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IslandPalengke: Design and Development of a Mobile-Online Wet Market Platform for Bantayan Island

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Abstract

This Capstone Project focuses on the design and development of an Online Wet Market Platform for Bantayan Island, which provides a platform for vendors to display their seafood products, making it easier for them to sell their goods [2], [5]. The system also allows customers to easily find available products and provides convenience in terms of transportation. The users of the system include the administrator, vendors, and customers. The design and development of the Online Wet Market Platform for Bantayan Island identified the opportunities and challenges faced by wet markets in transitioning from traditional methods to technological approaches. The researcher used the Rapid Application Development (RAD) model in developing the Web Application, which consisted of requirements planning, prototype cycles, design and construction, testing, and implementation and release [12]. The system was evaluated by three IT experts using a software quality

questionnaire and a survey questionnaire based on the specific objectives of the study. The results of the evaluation were derived from the computed averages and ratings provided by the IT experts. The Online Wet Market Platform for Bantayan Island provides ease and convenience for vendors and customers in selling and ordering products. The system proved to be a useful and user-friendly tool for ordering products online.

Keywords: *Online Wet Market, Rapid Application Development (RAD), Web Application, Mobile Application, ISO/IEC 25010, Software Quality, E-Commerce System, Bantayan Island.*

1. Introduction

Information Technology has been developing for a considerable amount of time, and its use in operations and organizations has been commonplace [5]. The development of global digital telecommunications network and the advancement of technology as a whole are the results of information technology. Electronic commerce is a subset of information technology [5]. 'Wet market is a collective term for heterogeneous businesses the adjective 'wet' relates to the water and ice used to keep products and premises cool and clean [1], [3], [7]. Most sell are the seafood products. In island communities such as Bantayan Island, wet markets are locally known as the Island Palengke, which refers to a community-based marketplace where seafood vendors sell freshly caught fish and other marine products essential to daily livelihood. Online Wet Market Platform for Bantayan Island support livelihoods, including those of small street vendor producer. They are an important source of seafood supplies for many communities here in Madridejos and, importantly, a feature of many street seafood vendors [4], [6], [8]. The focus on 'freshness' from the wet market, and indeed the trusting relationship between vendor and consumer, is deeply valued in many societies, though it is perhaps not the norm or societies more exposed to the ways of modern retail. The existing street seafood vendors common problem is the low-income of their daily sales because the place where they sell their seafood products are not familiar to the costumers, if She/He wants to buy that certain product but they didn't know what seafood products are available to that vendor [2], [9]. This system provides a platform for seafood vendor. to have an opportunity to display their seafood products so that it is easy for them to find available products and convenient for the in terms of transportation.

1.1 The Objective of the Study

General Objectives

This study aims to Design and Development of an Online Wet Market Platform for Bantayan Island

Specifically, it aims to:

1. Develop a system that can:
   - 1.1 Design of the dashboard that will display the vendors with most sales, daily sales and total product, and vendors approval.
   - 1.2 Design a system that allows the vendor and customer to perform CRUD operation or create, read, update, and delete system information.
   - 1.3 Deploy the system through hosting and domain
   - 1.4 Developed a Mobile Application in Apache Cordova Platform

2. The quality of the developed system based on **ISO/IEC 25010:2011** Systems and Software Quality Requirements and Evaluation (SQuaRE) Quality Model [10].

3. Determine the usability of the developed system based on the following criteria: Usefulness, Satisfaction, Ease of use and Learning [11].

2. Method

This research employed the developmental research approach analysis of the Design and Development of an Online Wet Market Platform for Bantayan Island. It describes the plan of the study, the execution, evaluation, items and initiatives that must follow internal regulations requirements for consistency and effectiveness while using sample strategies, data collection techniques, and as well as the management of research data.

Software Life Cycle Model

In this study, the researcher used the Rapid Application Development (RAD) model in developing the software [12].

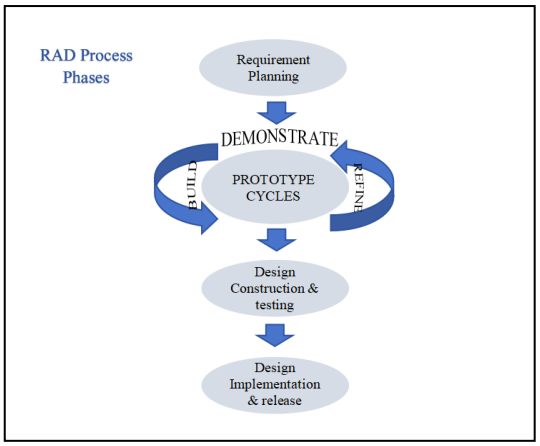

Fig. 1 Rapid Application Development Model

This study goal is to develop software applying the RAD approach, or rapid application development. This RAD approach was used for the design, which includes determining the objectives and information needs, the system's creation construction and putting in place the new system. The outcome of this research reveals that despite the fact that the RAD technique it does take less time to develop an information system, a strong working relationship between the user and the system designer.

RAD Software Phases

The phases involved in creating a system employing Rapid Application Development are as follows:

Step 1. Requirement Planning

At this step, the vendor and the current issues, such as the requirement for an online market system and the system's intended use, were discussed. The aims and objectives of the significance of providing product information for the Design and Development of an Online Wet Market Platform for Bantayan Island. The study participants and the course instructor in responsible party carefully planned the development of the website, evaluated the prerequisites, and established the purpose-driven goals of the study.

Step 2. Prototype Cycle (Demonstrations, Refine, Build)

This phase will involve the compiling, building, demonstration also refinement of the data gathered by the researchers. The researchers first demonstrate the system to the vendors and clients. The researchers show the function of the system, the flow of how it works, and the functions of the features that are included in the system. Furthermore, when the problem and lacking the system are observe by the user, the developer will refine the Web Application. This phase, the vendor and the developer will accommodate with one another. This will include changes in features flow and functions based on the requirements that can achieved

Step 3. Design Construction and Testing

This phase involves the testing and functionality of the Design and Development of an Online Wet Market Platform for Bantayan Island while ensuring that the great majority of the anticipated features work as expected is the goal of this phase of the Design and Development of an Online Wet Market Platform for Bantayan Island development utilizing data analysis. During this phase, there will be the possibility that additional functionality and or modules are being added to the Web Application as per the client's requests but depending on the developer's capability to add the functionality. Feedback from the client will allow this phase for the Web Application's code to be rewritten and tested. The vendors and the customers in the Madridejos area will be asked for permission to utilize the Design and Development of an Online Wet Market Platform for Bantayan Island by the researchers. They are going to explore the Web Application's features and components. The Online Wet Market Platform for Bantayan Island has been placed to the test by users and professionals.

Step 4. Design Implementation and Release

The final step before the project finished is made accessible to the public. During this phase, it involves training of the users regarding on how

to use the system. Despite the system is currently acting in the intended manner, yet it still requires constant service and observed.

2.1 System Architecture

An application architecture is a structural map of how an organization's software applications are assembled and how those applications interact with each other to meet business or user requirements. An application architecture helps ensure that applications are scalable and reliable, and assists enterprises identify gaps in functionality. The application design for the Online Wet Market System with data analysis shows the general architecture of the system, along with the tools and methods used to execute it.

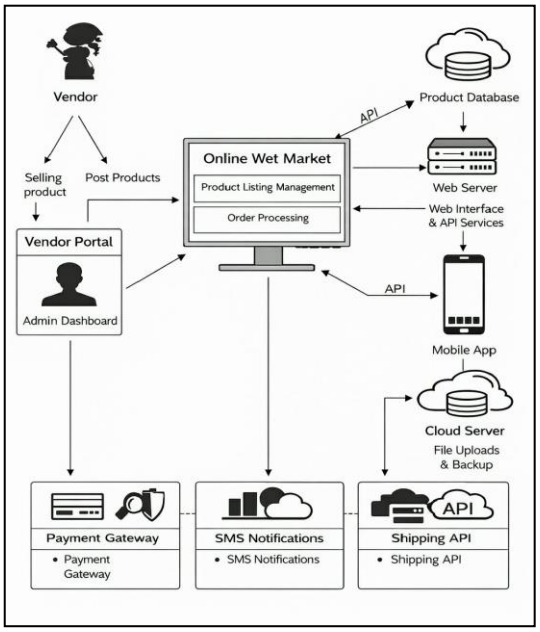

Fig. 2 System architecture

3.1 Mobile Application

Develop a Mobile application in Apache Cordova Platform.

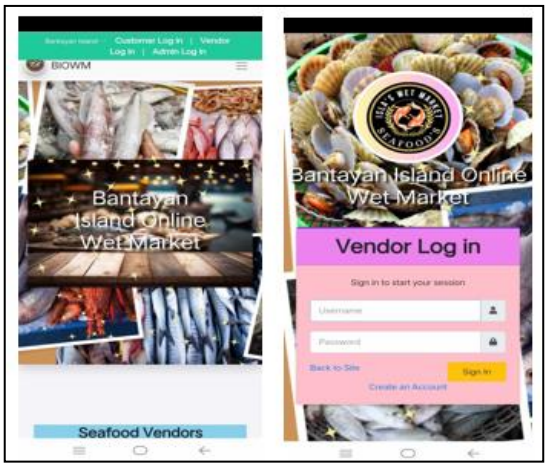

Fig. 3 Online Wet Market Platform for Bantayan Island

Figure 3 shows the mobile application of the Online Wet Market Platform for Bantayan Island installed on android smartphone. All of the functionalities that can be performed to the Web Application can also perform to the mobile application.

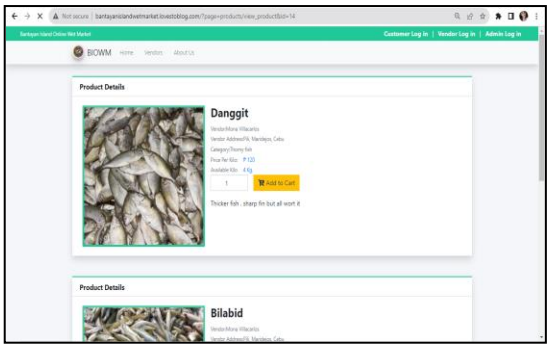

Fig. 4 Online Wet Market Platform for Bantayan Island Product page

Figure 4 shows the Online Wet Market Platform for Bantayan Island where the user can view items and add them to their cart.

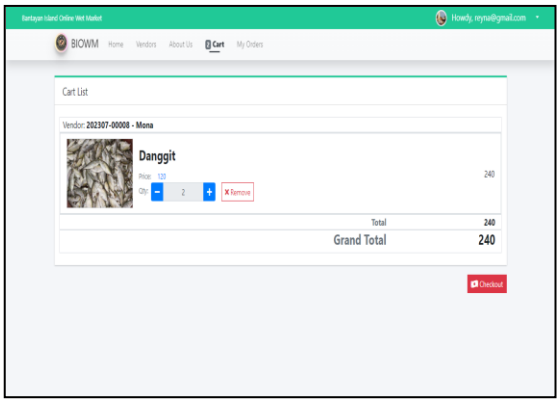

Fig. 5 In terms of Ordering Products

The Figure 5 above shows a part of the Online Wet Market Platform for Bantayan Island where the users can order different product to the vendor in their cart list. The users also can add how much quantity or kilo they want.

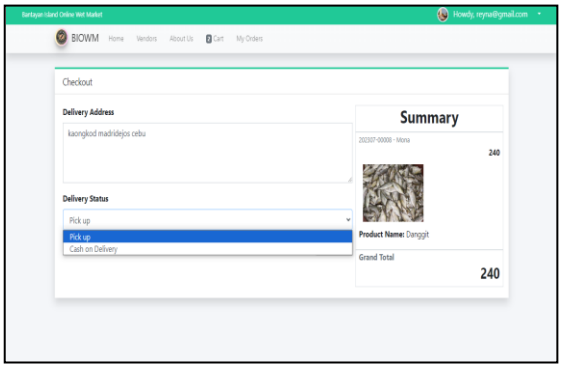

Fig. 6 In terms of Delivery Status/Order Type

The Figure 6 above shows a part of Online Wet Market Platform for Bantayan Island where customer can choose what order type they want. The user of this system can view details and edit address before they place order their product.

3. Results

Table 1. Summary of Evaluation Results

Criteria	Mean	Verbal Interpretation
Design of the dashboard that will display the vendors with most sales, daily sales and total product, and vendors approval.	5	Excellent
Design a system that allows the vendor and customer to perform CRUD operation or create, read, update, and delete system information.	4.93	Very Satisfactory
Displaying Product Online.	4.7	Very Satisfactory
Developed Mobile Application	4.7	Very Satisfactory
Total	4.83	Very Satisfactory

Table 1 shows the evaluation results of the system based on several criteria. The overall total mean of 4.83, indicating that the respondents evaluated the system as Very Satisfactory.

Table 2: In terms of the characteristics set in ISO 25010 Software Quality Model

Criteria	Mean	Verbal Interpretation
Functional Suitability	5	Very Good
Performance Efficiency	5	Very Good
Compatibility	5	Very Good
Reliability	4.67	Good
Security	5	Very Good
Total	4.9	Good

Table 2 shows the results of the IT experts input in assessing the quality based on the features of the Online Wet Market Platform for Bantayan Island ISO 25010 software Quality Model [14]. Under the five criteria, the overall mean score of 4.9, which is good.

Table 3. In terms of usefulness, ease of use, ease of learning and satisfaction

Criteria	Mean	Verbal Interpretation
Usefulness	4.9	Strongly Agree
Ease of Use	4.83	Agree
Ease of Learning	5	Strongly Agree
satisfaction	5	Strongly Agree
Total	4.9	Agree

Table 3 shows the outcome of IT experts feedback in determining the Online Wet Market Platform for Bantayan Island usability in terms of usefulness, ease of use and ease of learning and satisfaction. The average shows 4.9 and is considered to be Agree.

4. Discussion

The following summary is currently provided based on a thorough presentation, discussion, interpretation, and analysis of research findings:

1. In terms of the design of the dashboard, the experts comment in the part of the system where daily sales, total product, and also the approval and commission for admin. The mean value in the table above is 5, which is excellent.
2. In terms of creating, reading, updating, and deleting products, the expert's outcome regarding the Online Wet Market Platform for Bantayan Island, which allows users to view, add, edit, and delete information about their product. The mean value in the table above is 5, which is excellent.
3. In terms of creating, reading, updating, and deleting the outcome of the experts comments while using our system Online Wet Market Platform for Bantayan Island, which allows users to create, read, update, and update product, order products and choose what order type they want. The mean value in the table above is 4.9, which is good.
4. In terms of displaying product online, the outcome of the experts comments while using our systems Online Wet Market Platform for Bantayan Island, which allows vendors to upload or display their product online. The mean value in the table above is 4.7, which is very satisfactory.
5. In terms of the developed mobile application, the outcome of the experts comments regarding the use of the Online Wet Market Platform for Bantayan Island with our system, the table shows how effective the system in terms of responsiveness of mobile application. The average value in the table above is 4.7, which is very satisfactory.
6. In terms of the characteristics set ISO 25010 software quality model, the outcome of IT experts feedback in determining the Online Wet Market Platform for Bantayan Island usability in terms of functional suitability was given a mean rating of 5, which is considered very good. It received a mean score of 5 for performance efficiency, which is regarded as very good. For compatibility, it received a mean score of 5, which is regarded as very good. For reliability, it received a mean score of 4.67, which is regarded as good. For security, it received a mean score of 5, which is regarded as very good. Furthermore, the overall mean is 4.9, which is good.
7. In terms of usefulness, ease of use, ease of learning, and satisfaction, the outcome of IT experts feedback in determining the Online Wet Market Platform for Bantayan Island usability in terms of usefulness, ease of use and ease of learning and satisfaction. It received a mean score of 4.9, which is considered strongly agree in terms of usefulness. It received a mean score of 4.83, which is agree in terms of ease of use. And the total mean is 4.9, which is agree.

5. Conclusions

The Web Application, Online Wet Market Platform for Bantayan Island provides ease in order for the vendors and customers selling and ordering product [2], [5]. The researcher was able to provide the analysis through the

dashboard, which displayed the daily sales, total number of products and price, total vendors, top vendors with most sales graph, using descriptive analysis. In addition, the researcher concludes that, based on the evaluation of the respondents that the web app, Online Wet Market Platform for Bantayan Island is user-friendly, and inconsistent of the color used, and one many colors and it is safe and easy to access based on the opinion of the three IT Expert.

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