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ABSTRACT
The project is a barcode-based system for recording student attendance. Every student is given a card with a unique barcode on it. Each barcode reflects a student's unique identifier. Students just scan their cards with a barcode scanner, and the system records their attendance according to the dates. Following that, the system saves all of the students' attendance records and creates a defaulter list. It also creates an overall report for the administrator in the form of an excel sheet. This type of application is highly beneficial in school and college for keeping track of everyday attendance.
Keywords: Attendance, Barcode Scan, QR Code, Students

1 Introduction

Student participation in the learning process is seen as a crucial exercise for knowledge transfer in most educational institutions. This emphasises how important it is for students to attend all of their scheduled lectures and classes. Traditional techniques of recording student attendance are still used by the majority of institutions. One not unusual place approach is for college kids to manually signal the attendance sheet that is generally surpassed across the study room even as the lecturer is speaking. This approach has the ability to permit college students to faux attendance records. As a result, one of our objectives is to create a portable attendance system with an online database, principally to avoid data loss and to promote a paperless and ecologically friendly workplace. Aside from that, the programme will assist in the reduction of class time lost, resulting in increased productivity.

2 Literature Review

In article [1,] software that uses a barcode scanner to record and monitor student attendance is discussed. A barcode is a machine-readable visible illustration of information. A bar code is made up of a series of parallel, contiguous bars and spaces that a barcode scanner can read. Each student will be given a unique barcode ID that will be used to identify them and show their information. Only teachers and administrators with their own login IDs and passwords

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will be able to access the system. The Intranet Based Content Management System is described in the study [2]. It is an application designed for students or departments to use in order to keep track of a student's attendance. This system can be accessed by both students and teachers in order to collect records for which each person is given a login ID and password. For access, the student must first register with the system administrator. Paper [3] describes the system's functional and architecture design, and emphasises the system's functionality, database design, and functional modules, among other things. It also presents a Student Information Management System realisation, which includes database setup and maintenance, as well as front-end application development. The friendly interface and fully functional, adaptable, and convenient application provide a good guarantee for student information management.

A tracking system[5] that includes all of the students' data for the entire academic year, including attendance, progress in the course, completed semesters, years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result, and all of this will be available through a secure, online interface embedded in the college's website. It will also include faculty details, batch execution details, students' details in all aspects, and the var

The implementation of an RFID-based library management system is discussed in detail in the paper [5.] RFID is employed because it allows for a smooth transaction flow for the issue and return of books while keeping track of the issuer's records. This machine might be capable of trouble and go back books the use of RFID tags, in addition to calculate the high-quality related to the period of time the e-book has been lacking from the library database. RFID technology is the most commonly used technology for documenting student attendance since it is easy to transmit data to the internet [7], [8], [11]. RFID technology, on the other hand, are expensive and require skilled personnel to operate. Biometrics technology, on the other hand, is a fantastic use of technology in the realm of attendance reporting and tracking. The thumb print was utilised as an indication of system entrance in the majority of biometrics technology [9]. Because there is no platform for attendance cheating, a fair and dependable attendance may be recorded [10]. Apart from the thumb print method, biometrics use fingerprints. Using wireless technology, a fingerprint peripheral was utilised to record attendance and send the data into the system [12].

These cutting-edge technologies necessitate a hefty budget and a well-trained system developer. Bar code scanners are widely used in educational institutions that are not financially supported, and they do not require highly qualified personnel to install and maintain [14].

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3 Working Process

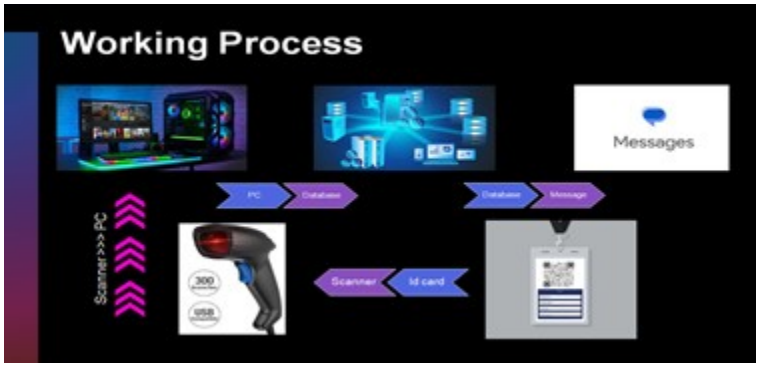

Figure 1: *System Architectural Diagram*

3.1 System Requirements

Through the use of an Android-based attendance management application, the solution we present in this research intends to address the challenges of collecting students' attendance in class. Given that most professors are expected to already own an Android device, adoption of this proposed system will undoubtedly reduce the cost of hardware and its upkeep. This method, unlike RFID-based systems, requires relatively little setup. Furthermore, Android smartphones are often tiny, light, and portable, making them easy to use anywhere and at any time.

With the end product in mind, we began the system development process by making a list of the features that the programme would deliver. To utilise the software, a lecturer must first download the apk file and install it on their Android device. The lecturer will need to log in to the application using their user id and password after it has been launched. The user will be sent to another page after successful authentication, where they will be asked to select the course code and student group to be tracked.

An online database server will be used to download a list of students registered in the selected group into the Android smartphone. The programme can then be used to check student attendance based on the downloaded list of students by using the device's camera to capture and scan the barcode displayed on the student card. A student's unique student ID is represented by a barcode label like this. As a result, the lecturer's Android tablet will be used to record student attendance by having students flash their cards one by one. After all students have reported their attendance, the lecturer can publish the revised attendance list to the online database server or transfer it as a file to a PC via USB.

3.2 System Design

The client-server framework is used to design the Android-based Attendance Management System. According to the system architectural diagram (see Figure 1), the system comprises of an online server with database, as well as an Android-based application and its hardware component, which serves as the client.

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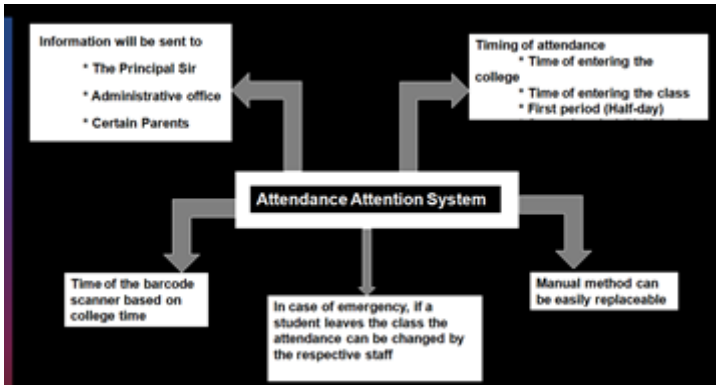

Figure 2: *Attendance Attention System*

4 Conclusion

This paper proposes a method for taking attendance using an Android application. Once installed, this application can be used to get a list of students from a specified web server. The gadget will then operate as a scanner, scanning each of the student cards one by one to validate and verify the student's existence, based on the downloaded list of students.

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