LIBRARY INFORMATION SYSTEM (SIIPETAKA) IN SMK KEBAYORAN BARU AL-KAUTSAR

Estu Mulia Warna Diyanti[1]; Duwi Cahya Putri Buani[2]

Information Systems
Universitas Bina Sarana Informatika, Jakarta, Indonesia
www.bsi.ac.id
estumuliawarna@yahoo.com

Informatics Engineering
STMIK Nusa Mandiri Jakarta, Indonesia
www.nusamandiri.ac.id
duwi.dcp@nusamandiri.ac.id

Abstract— *Al-Kautsar Kebayoran Baru Vocational School Library is a library that supports the teaching and learning process, many of the students and teachers of SMK AL-Kautsar who visit to borrow books at the Library so that it often loses books and is not well documented who has borrowed books, and slow service because the system is still conventional. Therefore the AL-Kautsar Vocational School Library needs an Information System that is able to solve all the problems mentioned above. Then made SIIPETAKA or SMK AL-Kautsar Library Information System. SIIPETAKA is a system designed to facilitate the recording of data in the Al-Kautar Vocational Library, SIIPETAKAN is designed using the Waterfall method, the Waterfall Method is one of the models used to design Information Systems. Every step in the waterfall method is easy to follow and by using the Waterfall model the program design documentation is well documented. With SIIPETAKA, it is expected that problems that occur such as data loss, it is difficult to find the data of members and book data can be overcome properly.*

Kata Kunci*: SMK AL-Kautsar, SIIPETAKA, Waterfall.*

Intisari-*Perpustakaan SMK Al-Kautsar Kebayoran Baru merupakaan perpustakaan yang menunjang proses belajar mengajar, banyak dari siswa/siswi dan guru-guru SMK AL-Kautsar yang berkunjung untuk meminjam buku di Perpustakaan sehingga sering terjadi kehilangan buku dan tidak terdokumentasi dengan baik siapa saja yang telah meminjam buku, serta pelayanan yang lambat karena sistem yang masih konvensioanl. Oleh karena itu Perpustakaan SMK AL-Kautsar membutuhkan Sistem Informasi yang mampu menyelesaikan semua permasalahan yang disebutkan diatas. Maka dibuatlah SIIPETAKA atau Sistem Informasi Perpustakaan SMK AL-Kautsar. SIIPETAKA merupakan sistem yang di rancang untuk mempermudah pencatatan data pada Perpustakaan SMK Al-Kautar, SIIPETAKAN dirancang menggunakan metode atau model Waterfall, Model atau Metode Waterfall merupakan salah satu dari model yang digunakan untuk merancang Sistem Informasi. Setiap step dalam metode waterfall mudah untuk diikuti dan dengan menggunakan model Waterfall maka dokumentasi perancangan program terdokumentasi dengan baik. Dengan SIIPETAKA diharapkan permaslahaan yang terjadi seperti kehilangan data, sulit mencari data anggota dan data buku dapat teratasi dengan baik.*

Kata Kunci*: SMK AL-Kautsar, SIIPETAKA, Waterfall.*

INTRODUCTION

School library is a reading place that is now increasingly less desirable by students to read books and look for scientific literature, this is caused by information media such as the internet that are easier to use in searching various kinds of knowledge and reading resources(Hendrianto, 2014).

SMK Al-Kautsar Kebayoran Baru Vocational School was established in 1989 with an operational permit number 6925 / -1,851.78, located on Jalan Jembatan Selatan No. 6 Blok A RT / RW 002/05 Kebayoran Baru District. Al-Kautsar Vocational School has a library whose administrative activities are still using conventional systems (Rakhmah, 2018) or do not yet have the software used to manage library administration data. Conventional

P-ISSN: 1978-2136 | E-ISSN: 2527-676X | *Library Information System ...*
Techno Nusa Mandiri : Journal of Computing and Information Technology
As an Accredited Ranking Journal 4 base on SK **Dirjen Risbang SK No. 21/E/KPT/2018**

systems are less effective and efficient (Sahab & D, 2015), in terms of data recording, data storage, data search and difficult for leaders to make decisions (Yusri, 2015). The many deficiencies of conventional systems prove that library information systems make library staff and library users easier in managing library administration data (Firman, Wowor, & Najoan, 2016).

SMK Al-Kautsar Vocational School requires information systems that can solve problems. With the existence of an information system, an organization or company can guarantee the quality of the information presented and can make decisions based on that information (Syafarina, 2016).

With the use of information systems, it is expected that SMK Al-Kautsar will be able to solve all the problems mentioned earlier and is expected to be faster in providing services to library members.

MATERIALS AND METHODS

To facilitate this research, the authors use several data collection methods as follows:
1. Observation Method
    The author makes observations directly in the library room at Al-Kautsar Kebayoran Baru Vocational School so that the writer can see the work process or procedure directly and also know for certain the data needed when borrowing and returning books to the library.
2. Interview Method
    To get specific and clear information, the writer conducted an interview with Ibu Sri Wahyuningsih, SE., SH as a teacher and technical department, and also to Ms. Naning Yuniati, S.Pd as the headmaster of SMK Al-Kautsar Vocational School.
3. Library Study Methods
    As a supporter of finding information, the authors use literature study techniques by taking some material by conducting a literature study obtained from books, journals, online media, and examples from the Final Project.

The Model / Method of Software Development used in this study is the Waterfall Model / Method, there are 3 stages carried out in this study, as follows:
1. Software Requirement Analysis
    Software that will be used in designing a library information system (SIIPETAKA) at SMK Al-Kautsar Kebayoran Baru Vocational School using Dreamweaver CS6.
2. 2. Design
    At this stage, the authors do the design planning starting with database design using the

Data Model, software architecture using UML (Unified Modeling Language).
3. Implementation and unit testing
    The result of this stage is a computer program in accordance with the design that was created at the design stage. In making the design After the Library Information System (SIIPETAKA) programming language used is PHP. After the Library Information System (SIIPETAKA) has been completed, the next step to do is testing, testing is carried out to test whether the system is designed in accordance with the results of implementation on SIIPETAKA.

RESULTS AND DISCUSSION

1. Software Requirement Analysis
In the Library Information System (SIIPETAKA) there are three users who can interact with each other in the system environment, namely: The librarian, library head and students (members) of SMK Al-Kautsar. The three users have the characteristics of interaction with different systems and have different information needs, such as the following:

a. Librarian Section
1) Manage Book Data
2) Checking the Book
3) Manage Member Data that Registers
4) Checking Member Data
5) Printing Member Data
6) Conduct Loan Transactions
7) Conduct a Return Transaction
8) Viewing Visitor Data

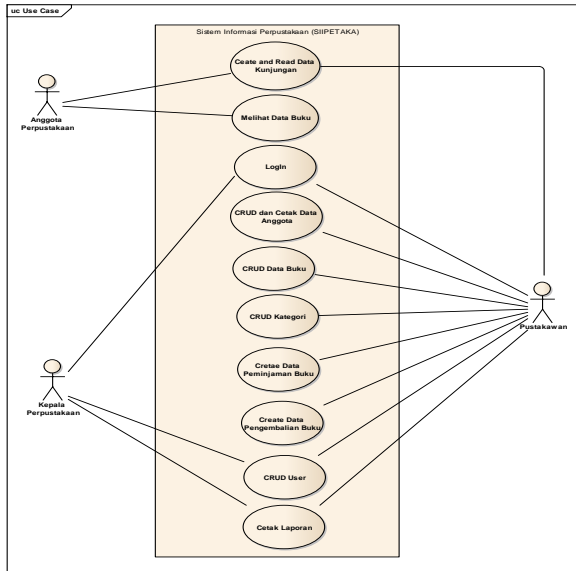**b. Head of Library**
1) Can See Reports
2) Can Print Library Reports

c. Library Members
1) Can fill out a visit book
2) Can Search for Book Data

2. Design
The next stage of the Waterfall Method / Model is to design the system. The author uses UML (Unified Modelling Language) to design a Library Information System (SIIPETAKA).

a. Use Case Diagrams

P-ISSN: 1978-2136 | E-ISSN: 2527-676X | *Library Information System...*
Techno Nusa Mandiri : Journal of Computing and Information Technology
As an Accredited Ranking Journal 4 base on SK **Dirjen Risbang SK No. 21/E/KPT/2018**
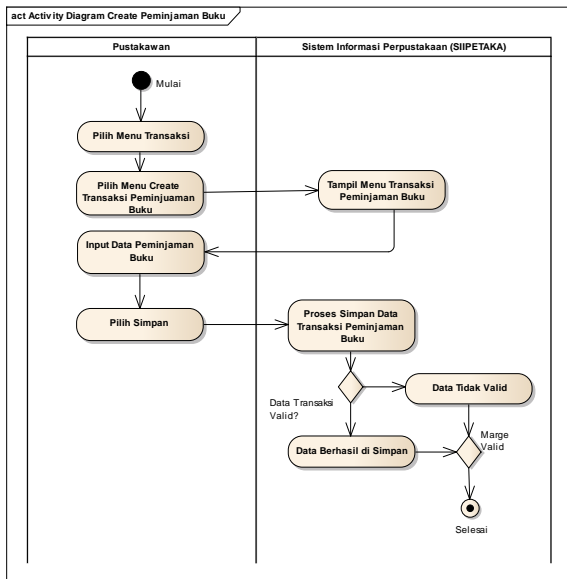
Sources: (Diyanti & Buani, 2019)

Figure 1 Use Case Library Information System Diagram (SIIPETAKA)

Figure 1 is a use case diagram design that illustrates the Library Information System (SIIPETAKA) and illustrates who users can access SIIPETAKA.
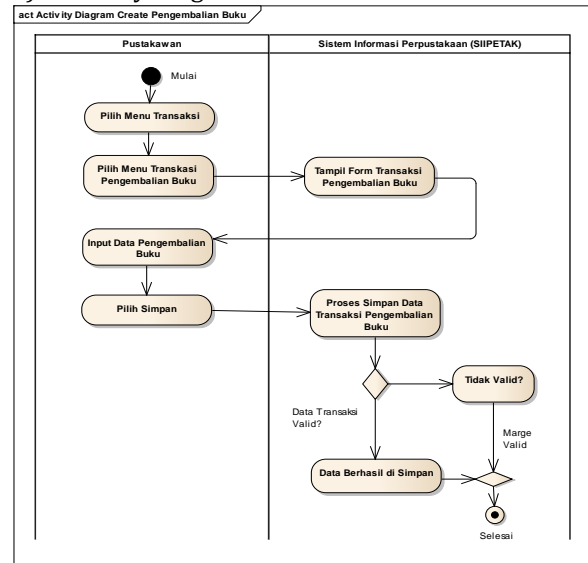
b. Activity Diagram
1)   Activity Diagram for Create Book Loan Data

Sources: (Diyanti & Buani, 2019)

Figure 2 Activity Diagram for Create Data for Book Loans

Figure 2 is an activity diagram for Create Book Loan Data, diagram activity Figure 2 will explain the flow of the Book Loan Transaction form.

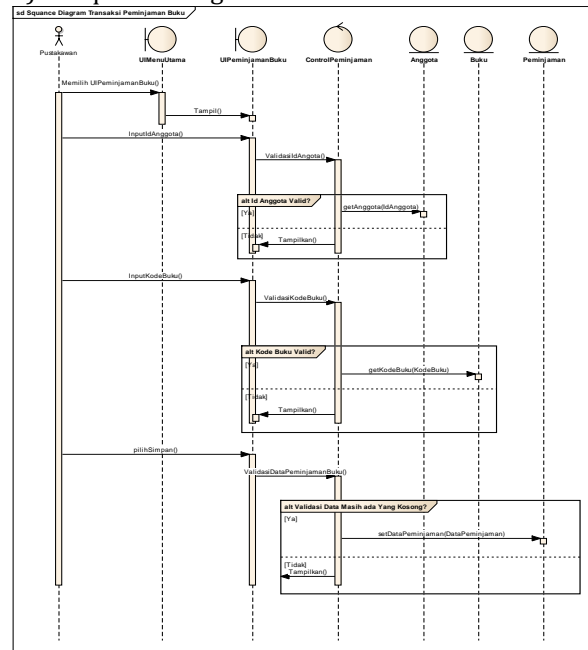2)   Activity Diagram of Create Book Return Data

Sources: (Diyanti & Buani, 2019)

Figure 3 Activity Diagram of Create Book Return Data

Figure 3 is an activity diagram for Create Book Return Data, diagram activity Figure 3 will explain the flow of the Book Return Transaction form.
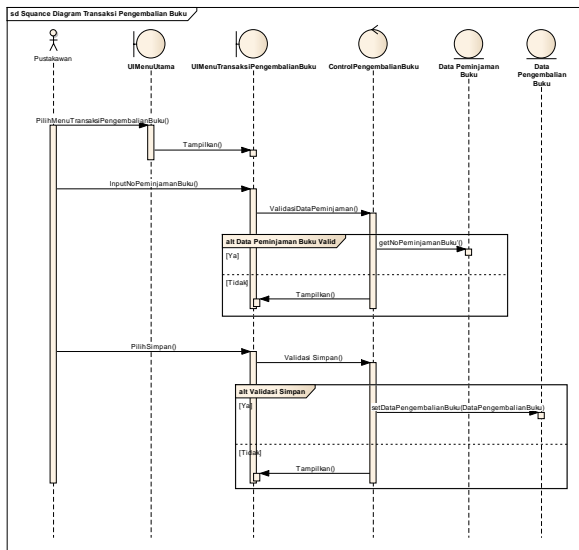
c. Squance Diagram
1)   Sequence Diagram Create Book Loan Data

Sources: (Diyanti & Buani, 2019)

Figure 4 Sequence Diagram of Create Data for Book Loans

Figure 4 is a Sequence Diagram for Create Book Loan Data which is the flow of the use of the Book Loan Data Form.

P-ISSN: 1978-2136 | E-ISSN: 2527-676X | *Library Information System …*
Techno Nusa Mandiri : Journal of Computing and Information Technology
As an Accredited Ranking Journal 4 base on SK **Dirjen Risbang SK No. 21/E/KPT/2018**
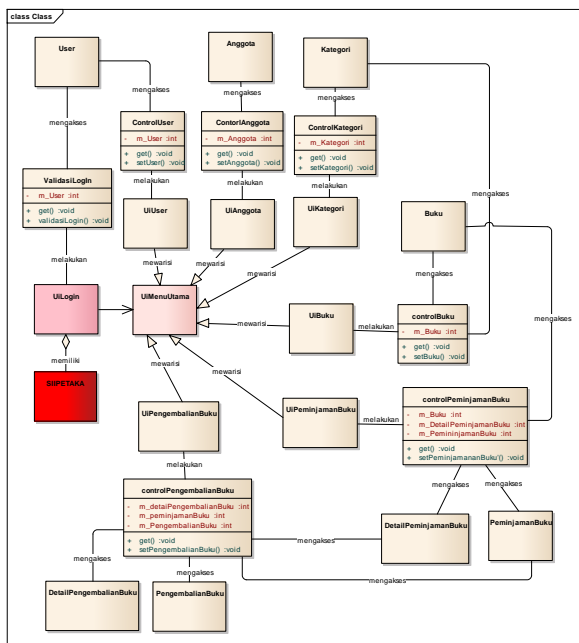
2) Sequence Diagram Create Book Return Data

Sources: (Diyanti & Buani, 2019)
Figure 5 Sequence Diagram Create Book Return Data

Figure 5 is a sequence diagram of Create Book Return Data which illustrates the flow of the Book Return form.
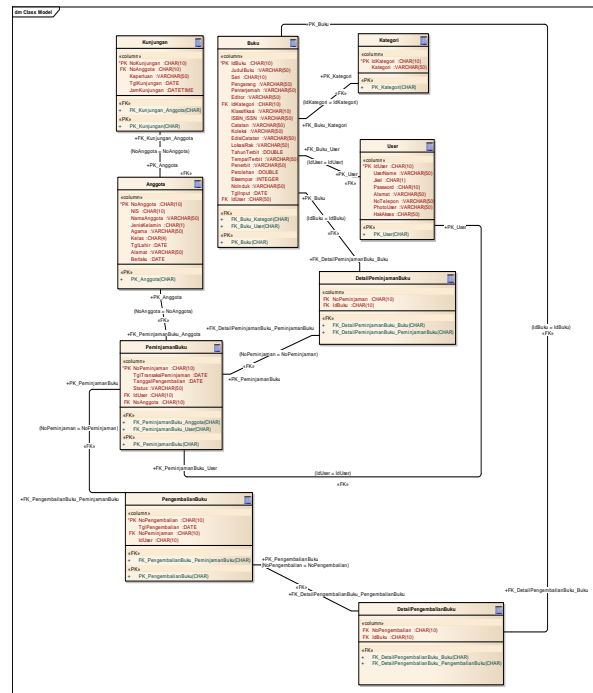
d. Class Diagram

Sources: (Diyanti & Buani, 2019)
Figure 6 Class Diagram of SIIPETAKA

Figure 6 is a Class Diagram of SIIPETAKA from this class diagram which will then be implemented into a programming language. The programming language used to build SIIPETAKA is PHP for the logic and HTML for the design.

e. Model Data

Sources: (Diyanti & Buani, 2019)
Figure 7. SIIPETAKA Model Data

Figure 7 is a Data Model of SIIPETAKA, this data model is created to design the database needed to design a Library Information System (SIIPETAKA)

3. Implementation and unit testing
a. Implementation

The next stage of the Waterfall method or model is Implementation, in making SIIPETAKA the author implements using the PHP Programming language for program logic and HTML for program design. Following is the implementation of SIIPETAKA.

1) Display LogIn Form
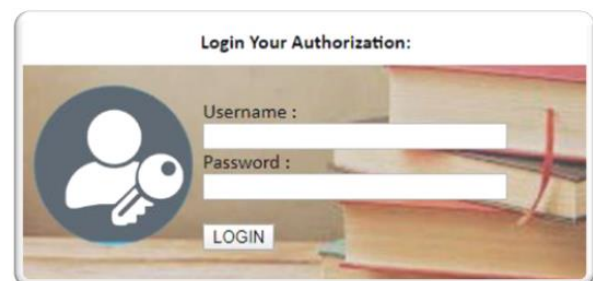
Sources: (Diyanti & Buani, 2019)
Figure 8 Display SIIPETAKA Login Form

The Login Form is used to log into the Library Information System (SIIPETAKA) which can be used by SIIPETAKA users such as Librarians, and Library Heads.

P-ISSN: 1978-2136 | E-ISSN: 2527-676X | *Library Information System...*
Techno Nusa Mandiri : Journal of Computing and Information Technology
As an Accredited Ranking Journal 4 base on SK **Dirjen Risbang SK No. 21/E/KPT/2018**

2) **Display Main Menu**

Figure 9. SIIPETAKA Main Menu Display

Figure 9 is the main menu display of SIIPETAKA 9 Library Information System).

3) **Member Data Input Display**
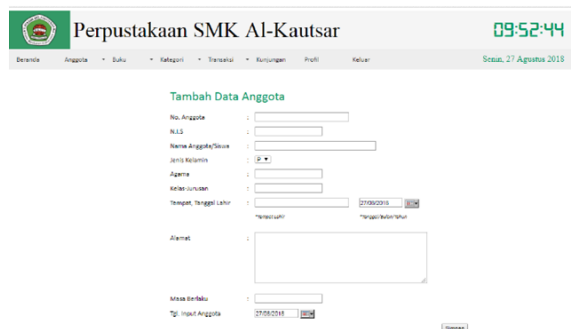
Figure 10 Display Data Input Members

Figure 10 is a display of member data input forms. All member data will be input via the Member Data Input form, and then the Member Card will be printed.
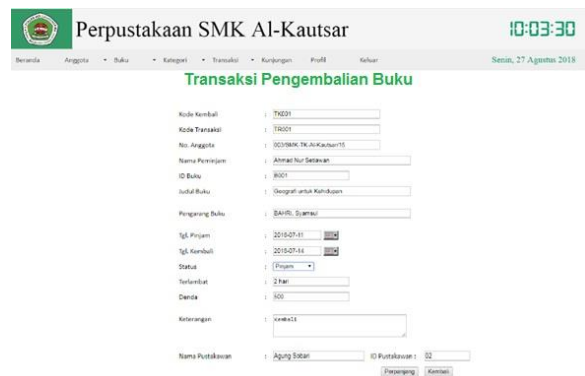
4) **Display of Book Loan Input**

Figure 11 Display of Book Loan Input

Figure 11 is a display of Book Loan Input used to input book lending data.

5) **Display Returning Book Input**

Figure 12 Display Return Book

Figure 12 Is the Display Book Returns Input used to input book return data

6) **Visit Form**

Figure 13 Visit Form

Figure 13 is a form to input visitor data, this form is inputted by members who visit the library.

7) **Librarian Data Display**

Figure 14 Librarian Data

Figure 14 is the Librarian Data that can be displayed by the library information system (SIIPETAKA).

a. **Testing**
The last stage after implementation is the testing process, in this study, the authors

P-ISSN: 1978-2136 | E-ISSN: 2527-676X | *Library Information System …*
Techno Nusa Mandiri : Journal of Computing and Information Technology
As an Accredited Ranking Journal 4 base on SK **Dirjen Risbang SK No. 21/E/KPT/2018**

conducted two components, the first component was the process of unit testing and the second was System testing.

1) Unit Testing

No	Name Form	Condition	Result
1	Member Form	Member Data There are still empty	"Data Still Empty" error message appears
2	Book Loan Form	There is still Empty Book Lending Data	"Data Still Empty" error message appears
		Incorrect Member Code	"Invalid Member Code" error message appears
		Incorrect Book Code	"Book Code Incorrect" error message appears
3	Login Form	Invalid User Name and Password	Error message "User Name and Password Wrong"

Sources: (Diyanti & Buani, 2019)

1) System Testing

No	Results Process	Plan Expected	Results
1	Click Member Form	Member Form appears	Appropriate
2	Click Book Form	Book Form appears	Appropriate
3	Click User Form	The User Form appears	Appropriate
4	Click Menu Book Loan Transactions	Shown Book Loan Transaction Form	Appropriate
5	Click Menu Book Transaction Returns	The Book Return Transaction Form appears	Appropriate

Sources: (Diyanti & Buani, 2019)

CONCLUSION

SIIPETAKA or Library Information System is an Information System designed for SMK Al-Kautsar Kebayoran Baru, in designing information systems for SMK Al-Kautsar Kebayoran Baru using the Waterfall Method / Model by using the Waterfall method the system designer will focus more on following each step because each step in the waterfall method must be followed so that program design documentation is well documented, this also simplifies the system design process. The waterfall method is a very good method used to design systems that are not as large as SIIPETAKA. SIIPETAKA is a computerized system capable of resolving problems that occur in the AL-Kautsar Vocational School library from the Member Registration process to reporting.

REFERENSI

Diyanti, E. M. W., & Buani, D. C. P. (2019). Laporan Akhir Penelitian Mandiri STMIK Nusa Mandiri Jakarta.

Firman, A., Wowor, H. F., & Najoan, X. (2016). Sistem Informasi Perpustakaan Online Berbasis Web. *Jurnal Teknik Elektro Dan Komputer*, *5*(2), 29–36.

Hendrianto, D. E. (2014). Pembuatan Sistem Informasi Perpustakaan Berbasis Website Pada Sekolah Menegah Pertama Negeri 1 Donorojo Kabupaten Pacitan. *Indonesian Journal on Networking and Security*, *3*(4), 57–64.

Rakhmah, S. N. (2018). SISTEM INFORMASI PERPUSTAKAAN BEBASIS WEB PADA SMK NEGERI 2 KOTA BEKASI. *Jurnal INKOFAR*, *1*(2). https://doi.org/10.33903/JURNAL INKOFAR.V1I2.11

Sahab, A., & D, W. M. P. (2015). PERANCANGAN DAN PENERAPAN SISTEM INFORMASI PERPUSTAKAAN SEKOLAH PADA SMAN 5 KEDIRI Pembahasan. *Jurnal Ilmiah DASI*, *16*(1), 8–11.

Syafarina, G. A. (2016). PERANCANGAN APLIKASI INVENTORY BARANG MATERIALS DAN PRODUCT. *Technologia: Jurnal Ilmiah*, *7*(1), 25–33. Retrieved from http://ojs.uniska-bjm.ac.id/index.php/JIT/article/viewFile/609

Yusri. (2015). Sistem Informasi Perpustakaan Berbasis Web Pada SMP Frater Makasar. *Jurnal Sistem Informasi Bisnis*, 70–73.

P-ISSN: 1978-2136 | E-ISSN: 2527-676X | *Library Information System...*
Techno Nusa Mandiri : Journal of Computing and Information Technology
As an Accredited Ranking Journal 4 base on SK **Dirjen Risbang SK No. 21/E/KPT/2018**