

# MONITORING STAFF PRESENCE THROUGH QR CODE SCANNING

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## ABSTRACT

This project proposes a system for efficiently monitoring staff presence using QR code scanning technology. Traditional attendance tracking methods often suffer from inefficiencies and inaccuracies, leading to challenges in workforce management. The proposed solution leverages the simplicity and speed of QR code scanning to enhance the accuracy and convenience of staff presence monitoring.

The system involves the generation of unique QR codes for each staff member, which are displayed prominently at their respective workstations. Staff members use a dedicated mobile application equipped with a QR code scanner to register their presence by scanning the code upon arrival. The scanned data is then transmitted in real-time to a centralized database, providing instant and accurate attendance information.

## I. INTRODUCTION

It is necessary to improve the efficiency of the organization, and in light of the conditions that the world is suffering from due to Covid-19, in addition to the traditional means used by institutions at present, such as fingerprint devices and paper, which were causing congestion when completing Regular attendance in all organizations, whether educational or at the corporate level, is attendance processes. This process takes a long time, especially when the numbers are large, and in light of the current circumstances and with the spread of Covid-19 and the need to achieve social distancing, it was necessary to have an easy solution that ensures the 2 accuracy and speed of the processes of attendance and departure of employees while maintaining their safety and saving time and effort to complete this process. That is why we thought of developing an easy-to-use application to record attendance and leave processes for all students and employees. This paper proposed Attendance management system is an easy-to-use smart system

based on (Face recognition- Fingerprint - QR code) to record the attendance and departure of all students and employees, in addition to integrating an Android device with databases to store attendance results, moreover, analyzing attendance on a weekly and monthly basis and the main objective of the automated attendance system It is calculating the traditional method for recording attendance and providing an efficient and secure method for tracking attendance in organizations. Both the employee and the student will get a free mobile application that they use to take attendance and leave. The main objective of the Automated Attendance System is to computerize the traditional way of recording attendance and provide an efficient and automated way to track attendance in organizations.

The project rises to avoid the role of paperwork permanently and to automate all procedures equally in all organizations, whether educational or at the corporate level, and thus: (i) Saving time and effort spent in attendance and departure processes in the country.

(ii) Achieving social distancing and privacy for people working under the current global conditions and Covid-19. The professor can very easily monitor and follow the absence, and it is more secure so that no student can be able to register his colleagues and allows the student to follow his absence at any time and easily and know the number of lectures that have been attended. Thus, providing the paper on which the absence was written, and most importantly, preventing hands touching between students to protect against Covid- 19.

## II. LITERATURE SURVEY

**TITLE:** Development of an Employee Attendance System Using Face Recognition and QR-Code Technology

**AUTHOR:** Ogundele I. Oludayo, Akinade A. Oluwatoyin, Akinsola A. Foluso, Ishola P. Eloho

**ABSTRACT:** The procedure of recording

attendance at any organization, including polytechnics and other institutions, is crucial to demonstrating why a particular employee is exceptional. Traditional attendance management systems, which use attendance sheets and signatures, have shown to have some associated issues, including time wastage, impersonation, and attendance sheet misplacement, making the system wasteful and unproductive. Appraising Non-academic staff in Yaba College of Technology has been a great challenge due to the aforementioned problem confronting the management to properly monitored the attendance system put in place with the traditional methods. To solve these problems, the study developed a computerized attendance system that implements face recognition and QR-code was designed and implemented using python programming language, MySQL server database, Tkinter framework was used to build the interface and Open Camera Vision (OpenCV) library. The algorithms for face detection and recognition include Haar cascade algorithm and Local Binary Pattern Histogram (LBPH) algorithm respectively. The system is equipped with the capability to send instant email attendance reports to the management on daily, weekly or monthly basis. The result findings shows that there was 98.8% detection and recognition rates and 0.12% errors encountered for both face and QR-code. The highest read time was also measured to be 210.30ms. The result finding from our test shows the efficiency and effectiveness of the attendance system and it is therefore recommended for use in Yaba College of Technology for attendance monitoring of Non-academic staff for onward appraisal by the HOD, Dean and the college management.

**TITLE: QR code based attendance system**

**AUTHOR: Sujyot Raut\*1, Prajwal Bhure\*2, Parag Bariye\*3, Ashish Nandeshwar\*4.**

**ABSTRACT:** A QR-based attendance system is a modern way of tracking attendance in schools, universities, and other organizations. It uses QR codes to identify students, teachers, and other staff members, making it a fast and efficient way to keep track of attendance. The system consists of two main components: the backend and the frontend. The backend is responsible for managing the database of users, classes, and attendance records. The frontend is the user interface that

allows teachers and students to interact with the system. Another advantage of the system is its accuracy. Because it relies on individual scanning of unique QR codes, it eliminates the possibility of proxy attendance, where students mark each other as present even if they are absent. QR-based attendance systems are also highly customizable. Administrators can easily add new users, classes, and attendance parameters as needed. The system can also be integrated with other software tools, such as student information systems, to provide a seamless experience for users. This system uses QR codes to mark attendance for students, employees, or any group of individuals. The system involves generating unique QR codes for each individual and scanning them using a mobile device or a webcam. The QR code contains information about the individual, including their name, ID number, and any other relevant details. The system eliminates the need for traditional attendance methods such as manual sign-in sheets, roll-calls, or swipe cards. It ensures accuracy, eliminates errors, and saves time. The attendance data is immediately available, making it easy for teachers, supervisors, or administrators to monitor attendance in real-time. The QR code-based attendance system is highly secure as each QR code is unique and can only be used once. The system ensures that only authorized individuals can mark attendance, reducing the risk of fraud or misuse. Moreover, the system is cost-effective and requires minimal infrastructure or maintenance.

**TITLE: QR Code-based Real-Time Intelligent Attendance Covering**

**AUTHOR: Nikhat Akhtar, Km Divya, Vipin Rawat**

**ABSTRACT:** The existing approach has a lot of uncertainty, which makes attendance taking incorrect and wasteful. Whenever the authority is unable to enforce the previous system's regulations, a slew of issues occur. The difficulty with this strategy is that it takes time, and the manual procedure has the potential to produce mistakes in the majority of situations. To address this issue, a QR code was used to track student attendance during lecture hour. The website will mark and check attendance without the need for human interaction by scanning individual QR

codes supplied to students with a Smartphone. The scanned QR code will take you to a page where you can fill out the student's details and save it to a database. The database is available for attendance verification and mobile viewing. Faculty members can use their smartphones to view the attendance list. It is possible to view the attendance sheet that is kept in the database. The major goal of this study is to implement a QR code-based attendance system at the Department of Computer Science and Engineering at Ambalika Institute of Management and Technology (AIMT) in Lucknow, Uttar Pradesh, India, with the goal of improving performance and accuracy.

**TITLE: Application based qr code scan for students' attendance system using image processing**

**AUTHOR : Preeti K. Bhandi,D. A. Kulkarni**

**ABSTRACT:** In all the fields we use smartphones and nowadays it has become part and parcel of our life. We use many updated technologies and materials for studying higher education like applications, online classes, tablets digital learning, etc. All age groups of this generation are more familiar with smartphones. We thought to increase lecture time in classes and universities by this automated android application which uses QR code scans for putting the students' attendance. The QR code is displayed by the lecturer and it is scanned by the students for putting their attendance. This helps to maintain the system of registering students digitally and saves time, it verifies student mobile numbers and it cannot be personified. By this, we can have a systematic way and digital data is maintained and can be viewed anytime.

**TITLE: Smart Attendance Control System Using GPS & QR-Code**

**AUTHOR: ASQR Team\* , Nesma Abd El-Mawla\*\*, Mohamed Ismaiel\*\*.**

**ABSTRACT:** Nowadays, smartphones play a significant role in our daily life. It has made life of every person simple and easier with different social, commercial, problem solving, educational and marketing apps etc., and in view of the necessity of social distancing after Covid-19, we have designed a system that deals with problem of attendance of students and employees in different institutions. Which they were using the paper

purposed system to register their attendance. The proposed system is an attendance system based on the Internet of Things (IOT) technology, through the use of (Face ID - Fingerprint - QR code). Our system can be used in two types of organizations, the first one is for companies, and the attendance is registered through one of the available two features (Face ID or Fi control employee working hours. The second one is for educational institutions, and the system deals with managing and evaluating the attendance of all students. A (Face ID & QR code) will be provided for students to take their attendance. The professor is responsible for determining the attendance of all students of the group or class. Users will need nothing more than their smartphone to confirm their attendance and departure.

### III. SYSTEM ANALYSIS & DESIGN EXISTING SYSTEM

In existing system have seen over the years that the process of manual attendance has been carried out across almost all educational institutions. The process is not only time consuming but also sometimes inefficient resulting in the false marking of the attendance.

Today, we need not maintain pen and paper based attendance registers.

#### DISADVANTAGES

- More man power.
- Time consuming.
- Consumes large volume of paper work.
- Needs manual calculations.
- No direct role for the higher officials.
- Damage of machines due to lack of attention.

#### PROPOSED SYSTEM

- Why an Automated Employee Attendance System using QR Code?"
- Almost 60% of today's attendance information is still paper based.
- 30% of all office time is spent finding documents.
- The average time to manage a single document is 12 minutes, 9 minutes to re-file and 3 minutes to process.
- Hence the requirement is to develop a system that minimizes all these overheads .
- The basis for the project is to develop a employee attendance using QR Code id

cards. This helps admin to maintain attendance information.

**ADVANTAGAES**

- Employees will be more regular as the system notes down the time along with the attendance.
- Since now no attendance sheet signature is required, so no other person can make an attendance on behalf of others as QR Code are unique for every employee.
- No need to maintain attendance sheet as the attendance are electronically stored in database.
- The system helps the admin to easily find out latecomers.
- Admin can easily get attendance history of a particular employee.
- It saves time, cost, efforts and organization resources.

**SYSTEM ARCHITECTURE**

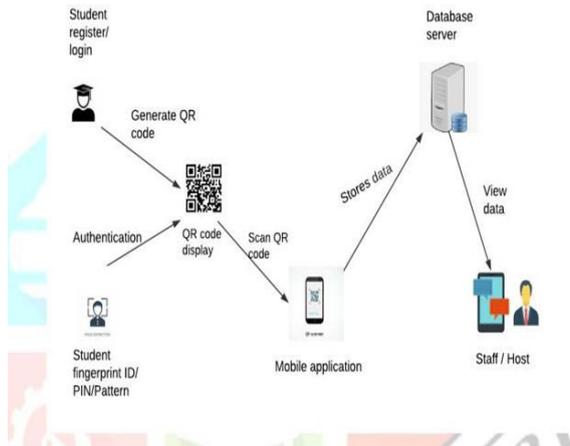


Fig: System Architecture

**IV. IMPLEMENTATION**

**MODULES**

- Admin
- EMPLOYEE

**MODULE DESCRIPTION**

**Admin**

In this application admin is the main module, here admin can login with the specified username and password after successful login he can add employees, can view employees, can generate QRCode to each Employee for their regular attendance, view all verification requests which are sent by the user and verify those request and view all employees attendance and logout.

**EMPLOYEE**

Here employee is a module, if employee wants to get his/her QRCode they must be verify their

mobile number by the admin, for that need to send verification request to the admin after verified by the admin employee can login into home page to get QRCode. Employee need to take a picture of QRcode and run QRCodeScan.java file manually to scan QRCode for register attendance.And also employee can view his attendance at last he/her can logout.

**V. SCREENSHOTS**



FIG-1 Index page



FIG-2 Admin Login page



FIG-3 Login status



FIG-4 Admin Home page



FIG-5 Add Employee



FIG-6 View employees

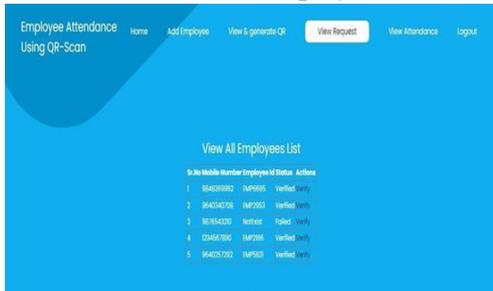


Fig-7 View All verification Requests from employee



FIG-8 Employee mobile verification page to get his/her QRCode



FIG-9 All employees attendance



FIG-10 Is verification done by admin he/she can get QR Code and take picture in mobile

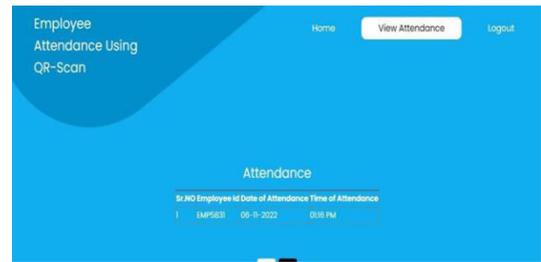


FIG-11 View his/her Attendance

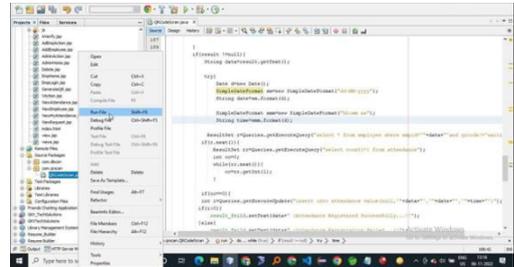


FIG-12 Running QRCode file manually



FIG-13 Employee Attendance Registered

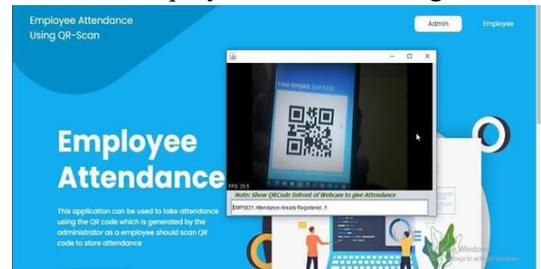


FIG-14 Attendance already registered

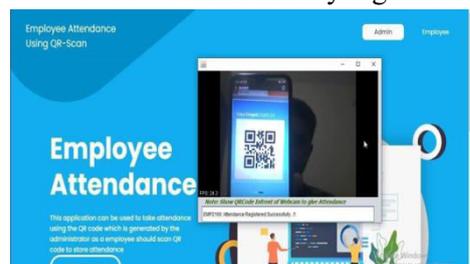


FIG-15 Another employee attendance registered

## VI. CONCLUSION

Given current global conditions and COVID-19, introducing a new system to reduce time and effort in attendance and leave operations in the country, as well as to achieve social distancing and privacy for working people. Furthermore, in our daily lives, the attendance and monitoring system is critical. An easy-to-use and smart system based on

(Face recognition - Fingerprint - QR code) has been developed to track leave attendance processes for all students and employees, as well as integrating an Android device with databases to store attendance results, as well as attendance analysis on a weekly and monthly basis. The main goal of the Automated Attendance System is to computerize the traditional way of recording attendance and provide an efficient and secure way of recording attendance. Among other scan code technologies, the QR code-based smart attendance system is the most accurate.

#### **FUTURE SCOPE**

The future scope of this project is highly promising as organizations continue to embrace digital transformation and automation. This system can be enhanced by integrating advanced security features such as facial recognition during QR code scans or geofencing to verify physical presence at the workplace. It can also be extended to support multi-location organizations by syncing data across branches in real time using cloud-based storage and analytics. Additionally, incorporating features like real-time notifications to employees, monthly performance dashboards, and automated payroll integration based on attendance data can further improve operational efficiency. With the growing demand for contactless systems post-pandemic, this solution holds strong potential for widespread adoption in schools, universities, corporate offices, and government institutions. As IoT and AI technologies evolve, the system can evolve into a smart attendance ecosystem, improving accuracy, accountability, and decision-making across organizational levels.

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