Developing a Website for Durian Seed Marketing: Alternative Business Media During a Pandemic

Ray Miftakhul Ilmi[1], R. Arri Widyanto[1*], Dimas Sasongko[2], Anggun Dwi Agustina[1], Agus Setiawan[2], Bambang Pujiarto[1]

[1]*Department of Information Technology, Universitas Muhammadiyah Magelang, 56172, Indonesia*
[2]*Department of Informatic Engineering, Universitas Muhammadiyah Magelang, 56172, Indonesia*
Corresponding author's email: arri_w@ummgl.ac.id

ABSTRACT

Argo Bibit is a local business in Magelang District which is engaged in selling fruit seeds by providing various types of durian fruit. Currently, the process of buying and selling seeds is carried out conventionally, prospective buyers must come to the nursery to select seeds to buy and make transactions. During a pandemic, the transaction and marketing processes experience obstacles and limitations, so that a medium used for transactions is needed. This research uses object oriented programming method. The result of this research is an E-commerce website which is used for selling durian seeds. This system is used to facilitate interaction between managers and customers in placing orders and making transactions without having to meet in person. In addition, customers can order customized seeds according to their wishes. Based on the results of tests that have been done, 0.79 customers state that this website is easy to use and understand, can help customize fruit seeds, the information is clear and makes it easy to be merciful.

Keywords: E-commerce, Object Oriented Programming, Fruit seed, Marketing, Customize.

1. INTRODUCTION

The pandemic period caused various businesses to become paralyzed, especially secondary businesses such as the fruit nursery business. This also happened to Argo Bibit, experiencing problems in its marketing. Marketing that has been done so far is offline marketing, using banners, flyers and word of mouth or customers coming to the nursery. During this pandemic, many customers were unable to come to the nurseries due to social restrictions, resulting in decreased sales turnover, even though usually this is the rainy season the demand for fruit seeds is high. This causes web-based alternative marketing media to be created. E-commerce is used to facilitate interaction between managers and customers in placing orders and making transactions without having to meet in person. Besides, it can be used to increase income [1]. Digital marketing is also used for competitive advantage [2] and is used to grow the number of company profits and increase customers[3]. Besides, it can be used to find customers quickly [4].

Research on the marketing of agricultural products conducted by Fecke Wilm et al shows that e-commerce has not been widely applied in agriculture [5]. Online shopping systems do not provide many benefits for customers [6]. Another study stated that online marketing services that are suitable for local farmers in Iran are to offer farmers products directly without having a direct role in buying and selling [7]. In addition, the S2B2C e-commerce model in agriculture will have an impact on reducing purchase costs and can meet personalized customer needs [8]. There are very few similar studies related to the marketing of agricultural products, especially those that discuss the marketing of agricultural products that can be customized according to customer needs. Educating farmers about online marketing will provide knowledge about marketing opportunities for agricultural products that will contribute a lot to the development of the nation [9].

This study aims to make it easier for managers and customers to place orders and transactions without having to meet in person. The result to be achieved is to produce alternative marketing media, with the method of ordering durian seeds that can be customized according to customer desires.

2. METHOD

Research in web development uses object-oriented programming method. This model uses the concept of objects that can interact with each other. The system built involves 3 actors, namely: owner, administrator, and customer.

2.1. Use Case Diagram

Use case diagrams are used to describe the effect of functionality expected by the system, can be used to help determine system requirements, communicate an application design with consumers, and design a testcase for all the features of the system[10] careful usecase design is very important [11].

2.2. Use Case Diagram Owner

The actor in this diagram is the Owner. Owner can login to the system, view seed data, sales data and logout as shown in Figure 1.
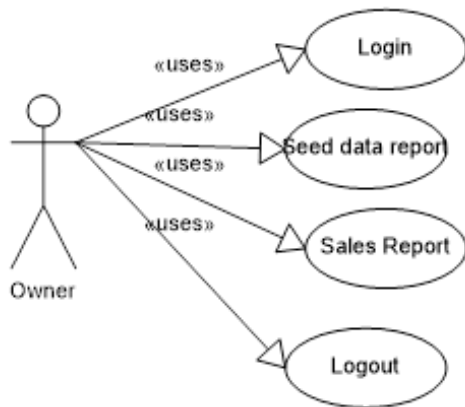

Figure 1 Use case diagram owner

2.3. Use Case Diagram Administrator

System Administrator is the person responsible for managing this system. Before managing, the administrator performs the login process first. Activities that can be done by administrators are login, add products, edit products, view product details, update status, view shopping status and logout. Figure 2 shows that the actor in this use case diagram is an administrator.
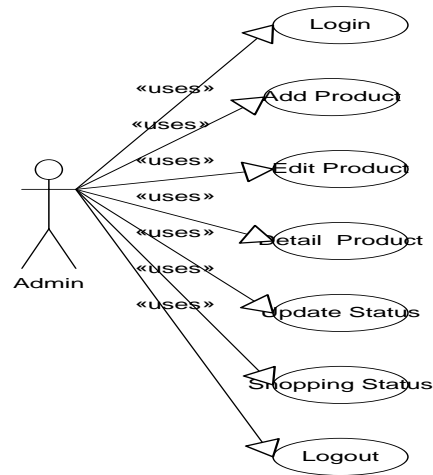

Figure 2 Use case diagram administrator

2.4. Use Case Diagram Customer

The actor in this diagram is the customer. In this use case diagram, the customer extends to view products, view product information, add shopping carts, change products in carts, login/create accounts, edit carts, view shopping status and logout as shown in Figure 3.
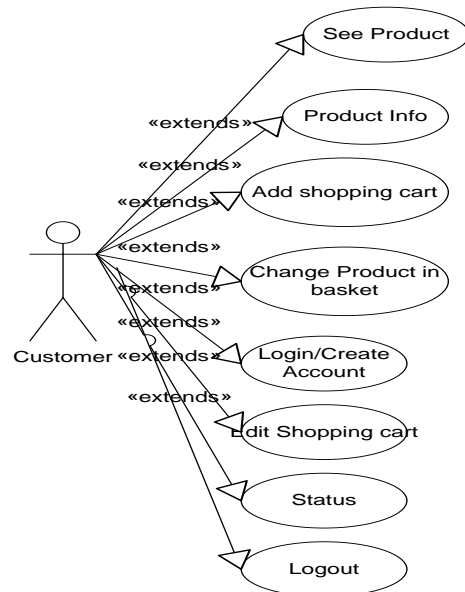

Figure 3 Use case diagram customer

2.5. Activity Diagram

Customers visit the website; the main page will appear. Customers choose to choose a new product, then the system will display a new product page, and so on until the customer selects product information, the system will display product information as shown in Figure 4.
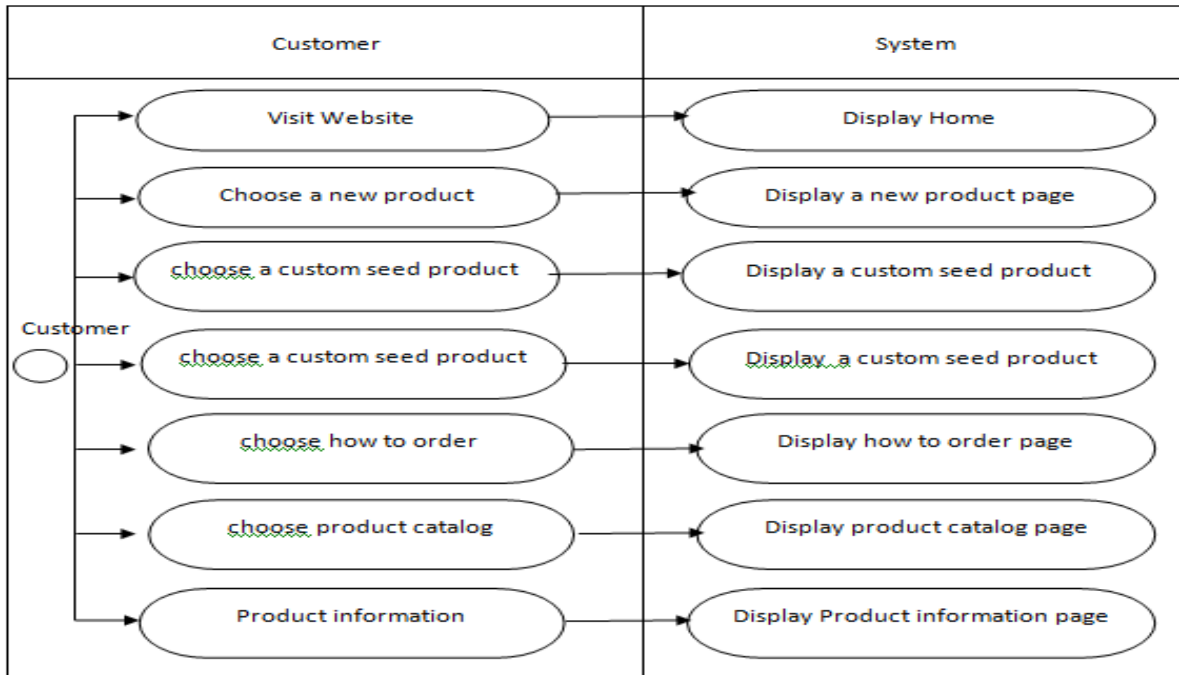

Figure 4 Activity diagram customer

2.6. Class Diagram

The following class diagram design is used to describe the class structure and relationships between classes contained in this system, as shown in Figure 5.
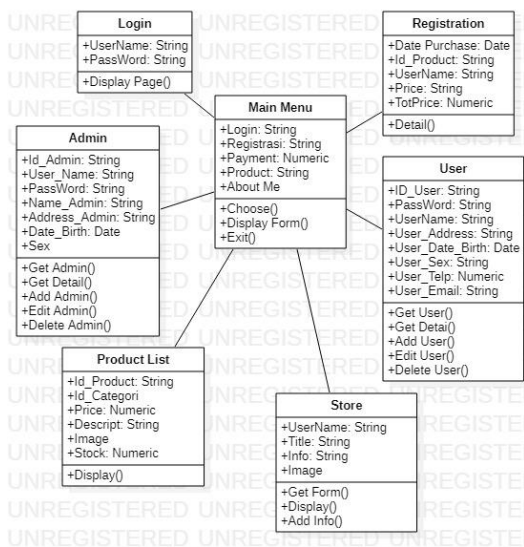

Figure 5 Class diagram system

3. RESULT AND DISCUSSION

The system is built into 2 groups of users, namely customers and administrators. The system built for administrators aims for system management. Meanwhile, the system built for customers is used for product selection, creating accounts and transactions.

3.1. Administrator Page

Before administrators manage the system, the administrator must first authenticate by entering a username and password. After logging in, the administrator can perform management in the form of adding products, editing products, view product details, updating status, view shopping status.

3.2. Customer Page

This page is used by customers to view product catalogs, order and make transactions. Pages for customers can be accessed at: https://argobibit.web.id/. The main page for customers is shown in Figure 6.
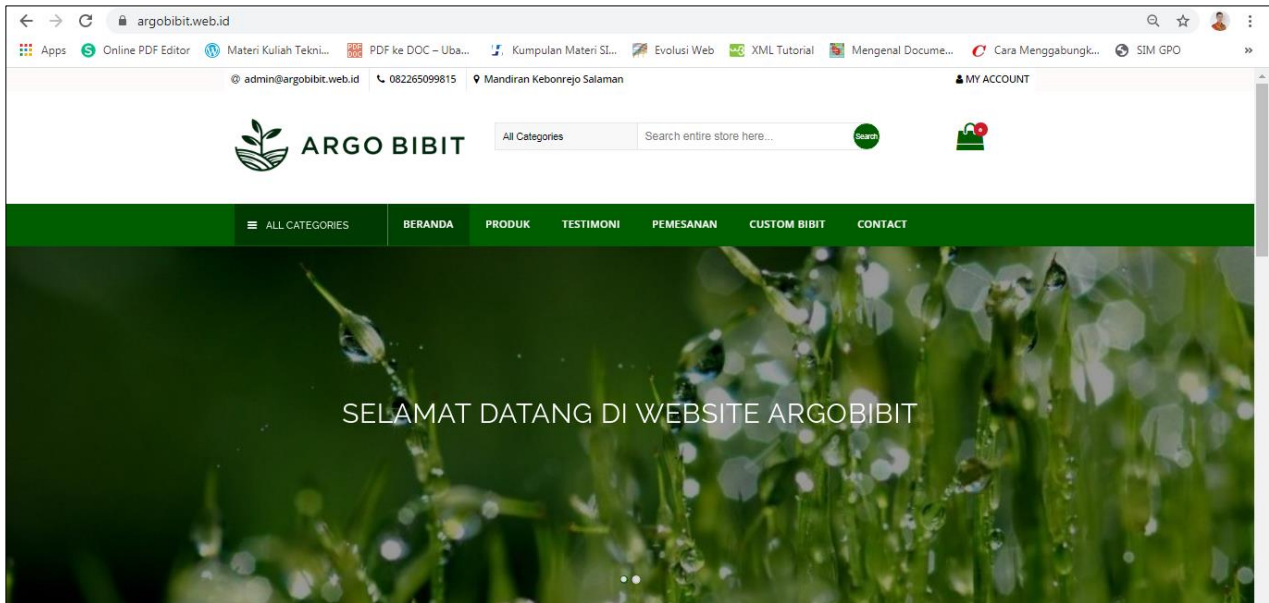
Figure 6 Main menu of Argo Bibit

3.3. Custom Durian Seed Page

On this page, customers can customize seed products. There are several choices of seeds that will be customized This page also contains information about custom seeds. Example: The durian Montong and Bawor durian seeds will be customized. Also choose the number of legs. Provided a choice of the number of feet between 1-10 On the next menu there is a custom ready stock seed menu. There are several choices of durian seed combinations and the number of legs that are ready for planting. The price is quite varied between IDR 150,000– IDR 1,000,000.

3.4. System Testing

Before the system is used, it is tested first. The test was carried out in 3 stages, namely black box testing, browser compatibility and functionality testing by the user. Black box testing results in no errors found at the points being tested. Browser compatibility testing was tested on the Chrome browser, Mozilla Fire Fox, Opera and smartphone browsers, giving compatible results. Testing using a smart phone browser still shows a disproportionate image because this system has not been designed for display on smartphones. User functional testing with the number of respondents 25 people, gives results like Table 1.

Table 1 Summary of questionnaire results

Question	SD	D	NAND	A	SA
The content is easy to read and understand.	0	0	3	11	11
Website can help consumers to customize seeds.	0	0	3	9	13
The information system displayed is clear and complete.	0	0	6	12	7
I think this website is easy to use.	0	1	2	11	11
The website can display custom options as well as combinations of seed types.	0	0	3	14	8
The website can help the system for orders and transactions.	0	1	2	13	9
I find this web very impractical or complicated to use.	5	7	3	7	3
Ease of finding a contact person who can be contacted when you need information.	0	0	6	6	13

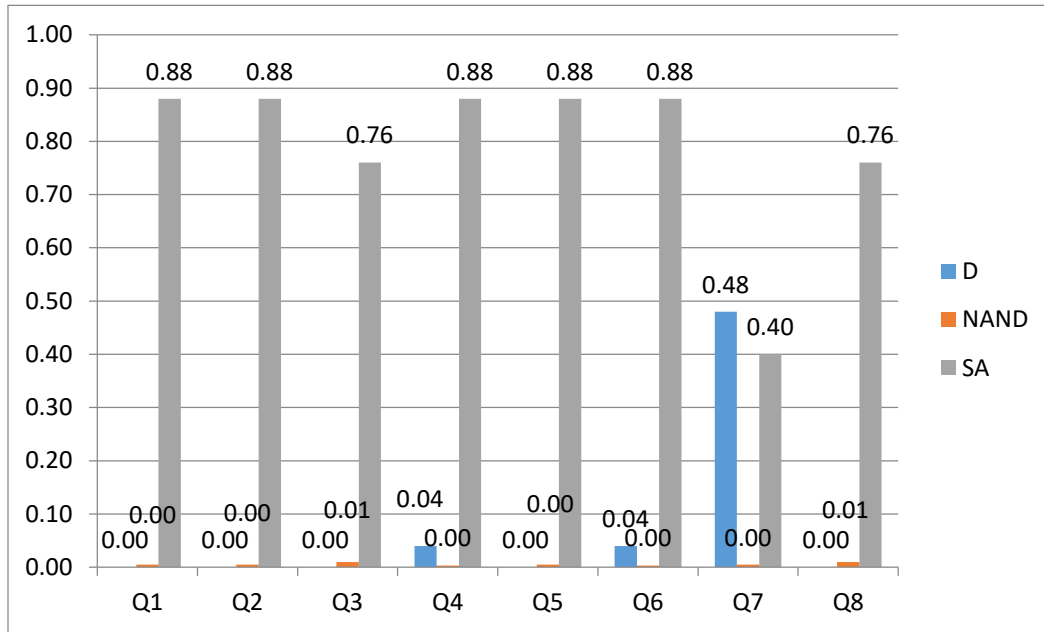SD : Strongly Disagree; D : Disagree; NAND : Nearly Agree Nearly Disagree; A : Agree; SA: Strongly Agree

Figure 7 Summary of the questionnaire result

Users have perceptions of Strongly Agree (0.79), Nearly Agree Nearly Disagree (0.01) and Disagree (0.007) which means that this website is easy to use and understand, can help customize seedlings, clear information and make transactions easier. Interface testing can be done by usability analysis [12] and a combination of usability testing with In-Dept Interview [13].

When compared with previous research, research on e-commerce applied to agriculture shows this system can be applied to market agricultural products in the form of durian seeds that are managed directly by the owner. This is different from the research conducted by Alavion et al which stated that farmers do not want to be directly involved in the transaction process [7]. This research can be applied to nursery companies, by adding a custom product method so that customers can choose the seeds according to their wishes.

4. CONCLUSION

The system built makes it easier for managers to manage transactions and makes it easier for customers to make purchase transactions. Customers can order custom durian seeds with a combination of choice. This system can be used as an alternative medium for marketing durian seedlings. The advantage of this system is that there is a menu for customizing durian seeds according to customer choices.

ACKNOWLEDGMENT

Thank you to Owner Argo Bibit in Magelang District, Assoc. Prof. Dr. Muji Setiyo, M. T., Assoc Prof.

Yun Arifatul Fatimah, S. T., MT., Ph. D. Dean of Faculty Engineering, Mr. Rector of Muhammadiyah University, and the respondents who helped with this research process.

REFERENCES

[1] E. S. Soegoto and A. Nugraha, "E-Commerce for Agriculture," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 879, no. 1, 2020.

[2] S. Yogesh and S. Nallasivam, "Digital Marketing and Its Analysis," *Int. J. Emerg. Technol. Innov. Eng.*, vol. 5, no. 7, pp. 469–474, 2019.

[3] E. S. Soegoto, J. Delvi, and A. Sunaryo, "Usage of E-commerce in Increasing Company Power and Sales," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 407, no. 1, 2018.

[4] C. Zhang and W. Rao, "Impact of cloud computing on agricultural product E-commerce," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 750, no. 1, 2020.

[5] W. Fecke, M. Danne, and O. Musshoff, "E-commerce in agriculture – The case of crop protection product purchases in a discrete choice experiment," *Comput. Electron. Agric.*, vol. 151, no. February, pp. 126–135, 2018.

[6] T. Banerjee, M. Mishra, N. C. Debnath, and P. Choudhury, "Implementing E-Commerce model for agricultural produce: A research roadmap," *Period. Eng. Nat. Sci.*, vol. 7, no. 1, pp. 302–310, 2019.

[7] S. J. Alavion, M. S. Allahyari, A. S. Al-Rimawi, and J. Surujlal, "Adoption of Agricultural E-Marketing:

Application of the Theory of Planned Behavior," *J. Int. Food Agribus. Mark.*, vol. 29, no. 1, pp. 1–15, 2017.

[8] L. Fu, "Research on S2B2C E-commerce Model of Fresh Agricultural Products in the Field of Social E-commerce," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 740, no. 1, 2020.

[9] M. S. M. Bhosage, "E-Marketing of Agricultural Products," *Int. J. Trend Sci. Res. Dev.*, vol. Special Issue, no. Special Issue-ICDEBI2018, pp. 70–73, 2018.

[10] C. Bertolini and A. Mota, "A framework for GUI testing based on use case design," *ICSTW 2010 - 3rd Int. Conf. Softw. Testing, Verif. Valid. Work.*,

no. May, pp. 252–259, 2010.

[11] P. Szwed, "Formal Analysis Of Use Case Diagrams," *Comput. Sci.*, vol. 11, no. 1, pp. 115–115, 2010.

[12] T. A. Purnomo, R. A. Widyanto, A. Setiawan, P. Hendradi, and P. Suksmasetya, "Usability analysis of disaster information systems using usability testing," *J. Phys. Conf. Ser.*, vol. 1517, p. 012089, Apr. 2020.

[13] P. Sukmasetya, E. R. Arumi, and A. Setiawan, "Combining Usability Testing with In-Depth Interview for Online Credit Hour Website Evaluation," *Khazanah Inform. J. Ilmu Komput. dan Inform.*, vol. 6, no. 2, pp. 109–114, 2020.