

E-Commerce System

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ABSTRACT

This paper presents the development of an E-commerce System (ECS) for users. ECS is able to manage the details of users who have registered to the system. Not only that but also this system can manage order details that are user has ordered. In addition, this system provides calculation service payment for items that are in the cart. The users of ECS are the customer and the admin. This system was developed using the MERN stack and MongoDB as the database platform.

Keywords-- Database, E-Commerce, Goods, Admin, Orders, System, Product, Review, Payment, Customer

I. INTRODUCTION

The SIG e-commerce System is a system that provides the facility to buy goods online. Not only that but also there is an admin side to manage users, products, orders, and user feedback. On that admin, the side includes the user information, order lists, product lists, and feedback that which user has given. First, the user must be logged into the system. If the user is a new one, he/she has to create a new account. When logging in, the admin has to log in as an admin and the customer has to log in as a customer. Then customers can view their profile and edit it if they want. As a customer, he/she can view the home page after login. Their customer can search for any product as their wish. After selecting a product, customers can give the quantity that they want and add it to the cart. The system displays the payment tab and after clicking on it, the system displays a form to fill in card details. All the important criteria such as card number, expired date, and CVV need to be fulfilled in the form. The system displays a payment successful message screen and on that screen, there is a button to view orders that the customer has paid. Another thing is customers can add feedback also. After login in as an admin, he/she can see the dashboard icon. After clicking on that icon admin can view the admin home page. Here there is a side navigation bar. From that

admin can view user details, product details, order details, and feedback details. If the admin wants, he/she can edit or delete those details. And there is a general report option. From that admin can print reports in PDF format. This system is developed based on the COVID problem and fuel problem in the country. Because of those problems users cannot go outside to buy goods. Another thing is nowadays people do have not much time to go outside due to their busy lives. So we think this system is so helpful to solve this problem. All functions of these modules will be executed without any problem as long as there are no unexpected events such as blackouts, system corruption, and so on. We use the modern stack as the language to produce a user-friendly system.

Business operations are gradually encouraged by the fast-paced development of information technology to converge with network technology and create a new economic form called e-commerce. The development of electronic commerce and applications significantly lowers the cost of business product development and production, decreases the flow of goods, and allows businesses to quickly grasp market dynamics, which lowers the cost of the product and opens up new sales prospects. As more businesses engage in e-commerce operations, this significantly supports the growth of the e-commerce market. However, there are numerous issues preventing e-commerce from operating, and this has obstructed the industry's growth.

II. LITERATURE REVIEW

People are using computers more and more frequently these days. Anyone may use a computer anywhere, and they are highly helpful in today's world. There are currently several websites available to learn about anything on the globe. So, researchers developed an online store for those who want to make purchases online. This system stores data on the goods, the users, the orders that individuals have placed, and the comments. The advantages of a freshly developed e-commerce website

over a manual database include its vast storage capacity, excellent enhanced security, speed, and excellent accuracy. (MongoDB)

The "SIG E-commerce SYSTEM" was created and designed to satisfy the needs of the populace. Field-level validation is implemented in a good state and the system is very user-friendly. The researchers looked at the issues customers had when making purchases at new stores, supermarkets, etc. The development of a recruitment framework was then examined by researchers. It will take care of all important and little details, including authentic and suitable database security for the client. The e-commerce system must keep all information related to consumers, goods, orders, and feedback. Both customers and admins use this framework. Both the planning and the execution are fairly simple. There are fewer criteria for the framework. The manual method presents a lot of challenges for people because the information had to be stored and retrieved throughout the entire organization. To manually store more records, there should be a lot of documents. There will frequently be time wasted while entering and retrieving records. As a result, academics have computerized these requirements to address this issue. The SIG e-commerce management framework was created with progress in mind and was created to satisfy the criteria as they are stated in the exam portion of the criteria.

For their daily labor, everyone needs food, clothing, and other necessities like electricity. They must always buy them as a result. Foods are a unique and important item among them. However, due to their hectic schedules, consumers rarely have time to visit supermarkets or shopping malls. The nation faced a significant struggle in overcoming COVID last year, as another factor. Additionally, there are gasoline restrictions. People thus have various difficulties when visiting stores to make purchases. Therefore, the e-commerce system that allows for online product purchases is a good remedy for the aforementioned issues. Web-based software makes up the SIG E-commerce System. This project saves time and records all the information about the products that are currently in stock. It is necessary to store customer, product, order, and feedback data for this project. A system that makes it simple to manage customer orders and payments for such orders is the e-commerce management system. The administrator has access to all data about clients, goods, orders, and remarks. The system's fundamental module is as follows. This project is an operating online platform for users and management. To produce useful reports, the system also maintains customer, product, and order information.

An online marketplace that allows those who find it difficult to physically purchase items to learn more about the common issues that buyers and sellers encounter. Based on their memory of how to construct a gigantic system within their privileges and security, researchers have additional duties for various people. The administration must treat them well and offer all necessary services based on security and user databases. For user security reasons, this system does not keep, for instance, payment card information. The gym is expected to preserve records of all user orders, payments, and receipts. Each has an intuitive administrative framework and is an internet application. This article's associated frameworks can coordinate a variety of executive abilities. Both user and product administration is included. These capabilities are eventually integrated into the framework and have the ability to share data and information.

The SIG e-commerce system project was created to address the obstacles that customers encounter while visiting stores to make purchases because of COVID and gasoline shortages in the nation. Another factor is that retailers manually record information about their goods, orders, and clients in paperwork. Because of this, records were not safeguarded, making them vulnerable to lose in the event that papers were lost. This e-commerce system project was created in response to these issues. All records are kept up to date and protected thanks to them. The e-commerce system involves software that keeps the information about administrators and consumers as well as a system that manages details with ease and security. This system is quite helpful. All of the data in the automated system and all of the manual field data should be completely digitized in this SIG e-commerce system. Additionally, a backup should be kept. This system was created to enable the administration of online product purchases.

This is a very helpful system since it keeps track of all the data pertaining to the customer, the products in stock, and the orders that the customer has placed. People need a variety of items in their daily life. They include different cuisines and attire of that nature. Particularly for their children, parents endeavor to provide these things. But due to their hectic schedules, the majority of individuals don't have much time for it. So they are unable to go shopping. The e-commerce system is therefore very helpful to them because they may effortlessly purchase the items they want while working online. Users can purchase things there without wasting time. Therefore, researchers create a SIG e-commerce system, where users can buy and browse for things. The admin can register to the system online. Additionally, the system has a feedback feature.

III. METHODOLOGY

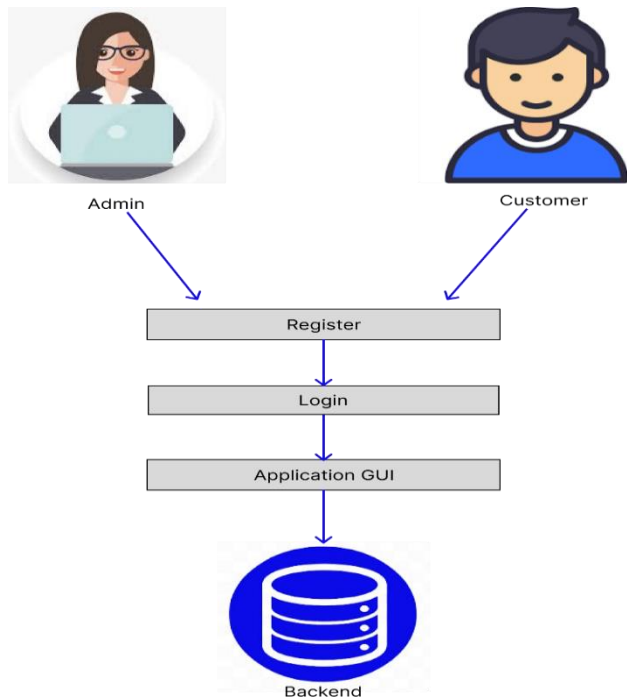


Figure 3.1: Overall Architecture of the E-commerce system

Identification and evaluation of issues with the current e-commerce system are the goals of this study. And by replacing the current manual system with a computer-based system, boosting behavioral efficiency management functions, a smart computerized e-commerce management system is introduced to solve and increase problems and improve efficiency and automatic solution functional procedures. The high cost of development implementation, which includes a user-friendly design conducting system, and end-user training, was noted as the solution's key drawback.

This system was developed by researchers in the MERN Stack. Mongo DB was used to develop their database. The MERN stack: what is it? Rapid application development is made possible by the technologies that make up the MERN stack. Around the world, developers use it. The MERN stack is mostly used to create apps that just use Java Script. This is so because Java Script is the foundation for each of the four technologies that make up the technology stack. MERN is a full stack that adheres to the conventional three-tier architectural paradigm. It consists of a database layer, an application layer (Express.js and Node.js), and a front-end display layer (React.js) (Mongo DB).[1]

The user must initially log into the system. The user must set up a new account if they are a new user. The

administrator must log in as an administrator, and the user must log in as a user. Customers can then examine and change their profile as desired. After logging in as a customer, he or she can access the home page. Any product can be searched for by its customers. Customers can enter the desired amount after choosing a product and add it to their shopping basket.

After selecting the payment tab, the system shows a form where card information must be entered. Card number, expiration date, and CVV are just a few of the crucial requirements that must be met in the form. There is a button to view orders that the customer has paid for on the screen that the system displays once a payment is successful. Additionally, customers can add feedback. He or she can see the dashboard icon once they have logged in as an admin. The admin home page can be viewed by clicking that symbol. The side navigation bar is present here. From there, the administrator can access information about the user, the product, the order, and the feedback.

The admin has the option to change or remove certain particulars. Moreover, a generic report option is available. The admin can print reports in PDF format from there. The COVID and fuel issues in the nation served as the foundation for the development of this system. Users are unable to go outside and purchase things as a result of these issues. Due to their busy schedules, many today don't have much time to go outside. Thus, we believe that this system will be quite useful in resolving the issue. As long as there are no unforeseen circumstances like blackouts, system corruption, etc., all of these modules' functions will operate without any issues. To create a system that is user-friendly, we employ the contemporary stack as the language. The overall architecture of the e-commerce system is shown in figure 3.1.



Figure 3.2: Rate of increase in the total amount

This chart shows the rate of increase in the total amount earned by selling products. The rate of increase in the total amount is shown in figure 3.2.

IV. PROPOSED SYSTEM

It was determined to automate the management of the excellent selling procedures in order to operate with the system more precisely as the volume of business rose. As a result, management has determined that the new e-commerce system should focus on automating the following areas. It's them,

1. Admin / Customer Registration.
2. Admin / Customer Login.
3. Customer Profiles.
4. Customer Edit Profile.
5. Admin Dashboard.
6. Admin/Customer home pages
7. Cart
8. Product category.
9. Payment process.
10. Admin generate reports.
11. Customer review(feedback)
12. Orders page.

Each one features a user-friendly online e-commerce system interface. Everyone may utilize this automatic system very easily. Customers can use the design with ease and system administrators may manage it easily. This system has four functions.

There are,

1. Automation.
2. Accuracy.
3. Availability.
4. User-friendliness.

V. DRAWBACKS OF A SYSTEM IN EXISTENCE

1) Time-consuming

The manual approach has made the current system extremely time-consuming and inaccurate. The system also makes use of more human power.

2) Recovery and update tasks are quite time-consuming

Record keeping and retrieval have become more time-consuming when records are kept manually in documents.

3) Boring

The manual cycle has made the current framework tiresome and incorrect. Furthermore, the framework uses only human power. Assignments for updating and recovering are incredibly boring. Records are now housed in papers, making record keeping and recovery more difficult.

4) High mistake rate

Errors are hard to spot and simple to fix, but providing good customer service is challenging. This is a result of the laborious process and manual labor. Errors and delays are caused by excessive documentation. There are numerous records entered into the paperwork. Data

redundancy is therefore widespread, reports are inaccurate, and any report can be disregarded.

VI. IMPLEMENTATION

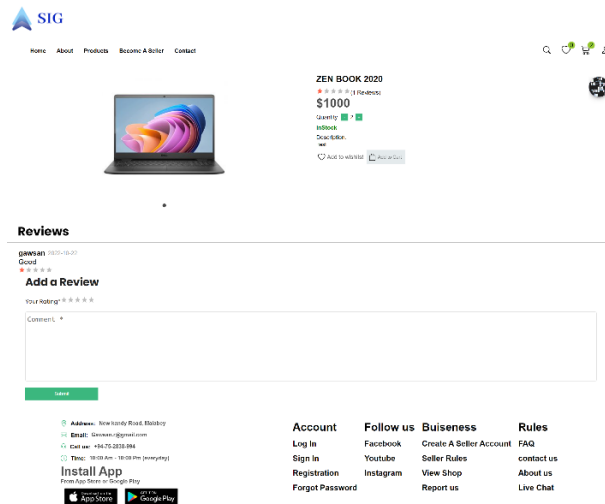


Figure 4.1: Product Description page

Customers can select any product from our product category as their wish. After selecting a product, the system displays this page. Here, customers can see the product name, price, and description of that product. Customers can add quantity by pressing the increase or decrease green color buttons. Then need to click on the 'add to cart button and that product will be added to the cart. The product description is shown in figure 4.1.

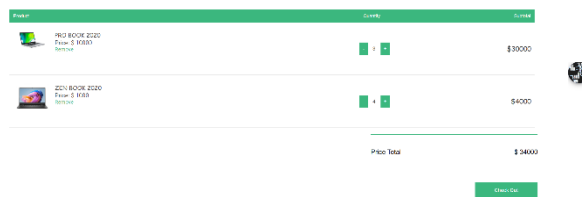


Figure 4.2: Add to cart page

This page shows the products that the customer has added to the cart. Here, it shows products with price and quantity and total amount. From clicking on the 'check out button customers can continue the order process. The add-to-card page is shown in figure 4.2.

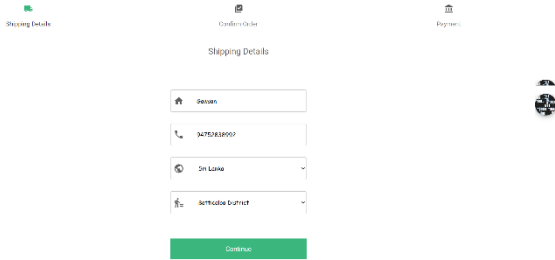


Figure 4.3: Shipping page

After adding the product to the cart, it navigates to this page. Here customer has to provide their shipping details such as name, mobile number, country, and district. After filling, in all required fields have to click on the 'continue' button to confirm the order. The Shipping details is shown in figure 4.3.

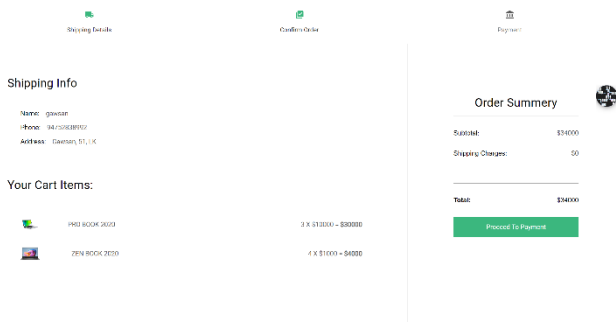


Figure 4.4: Order confirmation

After adding shipping details and submitting those details, it shows this page. Here, on the left side, the customer can see his/her entered shipping details and products which he/she added to the cart. On the right side, the order summary is displayed. It shows the subtotal amount for products, shipping charges, and the total amount. Then if the customer likes to confirm the order he/she has to click on the 'proceed to payment button'. The after adding shipping details order confirmation is shown in figure 4.4.

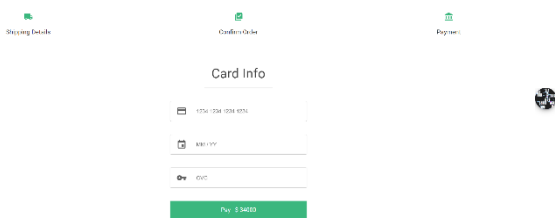


Figure 4.5: Payment page

After confirming the order, the system displays this user interface to proceed with the payment. Here customers have to add their card information such as card number, expiration date, and CVV. If the customer entered invalid details, it will be validated by showing those details in red color. After entering all valid details, the customer has to click on the 'pay' button. Then it navigates to a page that has payment successfully message. In this system, because of customer security, we do not store card details. After order confirmation shows, add to payment is shown in figure 4.5.

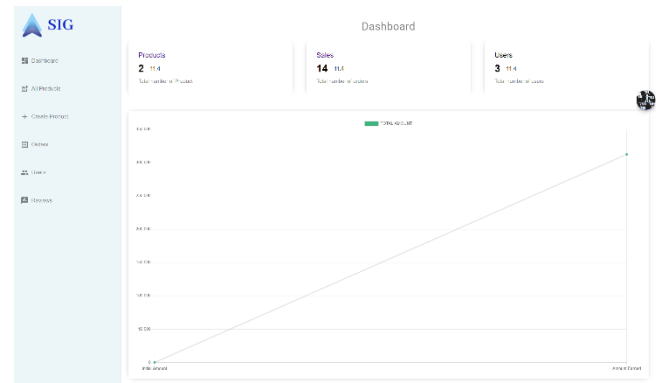


Figure 4.6: Admin Dashboard

In this e-commerce system, the admin also has to log in as an administrator. After login, he/she can view this admin dashboard. Here admin can see the number of products in stock, the number of sales/orders, and several users. It also shows graphs. On the left side, there is a side navigation bar. Admin can use this bar to get screens that have lists of users, products, orders, and review details. The admin dashboard is shown in figure 4.6.

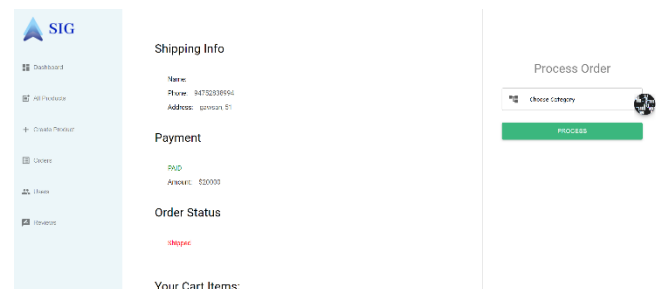


Figure 4.7: Order details page

The admin can view all details about an order that the customer has ordered from this page. Here, it displays shipping details, and payment status including amount order status, and cart items. If the order is not processed, the admin can process that order by clicking on the 'process' button at the right side of the page. The

admin can view all order details, this is shown in figure 4.7.

Order ID	Status	Item Qty	Amount
6520201244473485561	Shipped	1	30,000
65438861271967054629f	Delivered	1	10,000
654897571212075648211	Processing	1	10,000
6574805933950461595	Processing	2	11,200
6532265916271812383382	Processing	2	21,200
65326141461665338172616	Shipped	2	10,000
6533081649221813279746	Processing	3	36,400
65336580462217303611c7	Processing	3	36,400
653361633616598418162	Processing	3	45,400

Figure 4.8: Manage orders page

This page shows all order details that the customer has ordered. They are order id, order status (shipped/Delivered/ processing), quantity, and amount. The admin can edit those orders by clicking on the edit icon at each row and can delete by clicking on the delete icon also. At the header of the table, there is a feature to search and sort orders. Finally, the admin can generate a meaningful report by clicking on the 'generate report' button. Like this admin can view, edit and delete all users, products, and review details also. The admin can manage all order details, this is shown in figure 4.8.

VII. DISCUSSION

All SIG operations are fully computerized and all records are automatically maintained as part of this SIG e-commerce management system. This system is developed as software that can detect errors quickly. Once the system is fully established the SIG administrator cannot make mistakes because it is established as a trusted system. The objective of this project is to develop a system for online sales and transactions of new products and database management. To find records quickly, it provides search and advanced search options. The system uses a graphical user interface (GUI) to produce reports and save data. During system research, it is frequently essential to evaluate and identify weaknesses in an existing system. It is frequently essential to evaluate and identify the weaknesses in an existing system during system research. This can aid in determining the requirements for the new system, and the analysis may reveal a wide range of potential solutions.

Additionally, the software is needed to maintain track of admin records, other items, and any agreements or transactions performed in the SIG e-commerce. This system is crucial since it keeps track of all user data for e-commerce. Due to the decreased need for human resources, this approach also reduces paperwork. This system has automated all records, which is a highly important and useful project.

In the future, the system's developers intend to add new functionality. With facial recognition, Google API system integration, and the ability for users to process natural language for inquiries, it will be feasible to produce a barcode for the products that are already available in the system. These are the features we intend to include in this system to improve its functionality. In the future, it is anticipated that each partnership (administration, customers) will utilize facial recognition to track participants' attendance.

VIII. CONCLUSION

The requirements specified throughout the requirements analysis process, such as effective work decreasing the number of errors in the previous manual system, were all effectively built and evolved into this "Computerized System to Manage Business Functionalities for Good Selling." The objectives outlined in modern times are intended to be accomplished by the current plan. The new system is automated, quicker, more precise, and easier to use. It gets rid of human mistakes. Because this online procedure can happen at any time, any place, and manual recording is eliminated, manual activities are reduced. In the SIG e-commerce system, all the crucial tasks are completed, including data management. Documents problems/issues that have been in the existing system are improved to make work simple and effective before the manual method worked with many staff. This method uses online automation.

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