

Agricultural Marketplace Website System Design

1st Beben Sutara
Departement Computer Science
STMIK Sumedang
Sumedang, Indonesia
bensu@stmik-sumedang.ac.id

2nd Dwi Yuniarto
Departement Computer Science
STMIK Sumedang
Sumedang, Indonesia
duart0@stmik-sumedang.ac.id

Abstract— This research is aimed at designing a web-based agricultural marketplace that is devoted to farmers selling their crops without being tied down by middlemen. This prototype method serves to meet the needs of the software used by this website system. Black box as one of the system testing tools to avoid errors on this website. The results of this study indicate from the benchmark theory that this marketplace system is feasible to use to meet needs. The conclusion is that this web-based agricultural marketplace system is feasible to use because it meets the needs and has been tested for feasibility.

Keywords— Prototype, Blackbox, UX, Marketplace

I. INTRODUCTION (HEADING 1)

So far, the agricultural sector has been underdeveloped because in Indonesia the agricultural sector is still subsistence (a farming system where the main goal is to meet the needs of farmers and their families), and not commercial (profit making). As a result, even though farming is the main source of income for the majority of the population, it cannot yet be characterized by the large number of small farmers.

The general characteristic of small farmers is narrow land ownership, and the source of income from them generally does not only come from the agricultural sector, therefore many small farmers or farmers protest against the middlemen and even the farmers do not want to sell their crops to the farmers. middlemen, due to the large number of agricultural production produced will also affect the rise and fall of prices. If the demand for crops increases and the supply of crops is sufficient, the price of crops will be relatively stable, but if it is not fulfilled, prices will relatively rise or soar. Conditions like this make farmers feel that there is no price certainty, especially when the amount of production is abundant and the purchasing power of middlemen to farmers is relatively cheap and sometimes the selling price received by farmers cannot cover the price of production.

Therefore, a forum was created for farmers to be able to sell their products without having to involve middlemen. The container is in the form of a marketplace website where farmers can sell their products according to the price of production costs or according to the average selling price of production in the market. which is usually done by the middlemen.

II. METHOD

2.1 Data Collection Techniques

In writing this research the data collection technique used is to carry out several activities:

- a. Observation
The author goes directly to see and observe the problems being faced by the farmers.
- b. Interview
To get correct and accurate data, the author conducts question and answer directly to the farmers to find solutions to the problems they are facing.
- c. Literature Study
The author collects data and makes observations from various reading books and journals, especially regarding the design system of a marketplace for farmers with a research topic. So that a strong scientific basis is obtained in the preparation of this research.

2.2 System Development Model

In developing the system, several stages of the system development model that the author uses consist of:

- a. Listening to customers
At this stage, identifying problems and gathering requirements from the system is carried out by communicating with users. To create a system that suits your needs, you must first know how to design a marketplace system from the experts.
- b. Designing and Making Prototypes
At this stage, the design and manufacture of system prototypes is carried out. The prototype made is adjusted to the needs of the system that has been defined, then the data, interface and coding of the system are carried out.
- c. Trial
At this stage, the prototype of the system is tested by the user. Then evaluate the deficiencies of customer needs. Then the evaluation stage is carried out on the system, this evaluation stage looks at the results of the system testing stage and then analyzes every error and then fixes it so that it becomes perfect.

III. RESULT AND DISCUSSION

3.1 Marketplace

Marketplace is an internet-based (web-based) online media for conducting business activities and transactions between buyers and sellers. Buyers can find as many suppliers as possible with the desired criteria, so that they get according to market prices. Whereas suppliers/sellers can find companies that need their products/services (Opiida, 2015) and according to Saeful Fahmi (2018) E-marketplaces are internet-based (web-based) online media where business activities and transactions between buyers and sellers are carried out. .

In conclusion, E-marketplace is an electronically interactive business community container and application that provides a market in which it contains the planning and execution of the conception, distribution, pricing, in the form of goods or services with the aim of satisfying individuals and organizations.

3.2 Distribution channels

Distribution channels are channels used by producers to distribute products to consumers or various company activities that strive for products to reach consumers.

According to Assauri (2018) distribution is the activity of moving products from one source to the final consumer with distribution channels at the right time. Meanwhile, according to Nitisemito (2017, 102), Distribution Channels are distributor institutions or channeling institutions that have activities to distribute or deliver goods or services from producers to consumers. According to Soekartawi (2015), distribution channels are activities of distributing and sending goods and services so that they reach the final consumer. And according to Warren J. Keegan (2016) Distribution Channels are channels used by producers to distribute these goods from producers to consumers or industrial users. And finally, According to Basu Swastha (20016) Distribution Channels are marketing channels used by product makers to send their products to industries or consumers.

According to some of the theories above, it can be concluded that distribution channels are streets or alleys consisting of economic institutions through which producers transfer goods to the hands of end users. Distribution channels are important, because the goods that have been made and the prices have been applied still face problems, namely they have to be conveyed to consumers.

Resellers can be a tool for companies to get feedback from consumers in the market. Determining the number of dealers is also an important issue to consider in certain cases according to the nature of the product being offered. Goods for daily necessities, for example, require many dealers, while large goods such as industrial equipment do not.

Errors in determining the number of distributors will create new problems for the company. If the number of distributors is too small, it will cause the distribution of the

product to be less extensive, while the number of distributors who are too many will result in wastage of time, attention, and costs. Because he is the marketing manager needs to be careful in selecting and determining the number of distributors.

3.3 System Design

The design will be described by UML (Unified Modeling Language) diagrams to visualize the system made through Use case diagrams, class diagrams, Activity Diagrams, Sequence Diagrams, Component Diagrams and Deployment Diagrams.

3.3.1 Use Case Diagram

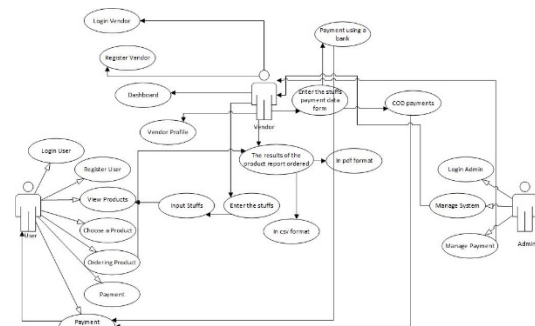


Figure 3.1 Use Case Diagram Display On The Marketplace System

The picture above explains that this is the structure of the system parts contained in the usecase diagram consisting of the user and his duties to order the product he wants to buy, the vendor's duties as admin in the system that sells goods to users, the admin and his duties to manage the running of the system.

3.3.2 Activity Diagram System

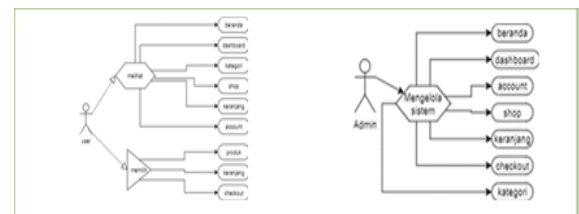


Figure 3.2 Display of the activity system diagram on the marketplace system

The picture above explains that these are the activity display sections of an agricultural marketplace.

3.3.3 Sequence System

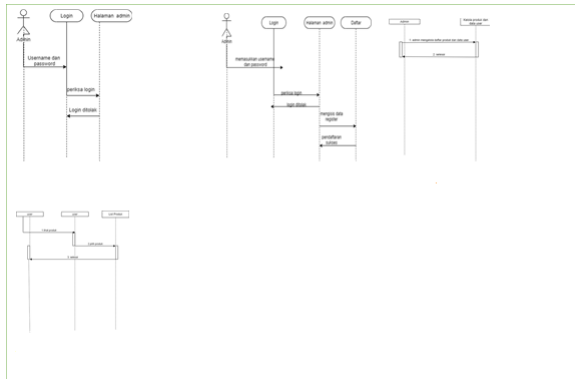


Figure 3.3 Display Of The Sequence System Diagram On The Marketplace System

In the picture above there are parts of this sequence diagram to illustrate the sequence of the process flow of an agricultural marketplace system.

IV. CONCLUSION

The conclusions from the discussion results of this marketplace are:

1. To provide a forum in the form of a website for farmers to sell their produce without having to get involved with middlemen.
2. With the limitations of the marketplace design system in the form of a website that is devoted to selling semi-finished goods production and the system uses the prototype method so that the development of this marketplace website system is faster.
3. For the analysis and evaluation of the agricultural marketplace system, it meets the needs with the black box testing method and the UEQ (Use Experience Questionnaire),
4. Achievement of the goal of designing and building an agricultural marketplace website to make it easier for farmers to sell their crops online with the prototype method and testing using black boxes and UEQ as the results of the evaluation.

REFERENCES

- [1] A. Venkatesh and M. S. Eastaff, "A study of data storage security issues in cloud computing," *Int. J. Sci. Res. Comput. Sci. Eng. Inf. Technol.*, vol. 3, no. 1, pp. 1741–1745, 2018.
- [2] M. Almorsy, J. Grundy, and I. Müller, "An analysis of the cloud computing security problem," *arXiv Prepr. arXiv1609.01107*, 2016.
- [3] A. El Bouchti, S. Bahsani, and T. Nahhal, "Encryption as a service for data healthcare cloud security," in *2016 Fifth International Conference on Future Generation Communication Technologies (FGCT)*, 2016, pp. 48–54.
- [4] A. Narang, "A review-Cloud and cloud security," *Int. J. Comput. Sci. Mob. Comput.*, vol. 6, no. 1, pp. 178–181, 2017.
- [5] P. Samarati, S. D. C. di Vimercati, S. Murugesan, and I. Bojanova, "Cloud security: Issues and concerns," *Encycl. cloud Comput.*, pp. 1–14, 2016.
- [6] J. Che, Y. Duan, T. Zhang, and J. Fan, "Study on the security models and strategies of cloud computing," *Procedia Eng.*, vol. 23, pp. 586–593, 2011.

- [7] S. Sridhar and S. Smys, "A hybrid multilevel authentication scheme for private cloud environment," in *2016 10th International Conference on Intelligent Systems and Control (ISCO)*, 2016, pp. 1–5.
- [8] M. A. Babar and B. Ramsey, "Understanding container isolation mechanisms for building security-sensitive private cloud," *Tech. Report, CREST, Univ. Adelaide, Adelaide, Aust.*, 2017.
- [9] M. A. Helmiawan and I. Fadil, "PRIVATE CLOUD STORAGE IN RURAL'S MANAGEMENT AND INFORMATION SYSTEM USING ROADMAP FOR CLOUD COMPUTING ADOPTION (ROCCA)," *Intern. (Information Syst. Journal)*, vol. 2, no. 2, pp. 172–183, 2019.
- [10] A. Hashmi, A. Ranjan, and A. Anand, "Security and compliance management in cloud computing," *Int. J. Adv. Stud. Comput. Sci. Eng.*, vol. 7, no. 1, pp. 47–54, 2018.
- [11] B. T. Rao, "A study on data storage security issues in cloud computing," *Procedia Comput. Sci.*, vol. 92, pp. 128–135, 2016.
- [12] M. K. Kiskani and H. R. Sadjadpour, "Secure and private cloud storage systems with random linear fountain codes," in *2017 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computed, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation (SmartWorld/SCALCOM/UIC/ATC/CBDCCom/IOP/SCI)*, 2017, pp. 1–8.
- [13] T. Yan, S. Zeng, M. Qi, Q. Hu, and F. Qi, "Cyber security detection and monitoring at IHEP private cloud for web services," in *EPJ Web of Conferences*, 2019, vol. 214, p. 7016.