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DESIGN: AS A PLATFORM MARKETING OF SMALL AND MEDIUM MICRO ENTERPRISES (STUDY: PAGELARAN DISTRICT)

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Abstract

Every person who has completed education would want to find and get decent jobs and in accordance with their abilities. But over time the current job field is increasingly difficult to get because the competition for jobs is getting tougher. The system used by the Pagelaran subdistrict is still using the traditional system. While today the times are increasingly sophisticated along with the existence of modern technology. At the system development stage using the prototype method starting from designing the needs analysis, then designing the requirements for the application design program for small and medium sized businesses in the Android-based performance district such as designing program, system requirements and system discussions. With UML (Unified Modeling Language) in the form of use case diagrams, activity diagrams and class diagrams.



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I. INTRODUCTION

Every person who has completed education definitely wants to find and get a decent job opportunity that suits their abilities. However, as time goes by, jobs are becoming increasingly difficult to find because competition for jobs is getting tighter. So this causes the unemployment rate in Indonesia to increase. For this reason, people must be aware of and analyze the situation around the environment where they live in order to find opportunities to create their own jobs. By creating our own jobs, it is hoped that we can reduce the unemployment rate among the community. Therefore, the existence of MSMEs is considered capable of providing many opportunities for unemployed people to be able to work and produce something that can ultimately fulfill their living needs. The high motivation of local people to have their own businesses is something to be proud of. People are increasingly aware of how few formal jobs are provided for them, so they demand a

willingness to create their own jobs and ultimately be able to open up jobs for those who are unemployed.

The presence of Micro, Small and Medium Enterprises (MSMEs) in the economic arena should receive full attention from the government considering the enormous benefits of these businesses in the development of the nation's economy. However, the lack of market knowledge and information is one of the weaknesses that hinders the development of MSMEs. Even though this information is really needed by management to support decision making. The application of technology will be positively optimized in fostering market-oriented MSMEs. One of them is information technology or the internet (*homepage*) which is assembled comprehensively and based on market information and is easily accessible by MSME players[1]–[4]. The internet is a multimedia technology that has the ability to replace various technologies that previously existed.

The development of information and communication technology, marked by the internet, has in fact brought society into a new era. The information and communication technology revolution has been marked by information becoming a commodity and power for those who control it. Armed with information, a person can seize opportunities and various opportunities to improve the quality of his life[5]–[8]. In simple terms, anyone who is able to manage information well will have a strong position to develop and progress. Information and communication technology can solve problems and reduce the burden faced by MSMEs[9], [10].

The development of MSMEs in Pagelaran District currently seems slow. This is due to lagging behind in adopting information technology in its business. When compared to large companies, they always have concern about using new technology to support their business. The system used by Pagelaran District MSMEs still uses a traditional system, while nowadays times are increasingly sophisticated accompanied by the existence of modern technology. So of course there is very little chance of being able to compete in the business world if this system is maintained. Therefore, by improving the capabilities of MSMEs in the field of technology, it is hoped that they can solve several problems faced by micro, small and medium enterprises (MSMEs) in Pagelaran District[11].

The potential of MSMEs which have not developed optimally cannot guarantee whether they will be able to survive in the free market era. Micro, small and medium enterprises (MSMEs) must always be encouraged and overcome their various weaknesses so that they are able to compete and not be oppressed by competitors from foreign countries. By designing an Android-based micro, small and medium enterprise application for Pagelaran District to introduce superior products that have been produced by Pagelaran District MSMEs, it is hoped that the public will also be able to access information about MSMEs in relation to getting to know superior products that can be purchased by the public. with quality that is no less good than products produced by large companies or entrepreneurs[12].

With the help of internet technology which has been proven to be an information medium and an effective and efficient means of disseminating information that can be accessed by anyone, anywhere and at any time. Just from home or the office, prospective buyers can see the products produced by Pagelaran District MSMEs on their Android cellphone screens, access information, order and pay using the available options.

Prospective buyers can save time and costs because they do not need to come directly to the MSME production site in the performance district or transaction area so that from where they sit they can make decisions quickly. *Online* sales/transactions can connect sellers and buyers directly without being

limited by time and space. The online sales system using internet media will quickly develop and can increase sales transactions for MSME products in Pagelaran District. Application availability Android-based micro, small and medium enterprises in Pagelaran District will increase sale MSME products in Pagelaran District as well has a wider marketing reach that is not limited by space and time, making it easier to promote and access MSME product information.

II. LITERATURE REVIEW

2.1. Previous Research

Researchers used various kinds of previous research as references in this research. The following is a description of previous research carried out by previous researchers, including [13] Web-Based Information Systems - Leading Products for Micro, Small and Medium Enterprises (MSMEs) in the City of Semarang. The systems used by MSMEs in the city of Semarang still utilize traditional systems, while nowadays times are increasingly sophisticated accompanied by the existence of modern technology. So of course there is very little chance of being able to compete in the business world if this system is maintained. Therefore, by increasing the capabilities of MSMEs in the city of Semarang in the field of Technology, a Web-based communicative Information System was created which is expected to be able to solve several problems faced by MSMEs in the city of Semarang in the field of introducing superior products.

Agung Amas Wibowo, et al. (2017) Profile of Android-based Craft UKM in Bantul Regency produces application design including planning, analysis, design, program coding, program testing. This design has been implemented with Sublime Text and Mit App Inventor software. From the research carried out, an Android-based craft SME profile application software was produced in Bantul Regency which can be used to provide information about craft SMEs and the location of craft SMEs in Bantul Regency. This application contains four main menus, namely the craft menu, application profile, gallery and instructions for use and the craft menu itself explains about craft SMEs in Bantul Regency with a total of 27 crafts and divided into 6 craft categories. This application uses MySQL to store data. creating a promotional website and ordering products at the Santoso Mushroom Punung Home Agro Industry resulted in promoting products using a website that would be more profitable, also simplify the development process and save costs. It is easier for consumers to order products without having to come directly to Agro Santoso's home industry. The expected results of this research are to produce a website as a promotional medium and order website-based products so that consumers can order mushroom products via the website.

2.2. Definition of MSMEs

MSMEs or micro, small and medium enterprises are productive businesses owned by individuals or business entities that meet the criteria for being a micro enterprise. MSMEs are independent productive business units, carried out by individuals or business entities in all economic sectors. Definition of MSMEs according to the Ministry of Cooperatives and MSMEs in Small businesses (UK), including micro businesses (UMI) are business entities that have a net worth of at most Rp. 200,000,000,- excluding land and buildings where the business is located and has annual sales of Rp. 100,000,000,- meanwhile, medium enterprises (UM) are business entities owned by Indonesian citizens who have net worth greater than Rp. 200,000.00,- up to Rp. 10,000,000,- excluding land and buildings. Based on the definition above, it can be said that MSMEs are businesses owned by individuals, business entities that are not subsidiaries or branches of other companies with the criteria of having business capital that has certain limitations. MSME criteria, the next step is a discussion regarding MSME classification [14][3], [15], [16]. The explanation below is a classification of MSMEs (Micro, Small and Medium Enterprises):

- a.) Entrepreneurial nature (Micro Enterprise) These MSMEs can give rise to an entrepreneurial nature. This entrepreneurial nature is important so that people are not always influenced by the statement of being an employee or being an employee throughout their life.
- b.) Entrepreneurship Spirit (Small Dynamic Enterprise) After having an entrepreneurial nature, the next step is to be able to have an entrepreneurial spirit. A person needs to have this entrepreneurial spirit if they want to achieve success.
- c.) Motivation to become a big business (fast moving enterprise) MSME actors who have opened new job opportunities have an entrepreneurial nature, build entrepreneurship, then they will form themselves to be able to have a big business to be able to develop the Indonesian economy[17].

2.3. Android

[18]–[20] Android is a mobile device with an operating system for mobile phones based on Inux. According to Hermawan (2011: 1) "Android is a mobile OS (Operating System) that is growing amidst other OS that are developing today." According to Steele & To (2010: 1) "Android is an open operating system that has been aggressively popularized by Google. Many wireless equipment in various countries use the Android operating system." According to the author, Android is an operating system related to Linux- based mobile devices, where Android applications include the operating system, applications and middleware. These three elements are closely related to smartphones. Android is an

operating system from Google that is public (Open Source) so it can be obtained for free and used by many people.

III. RESEARCH METHODS

3.1. Data Collection Stages

Needs (requirements) collected using interviews, observations, questionnaires, or a combination of these three things can be grouped into several categories as follows (not all of these needs must be present).

1. Functional requirements

Requirements related to product function, for example the information system must be able to print reports, the information system must be able to display graphics and so on.

2. Development requirements

Needs related to tools for developing information systems, both hardware and software, for example information systems are developed using Eclipse tools for development and StarUML for modeling.

3. Deployment requirements

Requirements are related to the environment in which the information system will be used, both software and hardware. An example of this requirement is that the information system must be able to run on a server with hardware specifications of 4 GB DDR3 memory, an IntelXeon Quad Core processor, and the operating system specifications of Ubuntu Server 9.

4. Performance requirements

Requirements related to quality and quantity measures, especially those related to speed, scalability and capacity. For example, the information system must be able to be accessed by a minimum of 1000 people at the same time.

5. Documentation requirements

This need is related to what documents will be included in the final product. Documents that are usually produced at the final stage of information system development include technical documents (starting from project planning documents, analysis, design, to testing), user manuals, and training documents.

6. Support requirements

Needs related to support provided after the information system is used. Technical support provides training for potential users.

7. Miscellaneous requirements

These needs are other additional needs that are not included in the several need categories defined above.

3.2. Prototype Model

The prototype model can be used to resolve customer misunderstandings regarding technical matters and clarify the specifications of the customer's desired requirements to software

developers. The prototype model (prototyping model) starts from collecting customer needs for the software to be created. Then a prototype program is created so that customers can better imagine what they really want. Prototype programs usually provide a display with a software flow simulation so that it looks like finished software. This prototype program is evaluated by the customer or user until specifications are found that match the customer's or user's wishes. Here is a picture of the prototype model:

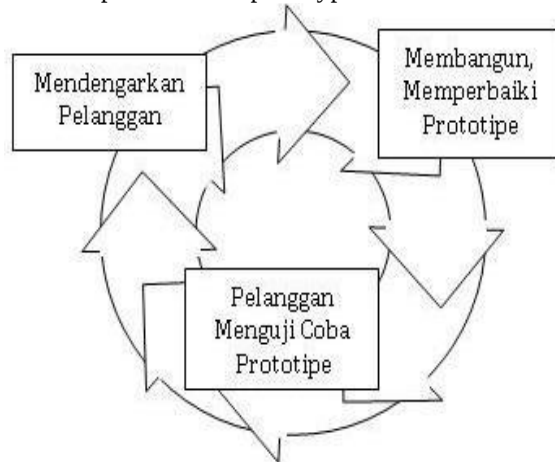


Figure 1. Prototype model illustration[21]

A mock-up is something that is used as a design model for teaching, demonstration, design evaluation, promotion, or other purposes. A mock-up is called a software prototype if it provides or is capable of demonstrating most of the functions of the software system and allows testing of the software system design. Iteration occurs in making a prototype until it meets the wishes of the customer or user.

Along with developing the prototype, the actual software system is also developed so that it meets the needs of the customer or user. The prototype model also has the following weaknesses:

- Customers can often change or add to the requirements specifications because they think the application has been developed quickly, because this iteration can cause the developer to give up a lot with the customer due to changes or additions to the software requirements specifications.
- Developers more often make compromises with customers to get prototypes quickly, so developers more often do everything they can (without being idealistic) to produce prototypes to demonstrate. This can lead to poor software quality or even lead to endless iterativeness.

Problems can occur with the prototype model, this can be overcome by making an agreement between the software developer and the customer or user so that the prototype model is only used to define software requirements specifications, but not for the entire development process of the entire software system.

Design of new system performance mechanisms

This design is carried out using tools which are often called UML (Unified Modeling Language), by designing it in a Use Case Diagram. Figure 2 shows a Use Case Diagram that can be carried out by a member. A member is a user outside the Pagelaran District MSME members who can use the system. A user who wants to order a product is required to become a member. Members can enter product order data, enter proof of payment after the member makes payment for the product ordered. Apart from that, members can enter receipt data when the product ordered has been sent.

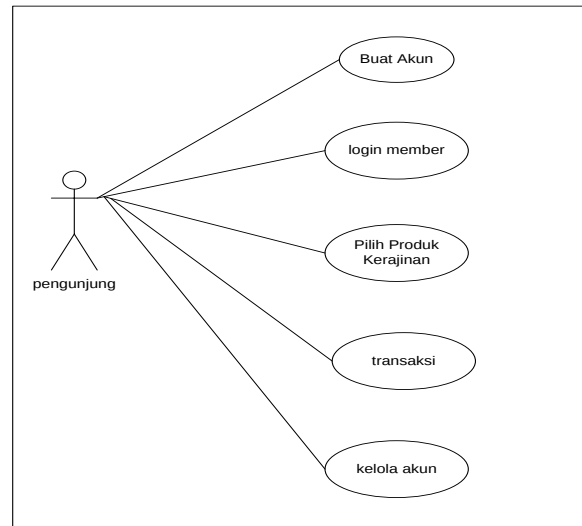


Figure 2. Use Case Diagram Member/visitor

Use Case Diagram that can be done by an admin. Admin is a user who is a member of the Pagelaran District MSMEs who can use the system. Admins can view product order data made by members, check product availability, view payment data, and input product delivery data.

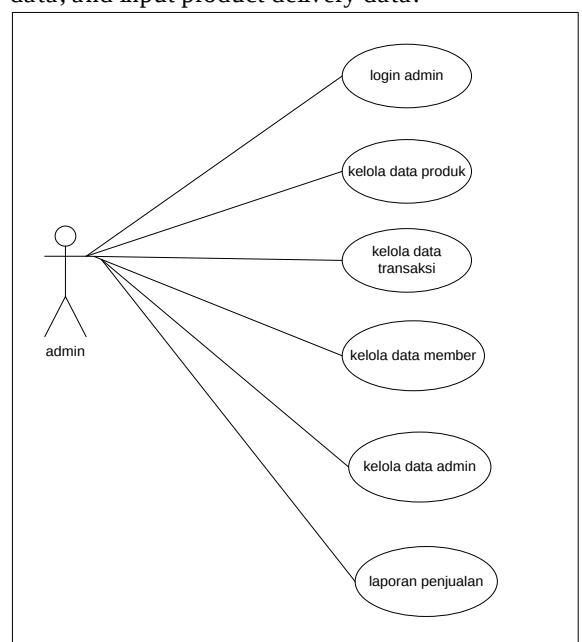


Figure 3. Use Case Diagram Admin

IV. DISCUSSION

4.1. Stages of New System Analysis

The new system analysis stage is the stage of analyzing the requirements needed to design the system and analyzing the risks that may occur when the system is implemented.

4.2. System Requirements

Based on direct research on MSMEs in Pagelaran District and looking at the problems that occur, in designing Android-based Micro, Small and Medium Enterprise Enterprise Applications in Pagelaran District, the system requirements can be divided into two, namely:

a. Functional Requirements (*functional requirements*)

1. The application must be able to display data related to MSME products sold in the application that have been entered by the admin.
2. The application must be able to display data related to buyers, such as displaying a login page for buyers to make transactions easier.

b. Non-Functional Requirements (*Nonfunctional requirements*)

1. Operational

The operational needs carried out in the Android-based Micro, Small and Medium Enterprise Application Design for Pagelaran District is a needs analysis carried out to determine the requirements specifications for the system.

2. Security

System security is the most important thing in creating applications, system security gaps must be made as safe as possible so that the system is not entered by irresponsible people who disrupt the system. To protect system security, a login page has been created for users to make it easier when ordering goods and so that every user who enters the Android application must enter the user's e-mail address and password.

3. Information

Used to inform users if *the username and password* entered are inappropriate or incorrect.

4.3. Risk System

In every system created by humans, apart from having advantages and disadvantages, the system also has impacts or risks that arise when the system is implemented. Designing Android-based applications for micro, small and medium enterprises in Pagelaran District does not rule out the possibility of risks arising when Android applications are applied to Pagelaran District MSMEs.

These risks may originate from technical, organizational and environmental factors which are exacerbated due to the current pandemic situation and poor management, so that product marketing and buying and selling activities which can usually be carried out directly both in the market and at MSME production sites cannot be carried out directly because of this pandemic situation. For companies or individuals who store important data that concerns company privacy or confidentiality, especially companies that use Android applications, users are more vulnerable to data misuse because basically the Android application system generally uses e-mail verification to access applications.

Android has broad system access and can be accessed by all users, making it easy for companies to be attacked both from outside and from the system itself. Attacks from outside can occur because data is stolen by hackers, while attacks from the system can occur because of damage to the Android system itself. To reduce the risks faced by this system, the Android application system must have a fortress so that its data is not easily stolen by other people, especially changing e-mail passwords so that they are difficult for hackers to break into, and testing the application before the application is used by the user. This is done to see to what extent this application system can run according to the wishes of the application user. To overcome this, the author advises users to always verify *the e-mail password* with the user's cellphone number, so that it cannot be stolen by irresponsible people. The author also tested the application so that the author could understand to what extent the application could run as it should.

4.4. Design Stages

The design stage aims to meet the needs of application users regarding a clear picture of the application design that will be created and implemented using activity diagrams, use case diagrams, as well as displaying the application's main menu and login page for users if they want to order MSME products. This system use case diagram has 3 (three) actors, including the buyer, reseller and admin actors. These three actors have their respective functions, the buyer actor has a relationship with the use case of viewing the product, purchasing and confirming payment. The function of the product viewing use case for buyers is to search for product information in the system. The buyer use case functions to purchase products on the system, while the payment confirmation use case is used to upload proof of payment to the system. Meanwhile, the reseller actor has a relationship with product use cases, transactions and managing reseller data. The function of the product use case is to input detailed information about the reseller's product to be marketed. The reseller data management use case functions to change reseller information data in the system. Furthermore, the transaction use case is

useful for confirming and validating proof of payment that has been made by the buyer.

Then the admin actor has a relationship with the ad module use case, settings, user module and sales master. The function of the ad module use case is to set the position of the ad that will be placed on the front page of the system. The settings use case is for system maintenance and settings, while the user module is for managing which users can enter the admin system. Next, the sales master use case functions to organize sales-related data. The use cases for this system can be seen in Figure 4. below:

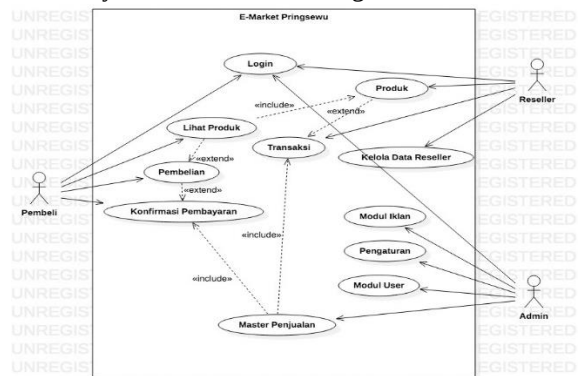


Figure 4. Use Case System

Stages Implementation

At the implementation stage of this application, there are several homepage display designs that will be displayed in this application. The implementation of the display on the homepage in this application is as follows:

a. Buyer Home

The buyer's homepage is the home page that the buyer first opens when opening the application. Here is what the buyer's homepage looks like.

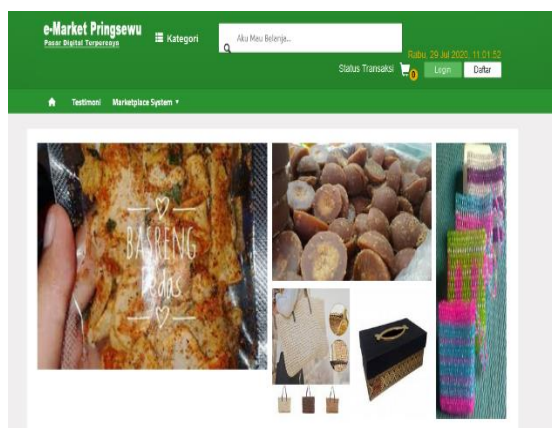


Figure 5. Buyer Homepage

b. Reseller Homepage

The reseller's homepage is a homepage display that displays seller information and the products that the reseller will sell. The following is a display of the reseller homepage.

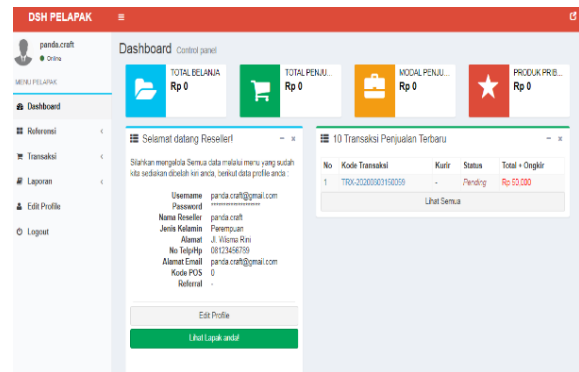


Figure 6 Reseller Homepage Design

c. Administrator Home

The administrator homepage is the admin homepage display which displays the administrator menus for the application. The following is the administrator's homepage display.

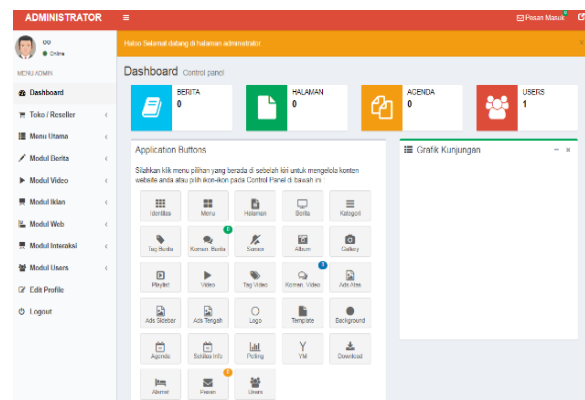


Figure 7. Administrator Homepage

d. Purchase View

Purchase view is a display of the types of products that buyers will buy. The following is a purchase view.



Figure 8. Display Purchase

Purchase Confirmation Display

The purchase confirmation display is a display of purchase information for the product purchased. The following is the purchase confirmation display.

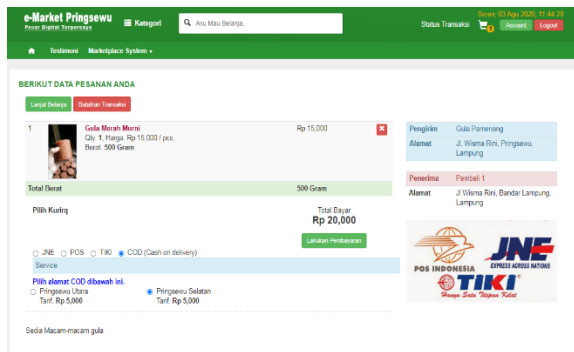


Figure 9. Purchase Confirmation Display

Display Sales Transaction Details (Reseller)

The sales transaction detail display (*resseler*) is a display that displays sales details of sellers to the *reseller*. The following is a detailed display of the sales transaction (*reseller*).

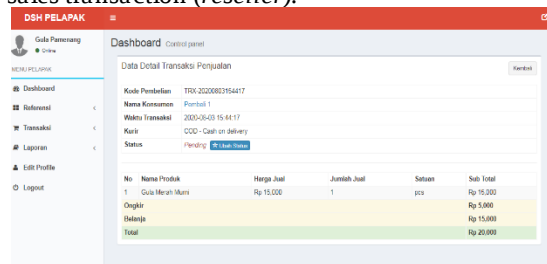


Figure 10. Sales Transaction Details Display (Reseller)

The product category display (admin) is a display that displays 2 types of products sold in this application, namely handicrafts and food. The following is a display of product categories (admin). The product sub category display (admin) is a display that displays product sub categories. The following is a display of product sub categories (admin)

V. CONCLUSION

Android based Pagelaran District MSME application can be concluded that using the Android-based Pagelaran District MSME application can expand the promotional area, namely not only around that area, but can reach a wider area. To overcome the problem of developing MSMEs which seem slow, one way that can be used is to design an Android-based application, because by using the Android application, access to information is no longer limited and consumers can access information at any time, whenever and wherever without having to come directly to the location. Pagelaran District MSME production and can order Pagelaran District MSME products online.

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