Information System of Roof Tiles Production and Distribution

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Abstract - Currently, leading companies, especially in the roof tile industry, are still using manual systems in the process of production and transactions data collection activities, which made many errors and loss of data occurred. To overcome this, production and distribution information systems which aims to help and facilitate performance in producing and selling are created. The methodology used in making goods delivery information systems is Descriptive qualitative method, Object method is used as the approach, and Prototype is used as system development. The tools used in this research are Use case diagram, Scenario Diagram, Activity Diagram, Sequence Diagram, Class Diagram, Deployment Diagram, and Component Diagram. The results of this research application are made in the form of production, ordering, payment and delivery processes. This research is expected to be able to assist in providing the required information quickly and accurately, as well as able to increase the company revenue.

1. Introduction
In the current era of globalization, technological developments are increasingly showing rapid growth. The development is triggered due to an increased demand for technology to assist in running the day-to-day life. Current technological developments have touched various circles of society in the world. Adults, teens, and children are familiar with technology [1]. Even without realizing it, every human being is exposed to technology when starting an activity, started in the morning until the evening, both directly and indirectly. Nowadays, the role of technology has replaced human role in running their lives.

Information System is a system within an organization that meets requirement for transaction processing, support operation, managerial and strategic activities of an organization and provide certain outside parties with the necessary reports [2]. Production is an activity in creating new objects thus more useful in fulfill the requirement, which is also the purpose of production. Distribution is distribution or delivery of goods from producers to consumers, which is also the purpose of distribution [3].

We know that many data exist in the business field. All running data must be presented in the form of good and valid information. All information must be in accordance with the existing system flow in a company, whether in transaction records, transaction reports, and customer data. The information contained in the company or business entity is complex with a large number of data records [4]. At any time, the existing data should be presented and updated so that it can be used optimally. Information systems produce an output in the form of information required at the time of the business transaction process with the consumer as well as the accountability report in a hierarchical leadership in the organizational structure of the company [5]. Any company will be highly demanded to be able to manage data into information starting from inputting data, storing data, updating data, or searching for data that has been stored.

The system is a group of elements that are integrated with a common purpose to achieve objectives. The organization consists of a number of humans, material, machinery, money and information resources. These resources work together towards achieving a specific goal determined by the owner or management [6]. Lucas defines a system as a component or variable that is organized, interacting and
interdependent with each other also integrated [7]. It can be concluded from the above understanding that a system is components or devices that interact and connect with each other to achieve common goals. There are problems that we found such as the frequent mistakes in production and manufacturing of roof tiles. Therefore, in this section, the author determines the intent and purpose of this essay in building an application for the roof tiles industry to understand the production, distribution, and information systems that are running [8].

To overcome this, production and distribution information systems which aims to help and facilitate performance in producing and selling are created. The methodology used in making goods delivery information systems is Descriptive qualitative methodology, Object method is used as the approach, and Prototype is used as system development. The tools used in this research are Use case diagram, Scenario Diagram, Activity Diagram, Sequence Diagram, Class Diagram, Deployment Diagram, and Component Diagram [9]. The results of this research application are made in the form of production, ordering, payment and delivery processes. This research is expected to be able to assist in providing the required information quickly, accurately, and able to increase the company revenue.

2. Method
The author in this research used descriptive qualitative method. It is a method with the aim to describe the nature or characteristics of a symptom or event that occurred [10]. Data is essential in a research that becomes the basis and source when research is conducted. In its implementation, data is obtained through several methods with several sources. At least, there are two sources of data used, namely primary data sources and secondary data sources [11].

The primary data source is data obtained directly from the speaker; data and information are observed and recorded. Primary data sources are obtained from various ways namely by direct observation and interviews. Secondary data sources are data collection in the form of documents or information held by agencies. By collecting data and information needed from sources relating to the problem under research [12]. The approach method used by the author in conducting this research is an Object-Oriented approach. The Prototype method is used for this information system for processing data items and production. The following is the prototype (See Figure 1).

![Prototype](image)

Figure 1. Prototype. This figure was adopted by reference [12]

3. Results and Discussion
The depiction of the system to be built is conducted on this system design to help maximize the performance of the industry. The design process itself is conducted after making direct observations and analyzing the system requirements. The system design is intended to facilitate the system development
process, where it is conducted by describing the workflow that will be built based on the requirements that have been analyzed. Therefore, the coding process can be adjusted to the flow that has been designed [13].

The purpose of system design is to fulfill user requirements regarding a clear picture of the system design that will be made as well as guidance for system development. In addition, this system design is also expected to help the community in fulfilling the requirement for ordering and purchasing the roof tiles. General description of the proposed system is in the form of roof tile production and distribution information systems in the web-based industry, which focuses more on production, ordering, payment, and delivery [14].

The design of the proposed system is illustrated in several diagrams, while the design of the procedure is as follows. Based on the Use case diagram proposed below in Figure 2.

![Figure 2. Use case Diagram](image)

Activity diagram was created to clarify the parts of the use case. In the production, there is an option to determine the type as well as amount, and then check whether the goods are available or not. If available, it expands the production [15]. In the use case diagram, there are 3 actors, namely Customer, Employee, and Owner. The three actors were divided into 2 parts, internal actors and external actors in the construction of this system, the internal actors are employees and owners while the external actors are customers (see Figure 3).
In the ordering activity, there is an activity to preparing the requirements and verifying the data if accepted, the employee orders the item (see Figure 4).
In payment activities, the employee transfers the payment to an available account, then the employee uploads the proof of payment to the system and the system checks, if accepted, it is confirmed by the system (see Figure 5).

Figure 5. Payment Activity

1. In the login page, enter your available account
   The following is a picture in the login process (Figure 6).

Figure 6. Login

2. After accessing the login page, you are allowed to buy and order items
   The following is a picture of the ordering process (Figure 7).
3. Then go to the payment page, transfer payments using the available account. The following is a picture of the Payment process (Figure 8).

4. If the customer have already transferred payments, payment transfers then uploaded. The following is a picture of Delivery (See Figure 9).
4. Conclusion
Based on observations and analysis of the system about "Information System of Roof Tiles Production and Distribution" that has been conducted, the author can conclude several things, such as the construction of this information system is expected to help the production planning process thus it can complete the production process in accordance with the provisions of the specified day. The construction of this information system is expected to help in the ordering process through the website that has been conducted by the author and there is no need to come directly to the factory. The construction of this information system is expected to be able to assist the process of payments that have already used the transfer method and can have an impact on the customer's time efficiency because they do not need to come directly to the factory.

Acknowledgement
First of all, thanks to Dr. Ir. Eddy Soeryanto Soegoto as Rector and Founder of Universitas Komputer Indonesia (UNIKOM) and Dr. Ir. Herman S. Soegoto as dean of FTIK UNIKOM who provided insight and expertise that greatly assisted the research, and guidance in giving me full strength to complete this research and presents sincere appreciation goes to UNIKOM. In arranging this research, a lot of people have provided motivation, advice, and support for the researcher, intended to express gratitude and appreciation to all of them.

References
[1] Kim, J., & Gambino, A. 2016. Do we trust the crowd or information system? Effects of personalization and bandwagon cues on users’ attitudes and behavioral intentions toward a restaurant recommendation website. Computers in Human Behavior, 65, pp. 369-379.
[2] Wen, Z., Hu, S., De Clercq, D., Beck, M. B., Zhang, H., Zhang, H., ... & Liu, J. 2018. Design, implementation, and evaluation of an Internet of Things (IoT) network system for restaurant food waste management. Waste management, 73, pp. 26-38.
[3] Wijaya, A. F., & Rakhmawati, M. I. 2019. Analysis and Design of Restaurant Information System using Unified Modeling Language. SISFORMA: Journal of Information Systems (e-Journal), 6(1), pp. 23-27.
[4] Chu, W. T., & Tsai, Y. L. 2017. A hybrid recommendation system considering visual information for predicting favorite restaurants. World Wide Web, 20(6), pp. 1313-1331.
[5] Rusdi, J. F., Abu, N. A., Agustina, N., & Dewi, S. 2019. Software Development Stages of Mobile Computing Implementation in Restaurant Food Ordering. SciTech Framework, 1(1), pp. 24-33.
[6] Su, J., Sachenko, A., Lytvyn, V., Vysotska, V., & Dosyn, D. 2018. Model of touristic information resources integration according to user needs. In 2018 IEEE 13th International Scientific and Technical Conference on Computer Sciences and Information Technologies (CSIT) (Vol. 2, pp. 113-116). IEEE.

[7] Dalle, J., Windarsyah, W., & Ridho, R. 2018. Decision Support System for Selecting Banjar Restaurant in Banjarmasin City Using Simple Additive Weighting Method. Journal of K6, Education and Management, 1(4), pp. 35-43.

[8] Zhang, H. Y., Ji, P., Wang, J. Q., & Chen, X. H. 2017. A novel decision support model for satisfactory restaurants utilizing social information: A case study of TripAdvisor. com. Tourism Management, 59, pp. 281-297.

[9] Indu, S., & Das, L. B. 2017. Automated Restaurant Ordering System Based on Embedded Technology. International Journal of Engineering Research, 6(2), pp. 82-86.

[10] Chiu, J. Z., & Hsieh, C. C. 2018. Perspectives on food traceability system: A case in chain restaurant franchising. Perspectives on Food Traceability System: A Case in Chain Restaurant Franchising (August 12, 2018). International Journal of Management, Economics and Social Sciences, 7(3), pp. 272-282.

[11] Cheowsuwan, T., Arthan, S., & Tongphet, S. 2017. System Design of Supply Chain Management and Thai Food Export to Global Market via Electronic Marketing. International Journal of Modern Education and Computer Science, 9(8), p. 1.

[12] Razali, N. E., Zainal, U., Fatimah, U., Othman, M., & Mohamad, S. F. 2017. Halal management system in restaurant operation: Identifying the motivational factors. Journal of Tourism, Hospitality & Culinary Arts, 9(2), pp. 1-12.

[13] Roy, A., Banerjee, S., Sarkar, M., Darwish, A., Elhoseny, M., & Hassanien, A. E. 2018. Exploring New Vista of Intelligent Collaborative Filtering: A Restaurant Recommendation Paradigm. Journal of Computational Science, 27, pp. 168-182.

[14] Li, X., Lv, Z., Zheng, Z., Zhong, C., Hijazi, I. H., & Cheng, S. 2017. Assessment of lively street network based on geographic information system and space syntax. Multimedia Tools and Applications, 76(17), pp. 17801-17819.

[15] Gabriel, J. M. O., & Ogbuigwe, T. D. 2016. An Empirical Examination of The Nexus Between Information Systems and Organizational Performance Behaviors Of Quick-Service Restaurants In Port Harcourt. International Journal of Management & Information Systems (IJMIS), 20(3), pp. 59-72.