

Analysis of the Implementation of a Fingerprint-Based Biometric Attendance System in Improving Employee Discipline at the Muko-Muko Bathin VII Sub-district Office

Yuriski Pratiwi^{1*}, Rahmat Hidayat², Dwi Putranto Riau³

¹ Universitas Terbuka, Jambi, Indonesia

² Universitas Terbuka, Jambi, Indonesia

³ Universitas Terbuka, Jambi, Indonesia

Corresponding Author: Yuriskipratiwi1708@gmail.com

DOI: <https://doi.org/10.47431/jirreg.v9i2.628>

Article Info

Article History;

Received:

2025-09-25

Revised:

2025-10-02

Accepted:

2025-12-01

Abstract: This study aims to analyze the implementation of a fingerprint-based biometric attendance system and its impact on employee discipline at the Muko-Muko Bathin VII Sub-district Office, Bungo Regency. In today's digital era, the use of technology in human resource management is increasingly important to improve efficiency and accountability. The method used in this study is a mixed methods approach, which combines quantitative and qualitative analysis to provide a comprehensive picture of the effectiveness of the attendance system. Data were collected through questionnaires distributed to employees, in-depth interviews with management, and direct observation of the attendance process. The results of the study indicate that the implementation of a fingerprint attendance system provides convenience in recording attendance and increases the accuracy of employee attendance data, thus supporting better human resource management. However, challenges such as lack of employee understanding of the importance of discipline and technical problems in using the system are still obstacles to its implementation. Routine evaluation of the system and training for employees are needed to improve the effectiveness of the implementation of this system. This research is expected to contribute to the development of employee management policies and the application of technology in government agencies, as well as to encourage increased employee discipline and productivity. Thus, this research does not only focus on the technical aspects of the biometric attendance system, but also considers human factors that influence the success of the application of the technology. It is expected that the results of this study can be a reference for other agencies in implementing similar systems and improving the quality of employee management.

Keyword: *Biometric Attendance System, Employee Discipline, Fingerprint, Employee Management, Digital Governance*

INTRODUCTION

Analysis In today's digital era, transformation in government management is critical to improve the efficiency and effectiveness of public services. One significant innovation in this regard is implementing a fingerprint-based biometric attendance system designed to ensure that employee attendance is recorded accurately and transparently. On-time employee attendance is one indicator of discipline that directly impacts organizational performance (Hidayat & Yanda, 2024) With this biometric attendance system, it is hoped that there will be a significant reduction in the absence problems faced by many government agencies, which are often vulnerable to data manipulation and inaccuracy. Implementing this technology not only increases the reliability of attendance recording but also motivates employees to maintain better work discipline. In addition, the transparency presented by this system can build trust between institutional managers and the public because employees who are present on time will find it easier to monitor and evaluate their performance. In the long term,

implementing this biometric attendance system is expected to encourage the creation of a more disciplined and productive work culture in the government environment, which in turn will provide better public services that are responsive to community needs. The discipline of civil servants (PNS) and state civil apparatus (ASN) is a key factor in achieving organizational goals. Good discipline contributes to increased productivity and creates an orderly and efficient work environment.

However, maintaining employee discipline remains problematic for many government agencies, including the Muko-Muko Bathin VII Sub-district Office. Initial observations show that even though the fingerprint attendance system has been implemented, employees still are not disciplined in carrying out their duties. The discipline of civil servants (PNS) and state civil apparatus (ASN) is a key factor that cannot be ignored in efforts to achieve organizational goals effectively and efficiently. Good discipline in the work environment contributes to increased productivity and creates an orderly, harmonious work atmosphere that supports collaboration between employees. With high discipline, organizations can operate more optimally, avoid delays in completing tasks, and improve the quality of services provided to the public. However, maintaining employee discipline is still a significant issue for many government agencies, including the Muko-Muko Bathin VII Sub-district Office. Initial observations show that even though the fingerprint-based attendance system has been implemented to monitor employee attendance, several employees still show indiscipline in carrying out their duties and responsibilities. Several factors may contribute to this problem, such as a lack of motivation, an unclear understanding of the importance of discipline, and a work culture that is not yet fully supportive.

This condition requires special attention and a more comprehensive strategy to improve employee discipline. Stricter enforcement of discipline, increased training programs that focus on awareness of the importance of discipline, and continuous coaching are steps that can be taken to strengthen employee commitment to their duties and responsibilities. In addition, involving employees in developing and implementing disciplinary policies can create a greater sense of ownership and responsibility for the work environment. Thus, efforts to improve discipline will not only have a positive impact on the employees themselves but also on the overall performance of the organization in providing quality public services (Hidayat & Yanda, 2024).

This study aims to analyze the implementation of a fingerprint-based biometric attendance system and its impact on employee discipline at the Muko-Muko Bathin VII Sub-district Office. Although implementing the fingerprint attendance system is expected to improve ASN discipline, various challenges still exist. Lack of employee understanding of the importance of work discipline, technical problems in the use of attendance tools, and minimal supervision from leaders hinder this system's effectiveness. Therefore, this study will also explore efforts that can be made to support the implementation of this system so that it can run more optimally. For example, intensive training on attendance tools, increasing communication between leaders and employees, and implementing a more effective monitoring system can be relevant solutions (Sari, 2023).

It is expected that the results of this study can provide valuable insights for the development of employee management policies, as well as assist government agencies in understanding and overcoming the challenges faced in implementing technology. Thus, the implementation of fingerprint-based biometric attendance is expected to create a more disciplined, productive, and quality work environment in providing services to the community. This study is also expected to be a reference for other agencies that want to implement a similar system, so that it can increase efficiency and effectiveness in employee management across all government sectors (Prasetyo, 2024).

Implementing this attendance system can be understood as an action that practices technology to achieve specific goals in employee management. According to Rohida (2018), the implementation includes individuals who work in organizations and have responsibilities according to their positions. In this case, Civil Servants (PNS) and Government Employees with Work Agreements (PPPK) are the

primary focus, both regulated in Law Number 5 of 2014, emphasizing the importance of professionalism and integrity in carrying out duties. As explained by Juana (2022), management is the process of achieving desired goals by arranging existing resources. In the context of public management, managing public affairs involves planning, organizing, and controlling aspects of human resources and finance (Rizky & Subowo, 2016). The normative management approach suggests that organizational effectiveness is measured by how healthy activities are planned and controlled, which is very relevant in the implementation of a biometric attendance system

Employee performance, or performance, is the work result achieved by individuals in carrying out their duties. Tsafifah et al (2017) explain that performance is the result obtained by an organization in a specific period. The importance of a civil servant performance management system is regulated in Government Regulation Number 30 of 2019, which emphasizes the need for performance evaluation to improve the effectiveness of public services. Meanwhile, digital governance refers to the government's use of information technology to improve efficiency, transparency, and public participation. The principles of digital governance, such as transparency, accountability, and public participation, are essential in creating a more open government that is responsive to the community's needs. Implementing a fingerprint-based biometric attendance system supports these principles, as it can improve the accuracy of attendance recording and reduce the potential for fraud.

Fingerprints or fingerprints as biometric technology have wide applications in attendance systems. According to Atmega et al (2015), this technology can record employee attendance more accurately, improve employee discipline, and facilitate the processing of attendance data. However, using this technology has drawbacks, such as errors in identification and the need for routine maintenance. Employee discipline is an important aspect of civil servant management that can improve the effectiveness of public services. According to Government Regulation 53 of 2010, discipline includes evaluation indicators such as attendance rate, punctuality, employee satisfaction, participation, work productivity, and errors and technical problems. By understanding this concept of discipline, we can evaluate the effectiveness of the biometric attendance system and its impact on employee performance at the Muko-Muko Bathin VII Sub-district Office.

RESEARCH METHOD

The methodology of this study uses a mixed methods approach, which is a combination of quantitative and qualitative methods, to obtain more comprehensive data on the implementation of a fingerprint-based biometric attendance system at the Muko-Muko Bathin VII Sub-district Office, Bungo Regency. The study began with determining the population, which included the Sub-district Head, Sub-district Secretary, Sub-division Head, and 25 employees at the Sub-district Office. The sampling process was carried out using a purposive sampling technique, which aims to selectively select respondents based on specific criteria, resulting in 28 respondents who were considered relevant and had adequate knowledge and experience related to this biometric attendance system.

The research instruments used were questionnaires, direct observation, and in-depth interviews, all of which were carefully designed to measure the effectiveness of the biometric attendance system and its impact on employee discipline. Before being used widely, instrument validity and reliability tests were carried out to ensure that the measuring instrument used was reliable and met the research objectives. The instrument trial was conducted on 20 randomly selected respondents, and the results were analyzed using SPSS statistical software to determine the level of validity and reliability of each question item in the questionnaire.

The data collection process was carried out through two main approaches: literature study and field study. The literature study aims to obtain relevant theories and support the research context. In contrast, the field study includes direct observation of the implementation of the biometric attendance

system, in-depth interviews with respondents, and the collection of related documentation that supports the analysis.

After the data was collected, the analysis was carried out simultaneously using two approaches. Quantitative analysis uses descriptive statistics to describe the collected data, providing an overview of the use of the attendance system and its impact on employee discipline. Meanwhile, qualitative analysis is carried out by reducing, presenting, and drawing conclusions from data obtained through interviews and observations, allowing researchers to understand the context and nuances in the implementation of the system.

With this holistic methodological approach, the study is expected to provide a clear and in-depth picture of the impact of implementing the biometric attendance system on employee work discipline at the Muko-Muko Bathin VII Sub-district Office and contribute to the development of employee management policies in the wider government environment.

RESULT AND DISCUSSION

A. Descriptive Quantitative Data

In this study, the variables analyzed for implementing a fingerprint-based biometric attendance system are divided into three leading indicators: Practicality, Accuracy, and Security.

1. Practical Variable

The data obtained clearly shows the practicality of using the fingerprint attendance system. The frequency distribution analysis indicates that the implementation of fingerprint attendance is considered likely for carrying out the attendance process, with an average score of 3.18 and a TPR (Respondent Percentage Level) of 79.5%. This shows that most employees feel that this system is quite helpful for them in fulfilling their attendance obligations, so it is categorized in the "Enough" category. In addition, the convenience provided to employees in carrying out attendance is also well reflected, where they get an average score of 3.11 (TPR 77.7%), which shows that they feel this system is helpful, although still in the "Enough" category. In addition, calculating monthly attendance is stated to be more practical with the same score, namely 3.18 (TPR 79.5%). These results indicate that the biometric attendance system makes it easier for employees to make daily attendance and simplifies the administrative process of calculating monthly attendance. From these results, it can be concluded that although this fingerprint attendance system provides various conveniences, there is still significant room for improvement, especially in efforts to increase system efficiency and reduce the possibility of employee tardiness. Thus, more attention should be paid to socialization and training for employees to utilize this system optimally.

2. Accuracy Variable

The accuracy indicator shows varying results. Some aspects measured are:

Data recording accuracy has a score of 3.04 (TPR 75.9%), which indicates sufficient accuracy. System accuracy shows promising results with a score of 3.5 (TPR 87.5%). Direct attendance is recorded accurately in the database with a score of 3.25 (TPR 81.3%). Overall, the fingerprint system has proven to record attendance accurately, but challenges in technical use still need to be addressed to improve data reliability.

3. High-Security Variable

The high-security indicator provides an overview of system security. The results are:

The risk of manipulation in the fingerprint system media is relatively low, with a score of 2.75 (TPR 68.8%). Use by unauthorized parties gets a score of 3.5 (TPR 87.5%), indicating reasonable

access control. Although this system shows a relatively good level of security, areas still need to be improved to prevent further manipulation.

B. Qualitative Data Descriptive

Qualitative data was collected through in-depth interviews with sub-district heads and several representatively selected employees. Through these interviews, several key points were identified that provided valuable insights into the effectiveness of the fingerprint attendance system and the challenges faced in its implementation:

1. **Employee Awareness:** One of the prominent findings was that there were still employees who were late even though the fingerprint attendance system had been widely implemented. This indicates a fundamental problem related to the lack of awareness of the importance of time discipline among employees, which needs to be addressed immediately through a more comprehensive approach.
2. **Motivation to Work:** Although the fingerprint attendance system has been implemented to improve discipline, interviews revealed that employees are still not motivated to arrive on time. This finding highlights organizational culture factors that must be improved and enhanced to create a more conducive and motivating work environment for all employees.
3. **Adaptability:** Some employees indicated that they had not fully adapted to the new system, and there were indications that they had difficulty using the fingerprint system. This underlines the need for more intensive training and mentoring for employees so that they can master this system well and feel more comfortable using it.
4. **Implementation Obstacles:** Several technical obstacles and human errors remain in implementing the fingerprint attendance system. For example, technical problems prevent employees from taking attendance on time, which can cause frustration and reduce the system's effectiveness as a whole. Therefore, technical improvements and increasing system reliability are significant to ensure the smooth running of the attendance process.
5. **Routine Evaluation:** Attendance reports are carried out periodically, which helps management monitor employee performance and identify problems that may arise. This shows a commitment from management to continue monitoring and evaluating the effectiveness of the fingerprint attendance system and making necessary improvements to ensure it functions optimally.

DISCUSSION

The study results indicate that implementing a fingerprint-based biometric attendance system at the Muko-Muko Bathin VII District Office, Bungo Regency, has good potential to improve employee discipline. However, significant challenges still need to be overcome to achieve the full effectiveness of this system.

Practical Level and Its Impact

Although the fingerprint attendance system is considered practical, challenges in implementation are still visible. Some employees are still late even though this system has been implemented. This shows that technology alone is not enough to change employee behavior. More intensive socialization regarding the benefits and use of this system is needed so that employees are aware of the importance of time discipline.

Data Accuracy and Accuracy

The fingerprint system shows good accuracy in recording attendance. However, the study's results also show that although this system can reduce manipulation, there is still a need for improvement in accuracy. Technical problems, such as errors in reading fingerprints, must be addressed to make attendance data more accurate and reliable.

Security Aspect

Although this system shows potential in preventing manipulation, several indicators are still categorized as "Sufficient." This indicates that further supervision and improvement are needed to ensure system security. Stricter policies regarding usage and access control will significantly help improve the system's effectiveness.

Organizational Culture Factors

An organizational culture that is tolerant of lateness is also an actor that influences employee discipline. Management involvement in creating a work culture that supports time discipline is significant. Implementing rewards for disciplined employees and consequences for those who are late can encourage positive behavioral changes.

Evaluation and Feedback

Regular evaluation of the effectiveness of the attendance system must be carried out to identify problems and find solutions. Employee feedback should also be considered to improve the system. By conducting regular evaluations, management can take the necessary steps to ensure that the biometric attendance system functions optimally.

Implementing a fingerprint-based biometric attendance system at the Muko-Muko Bathin VII Sub-district Office has shown promising results. Although there has been some progress in accuracy and ease, challenges in employee discipline and technical issues still need to be overcome. With stricter policies, practical training, and regular evaluations, this system can improve employee performance and create a more disciplined work environment.

CONCLUSION

The implementation of a fingerprint-based biometric attendance system at the Muko-Muko Bathin VII Sub-district Office has shown significant promise in enhancing employee attendance and mitigating attendance-related fraud. This system has effectively improved the accuracy of attendance records, yet its influence on enhancing employee discipline remains somewhat limited. Key factors such as individual motivation, organizational culture, and a strong awareness of work discipline are essential for achieving overall performance improvements. While the system offers convenience and technological advancement, challenges related to employee adaptation are evident. Many employees exhibit insufficient training and motivation to fully leverage this technology. Addressing these challenges is vital; comprehensive training programs and ongoing supervision are crucial to ensure that all employees not only understand the system's functionality but also recognize the importance of punctuality in their roles.

The findings underscore the necessity of involving employees in the implementation process. Such involvement not only fosters a sense of ownership but also enhances commitment to maintaining discipline within the workplace. To maximize the benefits of this attendance system, it is imperative for government agencies to take these insights into account when considering similar technological implementations.

Moving forward, it is recommended that agencies prioritize practical training and socialization efforts, enhance ongoing supervisory measures, and address any technical issues that may arise. These steps are essential to fully harness the potential of the biometric attendance system.

Moreover, this study advocates for further research into complementary organizational practices that can more directly influence employee discipline and performance. By exploring these avenues, agencies can continue to improve their employee management strategies and foster a more disciplined, efficient, and high-quality work environment. Ultimately, the fingerprint attendance system can serve as a valuable tool in elevating public service quality, benefiting both employees and the communities they serve.

ACKNOWLEDGEMENT

This section is provided for the author to express his gratitude either for the research funders or the other parties who contribute into research realization.

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