WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal Homepage: www.ijrpr.com ISSN 2582-7421

Smart Leave and On-Duty Management System

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ABSTRACT :

The Smart Leave and On-Duty Management System is a web-based administrative application developed to simplify and digitize the process of submitting, reviewing, approving, and managing student Leave and On-Duty (OD) applications in educational institutions. In conventional college environments, students are generally required to prepare application letters, approach faculty members for approval, and submit supporting documents manually. This procedure may involve repeated visits to faculty offices, delays in obtaining signatures, difficulties in tracking application progress, and additional administrative effort for faculty members.

The proposed system provides a centralized digital platform that connects students, Class Advisors, and Heads of Departments (HODs) through a structured application and approval mechanism. Students can submit Leave or OD requests by entering the required details, including the reason and date range, and can generate a formal application letter using the information provided in the application form. The system follows a sequential approval process in which the Class Advisor initially reviews the submitted request. Applications approved by the Class Advisor are forwarded to the HOD for final verification, whereas rejected applications are stopped at the respective approval stage.

An additional feature of the system enables students to upload supporting documents such as hackathon certificates, event registration forms, participation certificates, and other relevant proof for faculty verification. The uploaded documents can be accessed by authorized faculty members during the application review process. The portal also provides application status tracking, allowing students to view whether their requests are pending with the Class Advisor, pending with the HOD, approved, or rejected. The proposed system aims to improve administrative organization, reduce dependency on paper-based procedures, and provide a transparent and accessible approach to student leave and OD management.

INTRODUCTION:

In the modern educational environment, information technology plays an important role in improving institutional administration, communication, and academic management. Educational institutions handle several routine administrative activities involving students, faculty members, department coordinators, and administrators. Among these activities, student leave and On-Duty application processing is an important responsibility that requires proper submission, verification, and approval. Students may request leave for personal reasons, medical purposes, or other circumstances, while On-Duty applications are generally submitted for participation in academic events, technical competitions, workshops, seminars, hackathons, and other authorized institutional activities. These applications must be reviewed by the appropriate faculty members before approval.

Traditional leave and OD management procedures are frequently carried out using handwritten application letters and physical documents. Students are required to prepare applications, provide relevant details, and approach the Class Advisor and Head of Department for approval. This process may become difficult when faculty members are occupied with academic or administrative responsibilities. Students may experience delays in obtaining approvals, particularly when the concerned faculty members are unavailable. The process also creates difficulties in identifying the current status of an application, especially when multiple requests are being processed simultaneously.

Manual document management introduces additional challenges in maintaining application records. Physical letters and supporting documents may be misplaced, damaged, or stored in different locations, making it difficult to retrieve previous applications whenever required. Faculty members must manually examine each application, verify the provided information, and maintain records of their decisions. In the case of On-Duty requests, students may also need to provide supporting evidence such as event registration forms, participation certificates, or other relevant documents. Managing these supporting documents separately from the application can increase the complexity of the verification process and create additional administrative work.

OBJECTIVE:

• To develop a web-based portal for digitizing student Leave and On-Duty application procedures.

• To provide separate role-based access for Students, Class Advisors, and Heads of Departments.

• To enable students to submit Leave and OD applications through a structured online form.

• To implement a sequential approval workflow involving Class Advisor verification followed by HOD approval.

• To generate formal application letters using the details entered by students.

• To provide a facility for uploading supporting documents for faculty verification.

• To enable students to track the current and final status of submitted applications.

• To reduce manual paperwork and improve the organization of institutional leave and OD records.

LITERATURE SURVEY:

1. Laudon and Laudon discussed the role of Management Information Systems in improving organizational operations, information sharing, and administrative decision-making. Their work explains how information systems help organizations coordinate activities by providing centralized access to information. These concepts are relevant to educational institutions where student applications, faculty decisions, and administrative records must be managed in an organized manner.

2. Sommerville explained the importance of systematic software engineering practices in developing reliable information systems. The work discusses software requirements, system design, implementation, verification, and maintenance. These principles provide a foundation for developing a leave and OD management portal in which application submission, approval stages, document handling, and status tracking must operate according to clearly defined requirements.

3. Sandhu, Coyne, Feinstein, and Youman presented Role-Based Access Control (RBAC) models for managing access to information systems according to user roles. Their research establishes the importance of assigning permissions based on responsibilities rather than providing every user with unrestricted access. This concept is applicable to the proposed system, where Students, Class Advisors, and HODs require different levels of access to application submission, verification, and approval functions.

4. Ferraiolo, Kuhn, and Chandramouli described the principles and implementation considerations of Role-Based Access Control. Their work explains how roles and permissions can be organized to enforce access restrictions in information systems. In a college leave management environment, role-based access helps ensure that students can submit and view their own applications, Class Advisors can review assigned requests, and HODs can process applications forwarded for final approval.

5. International Organization for Standardization (ISO) introduced the ISO 15489 standard for records management, which provides principles for creating, capturing, and managing reliable records. Proper record management is important in educational institutions because leave applications, OD requests, approval decisions, and supporting documents need to be maintained in an organized and retrievable manner. These principles support the need for a centralized digital approach to application and document management.

METHODOLOGY:

1. User Login and Role Identification: The system provides an authentication interface through which users access the portal using their assigned credentials. After successful authentication, the system identifies the user's role and provides access to the corresponding interface. Three primary roles are supported: Student, Class Advisor, and HOD. Each role is associated with specific responsibilities, ensuring that students can submit requests while faculty members can access the applications assigned for their verification and approval.

2. Student Application Submission: Students can submit Leave or On-Duty applications through an online form. The form collects the required information, including the application type, reason, starting date, and ending date. The system is intended to validate the entered information before accepting the request. Once the application is submitted, it enters the first approval stage and becomes available for review by the assigned Class Advisor.

3. Sequential Approval Workflow: The proposed system follows a two-level approval mechanism. Initially, the Class Advisor reviews the submitted application and makes an approval or rejection decision. If the request is approved, it is forwarded to the HOD for final verification. If it is rejected by the Class Advisor, the process ends at that stage. The HOD reviews only those applications that have successfully passed the first approval stage and provides the final decision. This workflow maintains the required institutional approval hierarchy.

4. Digital Application Letter Generation: The system provides a facility for generating formal application letters using the information entered by students. The application details are organized into a structured letter format so that students do not need to prepare every application manually.

Students can preview the generated letter before proceeding with the request. This feature helps maintain a consistent application format and reduces repetitive document preparation.

5. Supporting Document Upload and Verification: Students can attach relevant supporting documents along with their applications whenever required. These documents may include hackathon certificates, event registration forms, participation certificates, and other evidence related to the requested On-Duty activity. The uploaded files are made accessible to authorized faculty members during the verification process. This allows the reviewing authorities to examine the application details and the associated proof before making an approval decision.

6. Application Status Tracking and Record Management: The system provides students with the ability to monitor the progress of their submitted applications. The status indicates whether the application is awaiting Class Advisor review, awaiting HOD approval, approved, or rejected. Maintaining the application status throughout the workflow helps students understand the current stage of processing and provides a structured record of the decisions made by the reviewing authorities.

EXISTING SYSTEM:

1. Manual Application Preparation: In the existing traditional approach, students prepare handwritten or separately typed leave and OD application letters. The information must be entered manually, and students may need to prepare a new letter for every request.

2. Physical Approval Process: Students are required to approach the Class Advisor and HOD to obtain the necessary approval signatures. The process depends on the availability of faculty members and may require repeated visits to their offices.

3. Time-Consuming Verification: Faculty members manually examine application details and supporting documents before making decisions. When multiple applications are submitted simultaneously, reviewing and processing each request may require additional administrative effort**.**

4. Difficult Application Status Tracking: Students generally depend on direct communication with faculty members to know whether their applications have been reviewed or approved. There may be no centralized mechanism to identify the current approval stage or final decision.

5. Manual Supporting Document Management: Documents such as event registration forms, hackathon certificates, and participation records are submitted separately or attached physically to the application. Maintaining and retrieving these documents can become difficult when records are distributed across different files or locations.

6. Limited Centralized Record Management: Application letters and approval records may be maintained in physical files or separate documents. Searching for previous applications, verifying past decisions, and maintaining an organized record of student requests can become challenging over time.

PROPOSED SYSTEM:

1. Centralized Digital Application: The proposed system provides a common web-based platform through which students can submit Leave and OD applications. The online form collects the required application information and organizes requests in a structured format.

2. Role-Based User Access: The portal provides separate interfaces for Students, Class Advisors, and HODs. Each user is provided with functions according to their responsibilities, helping maintain a clear separation between application submission and approval activities.

3. Sequential Approval Mechanism: The system implements a structured approval process in which the Class Advisor reviews the application first, followed by the HOD. Applications rejected at either stage are marked as rejected and do not proceed to the next approval level.

4. Digital Letter Generation: Students can generate formal application letters using the information entered in the application form. The generated letter can be previewed before submission, reducing the need for manually preparing application documents.

5. Supporting Document Upload: The system allows students to upload relevant proof documents along with their applications. Authorized faculty members can access these files during verification, making it easier to review supporting evidence associated with Leave and OD requests.

6. Application Status Monitoring: Students can view the current status of their requests and identify whether an application is pending with the Class Advisor, pending with the HOD, approved, or rejected. This provides better visibility into the approval process without requiring repeated physical enquiries**.**

7. Organized Application Records: The portal maintains application information and approval status in a structured digital environment. This supports easier access to submitted requests and helps faculty members manage application verification activities in an organized manner.

SYSTEM REQUIREMENTS:

Hardware Requirements:

• **Processor:** Intel Core i3 or higher or equivalent.

• **RAM:** Minimum 4 GB; 8 GB recommended.

• **Storage:** 256 GB or higher**.**

• **Display:** Standard HD display or higher.

• **Network:** Stable internet connection for accessing the web-based application.

Software Requirements:

• **Operating System:** Windows 10/11, Linux, or macOS.

• **Frontend:** HTML5, CSS, and JavaScript**.**

• **Browser:** Google Chrome, Mozilla Firefox, or Microsoft Edge.

• **Development Environment:** Visual Studio Code or an equivalent code editor.

• **Additional Tools:** Git and GitHub for version control, where applicable.

MODULES:

1. User Authentication: Provides the login functionality for Students, Class Advisors, and HODs. The system identifies the user's role after authentication and displays the appropriate dashboard and permitted functions.

2. Student Profile and Dashboard: Displays the student's profile information and provides access to application submission and previously submitted requests. The dashboard helps students view their application activities and monitor the progress of each request.

3. Leave and On-Duty Application: Enables students to select the request type and enter the reason, starting date, and ending date. The application form organizes the required information and provides a structured method for submitting requests to the concerned faculty members.

4. Class Advisor Approval: Provides the Class Advisor with access to submitted student applications for first-level verification. The advisor can examine the request details and available supporting documents before approving or rejecting the application. Approved applications are forwarded to the HOD, while rejected applications are stopped at this stage.

5. HOD Approval: Provides the Head of Department with access to applications that have been approved by the Class Advisor. The HOD examines the submitted information and supporting evidence and makes the final approval or rejection decision.

6. Digital Letter Generation: Generates a formal leave or OD application letter using the details entered by the student. The generated letter can be previewed before submission, helping maintain a consistent format and reducing manual document preparation.

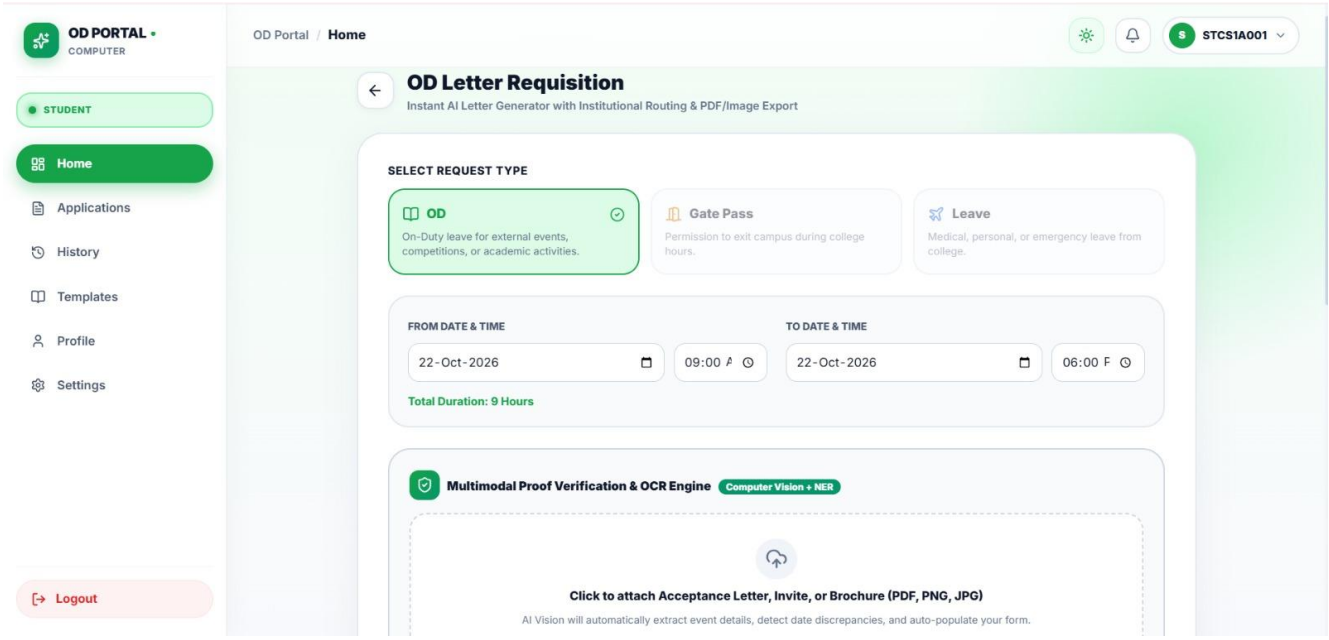
7. Supporting Document Upload: Allows students to attach proof documents such as hackathon certificates, event registration forms, participation certificates, and other relevant files. Authorized faculty members can access the uploaded documents during the application verification process.

8. Application Status Tracking: Displays the current and final status of submitted applications. Students can identify whether a request is pending with the Class Advisor, pending with the HOD, approved, or rejected. This module provides visibility into the application workflow and helps students follow the progress of their requests.

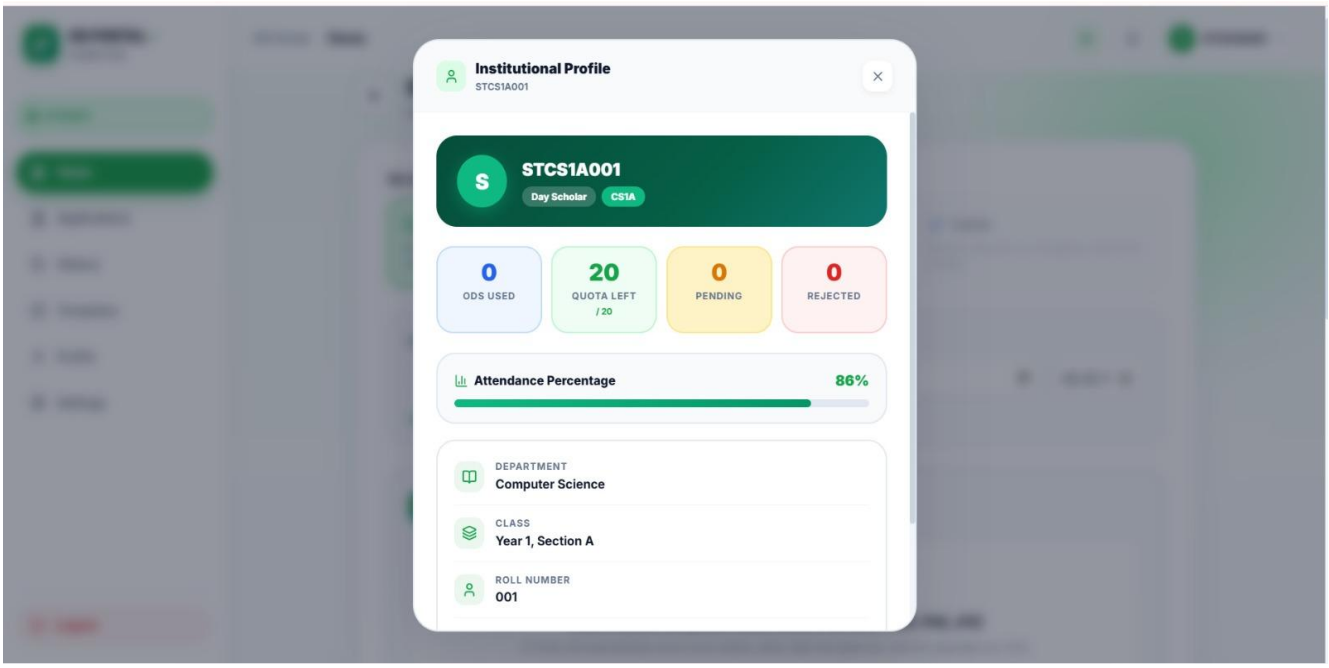
9. Notification and Approval Updates: This module provides updates regarding the progress and decisions of submitted Leave and OD applications. It helps students identify when an application has been reviewed, forwarded to the next approval authority, approved, or rejected. It also helps faculty members stay informed about applications requiring their attention.

10. Application History and Record Retrieval: This module maintains access to previously submitted applications along with their approval status and related details. Students can refer to their past Leave and OD requests, while authorized faculty members can review application records when required. This helps maintain organized records and simplifies the retrieval of previously processed applications.

Student OD Application Submission Interface and Institutional Profile Dashboard



Student Institutional Profile and OD Quota Status Dashboard



CONCLUSION:

The Smart Leave and On-Duty Management System provides a structured digital approach to managing student leave and OD applications in educational institutions. The system addresses the limitations of traditional paper-based procedures by introducing centralized application submission, role-based access, sequential faculty approval, digital letter generation, supporting document uploads, and application status tracking. By organizing these functions within a common web-based platform, the proposed system reduces dependency on physical application letters and repeated visits to faculty offices.

The major contribution of the proposed system is its two-level approval workflow involving the Class Advisor and the Head of Department. Students can submit their requests through an online form, while the Class Advisor performs the initial verification. Applications approved at the first stage are forwarded to the HOD for final approval, whereas rejected requests are stopped at the respective stage. This process maintains the institutional approval

hierarchy and provides a clear distinction between the responsibilities of the reviewing authorities. The facility for uploading supporting documents further assists faculty members in verifying OD applications using relevant evidence such as event registration forms and participation certificates.

The system also supports the generation and preview of formal application letters and provides students with visibility into the progress of their requests. These features help organize administrative activities and provide a consistent approach to managing application information. Overall, the Smart Leave and On-Duty Management System establishes a practical foundation for digitizing college leave and OD administration. Further integration with institutional information systems, automated notifications, and advanced document management facilities can strengthen the system and extend its usefulness in future implementations.

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