

## ViMoIS: The Student Violation Point Monitoring Information System

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### Abstract

Although the rules have been enforced, children's behaviour in schools often cannot be monitored by parents even when children commit violations. This is because the school has not implemented information system technology for parents to track violations committed by their children in the school. The purpose of this study is to build a violation point information system (ViMoIS) for students so that their recording can be done digitally and can be monitored by parents. The location of study was conducted in one of the High Schools in Gresik. The data collection technique uses the Focus Group Discussion (FGD) method. The model used to build this system is waterfall starting with three stages of that is, analysis, design, and testing. The results of the study were in the form of a Web-Based Student Violation Point Monitoring Information System (ViMoIS). Based on the results of black box testing that all components in this system run smoothly (success). The existence of a ViMoIS is expected to modernize the process of recording student budgeting so that old people can monitor their children's behavior in schools.

**Keywords:** SDLC; information systems; ViMoIS; school

### INTRODUCTION

Getting an education is one of the essential elements of human life. Education will help the human being to develop his potential to improve the quality of intellectuality and behaviour (Davi et al., 2017). Human beings need means of interaction that can be obtained through education. If we talk about education, it will be closely related to the institution that runs it, School (Khasanah, 2015). Schools can shape students' disciplinary behaviour through enforced rules. However, in reality, such enforced rules are often not obeyed by the students.

Based on the research carried out by (Karlin, 2020) in the school environment, there are many violations of rules such as being late and even skipping classes, watching porn when lessons take place, smoking, and fighting. Meanwhile, based on research conducted by (Susanti et al., 2020), 666 respondents from all secondary schools in West Bangka Regency, the results of the study showed various kinds of violations committed by students, including stealing (2%), fighting teachers (3%), pornographic acts (3%) and drunkenness (4%). In the moderate category, there are acts of violence (5%), drugs (5%), skipping school (7%), and smoking (9%). The highest predominance of juvenile delinquency by the order was courtship (10%), night out (11%), bullying (13), and promiscuity (17%).

Based on the data above, it is known that many students committed violations at school. Any violation committed by the student must be sanctioned with a deterrent effect. At one of the high schools in Gresik, each Student's violation point is recorded and considered for the report card score at the end. However, the recording of violation points is still manual using books. In 2020-2021, the archives of recording student violation points were missing. The loss of the archive is a problem because the report card value is not only considered the academic scores achieved by students. Therefore, recording student violation points need to be



modernized into digital recording to minimize data loss.

Maintaining the behaviour of the child is the task of the Parents. The school has guidelines for Teachers to monitor students' good and bad behaviour in the teaching and learning process at the school. However, Parents do not know their child's behaviour at school. Parents can only trust their children at school, and parents can know their child's behaviour when distributing report cards in the middle and end of the semester. Therefore, a system is needed parents can use that in order to monitor the behaviour of their children in school.

According to (Muntohar, 2020; Yunaeti & Irviani Rita, 2017) An information system is a blend of people, hardware, software, communication networks, and data resources that collect, transform and disseminate information in an organization. Technology development dramatically affects various sectors of life and causes system changes in agencies/companies. The application of information technology will help improve the effectiveness of performance (Al-Sayyed et al., 2021; Chuang & Huang, 2018; Qi, 2019). Information systems are one of the developments of information technology widely used by agencies/companies (Anggoro & Hidayat, 2020).

Research on the web-based (Hormati et al., 2021; Megawati & Pratama, 2019; Riyanto & Novita, 2019) recording of violation points was carried out and proved that recording the value of violations students with a manual system is considered inefficient because the data is prone to damage and even loss. In addition, the absence of a notification feature for Parents/Guardians is a shortcoming of existing studies. In fact, with the notification feature to parents, a web-based information system will be more advantageous because parents can monitor their children's behavior at school and get information quickly and accurately.

There was a new feature update to support the system in this study. The feature update is a live chat feature between Counselling teachers and Parents of Students. In addition, a notification feature for Parents of Students via WhatsApp will send notifications to Parents of Students if their children commit violations at school. These two features are an update of this study with the previous research. The purpose of this study is to modernize the recording of violation points committed by students (ViMoIS) at one of the high schools in *Gresik* using a web-based information system so that parents can monitor their children's behavior at school.

## **METHOD**

The stages of completing the research start with data collection need analysis, design, and stages of testing information systems (Afuan et al., 2021). The research location of one of the Senior High Schools in *Gresik*. The data collection technique uses the Focus Group Discussion method. Group discussions (FGDs) are methods and techniques of qualitative data collection in which a group of people discusses a subject or topic guided by a moderator or moderator

At the stage of needs analysis, design, and testing of information systems using the waterfall type SDLC (System Development Life Cycle) method (Bohnes et al., 2019; Chen et al., 2019). According to (Sasmito, 2017), the waterfall is a model of development of systematic and sequential information systems. So that, according (Firmansyah & Udi, 2017), the waterfall model is often called the linear sequence model or the classical lifeline. The stages of system development are carried out orderly starting from analysis, design, coding, testing, and supporting stages (Nasution et al., 2021).

The waterfall stage in this study starts from the analysis, design, and at the end is the testing (Hakim et al., 2020; Ningsi et al., 2021; Rizki & Mulyati, 2020). The first stage is analysis to find out the running system, the shortcomings, and the system's needs (Cahyanti et al., 2021; Setiawan et al., 2021). In the second stage, namely design, an analysis of system development needs is carried out, starting with hardware and software that involves identifying and delineating the abstraction of the primary software system and its relationship (Kusrini et

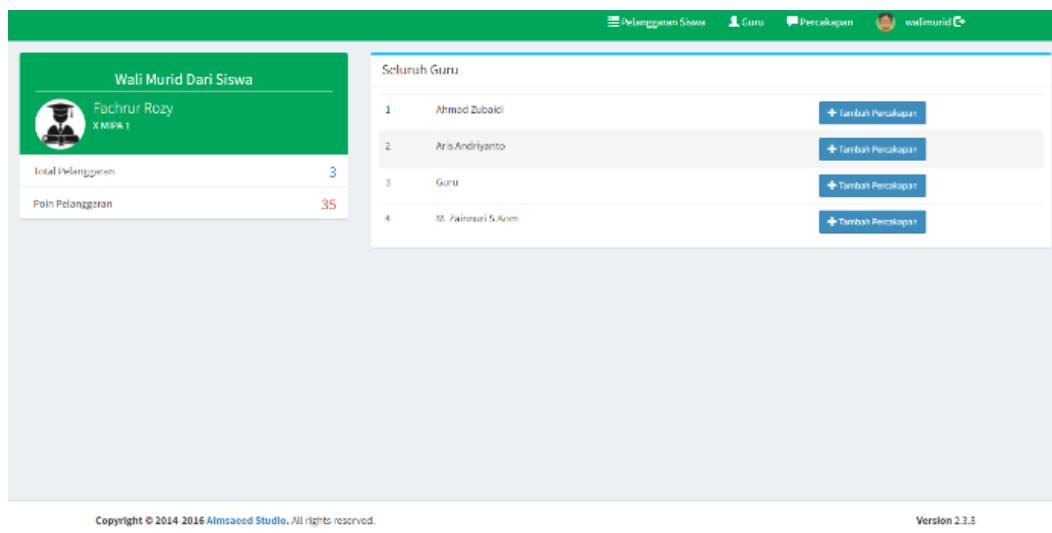
al., 2020; Kusuma & Rahayu, 2021). After producing a web-based information system plan, the next stage of the web is tested using a black box by operating a system application that has been designed to see the display of inputs and outputs produced.

## RESULTS AND DISCUSSION

### Result

The study results are in the form of a Web-based Student Violation Point Monitoring Information System (ViMoIS), which facilitates the recording of violation points committed by Students at School and makes it easier for parents to monitor their children's behaviour at school. It has been explained that before producing a web-based information system, several stages are carried out, including analysis (requirements analysis), the design stage (Design), and at the end is the testing stage (testing).

The result of this stage analysis is the depiction of the process flow that has been running so far. This plot contains three actors: Students, counselling Guidance Teachers (counselling teachers), and Parents of Students. The flow begins if the student commits a violation, then the BK Teacher, as the supervisor, asks the Student to the BK room for follow-up. Afterward, Teacher BK recorded the student's violation points. The BK teacher informs the Student's Parents of the violations committed by the student. If parents want to discuss, the Counseling teacher asks parents to come to school.

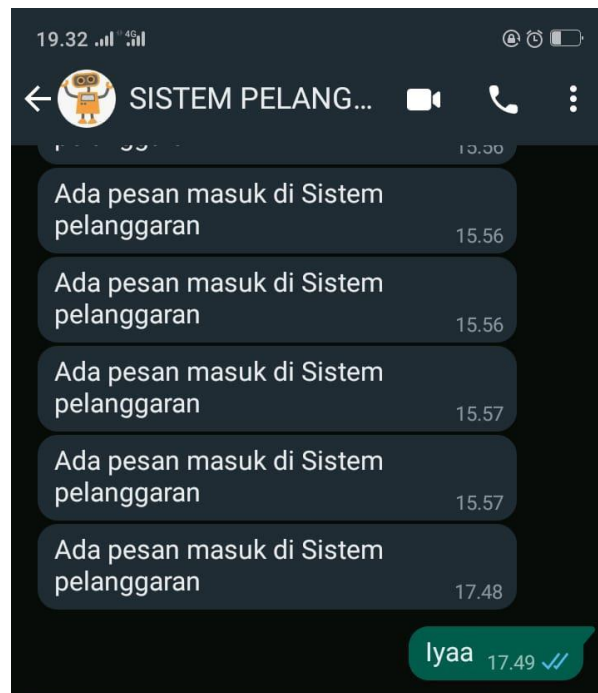


**Figure 1.** Page send message

The result of designs stage is developing an information system for monitoring student violation points. Several features will be implemented, namely the live chat feature and notifications via WhatsApp to parents of students so that with every recording of violation points by the counselling teacher, parents of students can immediately get information quickly and accurately. Figures 1 and 2 are a view of the proposed system. Figure 1 is the Teacher's page on the parents showing several teachers. To enable a conversation, Parents must first enable the add conversation button. Figure 2 is a display of WhatsApp notifications that go to the parents if his son committed an offense at the school.

After producing a web-based information system plan, the next stage of the web is tested using a black box by operating a system application that has been designed to see the display of inputs and outputs produced (Muntohar, 2020). Testing is essential to do because, with the testing of the system, we can find out what shortcomings and errors are from the design of the system that has been built. Testing with a black box is a test by checking the overall function

of the system that has been designed at the requirement stage (Afuan et al., 2021).



**Figure 2.** Display notification from Whatsapp on parents

At this stage, testing the proposed system uses the black box. The test method using black box is carried out to ensure the functioning of the designed software (Kusuma & Rahayu, 2021). System testing was carried out on three users: Admins, Counselling teachers, and Parents of Students. In total, there were 36 components tested on Admin, 9 on counselling teacher, and 8 on Parents. The entire system is tested by first identifying the test scenario and the desired results. If there is synchronization between the test scenario and the expected results, the tested system can be summed up successfully.

For example, if we want to test the main view, the test scenario is that after a successful login, the system should be able to show the main page. If it can display the main page, it succeeds (received). If the main page does not display, it does not work (rejected). The results of the tests using the black box are described in table 1. The results of the black box show that all components tested can run according to the scenario absorbed. The component focuses on the login page, violation input page, send message page, history page, WhatsApp notification page, and logout page.

## Discussion

At the analysis stage, it can be seen that the system running is ineffective because it relies on manual records, and notifications regarding school student violations are not informed quickly and accurately to parents/guardians. Login Stratified (Admin, Teacher, and Guardian / Parent) is proposed at the design stage. Then, it is proposed that there is a real-time chat between Teachers and Parents.

In addition, the notification feature for Parents through WhatsApp Notifications is the most critical design of this web-based information system. By looking at the test results with *the* Black box, it can be concluded that the system can run well, correctly, and smoothly because the entire system tested shows a match between the test scenario and the desired results in each system tested. Before the existence of this system, the recording of violations of discipline committed by students was still written manually. After the existence of this system,

recording can be done based on information system technology. Not only valid for the recording system, but the existence of the WhatsApp notification feature for Parents is also a novelty in this study. Previously, research was conducted by (Hormati et al., 2021; Megawati & Pratama, 2019; Riyanto & Novita, 2019) shortcomings such as the absence of access for Parents to monitor violation points.

**Table 1.** Black box result

<b>No.</b>	<b>Testing Components</b>	<b>Test Scenarios</b>	<b>Expected dilutions</b>	<b>Information</b>
1.	Login Page	Enter the application website and enter the username and password	Can enter the main page of the system	Success
2.	Go to the Violationinput page (For Counseling teachers)	When the main page view opens, select the violation input tab	Go to the violationinput page	Success
3.	Add violation page (For Counseling teacher)	Select the violation input tab, select the class and Students and then continue and select Finish	Can add Studentviolations to the system	Success
4.	Send message page	Select the message tab and then select the Parent and then send the message with the send button	Can send messages with the Parent and to Counseling teacher	Success
5.	Conversation page with Master	Select toggle Guru, select the conversation with whose Teacher and click add.	Can enter the conversation page with the BKTeacher	Success
6.	History page	When the main page view opens, select the History tab	Can display past violation pages	Success
7.	WhatsApp Notifications	Select toggle Guru, go to toggle conversation, then send a message, wait until it is sent, and give WhatsApp notification to the recipient	Parents get Whatsapp notifications if there is an incoming conversation in the parent system.	Success
8.	Log out of the system.	Select the profile icon on the main page, and then select toggle log out	Can exit the system and return to the initiallogin menu	Success

This information system (ViMoIS) is believed to be able to improve the effectiveness of the performance of Counselling teachers. It can be helpful for student compliance in obeying every order imposed in the school. With the notification feature via WhatsApp to Parents/Guardians, Students are reluctant to commit violations because Parents can immediately find out about their actions at school. In addition, recording using this information system can be more effective since manually created data is vulnerable to damage and even loss.

## CONCLUSION

The ViMoIS at one of the schools in *Gresik* can operate as needed. With the implementation of the Student Violation Point Monitoring Information System, the process of storing Student violation data and calculating violation points has been automated by the system; besides that, student guardians can easily monitor students in their schools through WhatsApp notifications from the system. The system has been tested with the black box method and runs well and smoothly.

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