The Design Of E-Marketing For Bangka's Pepperusing Web Server And Android

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Abstract—**Bangka's pepper is known in the world market with the trademark Muntok White Pepper (MWP) that has a good quality and the highest price. The marketing pattern of Bangka's pepper from the past until now is still convetional. It can be seen from the pepper marketing chain: from farmers as producers, merchants, exporters, overseas merchants, manufacturers then to end users or buyers. In the era of information technology revolution, pepper marketing chain can be more efficientand marketing system can be online using Internet as known e-marketing. Using e-marketing system, farmers as producers can directly make transactions with the buyers, wholesalers and end users by using online pepper marketing system. The design of pepper e-marketing system will be design base Systems Development Life Cycle (SDLC), is a cyclical methodology, phases repeat, so changes can be made to the design in the next cycle.Design E- marketing interface will using PHP and MySQL as the webserver for pepper marketing data management, farmers data, pepper's stock and production and others data. The system can be accessed using the Internet, and also designing an Android-based pepper marketingfor mobile applications. The purpose of this research is a design for pepper e-marketing systems and also the design user interface for applications is to make access to pepper more easily and widespread using Internet and Android smartphone, as well as the existence of a database of farmer and buyers of this pepper along with pepper price and stock data. In other words, the benefits of design e-marketing systems and applications enable farmers to directly sell their pepper to a wider market via the Internet, in purpose the pepper's farmer can get the best price.**

Keywords: Pepper, E-Marketing, Webserver, Android

I. INTRODUCTION

The pepper plant (Piper nigrum L.), known as the "King of Spice", is the most important spice crop in international trade, and occupies approximately one-third of the total volume and value of the spice trade globally (IPC 2014: 1). The famous Pepper in the world si White Muntok Pepper that came from Bangka. Currently the price of Bangka pepper is often up and down and depends on world market prices so the farmers get less profitable because the concept of pepper marketing is still traditional or offline from the past until now causes the price depends on the other party. Marketing is a social and managerial process whereby individuals and groups derive what they want and need through the creation and exchange of products and values with others [11]. The marketing system is also one that determines the selling price of a product. Traditional marketing system with pepper marketing line from farmer to long buyer which can cause low price of pepper.

Marketing system is the most important in delivering the production or agricultural products in this case Bangka's pepper to consumers or buyers. The marketing of Bangka's pepper is still traditional (offline) ie from farmers to collectors, collectors to exporters then exported to various countries at a higher price. This marketing system will disadvantageous the farmers because can't get the best price for their pepper. Another problem is farmers sell their pepper in the original form and not obtained further in accordance with the wishes of the market or buyers to get a higher price. Whereas with a good pepper processing then the price of pepper can increase and become more expensive. Another difficulty is that farmers have no relationship or know their buyers directly but must go through other parties or often called exporters and collectors.

By using Information Technology especially the Internet and mobile application today that is getting more advanced, then it is time to change a conventional or offline pepper marketing system to became e-marketing system using the Internet and mobile applications. With e-marketing, the pepper marketing system can be do directly by farmers as a producer of pepper and can determine the price of pepper to be sold to buyers. For that it is important to design a pepper marketing system that will facilitate farmers in selling pepper to the seller by using the Internet and Android or can be said e-marketing system and to replace the traditional market system.

The design of the e-marketing system using SDLC in purpose will help the buying and selling process of Bangka pepper via the Internet and contain a database of pepper farmers in Bangka and pepper stock and pepper quality owned by the farmer and pepper buyer data using webserver. The design of this e-marketing system is expected to become the official marketing system of pepper that can increase the selling value of pepper at the

level of pepper farmers and become the reference price of Bangka pepper. It is very important that information about the price of Bangka pepper is not confused and exploited by people who intend not to affect the price of pepper in the world. Therefore, this research will design concepts and user interface of Bangka pepper e-marketing using a webserver that built using PHP and MySQL and also build android applications using Android Studio that can be used by farmers and buyers in the process of buying and selling pepper in mobile system so the marketing system can be called e-marketing by using waterfall methodology. With this design, hopefully the e-marketing system for Bagka pepper can be built and implement for the farmer and buyers so it's can replace the conventional marketing.

II. LITERATURE REVIEW

E-marketing describes the company's efforts to inform, communicate, promote and market products and services over the internet [11]. Electronic marketing utilizes network technology to coordinate market share research, assist product development, develop strategies and tactics to attract customers, provide online distribution, maintain customer records, create customer satisfaction, and collect customer feedback [10].E- Marketing is a mixture of all the activities of advertising, promotion publicity deciding the look and feel of the product, how it will be sold and sent to the customer etc[1], Strauss and Frost define it as: "The use of electronic data and applications for planning and executing the conception, distribution and pricing of ideas, goods and services to create exchanges that satisfy individual and organizational goals"[11]. For webserver as supporting the e-marketing system is the increasing dependence on the internet services emphasizes importance of stable underlying web server architecture[2]. Multithreaded architecture is a natural way of programming a server and is the most common approach for implementing web servers, e.g. Apache [6], IIS [7].Waterfall is one concept of SDLC that have some stages where every stages as, "frozen" moment of development can make a good delay until the implementation stage because is to late to known the errors in the process, during the earlier phase, which was preceded by extensive design and coding [16]. The connection of objectives between developers (as a programmer) and clients is also very unobstructed because if the client changes the needs or requirements of the system, the development must make process to fulfill the needs in order to completely restart for those changes to be taken into account [15].
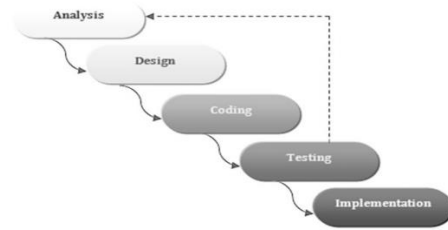

Figure 1. The waterfall life cycle model

III. METHODOLOGY

The method is use to build the e-marketing system baseb webserver and android is waterfall method. The waterfall is one of SDLC method and his model is an idealized and greatly simplified concept. The waterfall concepts is of the best frameworks or models to bulit an information system. Its has the framework that accepted positive by thedevelopments to makesoftware development, such as efective in time and accurate for designthe project, wide documentation of the all processes, and havea strong design concepts before the coding[17]

The design of e-marketing system is as seen at Figure 1, using the waterfall life cycle model.

A. Analysis

At this stage of the analysis to do research on pepper marketing systems that are still traditional (offline) and existing problems on the system. The problem that exist now is the farmer has no power to determine the pepper price, the buyer of pepper is buying the pepper from third party where the which is likely to be priced much different from the price in the farmers so the old system only a big benefits to the exporters, not the peppers farmers. Another problem is the absence of complete data of pepper farmers, the area of pepper plantations, pepper stock, pepper production, buyer data and others related to Bangka pepper.

After knowing the problems, then it can be designed a new marketing system or can be called e-marketing to replace the existing marketing system. This e-marketing system for pepper is designed to solve existing problems in traditional marketing, such as farmers can not sell the pepper directly to the buyer, the price of less favorable pepper, the absence of pepper stock data in realtime, buyer data, the long chains for marketing and more. By using e-marketing, it's mean must a built a system that can be accessed using the Internet. The design of e-marketing also about the design the user interface for farmers, adminstrator and buyers. Design webserver using PHP and MySQL and android application that will be used in built this e-marketing system. This analysis also will design the concepts, mechanism, user interface and how the system work and design will be suitable and easy to use by users both farmers and buyers also will be useful to know whether the programming used can support the e-marketing to be built.

B. Design

According toRayport& J. Jaworski. (2003), there are various elements in designing a website, ie context (the context of the site reflects the value of the beauty and usefulness of the site), the content is all the digital objects contained in a web either in the form of audio, video, image or text), community (the community is a relationship ties that occur between fellow visitors or customers of a website due to the same interest or hobby), customization (customization is the ability of the site to modify itself in accordance with the wishes of its users), communication (communication between companies with customers, consisting of Broadcast Dimension, Interactive Dimension, and Hybrid Dimension), connection (the ability of a website to move from a webpage to another webpage or other website with on-click in text, images and other toolbars), and commerce (commerce is a feature from the customer interface that supports various aspects of the transaction trade and have dimensions such as registration, shopping cart, security, credit card approval, one click shopping, order through affiliates, configuration technology, order tracking, delivery options). This design stage is purpose to make e-marketing system can be used by farmers and buyers also can be accessed using a website and android application for processof pepper buying and selling via Internet.

This e-marketing design focus it how the e-marketing system works and the user interface for the user that will use this system. Design mean the system can work properly and give easiness for the user so they will use the e-martketing system when it already bulit, test and implement for real. Stages of designing e-marketing system of pepper based on webserver and androidapplications to be done can be seen in Figure 2.
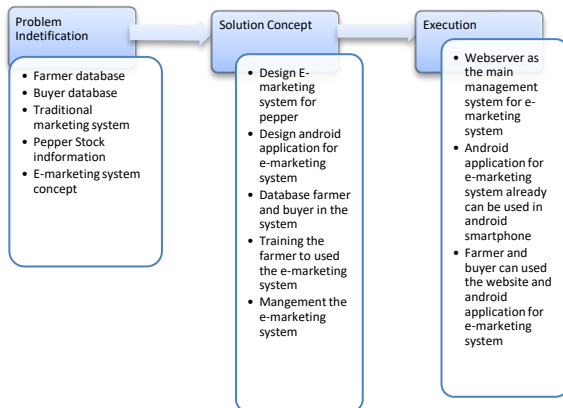
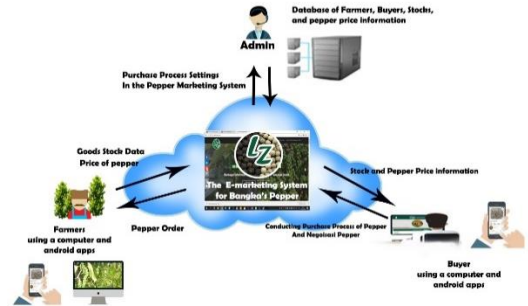Figure 2. Design E-Marketing System for Bangka's Pepper

Figure 3. Design of Pepper E-Marketing System based Webserver and Android

In Figure 3, it shows farmers can make their pepper sales directly to buyers and buyers can also see pepper offered by using this marketing system. With this pepper e-marketing system, the pepper marketing process is more emphasized on the use of the Internet and smartphone based on android so everyone can buy and sell the pepper. This is because pepper in Bangka has a huge potential because already widely known and worldwide so has its own market share and develop the e-marketing system well, it takes research and retrieval of good data and learn the concept of e-marketing using the Internet and android apps. Once the data and marketing concepts are understood, the marketing system can be built using PHP and MySQL and Android Studio. This pepper e-marketing system will be designed with an attractive display with complete information and facilitate for farmers and buyers in transacting of pepper transaction so that farmers and buyers feel interested to utilize the marketing system that has been built.

C. Coding

Coding can be started by analyzing input, process and output. Coding also requires algorithms and flowcharts to assist in the work of this e amrketing system. With the algorithm and flowchart can be a blueprint for the system and provide ease in the process of debugging and development of the system forward. Coding will be done using the programming language PhP, MySQL in build the webserver and Java for android apps. The coding will be work as teh design soo the result will as expected and can be used by the farmers and buyers. After the coding process is complete, it can be done the next stage of testing the e-marketing system to see what the results of the coding is in accordance with the design or not. If not appropriate then will be coding again until the results of coding has been in accordance with the design and needs of e-marketing system.

D. Testing

Testing is clearly a necessary area for software validation. Typically, program being coded, and we continue with design, code checking as a part of the static test effort [20]. Once the code is build, any other static methods based on source code can be applied [21]. The various kinds and stages of testing targeting the different levels of integration and the various modes of software failures are discussed in a wide body of literature [22]. The

testing done at later stages (e.g., external function tests, system tests, etc.) are black box testing based on external specifications and hence do not involve the understanding of the detailed code implementations. This testing is to watch how the e-marketing system work after it's built and see if there error to make

E. Implementation

The activities of the implementation process are to see if the system can be used by the farmers and buyer. Also it need feedback from the users about the e-marketing system that already built for them. It's usually use the quesioner with some question to see if any complain about the system and make some repairement based on the answer in teh quesioner.

III. DESIGN OF INTERFACE E-MARKETING SYSTEM

A. Design of Main Interface of Pepper e-Marketing System on Website

In this section, the main display design for the website for pepper e-marketing system so easy to use both by farmers and buyers in communicating and can help farmer to sell their pepper directly to the buyers. This website will build in 2 language: Indonesian and English language so it will can used not just in Indonesia but also all over the world.

Figure 4. Design Main Interface E-Marketing System for Pepper

In Figure 4, it can be seen that this marketing system also shows about pepper in general, ranging from the history of pepper, pepper garden and planting calendar. It can be used by farmers and buyers who want to know about Bangka pepper information completely.
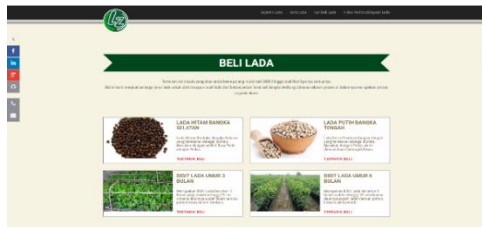

Figure 5. Design Interface for Information Product

In Figure 5, it is a feature to make the process of purchasing pepper, and in addition to pepper there is also a pepper seed that can be purchased by the buyer.

This page is for displaying product products sold on this pepper e-marketing system

Figure 6. Design Interface For Buying Process

In Figure 6. is the design of interface when buyers want to buy pepper or other products available in this e-marketing system.This makes it easy for buyers to place orders and purchase processes both pepper and others.
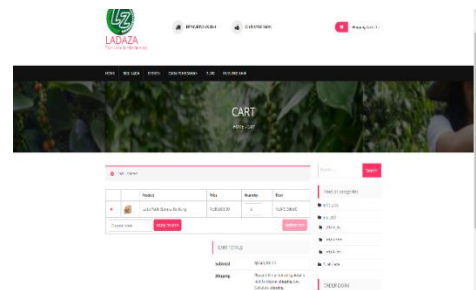

Figure 7. Design Interface For Payment Process

In Figure 7, it is a design to display the amount to be paid after the purchase process. The amount of money to be paid can be seen in view Figure 7.

B. Design of Main Interface of Pepper e-Marketing System on Android Application

In this section, the design interface android application for pepper e-marketing system so easy to use both by farmers and buyers in communicating and can help farmer to sell their pepper directly to the buyers by using Android smartphone. This application also will build in 2 language: Indonesian and English language so it will can used not just in Indonesia but also all over the world.

Figure 8. Design Icon of Android Application

In Figure 8., is an early display of android applications that display the icon of pepper e-marketing system application .
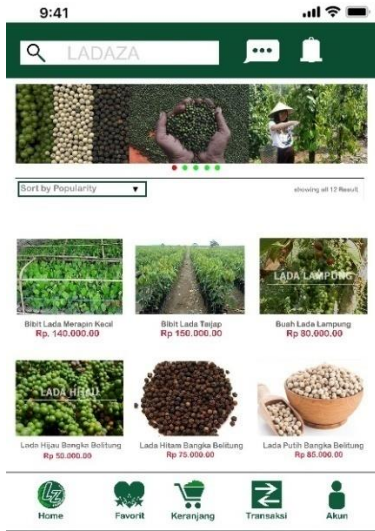

Figure 9. Design Main Interface of Android Application

In Figure 9, is the main menu display android applications that display products sold as well as a display that facilitates the process of buying and selling between buyers and sellers.
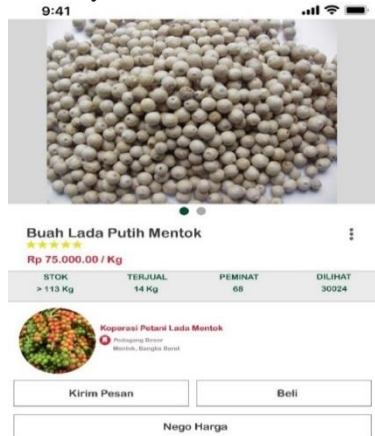

Figure10. Design Interface Fot Buying Process

At Figure 10., is a display menu of buying and selling process in android applications that display the process of buying and selling between buyers and sellers after the buyer decides to buy products in this application.

Figure 11. Design Interface For Seller Data

At Figure 11, a display of seller data menu in android application that displays the data of the seller as well as the features for the seller to manage the products sold, so that the product can be displayed to the website and android application

IV. CONCLUSION

Research focus is about the design of e-marketing system for Bangka pepper that is expected to help pepper farmers in selling their pepper and get a better price and replace the conventional marketing. The design of this e-marketing system is also expected to assist in the development of e-marketing system for pepper so that it can be implemented for the process of buying and selling pepper online and using android applications. With this design, then e-marketing can be built and replace the traditional marketing system (offline) to help farmers in selling their pepper directly to the buyer. Expected pepper e-marketing system is able to increase the price of pepper at the level of farmers and able to make farmers to be sellers in determining the price of pepper they have. E-marketing system based on webserver using PHP and MySQL will facilitate the management of data related to pepper marketing, such as farmer's data, pepper stock, pepper price, buyer, pepper-related products and others as well as easier access to marketing system because already using the Internet network. While the android application to create a pepper e-marketing system is becoming more widely known due to the number of smartphone users based on android so that the potential sales of pepper can be bigger. With this design, the Bangka's pepper will have a new market

system that more helping the farmer and the buyer and in the future it's became a Pepper's digital market.

REFERENCE

[1] Joseph P.T,S.J(2008)," An Indian perspective",3rd edition, E-Commerce, by PHI learning private limited.

[2] S.M. Aaqib, L. Sharma, "Analysis of Compute Vs Retrieve Intensive Web Applications and Its Impact on the Performance of a Web Server", International. Journal Advanced Networking and Applications Vol. 03 Issue 04, pp. 1233- 1239, 2012.

[3] L. A. Adamic, B. A. Huberman, "Zipf's law and the Internet", Glottometrics,Vol. 3 pp. 143-150. 2002.

[4] Beltran, V., Carrera, D., Torres, J. and Ayguadé, E. (2004) 'Evaluating the scalability of java eventdriven web servers', International Conference on Parallel Processing (ICPP'04) , pp.134–142. 2004

[5] V. S. Pai, P. Druschel, and W. Zwaenepoel. "Flash: An efficient and portable Web server", In Proceedings of the USENIX Annual Technical Conference, 1999.

[6] Apache software foundation. The Apache web server. URL :http://httpd.apache.org.

[7] Microsoft IIS web server, URL:- http://www.iis.net/

[8] Chaffey, D. & Smith, P.R, e Marketinge Xcellence: planning and optimizing your digital marketing. 3. ed. ButterworthHeinemann. Oxford.2007

[9] Reedy, J., Schullo, S., & Zimmerman, K. (2000). Electronic marketing, integrating electronic resources into the marketing process. United States of America: The Dryden Press, Harcourt College Publishers

[10] Strauss, J., & Frost, R. (2009). E-marketing (5th ed.). Upper Saddle, New Jersey Prentice-Hall.

[11] Kotler, P., & Amstrong, G. (2004). Principles of Marketing (10th ed.). Upper Saddle River, New Jersey: Pearson Education.

[12] Mohammed, R. A., et. al. (2003). Internet marketing : building advantage in a networked economy (2nd ed.).

[13] Project Management Methodologies (n.d.).Retrieved April 12, 2013, from http://infolific.com/technology/methodologies/

[14] Balaji, S., Murugaiyan, M., (2012). Waterfall vs. V-Model vs. Agile: A comparative study on SDLC. International Journal of Information Technology and Business Management 2(1), 26–30.

[15] Jayport, J. F., & Jaworski, B. J. (2003). Introduction to e-commerce (2nd ed.). New York: McGrawHill.

[16] G. J. Myers, "Software Reliability , Principles and Practices", Wiley, New York (1976).

[17] ANSI/IEEE Standard 729-1983 " Glossary of Software Engineering Terminology".

[18] M. S. Deutsch, " Software Verification and Validation: Realistic Project Approaches", Prentice Hall, Englewood Cliffs (1982). [5]

[19] R. S. Pressman, "Software Engineering- A Practitioner's Approach", McGraw-Hill, New York (1992).

[20] ISO/IEC TR 29110-5-1-1:2011 – Software engineering – Lifecycle Profiles for Very Small Entities (VSEs) –Part 5-2-1: Management and engineering guide: Generic profile group: Entry profile, International Organization for Standardization/International Electrotechnical Commission: Geneva, Switzerland. Available at no cost from ISO at: http://standards.iso.org/ittf/PubliclyAvailableStandards/c0511 53_ISO_IEC_TR_29110-5- 1_2011.zip

[21] Allen, G. 2012.*Beginning Android 4*. Penerbit Apress. New York.

[22] International Pepper Community (IPC). 2014. *Pengendalian Penyakit dan Hama Tanaman Lada di Indonesia.* Jakarta: IPC. www.ipcnet.org, last access January, 4, 2018.