the product to be purchased.The impact of IOT comes in the case of mobile payment where by enabling NFC, one may get access to systems and virtual wallets. From a retailer's point of view this increases the convenience and simplicity these kinds of transactions are beneficial in providing opportunities forpersonal interaction with the customers. Limitation: They used QR scanners whichhave problems in scanning. The plug-in usessensing and inbuilt Wi-Fi capabilities of theEdison board to connect to cloud this is cloud enabled solution which helps in remotemonitoring system. Limitations: having someproblem if the cloud server is low. [8]

Sharaddhain her paper stated that Each trolley is attached with product identification device through ZigBee communication piddevice sends its information to automated central billing system where net price iscalculated but the data is stored in the cloud. [9]

Komal ambekar in her paper stated that Eachtrolley is attached with product identificationdevice through ZigBee communication piddevice sends its information to automatedcentral billing system where net price iscalculated the main drawback of this processis it needs an android device. [10]

Mr. P. Chandrasekar Ms. T. Sangeetha. (2014) main aim of the authors in this paper was to devisea system with automatic billing. This avoids the long queues in supermarkets and shopping malls. The use of Radio has been proposed in this work. In this paper, we propose a centralized viable automatic billing system using RFID and ZigBee communication. To do this, all supermarket products must be assigned RFID tags. This allows clear identification. Each shopping cart containing components such as microcontrollers, RFID readers, EEPROMs, LCDs and ZigBee modules is equipped with a Product Identification Device (PID). RFID readers allow you to read product information associated with purchased products. On the other hand, the product information is attached and stored in the EEPROM and the data is sent to the central system for billing via the ZigBee module. The central system has access to information such as shopping carts and EEPROM data, so payment amounts can be easily calculated. [11,12]

Functionalities provided by the project-

- To provide a Registration / Login page to be a usual customer.
- To provide a Searching facility to easily find the products.
- To manage the online payment details, which is considered to be the most considering feature.
- To manage all the information regarding User, Products, Payment & Shopping.
- To show the detailed description of the Products, Customer, Admin & Payment.
- To provide safe and highly secure QR CODE for scanning & billing with the help of PayPal as a payment gateway.
- To save time & efforts and avoid the effort of standing in a queue to pay bills.
- To provide SHOP OFFLINE, PAY ONLINE facility just for the quality assurance.

IV. METHODOLOGY

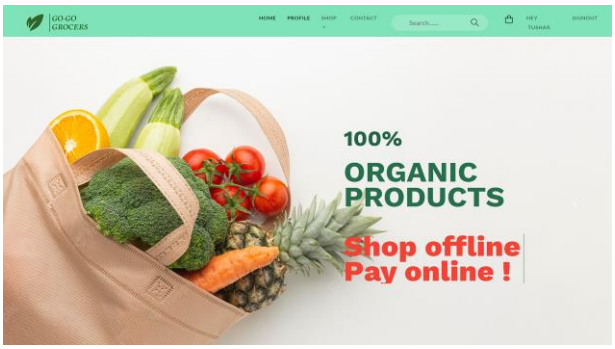
The iterative waterfall model is very similar to the traditional waterfall model, but with a feedback path. These feedback paths make the model realistic. Let's assume that a bug is discovered during the testing phase and needs to be fixed by returning to the design or requirements analysis phase. To reduce the cost of correction, errors should be detected and corrected at the same stage. An iterative waterfall model provides a feedback path from each stage to the previous stage. This is the main difference from the traditional waterfall model. An iterative waterfall model provides a feedback path from each stage to the previous stage. This is the main difference from the traditional waterfall model.

RESULTS

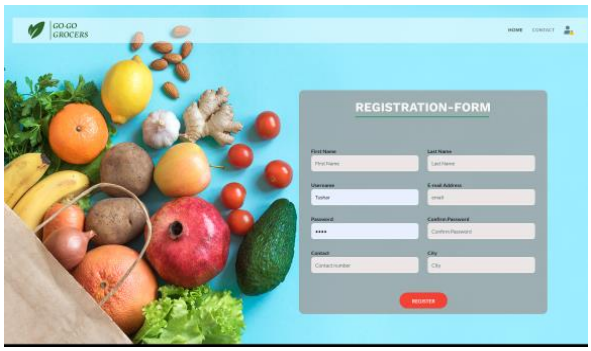
Results of the evaluation of the clearly proposed system yielded a very good level of usability. When implemented, it will considerably improve the billing system since the customer can simply use the internet to gain access to their accounts. The operations of the proposed system were described by the evaluators as very simple to operate due to its simple interface design. The findings suggested that the respondents believed the response time and its reliability were impressive. The system was able to provide real-time billing system. It also provided the correct results with utmost precision and was able to facilitate accomplishment of specific tasks they wanted. The evaluators unanimously agreed that the proposed system is remarkably functional, operational and reliable.

OUTPUTS

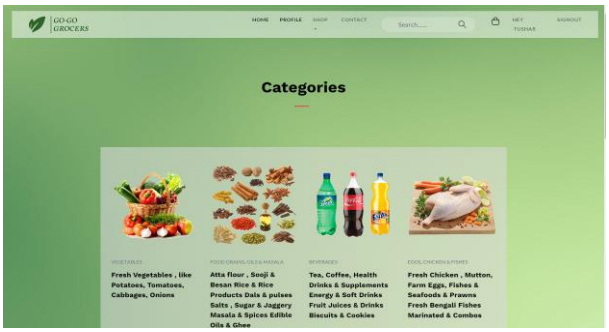
Homepage



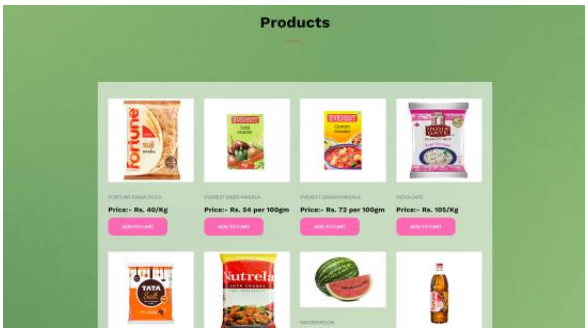
Registration Page



Categories



Product



APPLICATIONS, ADVANTAGES AND LIMITATIONS

Advantages:

- Time saving- Avoids long queues for payment
- Automatic billing
- Mobile-self checkout system
- User interactive system
- Ensure security
- Support cart payment

- Safe and highly secured payment gateway

Disadvantages:

- Can read only item in this prototype
- Billing fails if no network coverage
- Don't provide delivery facilities

Applications:

- Supermarkets
- Shopping center's

V. CONCLUSION

The Smart Billing System permits a customer to submit online orders for items and/or services from a store that serves both walk-in customers and online customers. It presents an online display of an order cut off time and an associated billing window for items selected by the customer. The system accepts customer orders for items in response to order times prior to the order cutoff time. The smart shopping system with automatic bill generation helps the retailers to manage the customers in an efficient way since the customers need not have to wait in long queues. Since the data of the purchased products, the customers can get to know about the bill details in advance with which the customer can plan for an affordable purchase. Through this way of shopping system more customers can be served in the same time thus benefiting the customers and retailers as well.

VI. FUTURE SCOPE

In this project we can develop an android mobile application in which the customer creates an item list to be purchased firstly. Customers then scan the QR codes of the products with their smartphones and add these products to their shopping cart. At the end of the purchase, an invoice will be generated and paid via one of the UPI money transfer platforms. To prevent theft, camera-based theft detection using machine learning is used to detect when a theft occurs. This approach uses a convolutional neural network to detect customer movement and send alerts along with captured images to authorized personnel.

REFERENCES

1. D. Klabjan and J. Pei, "In-store one-to- one marketing," Journal of Retailing and Consumer Services, vol. 18, no. 1, pp.64–73, 2011.
2. T. Shanmugapriyan, "Smart cart to recognize objects based on userintention," International Journal of Advanced Research in Computer and Communication Engineering, vol. 2, no. 5, 2013.
3. R. Kumar, K. Gopalakrishna, and K. Ramesha, "Intelligent shopping cart,"International Journal of Engineering Science and Innovative Technology, vol. 2, no. 4, pp. 499–507, 2013.
4. S. Gupta, A. Kaur, A. Garg, A. Verma,Bansal, and A. Singh, "Arduino based smart cart," International Journal of Advanced Research in Computer Engineering & Technology, vol. 2, no.12, 2013.

5. Z. Ali and R. Sonkusare, "Rfid based smart shopping and billing,"International Journal of AdvancedResearch in Computer andCommunication Engineering, vol. 2, no. 12, pp. 4696–4699, 2013.
6. Sharma, L. (2021). WaterFall Model. https://www.toolsqa.com/software-testing/waterfall-model/ ISO 25010. (n.d.). ISO/IEC 25010. https://iso25000.com/index.php/en/iso-25000-standards/iso-25010
7. Udita Gangwal *et al.* (2017) "The rfid based smartshopping cart," International Journal of Engineering Research and General Science, vol. 3, no. 2, pp. 275–280, 2015.
8. Sagar Sojitra *et al*. (2016 "Privacy preservation of aggregates in hidden databases: why and how?" in Proceedings of the 2009 ACM SIGMOD International Conference on Management of data. ACM, 2009, pp. 153–164.
9. Sharaddhain "A bidder-orientedprivacy-preserving vcg auction scheme," in International Conference on Wireless Algorithms, Systems, and Applications.Springer, 2015, pp. 284–294.
10. Komal ambekar "Privacy- preserving data mining systems," Computer, vol. 40, no. 4, pp. 52–58, 2007.
11. P. Chandrasekar and T. Sangeetha, "Smart shopping cart with automatic billing system through rfid and zigbee," in Information Communication and Embedded Systems (ICICES), 2014International Conference on. IEEE, 2014, pp. 1–4.