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Vegetable Sales and Marketing Modeling Through Innovation of Online Vegetable Stalls and Carts Based on Website and Mobile Applications

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Abstract. This study aims to create an integrated system consisting of a website platform and a mobile application. This study aims to provide easy, practical and safe access to interactions and transactions between sellers and buyers of vegetables. This research method uses a qualitative approach by conducting a survey on the pattern of running vegetable sales businesses and interviews with vegetable sellers and buyers. Furthermore, analysis of design, system development and socialization to users is carried out. By implementing this online sales system, it can provide easy access to practicality and security. This research also has an impact on increasing the dynamic and sustainable economic cycle with the support of information technology.

1. Introduction

Vegetables are foodstuffs that are close to primary needs because of various nutrients that are needed by humans such as vitamins, iron, and so on, people can look for sellers of fresh vegetables that are just harvested on the same day [1]. Online shopping is an online platform for buying various products or services using online transaction processing and electronic data interchange. We know it by different names such as E-shopping, e-web-store, e-store, online store, or virtual store [2]. The spread of novel coronavirus, SARS-CoV-2, and the COVID-19 disease it causes has had unprecedented impacts on all food markets, including the market for fruit and vegetables. Throughout the value chain, grower-shippers accustomed to just-in-time inventory management systems and retailers able to stock every product with minimal interruption faced shocks in both supply and demand [3]. Then there are significant changes that occur in the community, activities that are limited and replaced with online media have a very large impact on behavior in meeting the necessities of life such as buying basic needs and others, which were originally done by coming directly to the local market or supermarket or the nearest, has now become a consideration for the community not to take that step [4]. This is very influential on businesses in the city of Bandung, one of which is vegetable traders. Based on Industry (Disdagkoperind) Cimahi City said that the Corona Virus Disease (Covid-19) pandemic affected the activities of Micro, Small and Medium Enterprises (MSMEs), vegetable traders and cooperatives in Cimahi City.

In previous studies there were several differences with this research, in the first research, namely Training on Making Hydroponic Vegetable Salad and the Right Marketing Method in E-Commerce, this research is only based on Android and uses UML design [5]. In the second study, namely the Green

Fresh E-Commerce Website for MSMEs, Rumah Sayur Cisarua, this research is website-based and uses UML design [6]. In the third research, namely Digital Literacy Training in the Framework of E-Commerce for Organic Vegetable Farmers, this study uses the endorsement sales method [7]. In the fourth study of Consumer Purchase Preferences and Decisions on Online Shopping Applications During the Covid 19 Pandemic, this study describes Go Mart with descriptive research methods and survey methods to Go Mart users [8]. In the fifth study, Utilization of Instagram Social Media in Vegetable Marketing by Sayurkita.Mlg During the Covid 19 Pandemic, this study explains the use of selling vegetables with Instagram social media [9]. The difference from previous research, this research uses a website platform and a mobile application, with research methods using a qualitative approach by conducting surveys and interviews with sellers and buyers.

The purpose of this research is to sell directly to the community through carts. As for this cart, innovations with motorized vehicles will be applied to make it easier for the delivery of vegetables to the community. Meanwhile, reservations are made through the Cart Application (Online). In this case, the community orders first, then makes payments either by transfer or in cash, then after that the merchant will send the vegetables using a cart to each community according to the orders listed in the application. With this application, it helps the government in the economic improvement program for vegetable traders in the city of Bandung. The method in this study uses a qualitative method.

This research method uses a qualitative approach by conducting a survey on the pattern of running vegetable sales businesses and interviews with vegetable sellers and buyers.

2. Method

This study explains how the impact of the Covid-19 virus pandemic and how to provide technological solutions as problem solving [10]. So, the background for the formation of research ideas/newness is as follows.

1. The results of the study show that the impact caused by social restrictions (social distancing) for traders at Kartasura Traditional Market, namely the market becomes quiet, people's purchasing power decreases, and the distribution of materials is hampered [11].
2. The use of digital information technology in business activities at vegetable traders is able to increase profit margins, expand market share, increase sales volume and minimize marketing costs, as well as innovation in marketing that is oriented to consumer satisfaction as the main factor on the sale of marketed products [12].
3. The results of the study show that having a business done in the online sector can increase their business activities, where the pandemic period is one of the advantages where people are now accustomed to using online media platforms, namely e-commerce as a transaction tool. The changes that have occurred have become a great opportunity for various sectors to be able to increase their business through online media [13].

The proposed research. Here's the explanation

1. The chairman's research in 2017, 2018 resulted in a study in the form of methods of using technology in the procurement of goods and services in improving an organization within the company, which will affect management, user competence and technology quality. This research will assist in determining a good model in determining sales and marketing in the procurement of goods and services for vegetable traders with an approach using technology [14][15].
2. The chairman's research in 2019, 2020, 2021 resulted in a research on the application of technology in the form of payments using an electronic system, making reports and making applications for a service. These three functions will assist the proposed research in using third party electronic payment methods such as OVO, GOPAY, DANA and SHOPEE PAY, as well as report generation using applications and making applications using web bases [16][17][18].

3. Another member's research in 2019 and 2020 is a study using the GIS concept. This research will assist in the application of the GIS concept in determining the location of vegetable delivery to consumers by using a monitoring system so that both traders and consumers can see each other's location [19][20].

Data analysis is needed to support this research activity in building innovation models both from sales and orders [21]. The 2 models of data analysis are as follows:

1. Sales Innovation Model
   a. Conducting Preliminary Study
   b. Conducting Analytical Studies
   c. Designing a Cart Model Innovation Design
   d. Collecting Cart Model Making Tools Needs
   e. Performing Tests on the Cart model
   f. Cart Innovation Making
2. Ordering Innovation Model
   a. Build the proposed application design
   b. Collection of technology/application materials
   c. Building an application model
   d. Application model testing
   e. App model improvements
   f. Application model application

2.1 *Use Case Diagram*

To describe the design of an online cart using a Use Case Diagram. This Use Case Diagram is used by 3 actors, namely Online store, Buyer, and Retail. In this use case diagram, each actor is shown the task and role in the information system that is built. For more details see Figure 1.

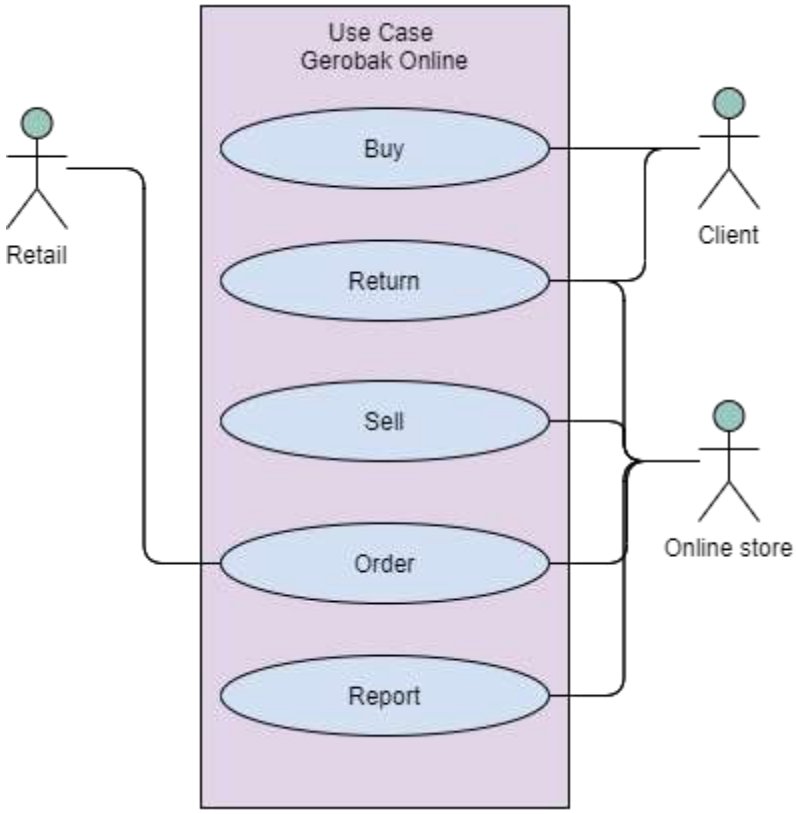

Figure 1 *Use Case Diagram* Gerobak *Online*

In the Use Case Diagram from Picture 1, we can see the tasks of each actor.

Buyers can make the purchase process, namely by opening the application and buyers can return or return goods that have been purchased. Stalls can also receive returns from buyers and replace them with new ones, then Online Stores can sell their goods on the sales dashboard menu, and if they run out they can order from the retail section, Online store can also view sales reports, purchase reports, profit and loss reports and stock reports. Retail here can accept orders for goods from the Online store and if available retail will send it to the Online store.

3.2 *Activity Diagram*

Here's the Online Cart Activity Diagram

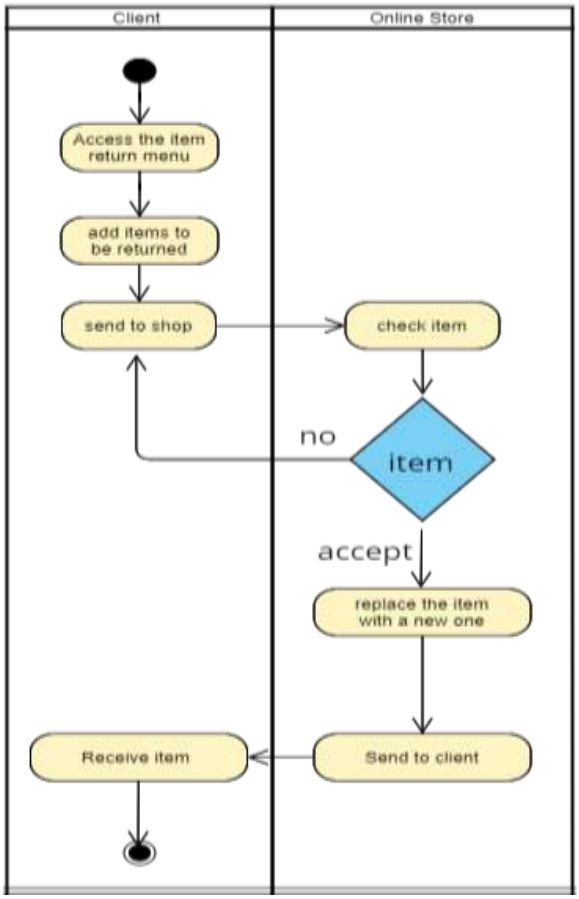

Figure 2 *Activity Diagram Return*

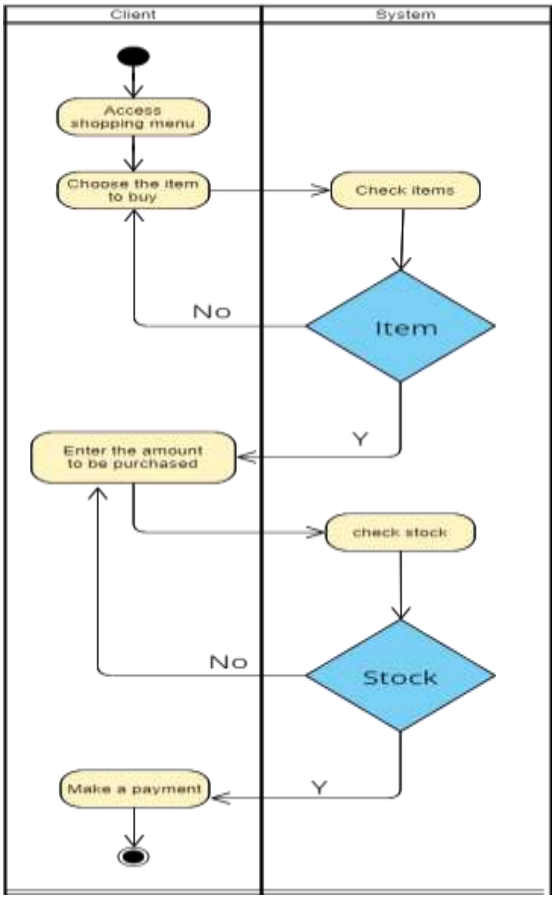

Figure 3 *Activity Diagram Buy*

3. Results and Discussion

3.1 *User Interface*

***Figure* 2** *Dashboard* Online store

User interface design is very important because it will determine how someone interacts with the application. The following is the Online store Dashboard, here there is a menu of goods management, transactions, accounts receivable and reports.The following are the results of respondents to shop owners and buyers, the diversity of respondents based on the information is shown in table 1 and table 2 below.

Table 1 Respondents Based on Stall Owners

Description	Number of Respondents	Percentage (%)
Very helpful	7	70
Not help	1	10
Neutral	2	20
Amount	**10**	**100**

Based on the characteristics of the stall owner, the respondent's information in table 1 above shows that the respondents were very helpful as many as 7 people with a percentage of 70%, did not help as much as 1 person with a percentage of 10%, neutral as many as 2 people with a percentage of 20%. Based on the characteristics of the respondent's information, most of the respondents are very helpful, namely 70%.

Table 2 Respondents Based on Buyers

Description	Number of Respondents	Percentage (%)
Very helpful	8	80
Not help	1	10
Neutral	1	10
Amount	**10**	**100**

Based on the characteristics of the buyer, the respondent's information in table 2 above shows that the respondents were very helpful as many as 8 people with a percentage of 80%, 1 person did not help with a percentage of 10%, neutral as many as 1 person with a percentage of 10%. Based on the characteristics of the respondent's information, most of the respondents are very helpful, namely 80%.

4. Conclusion

Information technology always gives birth to a new product that certainly meets user demand. This Online Cart application is able to become a medium of information that makes it easier for buyers to get basic needs anytime and anywhere. This application is able to convey information and store data on basic ingredients, report report data for stalls to make it easier to see profits and losses.

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