

STREAMLINING ATTENDANCE WITH A QR CODE SYSTEM

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ABSTRACT - This paper presents a QR-based attendance system designed to streamline and automate the attendance tracking process in educational institutions and corporate environments. The traditional methods of attendance, such as roll calls or sign-in sheets, are often time-consuming and prone to errors. By leveraging Quick Response (QR) codes, this system enables efficient and accurate attendance recording. Students or employees can scan a unique QR code displayed in their classroom or workplace using their smartphones, which instantly logs their presence in a secure database. The implementation of this system not only enhances efficiency but also provides real-time analytics for attendance patterns, helping educators and administrators make informed decisions. Our study demonstrates the feasibility and effectiveness of this QR-based approach, highlighting its potential to improve attendance management across various sectors.

Keywords – QR Code, attendance, system, professor, student.

I. INTRODUCTION

Accurate attendance tracking is essential for educational institutions and organizations, serving as a vital component for assessing participation, engagement, and compliance. Traditional attendance methods, including manual roll calls and paper-based sign-in sheets, are often inefficient, leading to inaccuracies and significant time consumption. With the rise of digital technology, there is a

growing need for innovative solutions that simplify and automate this process.

A QR-based attendance system offers a modern alternative by utilizing the capabilities of smartphones and QR code technology. Each classroom or workplace can generate a unique QR code that represents a specific session or event. Attendees simply scan the code with their mobile devices, allowing the system to automatically record their attendance. This approach not only reduces administrative overhead but also enhances the accuracy of attendance records.

In this study, we aim to develop and evaluate a QR-based attendance system that addresses the limitations of traditional methods. By integrating features such as real-time data logging, user-friendly interfaces, and secure data storage, we seek to create a comprehensive solution that can be easily adopted in various environments.

II. LITERATURE SURVEY

The implementation of QR codes for attendance management has gained traction in recent years, with several studies highlighting their benefits over traditional methods. Research indicates that QR codes can significantly reduce the time required for attendance taking while minimizing the potential for human error (Sukanya et al., 2020). By eliminating the need for manual record-keeping, institutions can allocate more

time to educational activities and enhance overall productivity.

Several existing systems have utilized QR codes for attendance tracking, demonstrating successful outcomes in educational settings (Jain et al., 2019). These systems typically incorporate mobile applications that allow users to scan codes, with backend databases to securely store attendance records. Some implementations even provide analytics tools for tracking attendance trends and patterns, aiding educators in identifying students who may require additional support.

Despite the advantages, challenges remain in the widespread adoption of QR-based systems. Issues related to device compatibility, internet connectivity, and user training must be addressed to ensure effective implementation (Kumar et al., 2021). Additionally, considerations regarding data privacy and security are paramount, as attendance records can contain sensitive information.

In summary, the literature suggests that QR-based attendance systems present a viable solution for improving attendance tracking in various contexts. By leveraging the convenience of mobile technology and QR codes, these systems can enhance accuracy, efficiency, and data analysis capabilities.

III. PROPOSED SYSTEM

This section describes the various tools and techniques used in creating an online attendance system using QR code and all the operation of the system. A QR Code is a two-dimensional barcode that is readable by smartphones and allows the encoding of over 4000 characters in a two-dimensional barcode.

QR Codes may be used to display text to the user, to open a URL, save a contact to the address book or to compose text messages. "QR Code" is a registered trademark of Denso Wave Incorporated. A QR code can be read by almost all mobile phones and webcams in web browser [8].

The proposed model (Figure 1) is divided into three modules: the first module is the module of the administrators, which consists of 3 types: admin, head of study program and administrator of the study program. The role of the main Administrator is to backup the system and database, edit it, manage and insert professors, students, faculty, study programs, as well as create heads of study programs and administrators for the respective study programs. On the other hand, the head of the study program has the opportunity for the semester to make a schedule for the professors, by setting the time when the class will be held, adding departments to the respective program, and the administrator of the study program is responsible to select the courses that the respective student should attend during that semester.

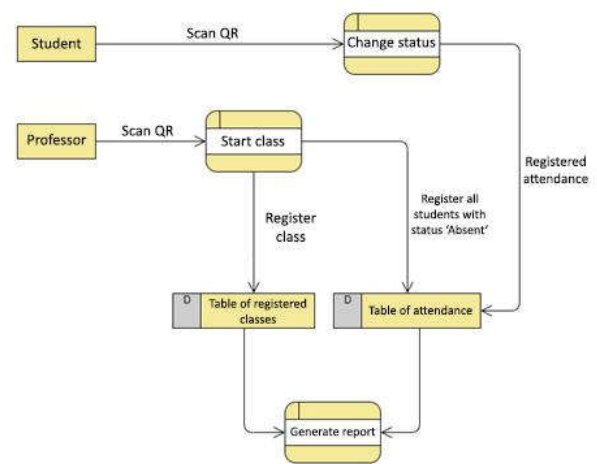


Fig 1. Proposed Model Architecture

IV.CONCLUSION

In conclusion, the QR-based attendance system represents a significant advancement in attendance management for educational and organizational environments. By streamlining the attendance process and utilizing mobile technology, this system not only enhances efficiency but also provides valuable insights through real-time data analytics. While challenges such as device compatibility and data security must be addressed, the benefits of adopting a QR-based approach are clear. As organizations increasingly seek to integrate technology into their operations, this system offers a practical solution that can improve attendance tracking and contribute to better engagement and accountability. Future work will focus on optimizing the system for broader adoption and exploring additional features to enhance its functionality.

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