

SMART ATTENDANCE SYSTEM USING QR CODE

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I. ABSTRACT

The proposed project is a system that uses QR codes to track students' attendance. The goal of this concept was to use authentication to automate the traditional attendance system of taking signatures. The traditional system necessitates the keeping of a register in order for students to manually sign their attendance, which is time consuming. The system then saves all of the students' attendance records and generates brief reports for them in an excel sheet as needed. This application allows the lecturer to search an excel sheet for a specific student's attendance details. This type of application is very useful in students' and colleges' daily attendance.

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

II. INTRODUCTION

Many businesses have shifted to digitalized methods of keeping records of employees' attendance and work hours. This not only makes the attendance process more efficient but also reduces costs and time associated with manual attendance systems. One such method of tracking attendance is through the use of QR codes. QR codes (Quick Response codes) are two-dimensional barcodes consisting of black modules arranged in a square pattern. They are machine-readable and can store data such as text, URL links, or numbers. QR codes are increasingly being used in various fields, from inventory tracking and shipping to payment processing and attendance tracking. The use of QR codes for employee attendance tracking makes the process effortless, accurate, and secure. Employees simply scan the QR code to mark their attendance. This eliminates the need for physical cards and the need for manual attendance tracking. Moreover, the data collected from the QR codes is stored securely and can be easily accessed by authorized personnel. This article will discuss the benefits of using QR codes for employee attendance tracking, and provide an overview of how to get started with this technology.

III. LITERATURE SURVEY

This paper proposed an idea of recording attendance using face recognition technique and storing the data using IoT. In this method arduino uno is used as a microcontroller. Cameras are used to detect the face of an individual or group of pupils. Based on the information that is stored in prior, the faces are recognized and the attendance is recorded and the database is obtained. This method provides better results in short span of time but fails to produce most accurate results. There are some chances of some errors. This paper proposed an idea of

recording attendance using biometrics (fingerprint) for tracking attendance and storing the data using LAN. This paper provides a brief description about the usage, accessibility, accuracy, affordability and acceptance of biometric (fingerprint verification) system. accuracy results and consumes less time but it is not cost-effective.

IV. EXISTING SYSTEM

Over the years, the existing system has seen the process of manual attendance carried out across almost all educational institutions. The process is not only time consuming, but it is also inefficient at times, resulting in a false sense of attendance. We no longer need to keep attendance registers on paper.

V. PROPOSED SYSTEM

The proposed solution involves taking attendance with a QR code. According to 37.5% of respondents, the QR Code solution is the most cost-effective. The use of QR codes is advantageous because it reduces the initial cost of implementing the system. Using the tools that every student has, such as a smartphone, to take attendance. The solution is divided into two modules: the generator module and the attendance module. The Generator module creates QR codes from a given background image. To prevent cheating, the QR code can be updated at any time during attendance. This could prevent students who are not in class from scanning the QR code. Students can confirm their attendance by scanning QR codes with the mobile module. The attendance module receives the request.

EXPERIMENTAL SETUP :

1. LOGIN MODULE:

1. Generates a QR code for the instructor.
2. Runs Identity check. 3.Runs Location check.

2.MOBILE MODULE:

- 1.Record attendance by scanning QR Code. 2.View attendance records.
- 3.Issue notification if students' attendance lower than certain limit.

3.WEB MODULE:

1. View, add, modify, classes.
2. View, modify attendance records.
4. View overall attendance records in charts.
5. Display QR Code for each class.

4.BACKEND SERVICE MODULE:

1. Prevent unauthorised registration of attendance with multi-factor authentication.
2. Provides login authentication on both mobile and web
3. Generate code for QR code.
4. Run data analytics operation to generate charts for attendance records.

5. ARCHITECTURE DIAGRAM

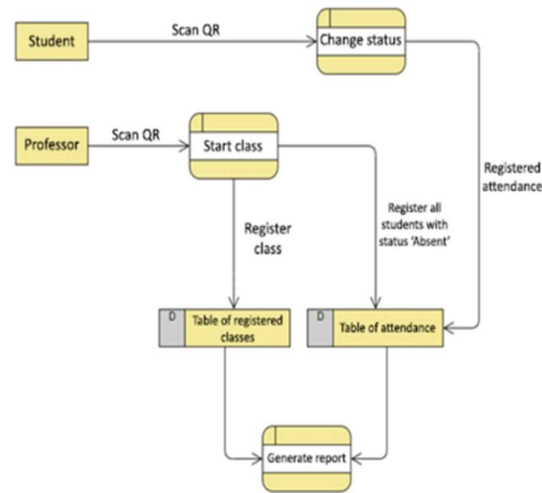


Figure 1 : Architecture diagram for proposed system

VI. IMPLEMENTATION

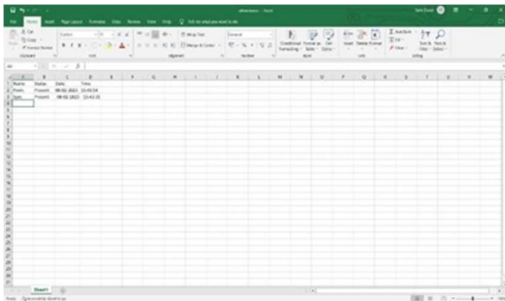
The proposed and implemented system depicted in this paper consists of two major activities: data management and attendance records. First, the coding is completed. small packages, then combining them into larger software packages and testing their compatibility

The entire interface is designed to be responsive to all devices we use, so it's clear and understandable regardless of which browser we use or which devices we open it on, such as PC, mobile, tablet, and so on.

The registration of study programme heads, study programme administrators, professors, and students is the primary activity required for the system to function. As a result of their registration, they have access to the system. The head has the option of registering the professors' schedules for the current semester's courses, and administrator has the opportunity to record the courses the student is attending that semester.

VI. RESULTS

There are several issues with this project that may have an impact on the colour recognition results. Environmental factors that occur during the recognition phase are one of the issues. The recognition process is extremely sensitive to brightness intensity, as excessive brightness or darkness can result in the desired colours not being recognised in the captured images. Furthermore, distance can have an impact on colour recognition results. Because the current detection range has a radius of up to 25 cm, any colour representation that extends beyond that distance is considered noise and is filtered out. Furthermore, the program's performance is highly dependent on the user's hardware, as the processor speed and/or resolutions captured by the webcam may have an impact.



IX. CONCLUSION

Finally, among all of the solutions, taking attendance with QR codes is the most affordable and adaptable. Cheating on attendance becomes even more difficult with the automatically refreshing QR code. Furthermore, it saves lecturers a lot of time managing students' attendance records. The project's objectives were met. It is now necessary to keep up with the latest technologies, particularly in the field of education. Educational institutions have been looking for ways to improve the educational process by utilising cutting- edge technology. With everything moving towards digitalization, we believe that this system is absolutely necessary for the University. In this paper, we describe a proposed system for taking student attendance that incorporates QR codes and internet-connected devices. This low-cost QR code-based attendance system allows lecturers to record attendance more quickly, especially in large classrooms, saving them valuable teaching time. The proposed system is more secure than traditional methods, as it eliminates the possibility of students signing up for others who may not be present.

X. REFERENCES

1. J. Katona, "A review of human– computer interaction and virtual reality research fields in cognitive InfoCommunications," *Applied Sciences*, vol. 11, no. 6, p. 2646, 2021.

2. D. L. Quam, "Gesture recognition with a DataGlove," IEEE Conference on Aerospace and Electronics, vol. 2, pp. 755–760, 1990.
3. D.-H. Liou, D. Lee, and C.-C. Hsieh, "A real time hand gesture recognition system using motion history image," in Proceedings of the 2010 2nd International Conference on Signal Processing Systems, IEEE, Dalian, China, July 2010.
4. S. U. Dudhane, "Cursor control system using hand gesture recognition," IJARCCCE, vol. 2, no. 5, 2013. View at: Google Scholar.
5. K. P. Vinay, "Cursor control using hand gestures," International Journal of Critical Accounting, vol. 0975–8887, 2016.
6. P. Nandhini, J. Jaya, and J. George, "Computer vision system for food quality evaluation—a review," in Proceedings of the 2013 International Conference on Current Trends in Engineering And Technology (ICCTET), pp. 85–87, Coimbatore, India, July 2013.
- 7 J. Jaya and K. Thanushkodi, "Implementation of certain system for medical diagnosis," European journal of Scientific Research ,vol.53, np.4, pp.561-567, 2011
8. L.Thomas, "Virtual mouse using hand gesture," International Research Journal of Engineering and Technology (IRJET, vol. 5, no. 4, 2018.