Digital Examination Attendance and Verification Management System

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Abstract: The project is based on the web-based platform that it is takes the attendance by using the online updating system where the in problem statement we took our college requirements based upon that the faculty update the take the attendance and update the attendance and community members are view the attendance this type of system is very useful to all who want to update the exam and this will reduce the errors. The solution of this problem statement became very useful to update attendance.

1 INTRODUCTION

Managing student attendance during examination is a very tough task for educational institutions. this process has happened on manual methods, such as paper-based attendance sheets, which can lead to mistakes, and delays in data reporting. To address this challenge, this project proposes the development of a web-based platform that allows faculty members allot to specific exam halls to update student attendance. This system will be accessible to both faculty and members of the exam committee ensuring that attendance data is stored and easily accessible. Faculty members can log in to the system, mark the attendance of students assigned to their exam halls, and update it as necessary. The exam committee can then view the updated attendance information instantly, improving the website and reducing administrative burdens.

By performing attendance system and providing secure system and easy-to-use this system enhances the accuracy, speed, of exam administration processes. The platform will contribute to more efficient exam management, minimizing errors and ensuring a easy flow of information across the institution.

2 LITERATURE REVIEW

The identification is the process of searching for a perfect match in the stored database for the query biometric sample. The fingerprints scanning system operates, it will generate a new template when prints are scanned and compare this with the archive templates. If a match is made the identification is verified. 1

Fingerprints are the oldest biometric even used for identification. Use in forensic Science and biometrics Modern times In forensic Science, electronic images of fingerprint scans stored in databases known as Automated Fingerprint Identification System (AFIS) are used in conjunction with software to analyze the scanning points of the finger to identify criminals. Since they are simple to use and very accurate, fingerprints have been used for human identification for many years. There are two conditions for fingerprint recognition. 3

The construction of a time attendance system with fingerprint recognition will demand the 16 administrators processing all student to capture the student's fingerprints sample to save in the database instead of the barcode on the matric ID that was already available at the time the matric ID was issued 6

In contrast, when the new attendance system is considered to replace the traditional one, fingerprint scanning system is likely to be the most recommended. However, with the time limitation, this project will contribute to finalize a barcode version protocol and an initial framework for the biometric scan version. (Joseph, Jomon, and K. P. Zacharia.) (Patil, Ajinkya, and Mrudang Shukla., 2014).

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The system can also generate a proof of attendance for Student Finance systems and be used with mandatory attendance courses. The scanning of the student identification card is a fast, secure and can be error free whereas the manual records comes across errors. Onyx Collection works with stationary and/or portable scanners, and can be used with most current cards* 5

Quickly and accurately when they present their current ID card in lectures, etc by means of fixed and/or portable readers. This creates a portrait of engagement that can single out any students who are struggling while there's still time to intervene. The system could also be used to log other significant events such as exam attendance or handing in coursework, thus guaranteeing completion of courses. Craig Utley

Onyx Collector is the way to get attendances not taken, in part and whole, by any single class or as an aggregate, for analysis with third party tools or for exporting to a third-party system. The system has been developed in order to help improve student retention via early identification of course disengagement and assist with the Institution's responsibilities in relation to the UK Border Agency Regulations. The students' attendance is taken directly 11

The PET Group e-attendance system allows employers, including managers, to monitor their employee's attendance online electronically through web browser. 17 paperless e-attendance system, in which host computer is to act as a server receiving request from users as client machines to produce data of select period & calculating it, no other server in-between it or it‟ll become costly in maintain and equipment modernization is very difficult with a handful users i.e., If there are only a few users based on local area network then it‟ll be very useful for them but not for an organization, then its cost should be much for each client machine and server, this extra cost could be eliminated by an on-line e-attendance system, in which it is linked to the internet and act as server only and subscribers are clients who going use it by sending / receiving data(in the form of packet) & the host server will update it and produce report of each subscriber on each day or week of select period etc. Advantages and Disadvantages of e-Attendance System The 17 advantage of an on-line e-Attendance system is that as the system being a webserver paperless easy to use system, to get the attendance and punctuality of employee‟s computerized, just by checking the system from the authorized superiors‟ office and it could be used by the employees in their authorized computer with the userid and password. Some pros of the system include unlimited roster, live employee and personnel tracking. Managers can even see employee updates in real time, no matter where they are or what time it is. They can also use this system to verify the authenticity of the overtime claim by the employer. (Selvi et al., 2014) (Kanti, et al., 2012)

Wasp time Wasp time is a time attendance system that is commercially used, it integrates with various automatic identification technologies such as the barcode, biometric (fingerprint log in), RFID and also the regular punch card clock in. It is build to the business industry requirements and are available in Standard, Pro and Enterprise version for variety of type businesses 17

Through the contrast of multiple technology, can choose other ways of auto-identification (other than bar code) to improve security and speed. Since the development of this system is a project for using prototyping system, in the first version the barcode system will be used, in case that in system evaluation stage, if 15 target user need, using other automatic identification such as RFID is possible (Mehta, Preeti, and Pankaj Tomar., 2016) (Robinson-Riegler et al., 2008) And as the number of manual labour is reduced, the amount of labour cost can also be reduced. (Panos& Freed, 2007). As the company will have less man power cost, so there will be a great saving in cost of the long company and there will also break even the cost of plant & machinery & the one adopted the new system. (Margaret Rouse, 2012) Wagh, Priyanka, et al.

Barcodes come in many styles. Different barcodes are used to accomplish different organizational functions. (Iksan& Norizan, 2009). Barcodes that comes in parallel lines of different width placed above each other in a single row are 1-Dimensional barcode, whereas the barcodes which comes in terms of patterns and squares or hexagon placed in multiple rows are spacious in nature than 1-Dimensional are known 2- Dimensional matrix code. 2D symbols have error detection and optionally error correction capabilities. (Baharav et. 2al) See figure 1.1 and figure 1.2 below for image of sample barcodes. (Bhattacharya, Shubhobrata, et al., 2018)

A barcode is a graphical pattern that is specially designed so that it can be automatically read electronically most of the time. Barcode scanner refers to a device that captures barcode and then stores the information in a database for later use. Barcode technology and a barcode scanner provide a quick and accurate alternative for examination invigilators to the examination tracking system. The most modern barcode reader works based on WLAN

or Bluetooth for wireless usage (Li et al., 2017).

3 METHODOLOGY

3.1 Proposed Methodology

The Proposed methodology consist of the as per the architecture of the diagram that the diagram tells that whole process of the attendance updating system.in that the main points are that the faculty should update the attendance that is that like should mark the attendance and community members can view the attendance that is that the community check that the members who came to the exam and who not came to the exam hall and most of the members are very. Privacy concerns can also arise, especially with biometric data. For institutions with limited resources, high-tech solutions may be impractical, prompting a need for more system attendance.

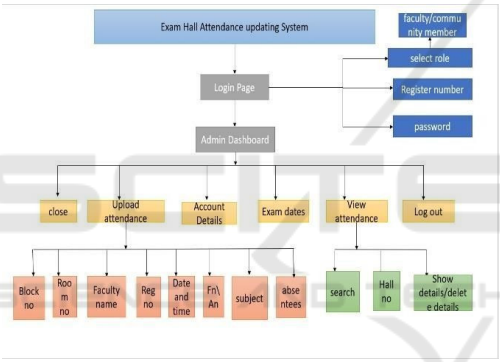

Figure 1: Architecture of exam attendance updating system.

3.2 Functional Requirements

User Authentication: Allow users to log in with a register number and password. and differentiate between user roles (faculty and community members) upon login.
Role Selection: Enable role as (faculty or community member) to customize permissions.
Admin Dashboard: Provide an admin dashboard with such as uploading attendance, viewing attendance, managing account details, and setting exam dates.
Upload Attendance: Allow faculty members to upload attendance for each exam, including details like: Block number, room number, faculty name, register number, date and time, subject, and list of absentees.
View Attendance: Allow community members to view attendance records with options to search by specific criteria that. Provide detailed attendance information, including options to show, edit, or delete details if permissions allow.
Account Section: Enable users to view and manage their account details.
Exam Date Management: Allow admins or faculty to set and view exam dates within the system.
Log Out: Provide a logout feature for users to securely exit the system.
Non-Functional Requirements:
Usability: The system should have an intuitive, user-friendly interface with clear navigation and labelling. Ensure role-based access is straightforward for users to understand and navigate.
Performance: The system should be able to handle simultaneous access from multiple users (faculty and students) without lag. Attendance uploads and searches should be efficient and quick, even with a large number of records.
Log in page*:* The page consists of the select role (Admin or Faculty) and down of that registered register number we have to type and registered password.
Admin Dashboard-The Admin dashboard contains the attendance records.ie that we have to take the attendance at that particular subject exam.
Upload attendance: In this we have to select the block first. And then faculty name, register number date and time and Number of absentees and the subject name with subject code and for absentees we require the name and register number and then we can submit it.
View Attendance Records-There will be search bar also is resent to view the records. We can view the attendance records by typing the hall number.by clicking show details it will show that particular block attendance records.
Exam Date Updates-In this we can add the Exam dates on the day which subject going to conduct exam.
Account details- It will show the details of the account like the name, register number and phone number, email and role. Easily we can tell by simply a sentence to update the exam hall attendance by the respective faculty allotted to the exam hall through the website which can be seen by the community members.

4 IMPLEMENTATIONS

The project combines of the Front end and Back end which the consist of the in Front end Html, CSS, JS and Back end consist of the Flask. Which it give the very successful design to this project the main is that the Structure of the interface it was made up with the

Html that is that like the log in page for example and CSS for the Design part and color part that is that we have to combine the CSS with Html then only the for the structure the design part is combined and we added the some of the pictures to the interfaces like background images that is that Java Script is useful for to function the requirements like log in button and register . the flask is used for the to run on the local host the server should run on the given port at last we have to combine this all and give the output for the implementation this project.

5 RESULT & DICUSSION

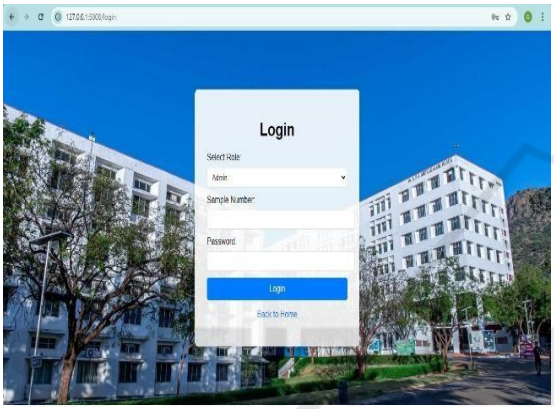

Figure 2: Log in page.

The implementation of this process is the result here we can see that the interface of the system these give the actual Output of the system is that how it works first select role as faculty log in the faculty update the attendance and check in dashboard attendance is came or not after that log out and again select role as the community log in and view the attendance in the dashboard at which date is conducted the exam they can view the attendance that all came or not to the exam. The figure 2 shows login page.

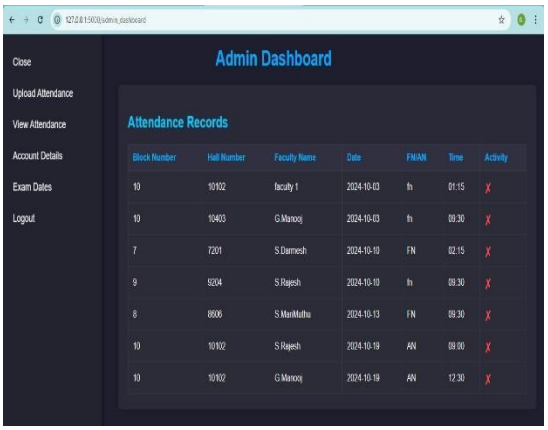

Figure 3: Admin dash board.

Figure 4: Upload attendance.

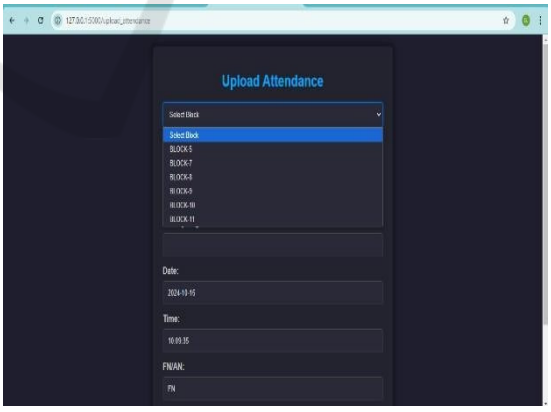

Figure 5: View attendance.

The Figure 3 shows admin dashboard. Figure 4 shows upload attendance. Figure 5 and 6 shows view attendance and account details.

Table 1: Methods Comparison.

Features	Traditional method	Modern method
Attendance Recording	They will take in papers	Take in online app or website
Paper work	Long paperwork; storage needed.	Minimal paperwork; data stored digitally
Environment Impact	High paper consumption	No need paper usage
Cost of product	For paper and Print Means it take more costs	No need paper and Less cost
Notification System	No notifications on manual checks	notifications for updates
User Authentication	Unauthorize Authentication	No secure access; potential unauthorized access
Efficiency	Time-consuming More	No-time consuming

Figure 6 compares the effectiveness of old and new attendance management methods across various criteria, illustrating the clear advantages of the new approach. The new method, represented in teal, significantly outperforms the old method in areas such as efficiency, user authentication, notification system, cost of materials, environmental impact, paperwork, and attendance recording. It demonstrates high levels of effectiveness in all these areas, often nearing 100%, while the old method, in red, shows limitations, particularly in user authentication, notification capabilities, and environmental impact. The old method also incurs higher costs due to reliance on materials and paperwork. Overall, the new attendance management system is more efficient, sustainable, and user- friendly, highlighting a major improvement in managing attendance. Table 1 shows Methods comparison.

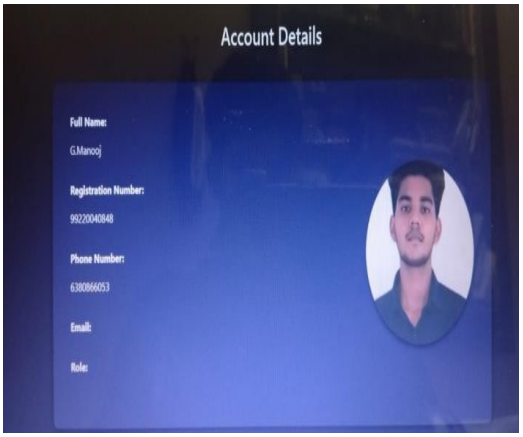

Figure 6: Account details.

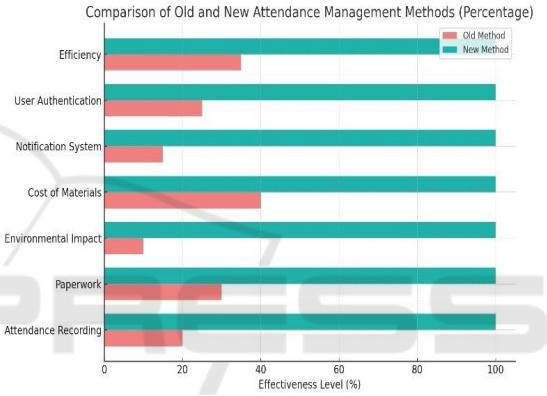

Figure 6: Comparison graph for traditional method attendance system. and modern method attendance system.

6 CONCLUSIONS

Exam Hall attendance updating is very useful for the university to take attendance of the exam without having the any error.it will reduce the work of the faculty to take attendance writing on the exam paper. The faculty can take the attendance and committee members can view the attendance.it is very sustainable to others.

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