Enterprise Resource Planning For Sanjeevan

Vishal Kasture[1], Akash Pawar[2], Aditya Gundure[3], Kapil Patil[4], Krushna Padgilwar[5]
[1, 2, 3, 4, 5] Dept of Computer Science
[1, 2, 3, 4, 5] Sanjeevan Group of Institutions Panhala, Maharashtra, India

Abstract- *The ERP system developed for Sanjeevan College helps bring all important academic and administrative work into one place. It manages student and faculty data, attendance, exams, and other daily activities in a simple and organized way. By reducing manual work and paperwork, the system makes processes faster and more accurate. It is designed to be easy to use, secure, and useful for students, teachers, and administrators, helping the college run more efficiently.*

Keywords: Enterprise Resource Planning, ERP system, Sanjeevan College, administrative processes, academic processes.

I. INTRODUCTION

In today's digital era, educational institutions manage a wide array of academic and administrative responsibilities. Despite technological advancements, many colleges continue to depend on manual or partially digital systems for tasks such as attendance tracking, leave management, and record maintenance. These outdated approaches frequently result in inefficiencies, data inaccuracies, processing delays, and limited transparency.

To address these challenges, Enterprise Resource Planning (ERP) systems are increasingly being adopted to integrate various institutional processes into a single platform. ERP systems help in improving coordination, reducing manual effort, and ensuring better data management.

The proposed ERP system for Sanjeevan College is designed to streamline key operations, with a focus on faculty leave management and related academic processes. It provides a centralized and user-friendly platform where faculty can apply for leave, and administrators can efficiently review, approve, and manage requests.

By digitizing these processes, the system reduces paperwork, enhances accuracy, and improves communication between stakeholders. Overall, this project aims to develop a reliable, secure, and scalable solution that contributes to the smooth and efficient functioning of the institution.

II. LITERATURE REVIEW

The initial phase of this project focused on identifying the key challenges faced in managing academic and administrative processes within educational institutions. At Sanjeevan College, many activities such as faculty leave management and record maintenance are still handled manually, leading to inefficiencies, delays, and data inconsistencies. These limitations highlighted the need for a more structured and automated system.

To gain a deeper understanding, a detailed study of existing ERP systems and related research work was carried out. Various solutions were analyzed based on their functionality, cost, usability, and adaptability to academic environments. It was observed that while some ERP systems provide advanced features, they are often complex, expensive, or not specifically designed for college-level requirements.

Based on this analysis, relevant ideas were gathered to design a system that is simple, efficient, and tailored to the needs of Sanjeevan College. Discussions with faculty and administrative staff also helped in identifying practical requirements and user expectations.

This phase played a crucial role in defining the direction of the project by combining problem identification, research insights, and practical considerations into a well-planned solution.

III. EXISTING SYSTEMS SUMMARY

Several ERP solutions are available for academic institutions, ranging from open-source platforms to enterprise-grade systems. Open-source solutions such as ERPNext and Odoo integrated with OpenEduCat are widely adopted due to their flexibility, cost-effectiveness, and suitability for small to medium-sized institutions. Fedena provides an education-focused Software-as-a-Service (SaaS) solution that enables rapid deployment; however, it offers limited customization capabilities.

Enterprise-level systems, including Oracle PeopleSoft and SAP S/4HANA, offer advanced functionalities and high scalability but are associated with high

implementation costs and complexity. Microsoft Dynamics 365 provides a cloud-based solution with integration capabilities within the Microsoft ecosystem. Additionally, custom-developed ERP systems allow institutions to tailor features according to their requirements, although they require skilled developers and higher maintenance efforts.

Considering these factors, open-source ERP solutions are more suitable for institutions like Sanjeevan College due to their affordability, flexibility, and ease of customization.

IV. SYSTEM ARCHITECTURE

No table of figures entries found.

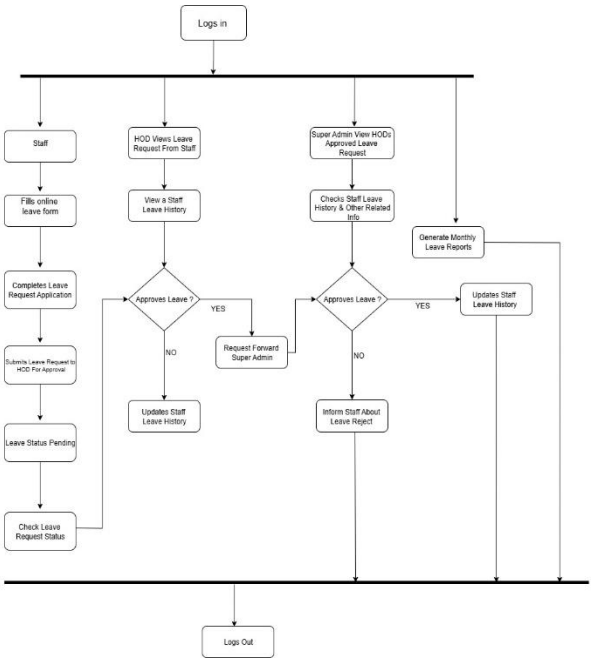

Figure 1 System Architecture

V. PROPOSED SYSTEM

- Eliminates manual paperwork
- Enhances accuracy and reduces human errors
- Improves transparency and communication
- Saves time for both faculty and administrators
- Ensures proper documentation for audits and planning
- Contributes to digital transformation of the institution

VI. SOFTWARE/HARDWARE REQUIREMENT

Hardware Requirements
Disk: Capacity >500MB for smooth performance
RAM: 2GB (minimum), 4GB(recommended) and above.
Processor: Intel Core 2 Quad or Intel i3-5th Gen and above (recommended)
Software Requirements OS: Windows 7 and above or linux
Front End Technology: Typescript ,React.js
Backend Technology: Node.js,MySql
Code editor:VSCode,Notepad

VII. DATASET

The dataset used in this project is collected from Sanjeevan College and represents real academic and administrative data. It includes information related to faculty members, leave records, attendance details, and departmental data required for the proper functioning of the ERP system.

The dataset consists of structured data such as faculty ID, name, department, leave type, leave duration, and approval status. This data is used to simulate real-world scenarios and to test the functionality of the ERP system, especially the leave management module.

Before using the dataset, necessary preprocessing steps were performed to ensure data consistency and accuracy. Any redundant or incomplete entries were handled appropriately to maintain data quality.

Additionally, proper care has been taken to ensure data privacy and security. Sensitive information has been either anonymized or used in a controlled environment strictly for academic purposes.

This dataset plays a crucial role in validating the system's performance and ensuring that it meets the practical requirements of the institution.

VIII. IMPLEMENTATION

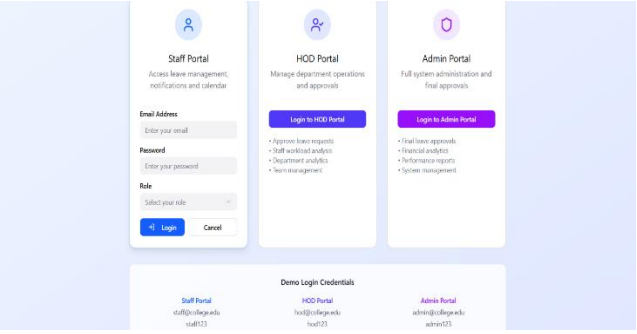

Figure 2 Admin panel

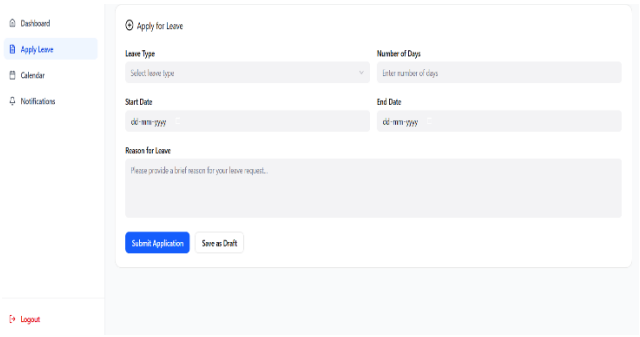

Figure 3 Staff dashboard panel

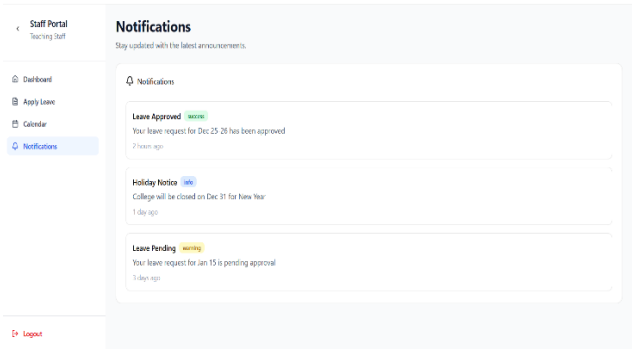

Figure 4 Staff notification

IX. CONCLUSION

The Faculty Leave Management System developed for Sanjeevan College effectively addresses the limitations of traditional paper-based processes. By integrating leave management into a digital ERP platform, the system improves accuracy, transparency, and overall operational efficiency. It streamlines the entire workflow, including leave application, approval, tracking, and report generation, ensuring timely access to information for all stakeholders.

Furthermore, the automation of processes reduces administrative workload and minimizes the chances of errors, while maintaining well-organized and reliable records. The centralized database enhances data consistency and supports institutional planning through meaningful reports and analytics. In addition, the user-friendly interface and role-based access control facilitate smooth adoption by faculty members, department heads, and administrators.

Overall, the proposed system provides a practical, efficient, and scalable solution that contributes to the effective management of academic processes within the institution.

X. FUTURE SCOPE

The current system mainly focuses on faculty leave management, but there is a lot of scope to expand it further in the future. One of the major improvements can be the addition of more ERP modules such as student attendance, fee management, timetable scheduling, and examination management. This will help in making the system more complete and useful for the entire institution.

The system can also be enhanced by developing a mobile application, so that faculty and administrators can access it anytime and from anywhere. This would make the system more convenient and increase its usability.

Another possible improvement is the integration of advanced features like notifications through SMS or email, and real-time updates. This will help users stay informed about leave approvals, rejections, and other important activities without needing to log in frequently.

In the future, the system can also include data analytics and reporting features to help management in better decision-making. For example, analyzing leave patterns can help in planning workloads and managing resources more effectively.

Additionally, security features can be further strengthened by implementing advanced authentication methods. The system can also be integrated with other institutional systems such as payroll or biometric attendance for better coordination.

Overall, the project can be expanded into a full-scale ERP solution that supports all academic and administrative processes, making the institution more efficient and digitally advanced.

REFERENCES

[1] J. H. a. E. W. Y. van Everdingen, “Enterprise resource planning: ERP adoption by European midsize companies,” 2000.
[2] M. Z. Xia Hu, “The Three-dimensional Teaching Mode of ERP,” 2011.
[3] [A. A. Y. a. O. Sun, “Achievement assessment for enterprise resource planning (ERP) system implementations,” 2011.
[4] M. Singh, “A Project Report On ERP”.
[5] D. A. Pranab Garg, ““Comparative Analysis Of Erp ",” 2011.

[6] S. Parajuli, “A Report on Enterprise/ERP Systems and Its Connection to Digital Process Automation,” 2021.
[7] Y. S. D. Muhammad Faisal Ibrahim, “A literature review on ERP implementation: Methodologies, module, software, and policy,” 2024.
[8] R. &. S. Momoh, “Challenges in enterprise resource planning implementation: state-of-the-art,” 2010.
[9] A. K. Mojca Indihar Stemberger, “Enterprise Resource Planning (ERP) Systems: Use of Reference Models,” 2011.
[10] MDPI, “Risk Factors When Implementing ERP Systems in Small Companies”.
[11] K. &. B. Mahmood, “ERP issues and challenges: a research synthesis,” 2020.
[12] L. C. T. a. P. V. F. M. Markus, “Enterprise resource planning: multisite ERP,” 2000.
[13] A. W. E. K. Lucas Gren, “Choosing agile or plan-driven enterprise resource planning (ERP) implementations,” 2019.
[14] T. Bhatti, “Critical success factors for the implementation of enterprise resource planning (ERP): Empirical validation,” 2005.
[15] S. A. M. e. al., “Critical Challenges in Enterprise Resource Planning (ERP) Implementation,” Canada.
[16] Ahmed Maged & Gamal Kassem, “Self-Adaptive ERP: Embedding NLP into Petri-Net creation and Model Matching,” 2025.
[17] N. N. &. O. Adegoke, “Learning from ERP Implementation: A Case Study of Issues and Challenges in Technology Management,” 2015.