Maintenance Helpdesk Information System in Retail Companies

J C Wibawa[1*], E Prasetyo[2], R Fauzan[3]
Departemen Sistem Informasi, Universitas Komputer Indonesia, Indonesia

Email: julian.chandra@email.unikom.ac.id

Abstract. This research aims to build a maintenance helpdesk information system to provide effective and efficient repair services. The design of this study used descriptive methods, using a structured approach, using flow map tools, context diagrams, Data Flow Diagrams (DFD) and Entity Relationship Diagrams (ERD), while the development used a prototype model. One form of service to consumers provided by retail companies is the convenience of shopping. Starting from the condition of the building, room temperature, and lighting in each outlet. However, the system that handles the management of the physical condition of this outlet has become a matter of little concern, as a result of some implementation of repairs and maintenance of outlets, not as expected. This research is designed to provide of the Maintenance Helpdesk Information System in Retail Companies, it can be concluded that this application is able to monitor all physical conditions of existing outlets, and is able to improve performance in the maintenance department and shorten the time in the administrative process.

1. Introduction

The increase of 21.6% of village fund allocation, namely funds originating from the state budget allocated for villages in 2019 is expected to increase retail sales growth by 5.7% [1]. This increase in allocation will automatically increase the income and purchasing power of the community, especially the middle and lower classes. Thus retail sales in the region are expected to experience a fairly positive trend. PT Sumber Alfaria Trijaya Tbk, also known as Alfamart, is one of the retail companies in Indonesia that has approximately 10,000 outlets spread throughout Indonesia and almost 100 outlets in neighboring countries [2].

One form of service to consumers provided by retail companies is the convenience of shopping. Starting from the condition of the building, room temperature, and lighting in each outlet [3]. However, the system that handles the management of the physical condition of these outlets has become a matter of little concern for the maintenance department, as a result of some implementation of repairs and maintenance of outlets, not as expected [4]. The absence of a system that helps regulate and control damage reports from each outlet, so that delays are often handled [2]. In addition, the computerized cost of the damage has not been computerized causing the administrative process to be quite long [5].

From these conditions, this research aims to design information systems in the maintenance department that handles recording and the classification of problems that occur, monitoring activities, and reporting. So that it can be used as asset knowledge for the company. In general, the method that will be used in completing this research uses a descriptive method.

2. Method

The approach method used was a structured approach method. The development method used was the prototype method. Starting with literature study stages, data collection, draft design, testing software, and presentation software.

- Study of literature, tracing the literature related to the basic theory of information systems, databases, software development which contains the stages of developing information technology systems, especially in software development accompanied by what parameters must be prepared [4].
- Data collection, to facilitate the process of obtaining the data needed, it is necessary to develop a comprehensive and structured method of data collection [5].
- Draft design, based on the results of the previous stage, we then carried out the design of software design to be built. Maintenance Helpdesk Information System software design activities include: Database design concept; Design components of storage (input), processing (analysis) and presenting data; software model design [6].
- Software testing, testing of the Maintenance Helpdesk Information System software application that has been designed is done by entering data related to maintenance activities in the company and processing until the presentation of data and displays that will appear in this software [7].
- Presentation of software, the last step is to provide maintenance helpdesk information system Maintenance software to the user.

3. Results and Discussion

3.1. Context Diagram

As an illustration of the system proposed in the maintenance section of a retail company, it is illustrated by the relationship of the system in one environment and the relationship with outside entities. Context diagram can be seen in Figure 1.
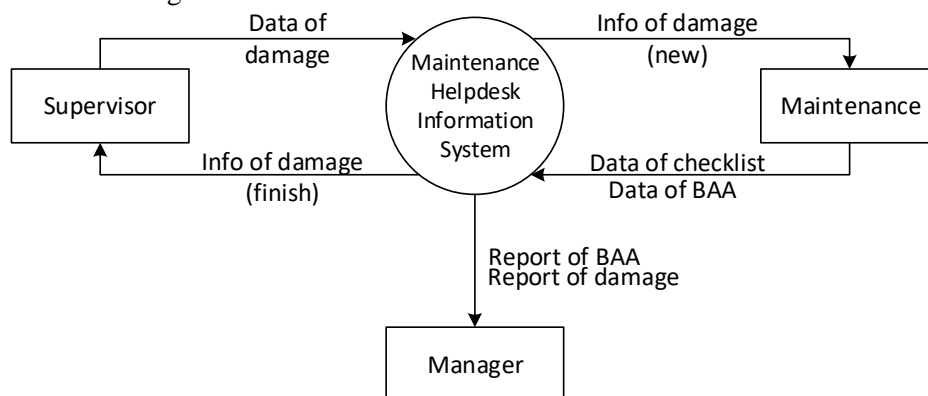

Figure 1. Context Diagram Maintenance Helpdesk

System design is the stage for designing a new system, which is certainly more effective and very helpful in the documentation process. The design of this information system is needed to meet user needs and provide a clear picture and complete design to the programmer [8]. Some functions that must be handled in this helpdesk maintenance information system include handling checklists, Minutes of Instruction (BAA), Work Orders (SPK) and reports.

3.2. Data Flow Diagram (DFD)

Data Flow Diagrams (DFD) function as a modeling tool to describe the system as a network of functional processes that are connected to each other by the flow of data, both manually and computerized [8]. Data Flow Diagram can be seen in Figure 2.
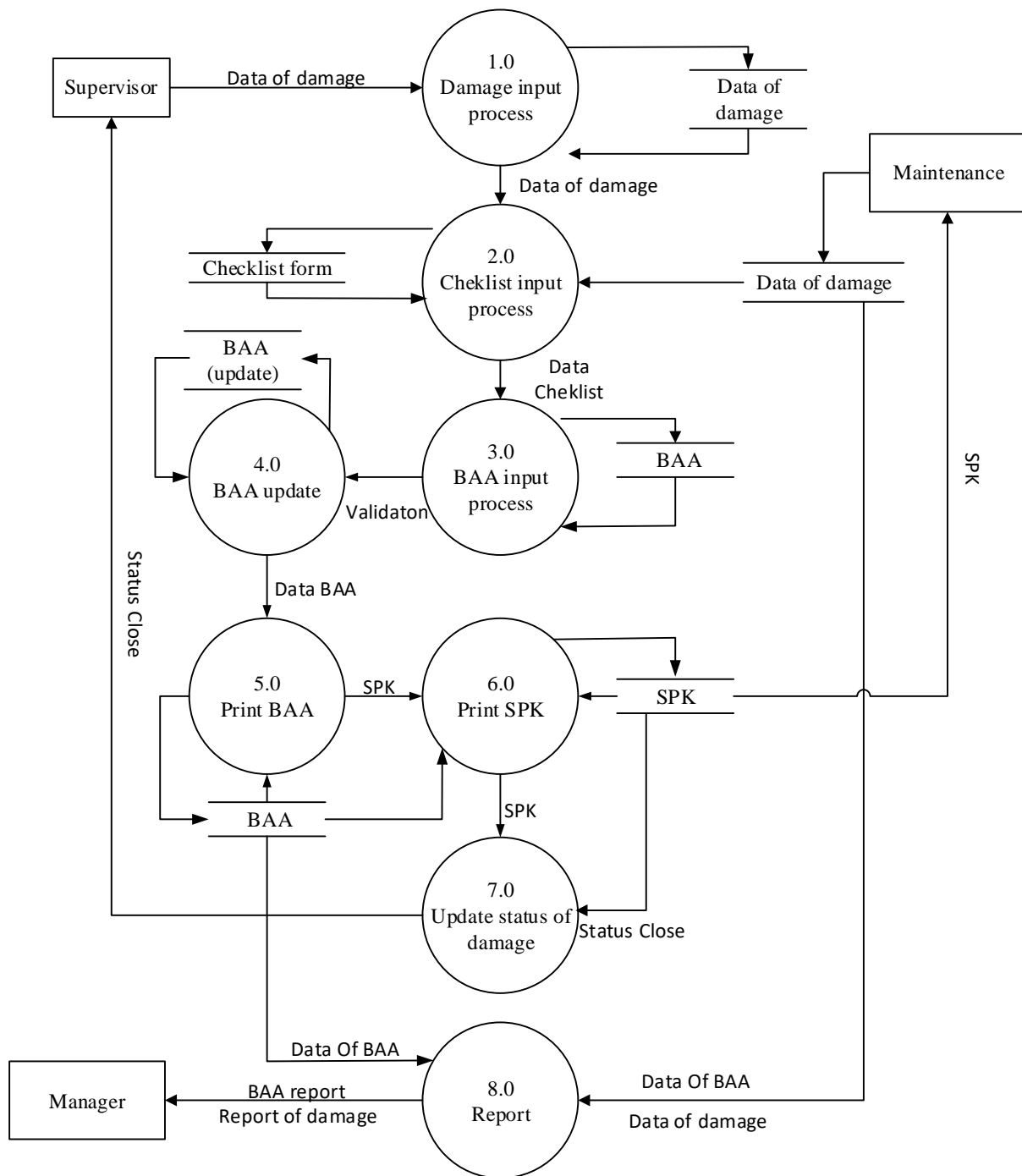
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Figure 2. Data Flow Diagram (DFD)

DFD is one of the modeling tools that are often used, especially if system functions are a more important and complex part of the data manipulated by the system. In other words, DFD is a modeling tool that emphasizes only on system functions.

DFD is a system design tool that is oriented to the flow of data with the concept of decomposition can be used to describe the analysis and design of systems that are easily communicated by system professionals to users and program makers [8].

3.3. Entity Relationship Diagram (ERD)

Can be seen in Figure 3, Entity Relationship Diagram (ERD), which serves to describe the relationship between one entity and other entities in the information system [9] [10].
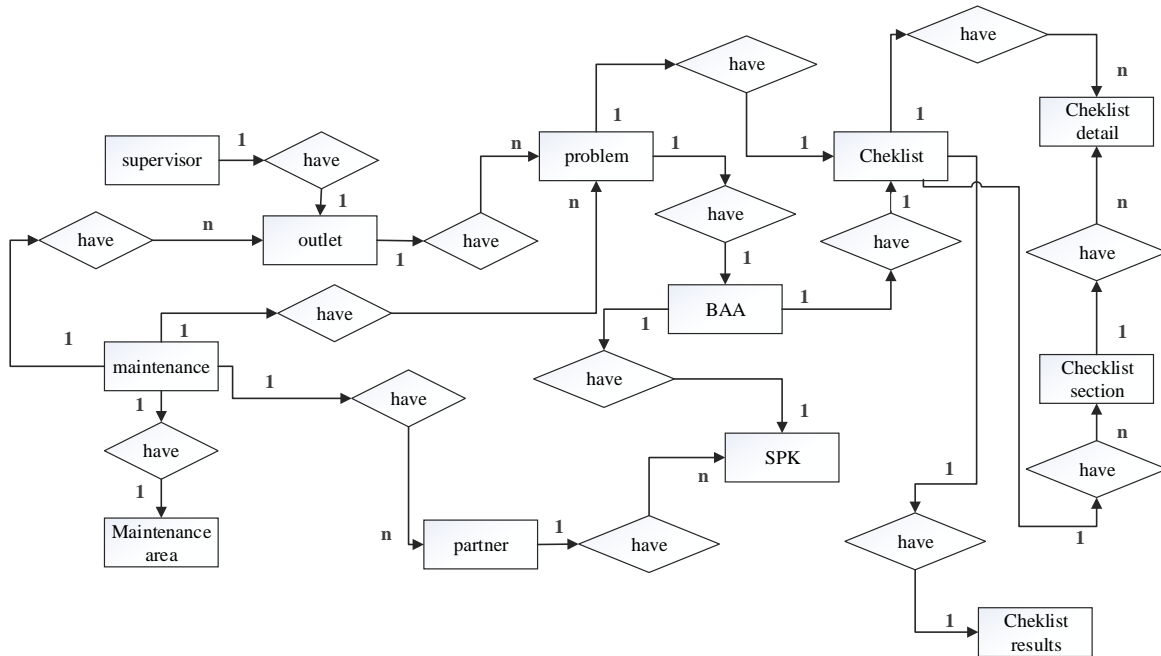

Figure 3. Entity Relationship Diagram (ERD)

ERD is a network model that uses an arrangement of data stored on the system in an abstract manner. ERD also describes the relationship between an entity that has a number of attributes with other entities in an integrated system. ERD is used by system designers to model data that will later be developed into a database. This data model will also be helpful when analyzing and designing databases because this data model will show a variety of data needed and relationships between data [10].

4. Conclusion

Based on the results of the analysis and discussion that has been prepared, it can be concluded that: with the helpdesk information system maintenance can help supervisors to report damage that occurs in real-time; can help maintenance department in the field to monitor damage reports from outlets, inputting checklist data and shorten administration time in making estimated damage data.

References

[1] M. Richard, "Peningkatan Dana Desa Angkat Sektor Ritel," Tuesday August 2018. [Online]. Available: https://finansial.bisnis.com/read/20180828/9/832198/peningkatan-dana-desa-angkat-sektor-ritel. [Accessed: Saturday, March 23, 2019].

[2] Sutanto, J. E., and Djati, S. P. (2017). Effect of Trust, Satisfaction, and Commitment on Customer Loyalty At the Alfamart Retail in Surabaya, East Java-Indonesia. In *2017 International Conference on Organizational Innovation (ICOI 2017)*. Atlantis Press.

[3] Soegoto, E. S., Azhari, R. H. G., and Istiqomah, A. O. (2018). Development of desktop-based information system on waste management bank. In *IOP Conference Series: Materials Science and Engineering **407***(1), pp. 012058. IOP Publishing.

[4] Peffers, K., Tuunanen, T., Rothenberger, M. A., and Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of management information systems*, *24*(3), pp. 45-77.

[5] Rahmatya, M. D., and Wicaksono, M. F. (2018). Model of receipt and distribution of zakat funds information system. In *IOP Conference Series: Materials Science and Engineering*, *407*(1), p. 012071. IOP Publishing.

[6] Whitten, J. L., Bentley, L. D., and Dittman, K. C. (2000). *Systems Analysis and Design Methods* 5e. McGraw-Hill Higher Education.

[7] Saleh, M. N., Irwansyah, M. A., and Anra, H. H. (2017). Implementasi Peramalan Menggunakan Fuzzy Time Series pada Aplikasi Helpdesk Inventaris Perangkat Teknologi Informasi. *Jurnal Sistem dan Teknologi Informasi (JUSTIN)*, *5*(2), pp.115-119.

[8] Ibrahim, R., Yen, S. Y., and Pahat, B. (2011). A Formal Model for Data Flow Diagram Rules 1. *1*(2), pp. 60-69.

[9] Burton-Jones, A., and Weber, R. (1999). Understanding relationships with attributes in entity-relationship diagrams. *ICIS 1999 Proceedings*, *20*.

[10] Song, I. Y., Evans, M., and Park, E. K. (1995). A comparative analysis of entity-relationship diagrams. *Journal of Computer and Software Engineering*, *3*(4), pp. 427-459.