Academic Information System at SDIT Sakinah Kampar District Based on SMS Gateway

Alfirman¹*, Fatayat²

¹²Department of Computer Science, FMIPA, University of Riau
alfirman@lecturer.unri.ac.id, fatayat@lecturer.unri.ac.id

*Corresponding Author
Received: 9 October 2017, Accepted: 6 November 2017
Published online: 25 February 2018

Abstract: The development of information technology has now reached the world of education. One of the information technology that is developing at this time is SMS Gateway. In education, SMS Gateway is needed because it can present a variety of information related to student development. This information system discusses about how the process of sending student’s academic value via SMS, sent from the system automatically (if students send SMS request value using a certain format) by using computerization. Assessment system at SDIT Sakinah i.e. students get three report cards in each semester, consisting of two monthly report cards and semester report card. Semester report cards are distributed directly to the student parents at the end of each semester, while the monthly report card is given directly to the students which is sometimes not on time. Therefore, some of the problems that arise such as, after the test is held, students will come and always ask the teacher who teaches about the value obtained. This makes inefficient time spent by students and teachers. By using SMS gateway is expected to help students and school to streamline the time, and help parents to monitor the learning activities of children in the school. Further, it may enhance the student’s academic value.

Keywords: SMS Gateway; academic value.

1. Introduction

The development of technology and information has also spread into the world of education. Almost all schools have technology in the processing of academic data, both in data processing and report generation.

In addition to computers, the current emerging technology is SMS. SMS is one of the most popular mobile services today. Short Message Service abbreviated with SMS, is a short message in the form of text sent and received among fellow users of the phone. Initially this message is used between mobile phones, but with the development of technology, the message can be done through a computer or home phone [1]. In the world of academic SMS Gateway is needed because SMS Gateway can present various information related to the teaching and learning process.

Short Message Service (SMS) gateway included in the information system is used to make efficient the time required in the dissemination of information via SMS or short message so that information can be received by the recipient quickly. SMS gateways can be used almost in all areas, one of them in education [2].

In terms of presentation of information, each agency has a different way. They are already using SMS Gateway and some are still using the manual way by using a sheet of paper. At SDIT Sakinah, in terms of the assessment system students get three academic report in each semester, two monthly reports and semester report. The semester report is taken from the results of the semester exam and the value of the daily duties and tests of the student, while the monthly report is a report containing daily test values and assignments from each subject. The semester report is distributed directly to the parents of the students at the end of each semester, while the monthly report is given directly to the students without the accompanied by parent/guardian who is sometimes not on time. Therefore, some problems
that arise such as, after the test is held, students will come and always ask the teacher who teaches about the value obtained. This makes the inefficient time spent by students and teachers who teach. In addition, if a monthly report has been given, there are students who do not provide the results of learning to their parents. This causes the parent of the student does not know the results of his child’s learning and cannot control the learning activities of his child.

In this research, the authors use SMS gateway as information system in helping to overcome the problem. It is expected that SMS gateways can help students and school parties to streamline their time and help parents to monitor their children's learning activities so that either the school, parents or students can improve the academic value of the student.

2. Literature Review

2.1. Basic Concepts of Information

Gordon. B. Davis (1985) defines information as data that has been processed into a form that is more meaningful and useful for recipients to take decisions now and the future. Information has true or false characteristics, new, additional, and corrective [2].

Raymond McLeod (1995) defines information as data that has been processed into a form that is more meaningful to the recipient. Information processing devices may include elements of the computer, non-computer elements or a combination [2].

2.2. Definition of Information System

Information systems can be defined as follows:
1. A system made by humans that consists of components within the organization to achieve a goal to present information.
2. A set of organizational procedures to provide information for decision makers and or to control the organization.
3. A system within an organization that meets the needs of transaction processing, supports operations and the strategic activities of an organization and provides certain outside parties with the necessary reports [2].

3. Material & Methodology

3.1. Data Collection Method

1. Observation
   This technique uses a systematic record of the symptoms associated with the problem to be studied. Notes obtained from this observation are in the form of student data, mid-term exam value, final exam value, monthly value and daily value.
2. Library Studies
   Literature study is research conducted by reading and studying books related to the problem to be studied as a literature review. In this study, reference used in the form of books, journals and search through the internet.
3. Interview
   Interview is one of data collecting technique by doing question and answer about problem related to problem. The author conducted direct interviews to the teacher of class 5 SDIT Sakinah, Nurhamdiah, S, Pd.I.

3.2. Equipment used

The tools that authors use in developing the system are divided into two namely hardware and software.
1. Laptop with Intel Celeron 1.6 GHz processor specifications, Random Access Memory (RAM) with 2 GB capacity and Harddisk with 500 GB capacity; USB GSM Modem; and SIM card.
2. Windows 7 operating system; Microsoft Office Word 2013 for typing; Gammu for SMS gateway programming; Microsoft Visio 2016 for program design; Xampp package for server localhost; My SQL as the database.
3.3. Development Phases
In the completion of this study, the authors use several phases, namely:
1. Data analysis
   Analyzing data related to information systems.
2. Program design
   Furthermore, the authors make a program design consisting of diagrams of the Flowchart System, Data Flow Diagrams (DFD), Context Diagrams, Tiered Diagrams and Entity Relationship Diagram.
3. Programming
   Programming is done after gathering information, analyzing data, making diagrams, and design is complete. Programming is done in accordance with step analysis and program design.
4. Testing the program
   After coding the program, testing the program with the aim to know the feasibility of the program whether the program made is already correct or not.

4. Results and Discussion

4.1. System Analysis
At the designer stage of a system, with this analysis can be seen how the system is running and what problems arise or being faced. To determine what kind of system will be built then it is needed accuracy, because if not done in detail then the new system will be designed the results will not be optimal.

Problems that occur in SDIT Sakinah Kampar District that is when students after repeat the students always ask the teacher about the results of repetition value and this causes inefficient time used. In addition, after monthly report distributions there are sometimes students who do not provide learning results to parents, so that parents cannot monitor their children's learning activities. Monthly report is distributed twice in each semester prior to the semester reporting. Monthly report is given directly to students while the semester report is given directly to parents. For processing the value is submitted to the homeroom.

Based on the existing problems, the authors get an idea of how the analysis and design of applications to be built.

4.2. Proposed System Analysis
In the new system, the author makes the program in accordance with the requirements of the user:
1. The system becomes more practical and efficient.
2. If the parent or guardian and student want to know the value obtained simply by sending an SMS to the system.

   The system flowchart of proposed system can be seen in Figure 1.

4.3 System Interfaces
The result of the system development is as follows:

4.3.1 Input Design
The design of input is a useful design to enter the required data into the information system.

1. Display Main Menu
   The main menu is a sign that the user has logged in and can access the system to perform data processing in accordance with the permissions it has. Figure 2 shows the main menu view.
Figure 1. Analysis of the Proposed System

3. Value Data Input
   The user interface of data input of student value can be seen in Figure 3.
Academic Information System at SDIT Sakinah Kampar District Based on SMS Gateway

Figure 3. Input Form of Value Data

4. Value Detail Form
The value detail form is a translation of student value data, in detail of the value, the user can fill in the value in the value column. The detail form can be seen in Figure 4.

Figure 4. The value detail

4.3.2 SMS Gateway Display
In the process of requesting academic value that can be done by parents / guardians of students, the proposed system has provisions in order to provide information on the academic value of students:
1. Use the format: The value of <space> NIS <space> Year <space> Semester <space> Type of report.
2. SMS writing must start with a capital letter.
3. If there is a writing error, it will reply notification messages.
Description of SMS sending format:
1. NIS is the student's parent number.
2. Year of Doctrine is the school year of value requested.
3. Semester is the semester of the requested value.
4. Type of report is a type of report requested:
   a. Monthly1
      Monthly1 is a type of report format used to request a monthly report value.
   b. Monthly2
      Monthly2 is a type of report format used to request the value of two monthly report.
   c. Monthly
Monthly is a type of report format used to request all monthly report one and two. The examples of SMS gateway display sent and received by mobile phone:

1. Display Request and Reply SMS Value for Monthly Value One (see Figure 5).

   ![Figure 5. Display Monthly Value One](image)

2. Display Request and Reply SMS Value for Monthly Value If NIS is False described in Figure 6.

   ![Figure 6. SMS View If NIS is False](image)

5. Conclusion

   The Academic Information System at SDIT Sakinah Based on SMS Gateway is able to accelerate the delivery of information to parents. Parents do not have to wait for the results of report cards at the end of the semester. The system can provide convenience to parents to know the value of student monthly report.

References
