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Campus View: Photo-Based Student Identification to Control Unauthorized Campus Movement

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Abstract - *Maintaining discipline during lecture hours is a practical challenge faced by many educational institutions. It is commonly seen that students move around the campus while lectures are ongoing and, when questioned, often give incorrect information about their department, class, or lecture schedule. Since faculty members cannot easily recognize students from other departments, verifying such claims becomes difficult and usually depends on verbal explanations, which are not always reliable.*

This paper presents Campus View, an approach that focuses on photo-based student identification to support faculty in verifying student identity and lecture status during academic hours. The proposed approach involves capturing a student's photograph and retrieving relevant academic details such as name, department, class, and current lecture information from a centralized campus database. By connecting visual identification with timetable data, Campus View allows quick verification and helps reduce false identity claims without relying solely on manual questioning.

The approach aims to limit unauthorized roaming during lecture hours, reduce unnecessary confrontations, and assist faculty in maintaining a disciplined academic environment. Campus View is designed to be simple, institution-friendly, and scalable, with the potential to improve transparency and accountability within campus premises. In the future, the concept can be extended to include additional smart campus features.

Key Words: **Campus View, Photo-Based Student Identification, Lecture Hour Monitoring, Campus Discipline, Student Verification, Smart Campus**.

1. INTRODUCTION

Educational institutions operate on structured academic schedules to ensure effective teaching and learning. However, maintaining discipline during lecture hours remains a challenge in many campuses. Students are often seen roaming within campus premises while lectures are ongoing, which disrupts the academic environment and affects overall discipline. Campus View is proposed to address these challenges by focusing on photo-based student identification linked with academic records and lecture schedules. By capturing a student's photograph, the approach enables faculty to quickly verify identity details such as department, class, and current lecture status. This helps reduce false identity claims and unauthorized roaming during lecture hours.

In addition to student verification, Campus View also considers academic record management. The approach includes maintaining leave records and attendance-related data, which can be analysed to provide insights into lecture participation. Authorized faculty and higher authorities can view summarized attendance information in the form of graphical representations, such as the number of lectures attended or missed. This feature supports transparency, accountability, and better academic monitoring.

By combining visual identification with academic record analysis, Campus View aims to support faculty in maintaining a disciplined learning environment while providing higher authorities with meaningful insights into academic engagement.

With increasing student strength and multiple departments operating simultaneously, it becomes difficult for faculty members to monitor student movement outside classrooms. In the absence of proper verification mechanisms, this issue often leads to misunderstandings, misuse of lecture hours, and reduced academic seriousness. Therefore, there is a growing need for a structured and reliable approach that supports faculty in verifying student identity and lecture status during academic hours.

1.1 Background

During active lecture sessions, students are often found in corridors, common areas, or other campus locations without valid reasons. When questioned by faculty members, these students may claim that they have a free lecture or provide incorrect information regarding their department, class, or year of study. In many cases, students also misrepresent their identity by claiming to belong to a different department. Since faculty members are generally familiar only with students from their own departments, it becomes challenging to verify such claims immediately.

This situation creates discomfort for both faculty and students. Faculty members must rely on verbal explanations,

while students may take advantage of the lack of verification. Over time, this leads to reduced discipline, repeated misuse of academic time, and an increase in unauthorized roaming during lecture hours. The motivation behind Campus View arises from the need to address this gap by providing a quick and reliable method for student identification and lecture verification.

1.2 Limitations of Existing Practices

Existing methods used to handle student movement during lecture hours are largely manual and informal. Faculty members typically question students and decide based on trust or assumption. There is no instant way to confirm whether a student actually has a free lecture or is skipping an ongoing class. Additionally, most institutions do not maintain a centralized digital record that links student identity, lecture schedules, and attendance details in real time.

Another limitation of current practices is the lack of analytical insight. Even when attendance or leave records are maintained, they are often stored in separate registers or systems, making it difficult to analyses student participation patterns. Higher authorities have limited access to summarized information, such as how many lectures a student has attended or missed over a period of time. This absence of structured data limits effective monitoring and decision-making.

1.3 Problem Statement

In many educational institutions, maintaining discipline during lecture hours is a persistent challenge. Students are often found roaming within campus premises while scheduled lectures are in progress. When questioned by faculty members or academic staff, students may provide incorrect or misleading information regarding their department, class, or lecture schedule, often claiming to have a free lecture when this is not the case. Due to the large number of students and multiple departments operating simultaneously, faculty members are unable to instantly recognize or verify the identity of students from other departments.

The absence of a reliable and instant verification mechanism forces faculty members to depend on verbal explanations, which are not always trustworthy. This leads to repeated misuse of lecture hours, increased unauthorized movement within the campus, and uncomfortable interactions between faculty and students. Additionally, existing practices do not maintain structured digital records related to student movement, leave status, or lecture attendance, making it difficult to monitor academic engagement effectively.

Furthermore, higher authorities lack access to summarized and visual insights, such as attendance trends or the number of lectures attended or missed by students. Without centralized records and analytical representation, identifying patterns of irregular attendance becomes difficult. Hence, there is a need for an approach that supports photo-based student identification, verifies lecture status in real time, and maintains academic records that can be analysed and viewed by authorized personnel. Addressing these challenges forms the core problem that Campus View aims to resolve.

2. LITERATURE SURVEY

Various digital solutions have been proposed to improve discipline and monitoring within educational campuses. One commonly adopted approach is RFID-based attendance systems, where students use identity cards for verification during lecture hours. These systems reduce manual record keeping; however, they depend on students carrying their cards and are vulnerable to misuse through card exchange or proxy attendance.

Biometric-based attendance systems, such as fingerprint or facial recognition mechanisms, have also been introduced to improve accuracy. While these methods offer stronger identity verification, they require dedicated hardware infrastructure, regular maintenance, and higher implementation costs. In addition, concerns related to data privacy and user convenience often arise.

CCTV-based monitoring systems are widely used for general campus surveillance. Although CCTV improves security, it does not provide real-time academic verification or connect student identity with lecture schedules and attendance records. Faculty members still rely on manual questioning to verify lecture status.

Recent smart campus frameworks aim to integrate digital attendance, centralized databases, and academic analytics into a unified platform. However, many existing solutions focus primarily on attendance tracking and do not specifically address unauthorized student movement during lecture hours.

Based on the limitations of existing approaches, there is a need for a structured system that combines photo-based student identification with lecture schedule verification and centralized academic record analysis. Campus View is proposed to address this gap by providing a simplified and institution-friendly framework.

3. PROPOSED METHODS

The proposed approach is designed with controlled access in mind. Different stakeholders such as faculty members, mentors, and higher authorities are provided access based on authorization levels. This ensures that sensitive academic data is viewed only by permitted users while maintaining transparency and accountability across the institution.

The approach also emphasizes flexibility, allowing institutions to adapt the framework according to their academic structure, departmental organization, and lecture scheduling practices.

The Campus View system is designed as a centralized academic monitoring and identification framework to assist faculty in maintaining discipline and transparency during lecture hours. The proposed methods focus on student identification, academic record verification, and controlled information access within campus premises.

3.1 Student Image Capture

During lecture hours, authorized faculty members or mentors capture a student's photograph using a camera-enabled device. This step is initiated when students are found roaming within the campus or when identity verification is required. The captured image acts as the primary input for the system.

3.2 Photo-Based Student Identification

The captured image is matched with student records stored in a centralized campus database. Each student profile contains basic academic information such as name, department, class, roll number, and timetable details. This method reduces dependency on verbal explanations and helps prevent false identity claims.

3.3 Academic Data Retrieval

Once identification is completed, the system retrieves relevant academic information, including the current lecture schedule and subject details. This allows faculty members to verify whether the student is genuinely free or skipping an assigned lecture.

3.4 Lecture Monitoring and Discipline Tracking

Campus View records instances of unauthorized roaming during lecture hours and securely links them to the respective student profiles. These records help in identifying repeated patterns of indiscipline and allow mentors or higher authorities to take appropriate corrective actions. The structured tracking mechanism supports data-driven monitoring instead of relying solely on manual observation.

3.5 Leave and Attendance Record Management

The system supports a structured leave record mechanism where student leave status is verified against academic schedules. Attendance data and leave information are maintained digitally to ensure accuracy and reduce manual record keeping.

3.6 Role-Based Access Control

Access to Campus View is strictly role-based. Faculty, mentors, heads of departments, and administrators are granted different levels of access according to their responsibilities. Sensitive student data is visible only to authorized personnel.

3.7 Reporting and Visualization

Campus View generates summarized reports and graphical representations, such as attendance trends and lecture participation data. These reports assist higher authorities in understanding academic engagement.

3.8 Secure Data Handling

All captured data and academic records are stored in a secure database. Access permissions and audit logs help maintain data integrity and accountability within the system.

3.9Timetable Integration and Real-Time Synchronization

Campus View integrates academic timetables with the centralized database to ensure accurate and real-time lecture verification. The system maintains updated schedules for each department, class, and faculty member.

Table -1: Modules of Campus View

Module Name	Description
Student Registration	Stores student details such as name, department, class, roll number, and photograph in a centralized campus database.
Photo Capture	Captures the photograph of a student during lecture hours to assist in identification and verification.
Student Identification	Retrieves student details by matching the captured photograph with registered records.
Leave Record Management	Maintains records of approved student leaves for specific lecture hours.
Attendance Record	Stores lecture attendance information based on verification and leave records.
Attendance Analysis	Generates summarized attendance data, including lectures attended and missed.
Authorized Access	Allows only authorized faculty and higher authorities to view detail.

4. SYSTEM ARCHITECTURE

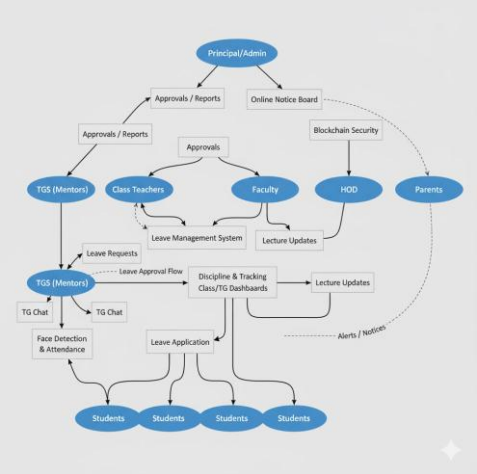

Fig -1: Flow of the Campus View

The architecture illustrates the overall workflow of Campus View and the interaction between different campus stakeholders. Students interact with the system through photo-based attendance, leave applications, and communication with mentors. Faculty members and class teachers handle lecture updates, attendance verification, and leave management. TGS mentors monitor student discipline and maintain dashboards for tracking attendance and movement. Approved data flows to higher authorities such as the Head of Department and Principal, who can access reports, approvals, and summarized information. Parents receive alerts and notices through the system. The centralized dashboards and record management ensure controlled access, transparency, and effective academic monitoring across the campus.

5. CONCLUSION

Maintaining discipline and effective monitoring during lecture hours is an ongoing challenge in many educational institutions. The absence of instant student verification and structured academic records often leads to unauthorized roaming, false identity claims, and dependence on manual questioning. Campus View addresses these challenges by proposing a photo-based approach that supports faculty in verifying student identity and lecture status during academic hours.

By integrating visual identification with centralized academic records, lecture schedules, leave information, and attendance data, Campus View offers a structured and transparent method for campus monitoring. This reduces manual effort, minimizes conflicts, and supports informed academic decision-making.

Campus View is designed to be simple, scalable, and institution-friendly, making it suitable for adoption in campuses with diverse academic structures. Although the approach is proposed, it establishes a strong foundation for future implementation and enhancement. Overall, Campus View demonstrates the potential to improve academic discipline, accountability, and effective campus management through a unified and structured framework.

The key contributions of Campus View include:

- Photo-based student identification during lecture hours
- Integration of lecture schedules with attendance data
- Support for faculty through quick verification
- Analytical insights through graphical attendance representation

6. FUTURE SCOPE

Campus View provides a strong foundation for improving discipline and academic monitoring within educational institutions. Although the current work focuses on photo-based student identification and academic record management, the proposed approach can be extended in several ways in the future.

- **Mobile Application Integration:** Campus View can be extended into a mobile application to allow faculty and authorized staff to perform photo capture and verification using smartphones, improving accessibility and ease of use.
- **Advanced Analytics and Reporting:** Future enhancements may include detailed analytics such as subject-wise attendance trends, monthly participation reports, and performance correlations to support academic decision-making.
- **Automated Alerts and Notifications:** The system can be enhanced to generate automated alerts for irregular attendance, excessive leave, or repeated unauthorized roaming, which can be shared with mentors, parents, or higher authorities.
- **Integration with Institutional Systems:** Campus View can be integrated with existing Learning Management Systems (LMS), examination systems, and academic portals to create a unified digital campus ecosystem.
- **Improved Identification Techniques:** More advanced image-processing or intelligent identification techniques can be explored to improve accuracy and reduce manual intervention, while ensuring privacy and ethical compliance.
- **Role-Based Access Expansion:** Future versions can include finer-grained access control, enabling different levels of data visibility for faculty, mentors, department heads, and administrators.

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