Web Based Application for Ordering Food Raw Materials

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***Abstract*— The current declining economic situation in Indonesia is caused by the Covid-19 pandemic. Housewives must continue to shop for food raw materials and at the same time must protect themselves from the interaction of people around to avoid transmission of Covid-19. This research is to provide a web-based application for the community, especially housewives and family members, to shop for food raw materials that are sold from merchants in local location. The purchase and delivery of goods will be carried out by a courier from the local government. The research method used is mixed method through quantitative, and development method used is Waterfall. The results obtained from this study are that housewives are helped to shop for food raw materials safely and easily through this application.**

Keywords*— *food, raw materials, food delivery, food shopping

I. Introduction

The current declining economic situation in Indonesia is caused by the Covid-19 pandemic. Some modern shopping places and companies have stopped their activities and some of them have closed due to loss. Places to shop that are trying to keep operating are small roadside shops, unmodern markets, or home stores. Therefore, large restaurants start selling their products on the roadside (**Fig. 1**) in order to carry out their business [1] [2]. The companies with economic difficulties began to lay off or terminate employment contracts. This unemployment causes people to save their money or hold back their consumption.

In addition, people take care of themselves by following health protocols by not visiting physical stores. People are starting to use online courier services to help them shop. This effect is also felt by housewives. They must continue to shop for food raw materials and at the same time must protect themselves from the interaction of people around to avoid transmission of Covid-19.

Based on the obstacles that occur, this is to provide a web-based application for the community, especially housewives and family members, to shop the food raw materials from merchants located in their village or sub-district. In addition, this application also allows the surrounding community to sell food raw materials in their villages or sub-districts. This research aims to help preventing Covid-19 transmission while maintaining economic growth among the people during this pandemic or after it.

Fig. 1. Large Restaurants Start Selling Their Products on the Roadside [1]

II. Previous Works

Research conducted by Hassan states that shopping applications need to pay attention of funding factor and its strategies [3]. The application needs to convince the seller about the opportunities that exist and provide a sense of security and convenience for buyers. Jielin added that for the application to work properly, good funding from investors, the government, or the transaction is needed [4]. Maturity in cash flow will guarantee the viability of the application. In 2014, Rendra developed a shopping application for food raw materials [5]. The application can bridge farmers and consumers directly but has not yet accommodated a centralized goods delivery system.

Liemantara and Sofiani's conducted research to develop a shopping application for vegetables, where the merchants will deliver their vegetables to buyers [6] [7]. Soyusiawaty also developed an application that can educate housewives to sell online [8]. However, the applications developed by the three researchers have not been implemented optimally during the Covid-19 pandemic because they did not include a centralized delivery system to avoid the Covid-19 transmission.

In 2020, Maheswara developed a mobile-based application that allows farmers to sell food raw materials

directly to consumers [9]. Savitri developed a similar application but in a web platform [10]. The application that is developed by the two researchers uses a manual sales method that is done outside the application (the buyer directly contacts the farmer) and does not cover the delivery system needed in the current Covid-19 pandemic.

III. Research Method

This study uses mixed method through a quantitative research method and IS development method. In quantitative method, data collection was carried out by distributing questionnaires to 90 housewives in Cipondoh District, Banten Province, Indonesia. This is to gather requirement data such as how to shop easily and safely, how to pay, and how to ship goods. The results obtained showed that 91.1% (82) housewives prefer to shop online, 70% (63) want a very simple and easy-to-use application, 78.8% (71) are willing to order 1 day in advance, 83.3% (75) want a single courier who delivers all the goods, 92.2% (83) want COD (cash on delivery) payment method, 64.4% (58) want to use digital money to pay to the courier to avoid physical contact, and 86.6% (78) are happy and willing to take part as a seller in the system (if possible) to sell the food raw materials. Based on the data analysis that has been done, this research will use the Waterfall method (by Roger S. Pressman) in providing the application and an evaluation will be carried out to check whether it has met user expectations. The Waterfall stages are presented in the Software Development Method chapter. At the evaluation stage, the user (in this case the housewife) will use this application and conduct an evaluation through a questionnaire.

IV. Software Development Method

Waterfall is used as development method for this application. Waterfall is a software development method that consists of communication, planning, modelling, construction, deployment.

a. Communication
   In this phase, project is initiated, and questionnaire is distributed to respondents (housewives in Cipondoh District, Banten, Indonesia) to collect the information of their needs.
b. Planning
   In this phase, project schedule all documents for preparation is made. Tracking mechanism has been setup to control and monitor the project progress.
c. Modelling
   1. After collecting all necessary data, data analysis is made to summarize all the needs to build this application.
   2. Comparison with similar applications (Tokopedia, Bukalapak, and Shopee), is performed.
   3. Application is modelled by using UML (use case diagram, and class diagram).

a. Construction
   This phase is developing the application with features: Register; displaying list of the food raw materials; price, stock, and weight; seller information; order; and search. Application is developed by using PHP and MySQL.

b. Deployment
   Application is deployed (installed) into server and tried by respondents to provide simulation.

V. Proposed System

The text on the application uses **Indonesian language** because it is focused for local residents with limited English skill. Users can access this application through the Register and Login page (**Fig. 2**).

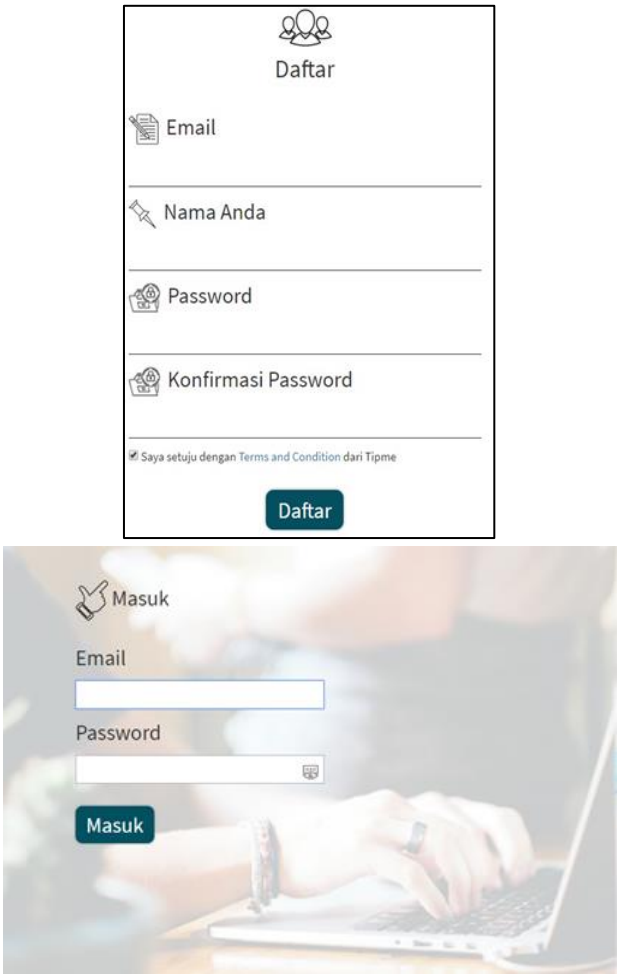

Fig. 2. Register and Login Page

On the Register page, the user enters an email address, name, and password. After creating an account, the user can log in and complete the profile in the form of name, email, telephone, home address, and home map. This profile data is intended for delivery of goods by courier (**Fig. 3**).

Fig. 3. Profile Page

User can access the search page for food raw materials. On this page, user can search for food raw materials by entering keywords or by selecting a category. This page also displays the list of food raw materials, product price, shipping cost, and the seller's name (**Fig. 4**). Currently, user and seller must reside in the local area. The data in the Figure 3 is still in the form of sample and not the actual data.

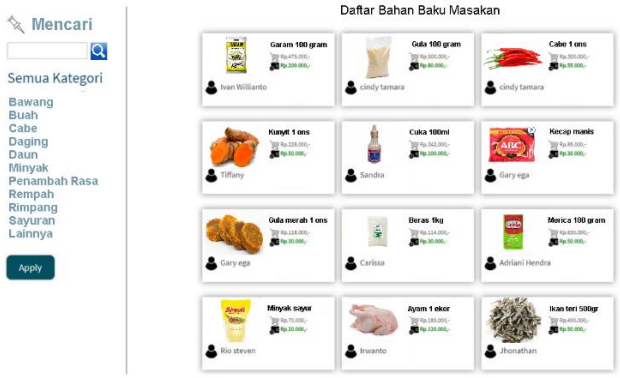

Fig. 4. Search Page

If a product is selected, the application will go to the product detail page. On this page, there are the seller's name, feature to send message, price of goods, tips for courier, item weight, description, and button to buy (**Fig. 5**).

After shopping, the user will be redirected to the payment information page (**Fig. 6**). On the page, there are the buyer information, the total cost of goods, shipping cost, total shopping cost, and order number. The purchase and delivery of goods will be carried out by a courier from the local government. Payment system and payment confirmation are still done manually because of the limited ability of technology adoption from local residents. The down payment of 50% is determined by the local government to avoid fraud from the buyer. The remaining payment to the seller will be made at the same day by the courier after getting the payment from the buyer.

Fig. 5. Detail Page

After the application was implemented and tested by 47 housewives (all are respondents who filled out the initial questionnaire), an evaluation was carried out by giving them a questionnaire. The questionnaire results present that 95.7% (45) respondents agree that the application is easy and interesting to use, 91.5% (43) agree that all the components and features information had met the needs, 100% (47) agree that the application would assist in purchasing food raw materials during the Covid-19 pandemic condition. In addition, 93.6% (44) expressed no objection to the manual transfer payment method, and 95.7% (43) said they would recommend this application to colleagues.

Fig. 6. Detail Page

VI. Conclusion and Future Work

Based on the results of this study and its evaluation, it can be concluded that this developed system can help housewives in shopping for food raw materials safely and easily in this Covid-19 pandemic situation. The system is

easy and interesting to be used by users; all information and features already meet the needs; the system can assist in the purchase of food raw materials during the Covid-19 pandemic situation; and manual transfer payment method being the current payment solution. Some suggestions for further development are: (1) the application is also built for mobile version, (2) addition of courier data that will assist the delivery; and (3) additional information on tracking the position of the courier.

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