Student Attendance Information System Design at SMK Swasta Satria 1 Binjai

Adnan Surbakti* and Sabar Pasaribu
Department of Informatics, Akademi Teknologi Industri Immanuel, Medan, Indonesia

* adnan.surbakti@gmail.com

Abstract. SMK Swasta Satria 1 Binjai is doing recording student's daily absence on paper. The recording of students' daily absences on paper has indeed been able to accommodate the needs of the school. However, the perceived difficulty is at the time will be done recap attendance students that require a long time. These daily attendance records also do not allow parents to monitor the presence of their children in school. A student's attendance will be notified monthly to the student's parents and this can be a problem when a student has not been to school for a long time, whereas the parents' knowledge, their child attends schooling. Considering the reason for the ease of recap of student attendance and to facilitate the parent in monitoring the presence of their child in school hence required a student attendance information system. Student absenteeism information systems are web-based so they can also be accessed by parents without having to go to school and parents can monitor their child's presence every day through telecommunication devices such as mobile phones connected to the internet. The research method used in this research is SDLC (System Development Life Cycle) method which is a very good design methodology because it identifies well the needs of the user. The results of the study are expected to answer the needs of the school will be easy to recap attendance of students and also the needs of the parents to monitor the presence of their children in the learning process.

1. Introduction
Over the past five decades maturity models have been introduced as guidelines and reference frameworks for the management of information systems (IS) in organizations across sectors and sectors[1]. Accordingly, information systems are critically needed to replace most paper-based work to improve efficiency and optimize time in delivering maximum service[2]. Demand for better results has increased in recent years as a result of increasing pressure for faster deliveries, lower costs, flexibility of scale, interconnection of systems, and business addiction to information systems for daily activities[3]. In each large enterprise, the Information System (IS) is an important tool for managing an organization. Information systems are mainly used to automate the execution of routine management activities and administrative management system[4]. At the present time, web-based information systems have been widely developed to overcome the constraints of place and time of operation[5] and at this time also has a lot of growing mobile applications[6]. The existence of this rapid information system development, demands a good classification of information with the optimization model based on the principle of clustering[7]. This is intended to ensure diversity of information and avoid the occurrence of class imbalance problems[8] and also the sensitivity of information[9]. For this purpose would require benchmarking principles of information quality[10] as well as efficient application of information systems based on the use of existing resources[11]. The existence of information systems can also ensure justice and awareness because all principles are...
based on the principle of computerization[12] and a good decision-making process[13]. SMK Swasta Satria 1 Binjai also committed to apply this attendance information system through the provision of computer equipment connected to the internet for each class. Student Attendance Information System is expected to be utilized to assist the school in the recording of student attendance and facilitate parents to check their children’s presence in the learning process. This student attendance information system can also be used by other schools that want to apply it.

2. Related Works
Pireva et al. to suggest a new idea of how a user can track student attendance in an automated way using RFID[14] and Lodha et al. using the Bluetooth Smart Attendance Management System[15]. Sari et al. designing information systems that can notify the attendance and absence of lecturers in lecturing[16]. Itoh et al. designing information systems that can predict student achievement based on their presence in the learning process[17]. Jesus et al. conduct research based on information on the presence of the system and its relation to the growth rate of a country[18]. Masino and Zarazua do research on how to improve the quality of education in developing countries[19]. From a number of studies that have been done can be seen that the student attendance information system is very large benefits and is expected to improve the quality of teaching and learning process.

3. Research Methodology
For many people, traditional access to SDLC, often called waterfall, is the only development process they know about, for good reason. It is the most important development process that is being used today; In fact, most government contracts issued for systems require that this process be followed by the development of the system. The System Development Life Cycle Process can be seen in figure 1[20].

![Figure 1. SDLC Method](image)

The design of Student Attendance information system starts from the analysis of the needs of the SMK Swasta Satria 1 Binjai. Through this requirement analysis, the description of student attendance information system will be designed. After the process of system analysis, then will be made the development of student attendance information system. The flowchart (design flowchart) system design student attendance information on SMK Swasta Satria 1 Binjai can be seen in figure 2.
4. Result and Discussion

4.1. Use Case Diagram

Use Case Diagram can be seen in figure 3.

Figure 2. Research Method

Figure 3. Use Case Diagram
In systems designed the academic section will enter the subject list information as well as the student’s name. Then the teacher will input attendance information and the absence of students into the system. The system can display attendance information and student absences in the form of data list.

4.2. Site Map Diagram
The Site Map Diagram can be seen in figure 4.

![Image of Site Map Diagram]

**Figure 4. Site Map Diagram**

4.3. Application Design of Attendance Information System
The Application Design of Attendance Information System can be seen in figure 5.

![Image of Application Design]

**Figure 5. The Application Design of Attendance Information System**
4.4. Discussion
The existence of this student attendance information system can assist the SMK Swasta Satria 1 Binjai in managing the student attendance information. Parents can also find out if their child is not attending school. Future research is expected to display information on learning activities of each student during the learning process.

5. Conclusion
The conclusions that can be obtained from the results of this study are as follows. First, the SMK Swasta Satria 1 Binjai who still uses the recording of student attendance on paper has difficulty when monitoring the absence of students. Second, the Student Attendance information system designed to assist the school in displaying student attendance information quickly. Third, the student attendance information system designed to help parents to monitor the presence of their children.

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