XMTS: a Web-Based Online Shop Using PHP and Progressive Web Framework

Eris Mendoza and Denise Lou Punzalan

September 15, 2023

XMTS: A Web-based Online Shop using PHP and Progressive Web Framework

ERIS R. MENDOZA, Developer/Author, Gordon College, Olongapo City
DENICE LOU B. PUNZALAN, Adviser/Co-Author, Gordon College, Olongapo City

ABSTRACT

Today's swiftly evolving business climate, it is essential to be able to respond to client needs as quickly and effectively as feasible. This study is a web-based shopping system for a business that already exists. The goal of the project is to produce an internet store. This project aims to give clients of physical stores access to the advantages of internet buying. It facilitates purchasing items from the store from any location utilizing an android and computer to access. In addition to making the business's products and services straightforward and user-friendly for its customers, XMTS also gives it access to a standalone online store through which it may grow its market share while incurring fewer overhead costs and carrying out more straightforward transactions from any location. With the help of this project, customers may browse a range of products that the business shop offers while having the status of their orders updated in real-time. Additionally, with the aid of this project, administrators will have easy access to orders placed and the business owner easily manages the system. With the system business was intended to strengthen and significantly broaden the business marketing field in light of the intensifying worldwide market competition.

Keywords
Standalone, Incurring , XMTS, Broaden, Overhead, E-commerce.

1   INTRODUCTION

E-commerce is quickly becoming a recognized and utilized business paradigm. More and more companies are putting in place websites with capability for conducting business transactions online. It is safe to argue that shopping online has become routine. The goal of this project is to create a general-purpose online store where people may purchase goods like handicrafts while relaxing at home. A virtual store on the Internet where clients can browse the inventory and choose items of interest is known as an online store. The chosen items could be put in a shopping cart. The product in the shopping cart will be shown as an order when it is time to check out. At that point, more details will be required in order to finalize the purchase. The customer will typically be required to enter or choose a billing address, a shipping address, a shipping option, and payment details.

As we all know, local brands headed by small owner businesses are arising in the Philippines. Some became online sellers during the pandemic to at least cover their expenses during those days. This opportunity has been open for all, Working and Non-Working. Even at a very young age. In today's generation, digital media has a very huge role in our lives when it comes to Business, Promotions, and Entertainment. A Lot of owners use social media as their platform for selling their products to be seen by many consumers. But in reality, we all know that it is not sufficient for all the posts, videos, live selling, and advertisements to reach thousands of people. However, getting the audience's attention, loyalty, and addressing customer experience is where most business owners struggle.

Having an ecommerce site can help my beneficiary grow the business, attract more consumers, and diversify your revenue streams by allowing them to sell a wider variety of goods and services. It's the best approach to transform their brand from a conventional brick and mortar business to a cutting-edge, well-known one.

2   RELATED LITERATURE

2.1   Why is e-commerce so important?

According to Grayson Lafrenz (2017), These days, e-commerce seems to be prevalent everywhere. Online, you cannot avoid coming across article after article suggesting that brick-and-mortar establishments are being killed out by e-commerce. It can be challenging to separate factual information from data that has been modified and spread online by alarmists. But there is some truth to these excessively doomsday predictions. By the end of 2021, 65% of internet users are expected to be digital shoppers, according to studies.

2.2   Online Shopping

According to Tulsi Raval (2021), E-commerce developed as companies began to switch from real-time to digital markets. Political and physical obstacles have been broken down by the online purchasing system, which is a significant component of E commerce. Online retail shopping has emerged as a new category. It now serves as a stand-in for the actual market. Today, it is used throughout the world, including India. In India, awareness of online buying is now starting to spread quickly. The primary goal of this study is to examine factors influencing customer online shopping behavior, which may be one of the most crucial challenges in the e-commerce and marketing fields.

2.3   Ecommerce and Online Shopping Behavior

Restaurants, movie theaters, and gyms have generally resumed operations after the lockdowns that were so prevalent in the year 2020 have ended. While this is happening, many office workers are choosing between returning to work while the virus is still an issue (to varied degrees around the country and the world) or leaving their employment in favor of one that is more remote-friendly, as you've probably seen in hundreds of posts on LinkedIn (Victoria Fryer, 2021).

2.4 Mobile Ordering System

According to Hui Xin Ning (2013), People hope that access to the internet will allow them to quickly and easily obtain information and services wherever they are and whenever they need them. The catering industry hopes to broaden the reach of business networking. In this paper, the authors study the mobile ordering system based on Android with the use of mobile internet technology through requirement analysis, using the widely used Android system as the platform. The system realized the characteristic function based on Google Service, established a perfect management mode, and comprehensive ordering function while taking into account the relationship between customers and sellers. The system is affordable, easy to use, and mobile. It fixes the issues with inconvenient online ordering and high labor costs in the catering industry.

2.5 E-commerce in the Philippines

Based on the information gathered, it was determined that e-commerce is quite common in today's society, particularly given the global pandemic that is currently raging. E-commerce is used to sell and examine things online in addition to making online purchases. Since the advancement of technology, nearly everyone uses it. Utilizing e-commerce has benefits and drawbacks. However, it is generally agreed that because of the ease it offers, e-commerce has made people's lives easier. Due to its extensive selection of goods and services, it saves individuals time and money.(Patricia et al,. 2022)

2.6 How Online Shopping is Affecting Consumers Buying Behavior

According to Nazir et al. (2012), some factors which play an important role in a buyer's decision making about shopping something online include price, trust, and privacy etc. The researchers found that making purchases online offers comfort, convenience, or ease, all of which are thought to have a big impact on Pakistani consumers' attitudes. Additionally, recommendations from others to shop online play a significant role in influencing a buyer's attitude toward doing so. According to the research, the unsecure nature of online payment methods in Pakistan is the main deterrent to online shopping.

3 CONCEPTUAL AND THEORETICAL FRAMEWORK

3.1 Cross-Platform Development

These days, there are more and more new frameworks and tools for developing software for smart mobile devices. The ultimate goal of cross-platform mobile app development is to attain native app performance and work on as many platforms as is practical. Cross-platform mobile development is the ideal option because native app development does not allow for the implementation of the write once, run anywhere approach. Cross-platform development streamlines implementation and maintenance procedures while reducing time and effort required for development.

The unexpected mobile market growth led to the introduction of cross-platform app environments that could facilitate and make the production more successful. The main categories of applications produced by these software environments are:

- *Web Apps*: Browser-based applications which cannot be physically installed.

- *PWA*: A progressive web app (PWA) is a website that looks and behaves as if it is a mobile app. PWAs are built to take advantage of native mobile device features, without requiring the end user to visit an app store, make a purchase and download software locally. Instead, a PWA can be located with a search engine query and accessed immediately through a browser.

3.1.1 Web App Development

Widespread Internet technologies such as HTML and JavaScript are the basis of web apps. No installation or further updates are needed for web apps. Nowadays, several libraries are promising web-based applications that mimic native applications, including JQuery Mobile, Sencha Touch, JQTouch, WebApp.net, Xui etc. It should be mentioned that the creation and implementation of HTML5 promises access through a variety of APIs to the software and hardware components of the system.

3.1.2 Progressive Web App Development

A progressive web application, sometimes known as a progressive web app, is a kind of software that is provided via the internet and is created using standard web technologies including HTML, CSS, JavaScript, and Web Assembly. It is designed to function on any device, including desktop and mobile ones, that has a standards-compliant browser.

3.2 Web and Mobile Framework

Object-oriented application frameworks allow developers and programmers to reuse design and code, making it easier to create new applications while also enhancing their maintainability. Application code that instantiates framework-provided concepts is used to create framework-based applications [Noei 2016].

3.2.1 Front-end Technologie

There are many different languages and libraries that make up the front-end stack. There are just a few general languages that all web browsers can understand, albeit these vary depending on the application. HTML, CSS, and JavaScript are the three primary front-end coding languages. These three primary languages serve as the foundation for all other libraries and front-end engineering, hence proficiency in them is essential for all front-end developers.

3.2.1 Back-end Technologie

Backend technologies typically refer to the collections of server-side languages that are used to build a website's server setup. The building blocks of software development are the backend technologies. Fancy designs and simple interfaces made with front-end coding languages are insufficient without specialized backend developers. Additionally, they create, read, update, and delete data using technologies like MongoDB, Oracle, MySQL, and SQL servers before serving it back to the front end of the application (client-side).

4 METHODOLOGY

The study employed the agile approach. A particular kind of software development technique called agile foresees the requirement for flexibility

and applies a degree of pragmatism to the delivery of the finished product. Agile software development necessitates a cultural change in many businesses since it emphasizes the clean delivery of specific software components rather than the full solution. The Agile Process software development life cycle is depicted in Figure 2.
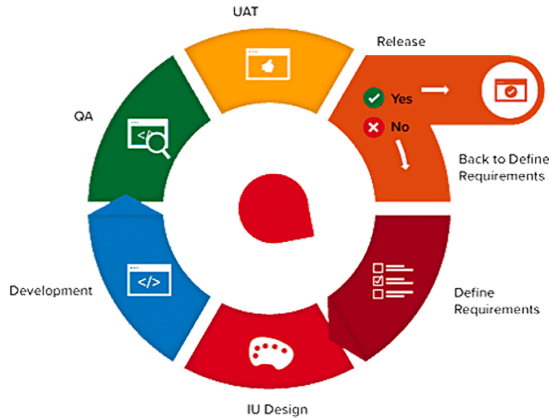

Figure 1. Agile Software Development Workflow Diagram of the Study.

4.1 Research Design

This study will use a survey technique qualitative research design as its methodology. The researcher used a qualitative research strategy in this study to obtain in-depth contextual knowledge and understanding of people through non-numerical techniques and direct observation. interviews were conducted with the business owner, who wishes to meet customers needs.

4.2 Respondents/Locale of the Study

People who like shopping online as well as corporate customers of the business. Participants in the research were questioned about their attitudes toward the firm's current procedure and the notion of solving the problem that is experienced in the business shop using Google forms and in-person interviews.

4.3 Data Flow Diagram

A data flow diagram demonstrates the path that information takes through a system or process. It contains the numerous sub processes the data flows through, data inputs and outputs, and data stores. The context diagram of the study is shown in figure 5.
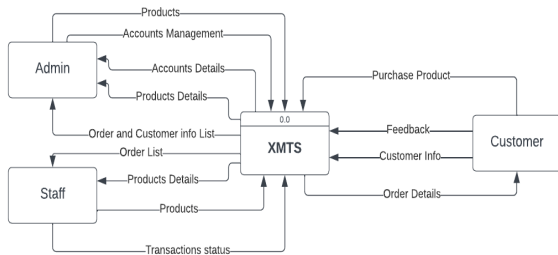
Figure 5. The Context Diagram of the Study.

4.4 Requirement Specification

A conceptual model of the research is shown below in figure 2, based on concepts, theories, and findings from relevant literatures, studies reviewed, and insights gained from them:
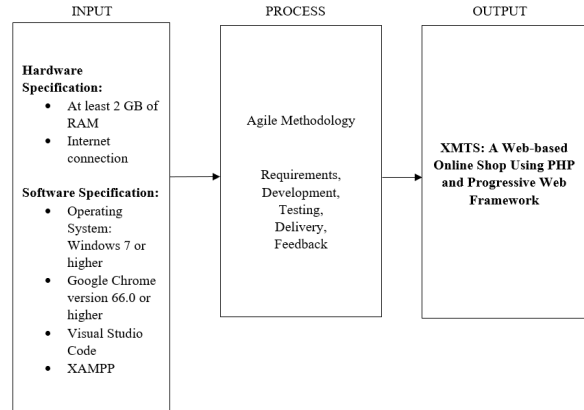
Figure 2. The Conceptual Model of the Study.

4.5 Data and Process Modeling

A functional decomposition diagram is a top-down representation of a function or process. Figure 3 shows business functions of the study and then breaks them down Into lower-level functions and processes.
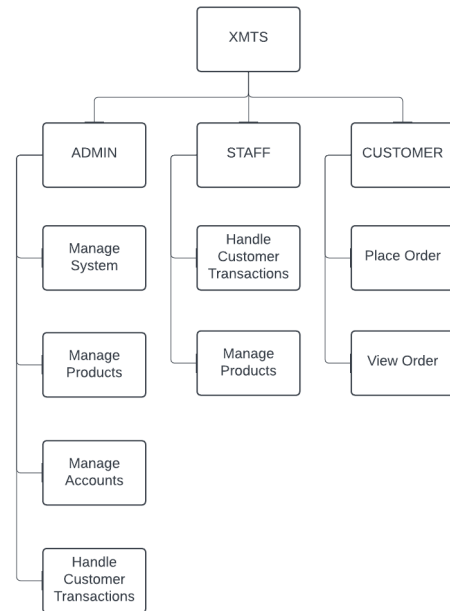
Figure 3. The Functional Decomposition Diagram of the Study.

4.5.1 Use Case Diagram

The interaction between users and the system is visually represented in a use case diagram represented in figure 4. It displays all of the users involved as well as the processes that are available to them.
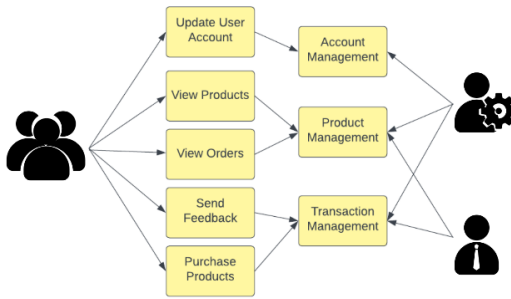
Figure 4. The Use Case Diagram of the Study

4.6   The Instrument used in study(ISO:IEC 25010)

The ISO 25010 Software Evaluation Instrument was the tool utilized to collect data for this investigation. Figure 6 depicts the seven essential features of the ISO 25010 software quality model: functionality, reliability, usability, efficiency, maintainability, portability, and security. The questions are also changed in accordance with the system's requirements.
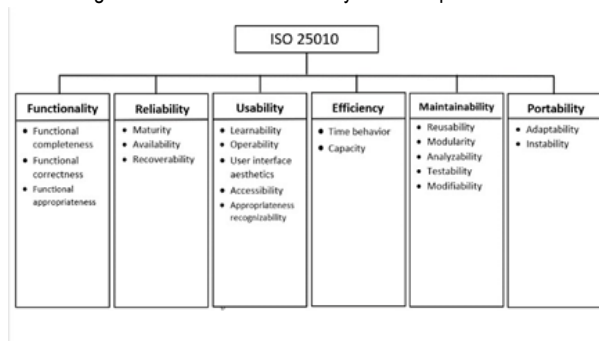
Figure 6. The ISO:IEC 25010 Model

4.7   Design
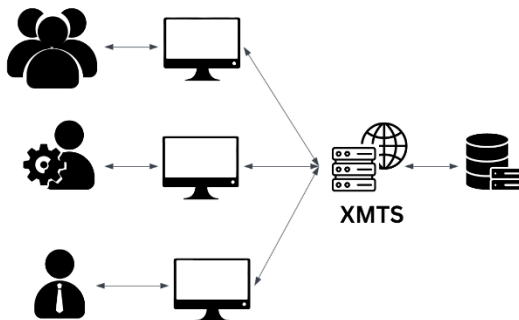
Figure 7. The System Architecture of the Study

4.7.1   Screen Design
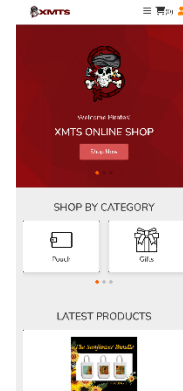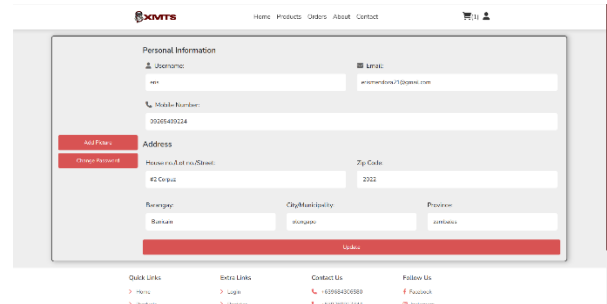

Figure 8. XMTS Home Screen
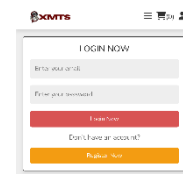
Figure 9. XMTS Login Screen
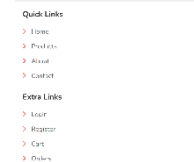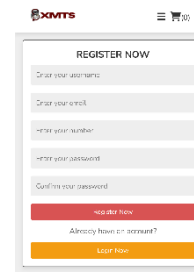
Figure 10. XMTS Register Screen
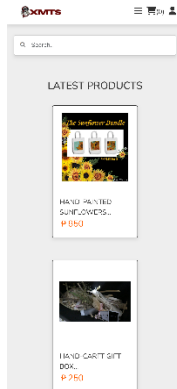
Figure 11. XMTS Product Screen

Figure 12. XMTS Product View Screen

Figure 13. XMTS Cart Screen

Figure 14. XMTS Checkout Screen

Figure 15. XMTS Placed Order Screen
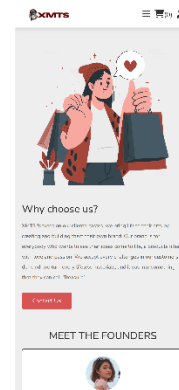
Figure 16. XMTS About Screen
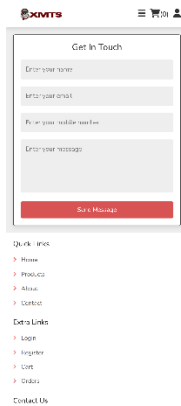
Figure 17. XMTS Contact Screen
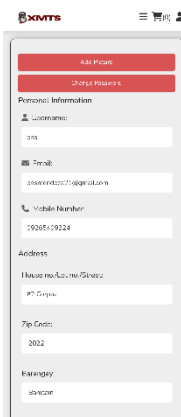
Figure 18. XMTS Profile Screen
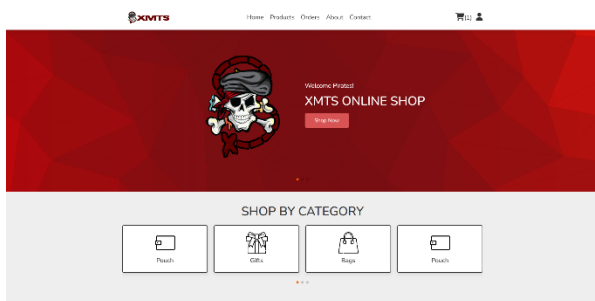
Figure 19. XMTS Home Screen (WEB)

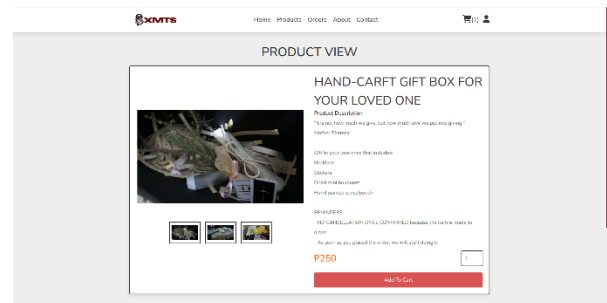Figure 20. XMTS Profile Screen (WEB)

Figure 21. XMTS Product Screen (WEB)
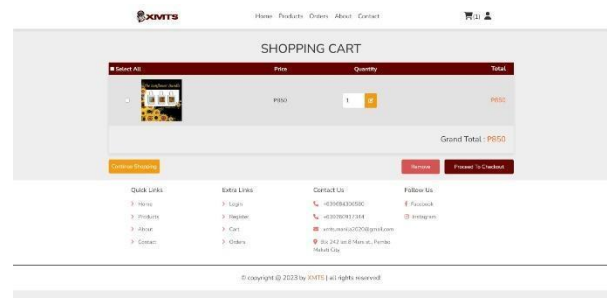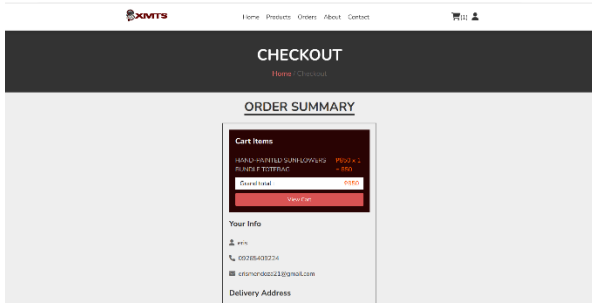

Figure 22. XMTS Product View Screen (WEB)

Figure 23. XMTS Cart Screen (WEB)

Figure 24. XMTS Checkout Screen (WEB)
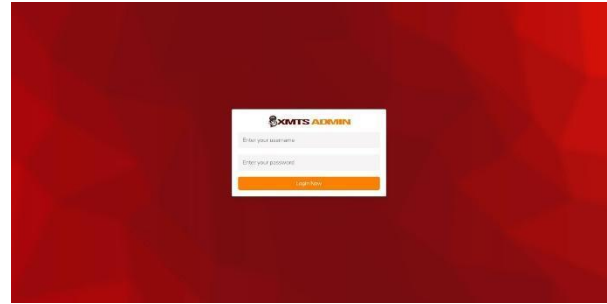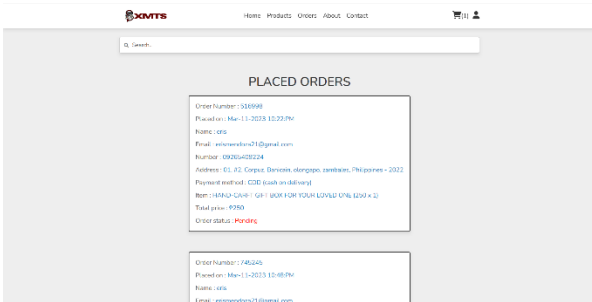

Figure 28. XMTS Admin Panel Login Screen (WEB APP)
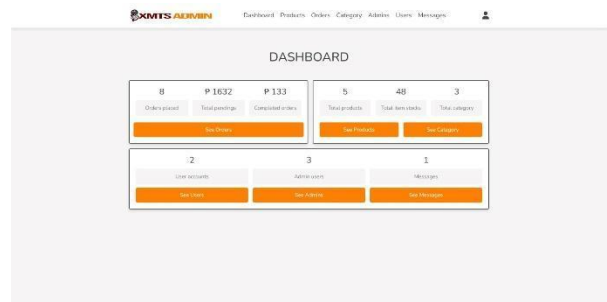

Figure 25. XMTS Placed Order Screen (WEB)

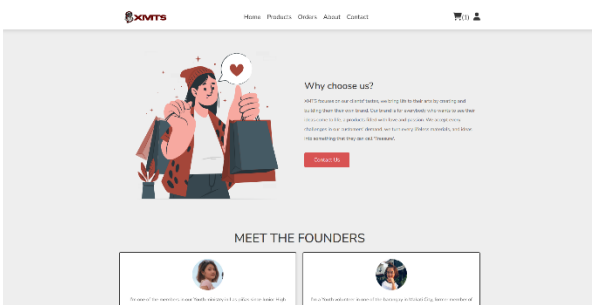Figure 29. XMTS Admin Panel Dashboard Screen (WEB APP)

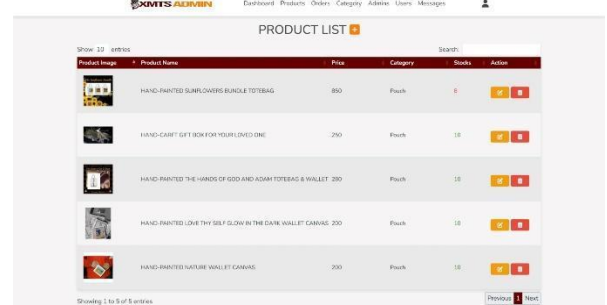Figure 26. XMTS About Screen (WEB)

Figure 30. XMTS Admin Panel Product List Screen (WEB APP)
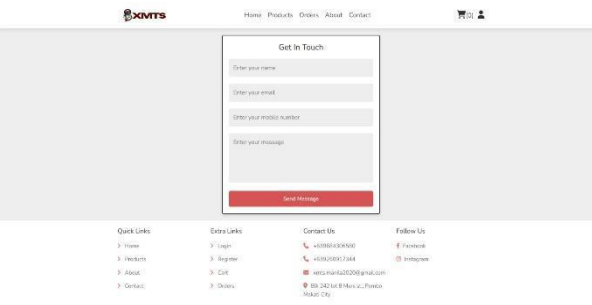

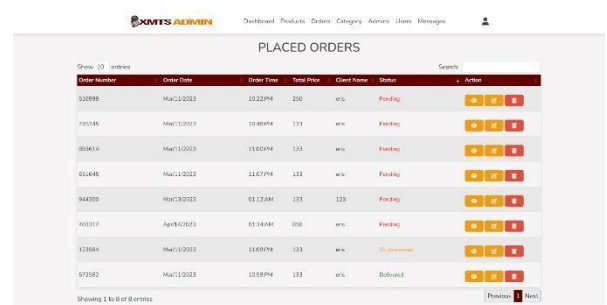Figure 27. XMTS Contact Screen (WEB)

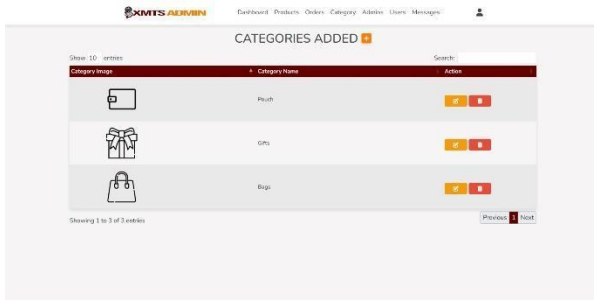Figure 31. XMTS Admin Panel Placed Orders Screen (WEB APP)

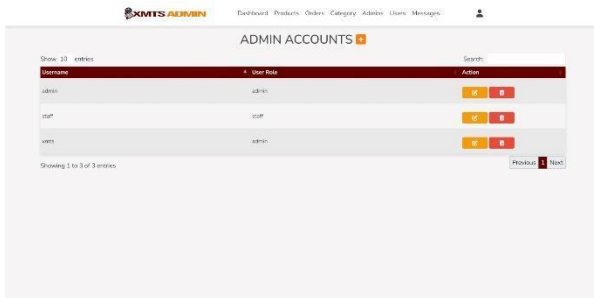Figure 32. XMTS Admin Panel Categories Screen (WEB APP)

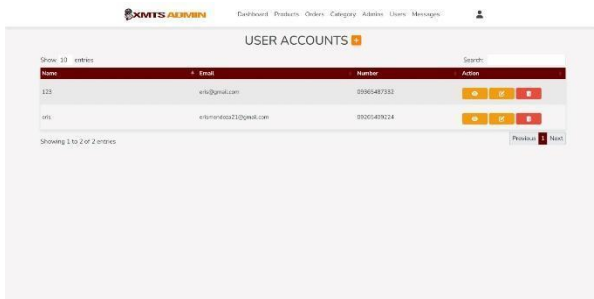Figure 33. XMTS Admin Panel Admin Accounts Screen (WEB APP)

Figure 34. XMTS Admin Panel User Accounts Screen (WEB APP)

Figure 35. XMTS Admin Panel Messages Screen (WEB APP)

5   CONCLUSION

This study provides the solution to the business owner's problem as well as its consumers. The development of the XMTS is surely a way for the business to grow more and compete in the global market. Also with the help of this project, customers may browse a range of products that the business shop offers while having the status of their orders updated in real-time with ease. According to the study's conclusions, the following XMTS have met and concluded:

1. The system is simple for users to utilize.
2. To satisfy the customers, the system must incorporate new functions/features.
3. Business owners can advertise their brands through a standalone internet store.
4. XMTS fulfills its role as a reliable middleman between business owners and customers, specializing in the sale of the aforementioned business products solely.

REFERENCES

[1]   Lafrenz, G. (2017, July 14). Why is e-commerce so important?. Power digital marketing. Retrieved November 18, 2022 from https://powerdigitalmarketing.com/blog/why-is-e-commerce-so-important/#gref

[2]   Lutkevich, B. Chai, W. Holak, B. (2022, June). What is e-commerce?. Tech target. Retrieved November 18, 2022 from https://www.techtarget.com/searchcio/definition/e-commerce

[3]   Fryer, V. (2021, November 12). Understanding COVID-19's Impact on Ecommerce and Online Shopping Behavior. Bigcommerce. Retrieved November 18, 2022 from https://www.bigcommerce.com/blog/covid-19-ecommerce/

[4]   United Nations Conference on Trade and Development (2020, October 08). COVID-19 has changed online shopping forever, survey shows. UNCTAD. Retrieved November 19, 2022 from https://unctad.org/news/covid-19-has-changed-online-shopping-forever-survey-shows

[5]   Kvrgic, D. (n.d.). WHAT ARE THE BENEFITS OF AN E-COMMERCE WEBSITE?. Pastilla. Retrieved November 19, 2022 from https://pastilla.co/insights/what-are-the-benefits-of-an-e-commerce-website/

[6]   Raval, T. (December 2021). Study of Effectiveness of Online Shopping. Retrieved April 15, 2023 from https://www.researchgate.net/publication/357016510_Study_of_Effectiveness_of_Online_Shopping

[7]   Abeabe, P. Maro, M. Ramos, R. (January 2022). A DESCRIPTIVE STUDY ABOUT THE EFFECTIVENESS OF E – COMMERCE IN THE PHILIPPINES. Retrieved April 15, 2023 from https://www.academia.edu/download/79607276/A_DESCRIPTIVE_STUDY_ABOUT_THE_EFFECTIVENESS_OF_E_COMMERCE_IN_THE_PHILIPPINES.pdf

[8]   Ning, HX. (July 2013). Mobile Ordering System Based on Android. Retrieved April 15, 2023 from https://www.scientific.net/AMM.336-338.2099

[9]   Nazir, S. Tayyab, A. Sajid A.(May 2012). How Online Shopping is Affecting Consumers Buying Behavior in Pakistan?. Retrieved April 15, 2023 from https://www.researchgate.net/publication/267248578_How_Online_Shopping_Is_Affecting_Consumers_Buying_Behavior_in_Pakistan