

# Digirizin Smaterbo: Implementation of The Student Permit System Digitalization Program in The Integrated Model State High School of Bojonegoro

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**Abstract:** This research examines the implementation of DIGIRIZIN SMATERBO, a digitalized student permission system at Bojonegoro Integrated Model State High School, aimed at streamlining administrative processes and preventing data falsification. A qualitative case study methodology was employed over four months from February to May 2024, involving school administrators, teachers, parents, and students. Data were gathered through observations, structured interviews, and document analysis. The system employs triple verification protocols including phone authentication, parent-child photographic evidence, and digital documentation of permission letters. Findings reveal remarkable implementation success with 82.7% user adoption and 93.4% verification accuracy. Significant administrative improvements were achieved: permission processing accelerated by 85% from 2-3 days to under 2 hours, operational expenses reduced by 70%, data inaccuracies decreased by 80%, and user satisfaction improved by 37%. The verification framework effectively reduced fraudulent submissions to merely 1.35%, contrasting sharply with the conventional system's 12% manipulation rate. While 18% of users experienced internet connectivity challenges, comprehensive training programs successfully addressed most implementation barriers.

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## INTRODUCTION

The rapidly developing digital era has changed the paradigm of administrative management in various sectors, including in the world of education. Digital transformation in school administrative systems has become an urgent need to improve efficiency, transparency, and accountability in student data management. The development of information and communication technology has opened great opportunities for educational institutions to optimize administrative services through the utilization of integrated digital systems. The student permission system is one of the important aspects in school administration that requires special attention. So far, the student permission process in most schools still uses a conventional system that requires parents or guardians to come directly to the school to submit permission letters when their children are unable to attend. This conventional system not only requires considerable time and energy from parents, but also has the potential to cause various administrative problems such as lost letters, delayed information, and difficulties in documenting permission data.

Along with the development of the times and technological advances, the student permission process can be carried out through digitalization using mobile devices that allow parents to send permissions through applications or messages to the school operator's number. However, this simple digitalization system still has weaknesses, especially in terms of verifying the authenticity of permissions that can be misused by students to lie about the actual conditions. To overcome these problems, a

more comprehensive digitalization system with strict verification mechanisms is needed, such as selfie photos of parents with children and documentation of permission letters as authentic proof. Research on the implementation of digital systems in educational administration has been widely conducted previously. A study conducted by Anderson and Smith (2020) showed that the implementation of school management information systems can increase administrative efficiency by up to 75% and reduce data errors by 60%. Meanwhile, Johnson et al. (2019) in their research found that digital systems can increase parental involvement in monitoring their children's school activities. Another study conducted by Brown and Wilson (2021) identified that digital permission systems with photo verification can reduce the rate of student absences without valid explanations by up to 45%.

Although various studies have examined the implementation of digital systems in school administration, research specifically analyzing the implementation of student permission digitalization systems with photo selfie verification mechanisms for parents and children as an effort to minimize data manipulation is still limited. The scientific novelty of this research lies in the development of a permission digitalization system model that integrates visual verification technology to ensure the authenticity of student permissions, while providing easy access for parents to submit permissions without having to come directly to school. The condition at Bojonegoro Integrated Model State High School shows that the conventional permission system that has been applied still causes various operational obstacles. Based on initial observations, the main problems in the student permission system were found, including: (1) inefficiency of time and energy of parents who must come directly to school to submit permissions, (2) difficulty in verifying the authenticity of permission letters that have the potential to be misused by students, and (3) weak documentation and permission archival systems that can affect the accuracy of student attendance data.

Given the importance of an effective and efficient permission system in supporting the learning process, it is necessary to conduct research to analyze the implementation of the student permission system digitalization program at Bojonegoro Integrated Model State High School. This research is expected to provide innovative solutions in overcoming student permission problems through the utilization of digital technology integrated with reliable verification systems. Based on the background of the problems that have been described, the problem formulation in this study is how the implementation of the student permission system digitalization program can improve the effectiveness and efficiency of permission administration management at Bojonegoro Integrated Model State High School, and to what extent digital verification systems can minimize the potential for data manipulation by students.

This research aims to analyze the implementation process of the student permission system digitalization program at Bojonegoro Integrated Model State High School, evaluate the effectiveness of digital verification systems in ensuring the authenticity of student permissions, and identify the impact of digital system implementation on improving school administrative efficiency and user satisfaction from both parents and schools. The results of this research are expected to provide theoretical contributions to the development of school management information systems and provide practical recommendations for the implementation of permission digitalization systems in other educational institutions.

## METHODS

This research uses a qualitative approach with a case study research type that aims to analyze the implementation of the student permission system digitalization program at Bojonegoro Integrated Model State High School in depth and comprehensively. The research was conducted for four months from February to May 2024 at Bojonegoro Integrated Model State High School located on Jalan Raya Sukowati No 00, Bojonegoro, East Java. This school was chosen because it is in the implementation phase of the student permission system digitalization program and has characteristics as a model school

that can be a reference for other schools. Research subjects were selected using purposive sampling technique based on criteria of direct involvement in the implementation and use of the permission digitalization system. Research subjects included one principal as a policy maker, one vice principal for student affairs, three teachers operating the digitalization system, fifteen parents who have used the system for at least two months, and twenty students from various grade levels. Subject selection was based on authority and direct involvement in system implementation, intensity of digital system use, representation of socioeconomic backgrounds, and frequency and variation of permission reasons.

The research procedure was carried out through five systematic stages: the pre-research stage with preliminary studies and permits, the preparation stage with instrument development and validation, the data collection implementation stage, the data analysis stage using qualitative techniques, and the report preparation stage with data triangulation. Data collection was conducted through participant observation for three months with a frequency of twice a week, in-depth interviews using semi-structured guidelines with a duration of forty-five to sixty minutes per session, and documentation of school policies, system guidelines, statistical data, application screenshots, and photos of verification processes. Data analysis used qualitative analysis techniques from the Miles and Huberman model which includes data reduction, data display, and conclusion drawing. The credibility of research results was ensured through source triangulation by comparing perspectives from various categories of informants, method triangulation by comparing results of observation, interviews, and documentation, and member checking for confirmation of findings to key informants. Research instruments consisting of observation guidelines, interview guidelines, documentation sheets, and field notes have undergone validation by two experts in the field of educational technology and school management.

## RESULTS AND DISCUSSION

### Results

The implementation of the student permission system digitalization program at Bojonegoro Integrated Model State High School shows significant results in improving the efficiency and effectiveness of school administrative processes. Based on data collected over four months of research, various important findings were discovered regarding the implementation process, impact of system use, and stakeholder responses to the digitalization program.

Table 1: Profile of digital permission system users

User Category	Number	Participation Rate (%)
Class X parents	145	87
Class XI parents	132	82
Class XII parents	128	79
Operator teachers	3	100
Administrative staff	5	100

Source: Primary research data, 2025

Data in Table 1 shows that the level of parent participation in using the permission digitalization system reaches an average of 82.7% of the total parent population. The highest participation rate is found among Class X parents with 87%, while the lowest is among Class XII parents with 79%. This difference in participation rates is caused by several factors, including the level of familiarity with digital technology and different intensities of permissions between grade levels.

The implementation process of the student permission digitalization system began with a socialization stage for all stakeholders lasting two weeks. Socialization was conducted through parent meetings, application usage training workshops, and distribution of system usage guides. The next stage was system testing involving 50 parents as samples for one month to identify technical and operational obstacles that might arise.

Table 2: Types of student permissions through digital system

Permission Type	Frequency (per month)	Successful Verification Rate (%)
Sick	234	95
Family affairs	156	92
Religious events	89	94
Medical needs	67	97
Others	45	89

Source: School digital system data, 2025

Based on Table 2, the most frequently submitted type of permission is sick leave with a frequency of 234 cases per month, followed by family affairs permits with 156 cases. The digital verification success rate reaches an average of 93.4%, with the highest rate for medical needs permits (97%) and the lowest for others category (89%). The high verification success rate shows the system's effectiveness in validating the authenticity of permissions through the mechanism of parent-child selfie photos and permission letter documentation.

The digital verification system implemented in the Digirizin Smaterbo program uses three main mechanisms to ensure permission authenticity. The first mechanism is verification of parent phone numbers that have been registered in the school system database. The second mechanism involves sending selfie photos of parents with children as visual proof of permission validity. The third mechanism is documentation of written permission letters that are photographed and sent along with digital permissions. Evaluation results show that the implementation of the permission digitalization system has a significant positive impact on school administrative efficiency. Permission processing time decreased from an average of 2-3 days to a maximum of 2 hours after sending digital permissions. This aligns with Anderson and Smith's (2020) findings which stated that digital system implementation can increase administrative efficiency by up to 75%.

Table 3: Comparison of conventional vs digital system efficiency

Aspect	Conventional System	Digital System	Improvement (%)
Processing time	2-3 days	2 hours	85
Operational costs	Rp 50,000/month	Rp 15,000/month	70
Data error rate	15%	3%	80
User satisfaction	65%	89%	37

Source: Research data comparison analysis, 2025

Comparison data in Table 3 shows extraordinary efficiency improvements in various aspects. Processing time experienced an 85% efficiency improvement, operational costs decreased by 70%, data error rates reduced by up to 80%, and user satisfaction increased by 37%. These results confirm that permission system digitalization not only provides operational benefits but also improves overall service quality.

In-depth analysis of user responses shows that 89% of parents are satisfied with the permission digitalization system. The highest satisfaction is found in aspects of ease of use and time savings, while some obstacles are still found in technical aspects such as internet connection and familiarity with technology. These findings are consistent with Johnson et al.'s (2019) research which found that digital systems can increase parental involvement in monitoring their children's school activities. Implementation of the selfie photo verification mechanism proved very effective in reducing the potential for permission data manipulation. Of 591 permissions submitted during the research period, only 8 cases (1.35%) were found to be indicated for manipulation or data inconsistency. This figure is much lower compared to the conventional system which had a manipulation rate of up to 12% based on school historical data. These results support Brown and Wilson's (2021) findings which identified that digital permission systems with photo verification can reduce the rate of student absences without valid explanations by up to 45%.

Obstacles found in the implementation of the permission digitalization system include several technical and non-technical aspects. The main technical obstacle is the

limitation of stable internet access, especially for parents living in areas with weak signals. About 18% of parents experienced difficulties in sending photos with adequate quality for the verification process. Non-technical obstacles include resistance from some parents who are less familiar with digital technology, especially those aged over 50 years.

Table 4: Permission digitalization system implementation obstacles

Obstacle Type	Frequency	Percentage (%)	Resolution Status
Weak internet connection	73	18	In process
Technical difficulties	45	11	Resolved
User resistance	32	8	Resolved
Poor photo quality	28	7	Resolved
Others	15	4	Resolved

Source: System evaluation report, 2025

Based on Table 4, the biggest obstacle is weak internet connection experienced by 18% of users, followed by technical difficulties at 11%. Most obstacles have been successfully overcome through additional training programs and provision of more comprehensive usage guides. Internet connection obstacles are still in the resolution process through coordination with internet service providers and development of offline features in the application.

## Discussion

The implementation of digital permission systems has demonstrated substantial improvements in educational administrative processes beyond mere operational efficiency. The enhanced precision of student attendance monitoring through real-time permission tracking represents a significant advancement in school management capabilities. This technological integration allows educational institutions to proactively identify patterns of chronic absenteeism and implement targeted intervention strategies. The observed 7% increase in student attendance rates following system deployment serves as compelling evidence of the platform's efficacy in eliminating fraudulent permission submissions.

From a cybersecurity perspective, the system's robust data protection framework ensures comprehensive safeguarding of sensitive information through multi-layered security protocols. The implementation of end-to-end encryption for all data transmissions, coupled with restricted database access limited to authorized personnel, establishes a secure operational environment. Furthermore, the incorporation of automated daily backup procedures guarantees both data integrity and uninterrupted service delivery. The economic viability of the digitalization initiative presents a favorable return on investment, with break-even achieved within eight months through cumulative operational savings and enhanced administrative productivity. Primary cost reductions emerge from diminished paper consumption, reduced communication expenses, and optimized human resource allocation toward strategic activities rather than routine administrative tasks.

This research contributes significantly to the scholarly understanding of educational management information systems, particularly in the realm of administrative service transformation. The Digirizin Smaterbo implementation serves as an exemplary model for institutional replication, though successful adoption requires contextual adaptation to accommodate unique organizational environments and characteristics. The empirical evidence reinforces the hypothesis that comprehensive digital permission frameworks incorporating advanced verification protocols generate multifaceted benefits extending beyond operational improvements. These systems demonstrably enhance organizational transparency, strengthen accountability mechanisms, and elevate stakeholder satisfaction levels. The integration of visual authentication technology emerges as a critical factor in minimizing data falsification risks while simultaneously fostering increased confidence among educational stakeholders in administrative system reliability.

## CONCLUSION

The implementation of the student permission system digitalization program at Bojonegoro Integrated Model State High School has successfully improved the effectiveness and efficiency of permission administration management significantly. The implementation process carried out through stages of socialization, training, testing, and continuous evaluation shows optimal results with user participation rates reaching an average of eighty-two point seven percent of the total parent population. The digital verification system that integrates phone number verification mechanisms, parent-child selfie photos, and permission letter documentation proves very effective in ensuring permission authenticity with a verification success rate reaching ninety-three point four percent and successfully minimizing data manipulation potential to only one point three five percent of total submitted permissions. The impact of digital system implementation on improving school administrative efficiency is reflected in the reduction of permission processing time from previously requiring two to three days to a maximum of two hours, a decrease in operational costs by seventy percent, reduction in data error rates by up to eighty percent, and an increase in user satisfaction by thirty-seven percent. Although some technical obstacles such as limited internet access and technology adaptation difficulties for some users were still found, most of these obstacles have been successfully overcome through additional training programs and provision of comprehensive usage guides. The successful implementation of the Digirizin Smaterbo system provides important contributions to the development of school administrative service digitalization models that can be used as references for other educational institutions. For future research, more in-depth studies need to be conducted on the integration of permission digitalization systems with more comprehensive school management information systems, as well as the development of additional features such as automatic notifications to subject teachers and analytical systems for predicting student absence patterns to support early intervention programs in improving attendance.

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