



ANALYSIS AND DESIGN OF KB/TK BUNGA BANGSA ISLAMIC SCHOOL INFORMATION SYSTEM

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Abstract—The growing awareness of parents to make their child as a successor generation brilliant, early childhood education (PAUD) becomes a very important thing. PAUD institutions such as Playing Group / Kindergarten are competing to provide programs and facilities that can give parents the confidence to entrust their children. In managing student data and reports, BBIS still use printed files and reports, so that the implementation is not in line with the natural and environmentally friendly concepts adopted by BBIS. With the problems that exist then required information systems that can help the school in managing school information, student data, and daily activities reports. Based on the problems that occur for that required a system that can help store profiles and school information, and also student data and daily activities.

Keywords—PAUD; Information System; Report; BBIS; Playing Group; Kindergarten;

I. INTRODUCTION

The development of information technology today requires all activities to run well [14]. The development of information technology is currently increasing rapidly so difficult to avoid the relationship between human and technology [13]. In managing reports and student data, BBIS still uses printed files and reports, so that the implementation is not in line with the natural and environmentally friendly concepts applied by BBIS. Beside that school information also cannot be obtained easily by people who want to know about BBIS and also parents of students who wants to know about their child activities. Some of the things that can arise as a result of manual management are as follows:

1. Report creation/presentation cannot be done quickly.
2. The possibility of data processing error may occur.
3. Storage media used quite a lot and less practical.

A. Research Problems

Based on the background described above, the outline of the problems found in this study are:

1. There is no accessible website, for outsiders know to know information about the school
2. All records are stored in the form of files because there is no integrated database to store student data. Therefore, data retrieval takes a long time and there is possibility of recording and search errors.
3. Daily activities reporting is manually. There is no system to record and report the daily activity agenda in each class as teacher reminder and reporting

B. Purpose and Benefits

Purpose

The objectives of this research are:

1. Make people easier to get information about KB / TK Bunga Bangsa Islamic School
2. Help the school in make easier and accelerating the storage and reporting of student data.
3. Help teachers to record and report students' daily activities

Benefits

The benefits that can be taken from this research include:

1. The people can easily known KB/TK Bunga Bangsa Islamic School through the website
2. Improving schools efficiency and effectiveness in terms of data management in an administrative and also environmentally friendly
3. Providing convenience for student parents to get reports of daily activities of students every day.

II. THEORY FUNDAMENTAL

A. Basic Concept of Information System

System

A system can be defined as a collection or set of elements, components, or variables that organized, interacting, interdependent on one another and integrated. The system is also a collection of interconnected elements and work together to process the inputs intended for the system and process the input to produce the desired output [9].

Information

Information is an organized input processing, meaningful and useful to the person receiving it [11]. Information has the following characteristics:

1. True or false: it is related to reality or not.
2. New: the information can be completely new to the recipient.
3. Additional: information may affect or provide new additions to existing information.
4. Corrective: information may be a correction of previous misinformation.
5. Reinforcement: information can reinforce existing information. It is still useful to improve the perception of the recipient of the truth of the information. Information is data that has been processed into a useful and tangible form or a value that can be understood in both present and future decisions [7].

Information System

An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization. In addition to supporting decision making, coordination, and control, information systems may also help managers and workers analyse problems, visualize complex subjects, and create new products. [6] Three activities in an information system produce the information that organizations need to make decisions, control operations, analyse problems, and create new products or services. These activities are input, processing, and output (see Figure 1). Input captures or collects raw data from within the organization or from its external environment. Processing converts this raw input into a meaningful form. Output transfers the processed information to the people who will use it or to the activities for which it will be used. Information systems also require feedback, which is output that is returned to appropriate members of the organization to help them evaluate or correct the input stage.

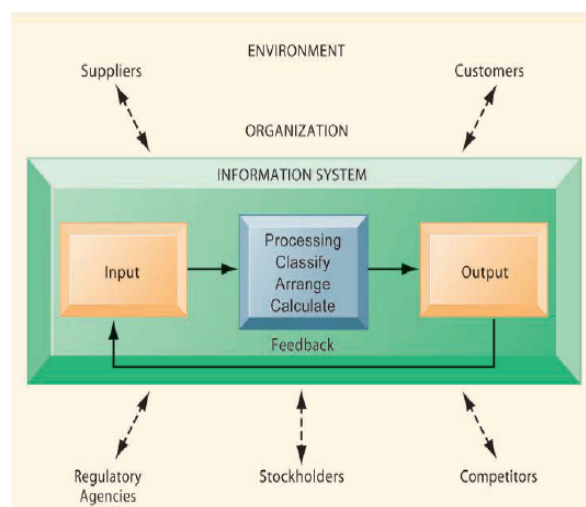


Figure 1. Function of an Information System [6]

B. Business Process

Business processes refer to the set of logically related tasks and behaviors that organizations develop over time to produce specific business results and the unique manner in which these activities are organized and coordinated. Developing a new product, generating and fulfilling an order, creating a marketing plan, and hiring an employee are examples of business processes, and the ways organizations accomplish their business processes can be a source of competitive strength. [6]

C. Literature Review

The review literature contains descriptions of theories, findings and other research derived from reference materials to serve as the basis for research activities. The descriptions in this review literature are directed to develop a clear frame of mind about the problem solving previously described in the formulation of the problem. The review literature contains reviews, summaries, and author's thoughts about some of the literature on the topics covered. [3]

The following is a literature review that serves as a guide for this research:

1. The research conducted by Ines Desti Indraswuri and Sukadi [4], proposed the creation of the system so as not to cause problems from the conventional reporting system, by typing using Microsoft Word or Microsoft Exel software, used previously. So indirect problems arise from conventional reporting system such as errors in recording and use of BOS funds, errors in the calculation of financial data, delays in report completion and many other problems.
2. The research conducted by Kelvindra Suryadi, Holly Deviarti and Vini Mariani [10], Based on the research conducted, the company has certain problems to be solved, they are: system process costing, lack of supervision on inventory of raw material and finished goods. Pursuant that, we suggest the company to invest on the system that may resolve the problems, and therefore, more efficient for the company and to gain more profit. This system will also provide the company with advantages, such as: (i) Prepare cost of production report for each department, (ii) assist the company in overseeing the company's minimum stock of raw materials and goods in the warehouse by providing the reminder stock (iii) the system shall be designed using the database as well as data storage, and make restrictions on access by using a password for each user associated with the system, so that data confidentiality can be maintained, (iv) the system would help the management reaching the successful management in maintenance efficiency, accuracy in cost, inventory, and confidentially data.
3. The research conducted by Fajar Nugraha [8], with the increasing collection of library materials, the information needs related to existing library materials, the limitations of library service personnel are some of the problems that often arise in library management. The objective of the research is to create an information system to handle the process in order to improve the service to the library users. The design of library information system created is expected to provide maximum service to library users and minimize errors in data processing. The library information system starts from member data collection, book collection, book lending, book return, library free letter and report creation including member data report, book data report, book borrowing report, return of book report and report of acceptance of fine. Benefits of library information system is expected to improve services to library users and facilitate administrative processes to be more quickly and accurately. Differences between previous research and this research is on the object of research, scope of research, research objectives, and system development methods used. From several previous studies that have been described previously, research that became the main reference is a study conducted by Ines Desti Indraswuri and Sukadi.

III. METHODOLOGY

A. Stages of Research and System Development Methodology

Analysis and Design of KB / TK Bunga Bangsa Islamic School Information System use waterfall method which will be poured in the system design stage and description of database specification. System development is defined as an activity to generate computer-based information systems to solve organizational problems. The waterfall model is also called software life cycle. The basic activities of waterfall model such as specifications, development, validation, and evolution and presents them as different process phases such as requirements specification, software design, implementation, testing, etc. [5].

Description of the Waterfall Model above as follows:

- a. system engineering, collecting data and determining the needs of all system elements
- b. Analyse, analyse the problems encountered and define software requirements, performance and interfacing functions.
- c. Design, specify the information domain for software, function and interfacing.
- d. Implementation (programming), implements the design results into code or programming languages understood by computer machines by using a particular programming language

- e. Test/Testing, activities to test the program that has been made whether it is correct or not tested manually, if the test is correct then the program may be used.
- f. Maintenance, handle the finished software so that it can run smoothly and avoid any disturbances that may cause damage.

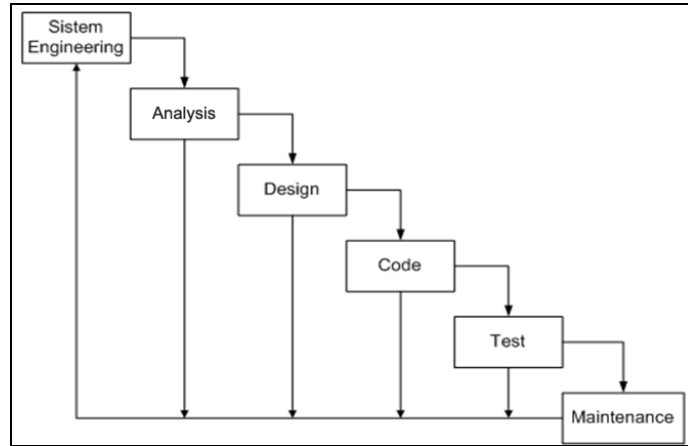


Figure 2 Waterfall Model [5].

Notation design through several stages, that is:

1. Unified Modelling Language (UML)

A modelling used to determine or describe a software system associated with the object.

2. Database Specification

Database specification is used to describe the detail of available data type in the conceptual model.

B. Black Box Testing

The method used to test the system using Black Box Testing method. The tests performed only observe the results of execution through test data and functional checking of the software. Black-box testing attempts to find errors in the following categories:

- a. incorrect or missing functions
- b. interface errors
- c. Errors in data structures or external database access
- d. Performance errors
- e. Initialization and termination error

Black box testing tends to be applied during the final stages of testing, since black box testing takes into account the control structure so attention focuses on the information domain [12].

IV. RESULT AND DISCUSSION

A. Business Process Analysis of Current System

In analysing the information system at KB & TK Bunga Bangsa Islamic School, the researcher uses a tool in the form of Activity Diagram. KB & TK Bunga Bangsa Islamic School performs daily activities manually with recording in Ms. Excel. Here are the details of the current process on 2 activities: admission of new students and making daily reports

Admission of New Students

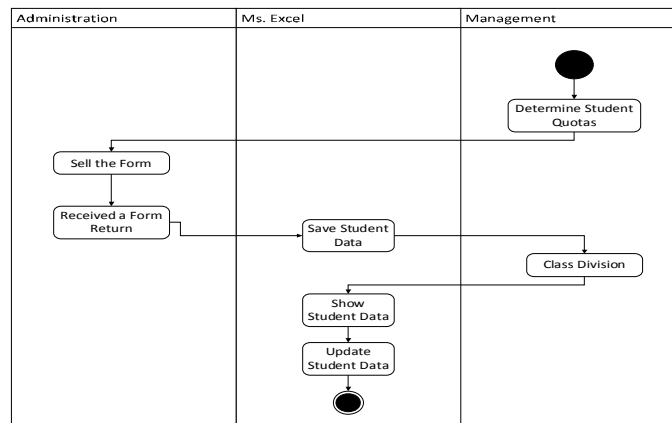


Figure 3. Activity Diagram of Business Process of Current System

The school assigns the student's quota before the new school year registration is opened, and parents of students can purchase new student registration form at KB / TK Bunga Bangsa Islamic School. If the quota is available, then the form will be available.

But if the quota is full, then parents cannot purchase the form. After filling out the form and re-registering with the terms and costs informed, then the student is recorded as a student enrolled in the following school year. After that, Administrators will enter the student form data as student data in Ms. Excel. Once the quota is met, then the registration is closed. In addition, the school can determine the division of classes, homeroom teacher, and companion teacher.

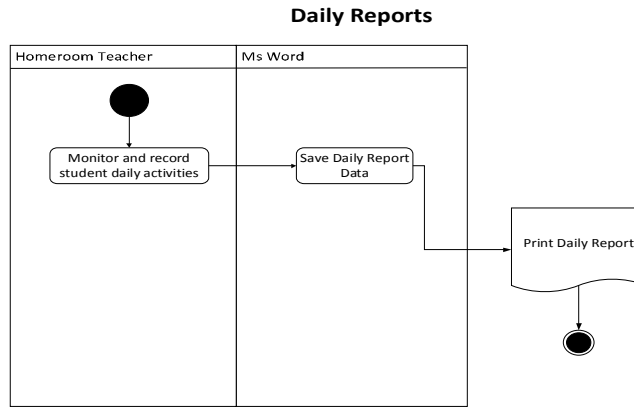


Figure 4. Activity Diagram of Business Process of Daily Reports

In learning and teaching activities every day, homeroom teacher and companion teachers should always pay attention to students. Every day, homeroom teachers make daily reports as observation result and the daily reports will be printed every week, and the students will take the reports to be seen by their parents. Here is an example of a daily report that the homeroom teacher should complete every day:

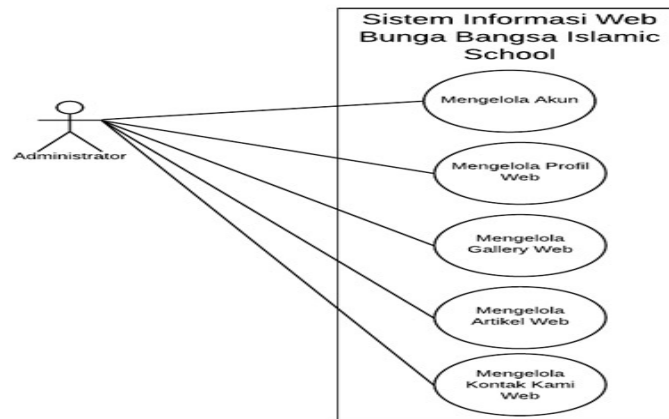
Hari/Tgl Aktivitas	Jum'at 5 Desember 2017	Senin 8 Januari 2018
Morning Journal	<input type="checkbox"/> Iqro <input type="checkbox"/> Menggambar/Journal Writing <input type="checkbox"/> Bermain	<input type="checkbox"/> Iqro <input type="checkbox"/> Menggambar/Journal Writing <input type="checkbox"/> Bermain
Circle time	<input type="checkbox"/> Mau mengikuti <input type="checkbox"/> Tidak mau mengikuti	<input type="checkbox"/> Mau mengikuti <input type="checkbox"/> Tidak mau mengikuti
Class Activity	Kegiatan : <input type="checkbox"/> Mau mengikuti <input type="checkbox"/> Tidak mau mengikuti	Kegiatan : <input type="checkbox"/> Mau mengikuti <input type="checkbox"/> Tidak mau mengikuti
Toilet Training	<input type="checkbox"/> Mau mengikuti <input type="checkbox"/> Tidak mau mengikuti	<input type="checkbox"/> Mau mengikuti <input type="checkbox"/> Tidak mau mengikuti
Sholat Dhuha	<input type="checkbox"/> Mau mengikuti dengan tertib <input type="checkbox"/> Mau mengikuti, tidak tertib <input type="checkbox"/> Tidak mau mengikuti	<input type="checkbox"/> Mau mengikuti dengan tertib <input type="checkbox"/> Mau mengikuti, tidak tertib <input type="checkbox"/> Tidak mau mengikuti
Snack Time	Snack : <input type="checkbox"/> Habis <input type="checkbox"/> Tidak Habis	Snack : <input type="checkbox"/> Habis <input type="checkbox"/> Tidak Habis
Centre Activity 1	Kegiatan : <ul style="list-style-type: none"> • Bermain tikus dan kucing • Bermain bebas 	Kegiatan : Al Islam

Figure 5. Homeroom Teacher Daily Reports

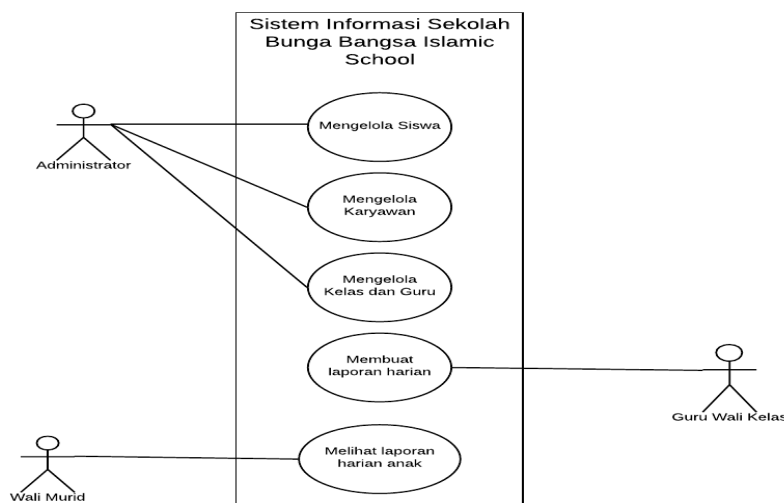
B. Design of the Proposed System

The system design that proposed to KB / TK Bunga Bangsa Islamic School to facilitate the delivery of information so that parents can monitor the development of their children

1. Use Case Diagram of Web Information System



2. Use Case Diagram of School Information System



3. System Implementation

At the implementation stage, stages of the information portal that has been designed. Implementation of the design that has been made poured into the form of coding program. In addition, the implementation of the results of the analysis at the design stage with software operations made to occur in the suitability of performance. The main purpose of the implementation phase is to implement the architecture and design of the system as a whole.

4. Implementation Environment

The design of this system can run well because it is supported by the supporting devices of software and hardware.

1. Software

- Microsoft Windows 10 Enterprise 64-bit It used as the operating system
- Browser Google Chrome It used to access or test created programs.
- XAMPP Versi 3.2.1

Apache : it used as a web server

Mysql : it used for database creation, storage and processing for websites.

2. Hardware

- Processor : Intel(R) Core(TM) i5-4210U CPU @ 1.70GHz (4 CPUs)
- Installed memory (RAM) : 6144 MB
- Harddisk Drive (HDD): 500 GB

5. User Interface

- Login Page

Bunga Bangsa Islamic School Login

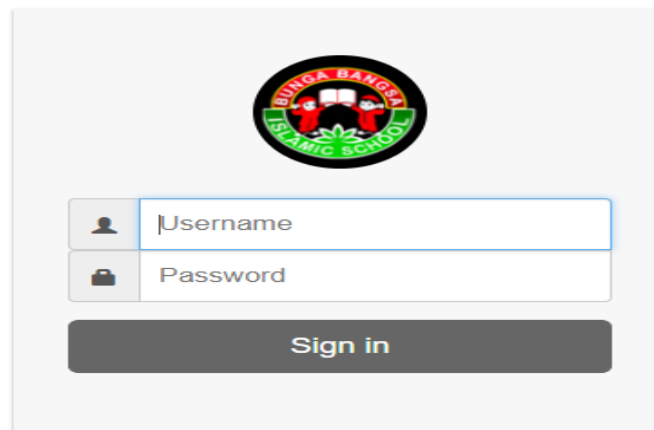
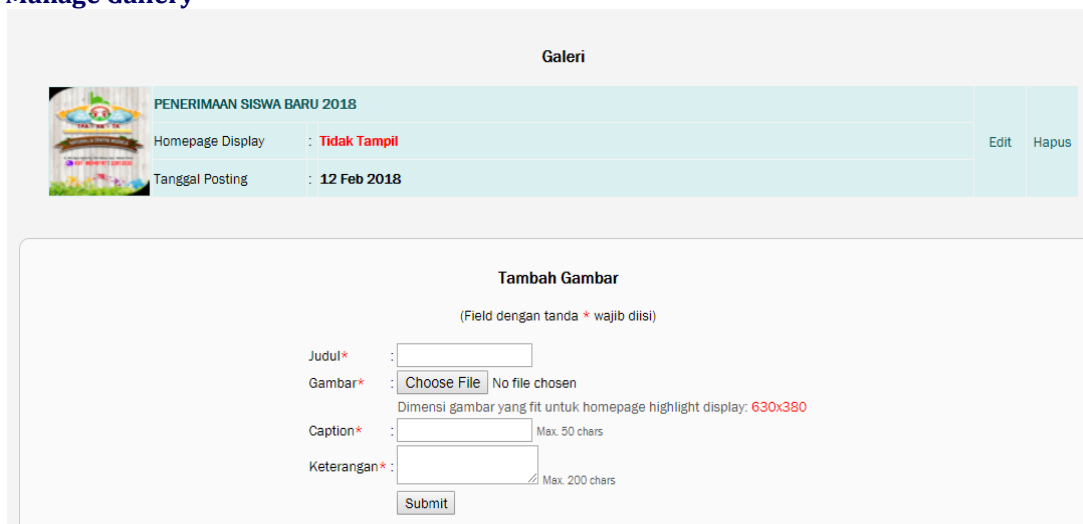


Figure Login Page

b. Manage Gallery



V. CONCLUSION

1. Reporting system can help people get information about KB / TK Bunga Bangsa Islamic School
2. Reporting system can make ease the delivery of student activities reports at KB / TK Bunga Bangsa Islamic School
3. The reporting system can assist teachers in recording and reporting students' daily activities to parents

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