

Internship Management System Using MERN-Stack

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Abstract

Internships are the key for the student who wants to get hands-on experience in the industry. IMS (Internship Management System) is a centralized platform that helps students to shape their careers. Our platform aims to provide different internship opportunities to the students. IMS includes an Admin login, student login and features like a resume builder which will provide a user-friendly experience to the students. The platform aims to streamline the process, give a user-friendly experience and enhance the functionality of the internship management system which will benefit both the company and student. The Internship Management System (IMS) is a modern platform created using the MERN stack (MongoDB, Express, React, Node.js), designed to optimize and streamline the complete internship management workflow. Through our platform students can also be able to filter the internships based on locations.

Keywords: Internship system, resume builder, login, streamline, user-friendly, MERN-stack

INTRODUCTION

The internship management system is a centralized platform through which students can access the internship. The objective of our project is to build a web portal that streamlines the internship process, providing a more user-friendly and effective experience for everyone involved. The system provides internship and focuses on providing hands-on experience to the students.

By doing internships, students get real-world experience that helps them build the practical skills and they will get knowledge of how actually industry works. It is a great way to prepare for the job market, making the shift to full-time work a lot smoother and boosting their confidence in the process.

Our project is divided into two core modules: the Student Module and the Admin Module. The

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The Student Module allows students to log in and gain access to a wide range of internship opportunities; additionally, students can utilize our platform for resume-building with the tool to create and refine their resumes for applications. The Admin Module, on the other hand, provides administrators with the functionality to log in, post new internship opportunities, and review a list of students who have applied. This structured approach ensures both students and administrators have an efficient, user-friendly experience in managing internships. This will definitely help the students and admin to access the internships and ease the process.

Integrating features like chatbots really boosts the platform's usability, making it much easier for students to manage and apply for internships.

Internships are crucial because they provide practical experience and help to develop skills that are essential for getting jobs in reputable companies [1].

This system allows us to easily find internships that match our career interests, giving us the chance to gain hands-on experience in our fields. By taking part in internships, we not only enhance our resumes but also build industry-relevant skills that can make a real difference in the job placement process. The Internship Management System minimizes the burden of paperwork and manual tasks, offering a streamlined and transparent process for all participants. By shifting to a digital platform, it saves valuable time, boosts productivity, and allows students, organizations, and educational institutions to efficiently handle internships with greater ease and clarity.

PROBLEM STATEMENT

Current internship management methods involve disparate systems and manual processes, leading to inefficiencies. Students face challenges in creating professional resumes and managing applications. Employers struggle with posting opportunities and handling applications, while educational institutions find it difficult to monitor and support students effectively. The main issue regarding the current management process is time-consuming and includes the manual process which is inefficient. Sometimes student lose the internship opportunity due to lack of a centralized platform [2].

LIMITATIONS OF EXISTING SYSTEM

Lack of Automation

In today's digital world most internship management systems still rely heavily on manual process. Features such as resume builder, filtering the internship based on the location, or application tracking are either missing or underdeveloped. This leads to inefficiencies, as students and recruiters must handle tasks manually, such as matching skills with internship roles or optimizing resumes for different opportunities.

Overreliance on Manual Work

The manual internship process is slow and not very efficient, which creates several problems for students. For example, there are often delays in submitting applications and getting late responses from recruiters. Many students also find it hard to match their skills with the right internships, leading to missed opportunities for valuable experiences.

No centralized System

Without a centralized platform, managing the internship process becomes difficult. Manual handling often leads to delays and inefficiencies. Keeping track of applications without a unified system is time-consuming and requires more human effort to monitor every aspect of the process. A streamlined, centralized solution is essential to improve efficiency and reduce the burden on those involved. The centralized system makes it simple to manage the application.

Time Consuming

The manual management of internships takes a lot of time and involves more human interaction, which can be inefficient. By using a centralized platform, the process will become much smoother and improve overall efficiency.

Data-Storage

The current manual process stores the information in the file format which is inefficient. Retrieving this information is quite difficult, which overall affects the performance.

METHODOLOGY

Our internship management system will provide unique functionality to the students and admin. The main aim of our project is to streamline the overall process and provide different functionalities like resume builder, chatbot, and analysis of students. Our project contains two different modules i.e. student module and admin module (Figure 1).

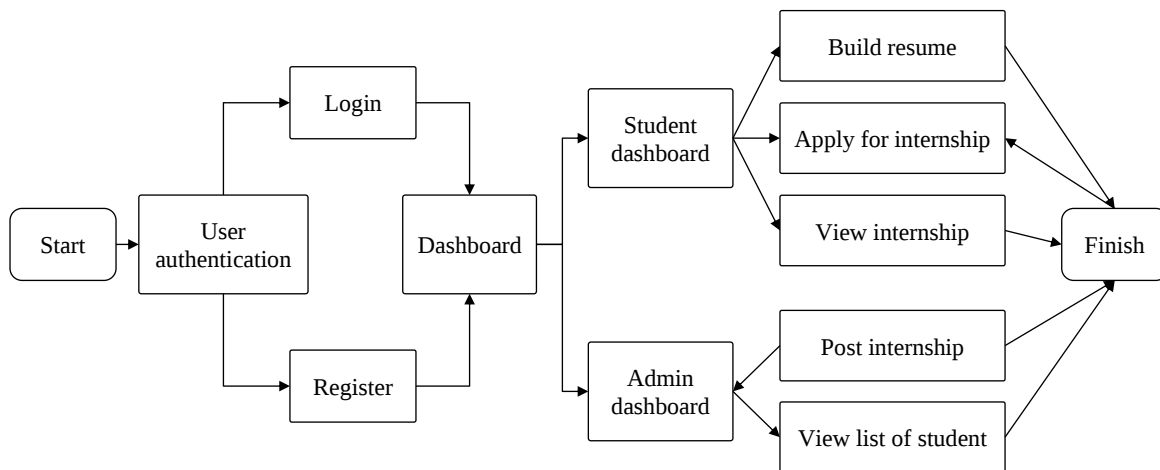


Figure 1. Workflow diagram.

Student Module

- User authentication using JWT.
- Internship search functionality with filters (location, duration, field, etc.).
- Resume builder.
- Apply for internships.

Admin Module

- Admin registration and login.
- Posting internship opportunities.
- Viewing and managing applicants.
- Manage internships.
- Review and approve student applications.

Technology Stack: MERN

The IMS leverages the MERN stack (MongoDB, Express, React, Node.js) for its development.

- *MongoDB*: A NoSQL database that securely stores student profiles, internship postings, and application details.
- *Express*: A Node.js web application framework that manages server-side operations.
- *React*: A JavaScript library used to create a dynamic and interactive user interface.
- *Node.js*: A JavaScript runtime environment that handles backend functionalities.

The main goal of this project is to make the internship process easier for both students and admin. Students can quickly find internships and apply for them, while admins can easily post new opportunities and manage applications. Overall, we want to make it simpler for students to get hands-on experience and for admins to handle everything in one place without spending too much time on manual tasks. This project will help improve the way internships are managed and accessed, using the MERN stack (MongoDB, Express, React, Node.js) [3].

For students, the platform allows them to easily access the internships based on their skills and interests. After logging in, they can create their profiles, and directed to the home page where we also provide the resume option for the students who have not created their resumes and after that they can upload resumes, and apply for internships directly on the site. There is also a feature to track the status of their applications and get updates on any new developments.

For admins, the platform provides a dashboard where they can post internships, review applications, and even contact students directly. The system also helps sort through applications based on certain

criteria, making it easier for admins to manage everything in less time. The feature like resume builder will definitely help the students to generate the industry level resume. This platform is going to provide the functionality to the students. In this project we focused on MERN stack technology, which will streamline the process and make it more used friendly.

Features

- *Centralized platform:* A centralized internship platform is going to help the students to grab the internship opportunity and get hands on experience.
- *Resume builder:* This user-friendly resume builder empowers students to create polished, professional resumes tailored to their chosen industries.
- *Integration with trending technology:* The Integration With the Trending technology like AI will definitely help the student to make more accurate resume.
- *Admin:* A comprehensive interface for administrators to oversee internship postings, select applications, and engage with student.

EXPECTED RESULT

The Internship Management System will make the process of finding and managing internships easier for both students and employers. Employers can easily post, update, and review internship listings, while students can select the internships based on choice, apply, and submit resumes directly through the system. The platform will offer useful features like resume builder which is definitely going to help the students to create the industry ready resume. This portal is going to reduce the manual work and making this process efficient and more reliable. This platform will improve the user experience also.

LITERATURE REVIEW

On the basis of the research papers that we have referred, we get to know the following information about the available research work in Table 1.

Table 1. Information about the available research.

Author(s)	Title	Year of publication	Proposed work	Research gaps
Juhana et al.	E-Portfolio Web-Based for Students' Internship Program Activities	2018	Focuses on the development of an e-Portfolio web-based system for managing and documenting students' internship activities.	Highlights the need for better adoption and integration of e-Portfolio systems in internship programs [4].
binti Jaafar et al.	Development of Internship Monitoring	2017	Discusses a web-based system to monitor and supervise internship programs, addressing documentation and communication challenges.	Demonstrates the effectiveness of the system but highlights the challenges in scaling and broader implementation [5].
Ali et al.	Digital Transformation of Education Toward Successful Internships: A Methodology Developed Over Seven Years and Tested During COVID-19	2022	Proposes a digital methodology for managing internships, developed and refined over seven years, with significant testing during the COVID-19 pandemic.	Emphasizes the need for continuous improvement and adaptation of digital systems to evolving internship needs [6].
Bhattarai et al.	A Project Proposal on "Internship Management and Portal System"	2023	Aims to create a simple, cost-effective platform for Nepali companies to hire good candidates while addressing the challenges of manual processes.	Identifies the challenges of current paper-based internship hiring practices in Nepal [7].

Author(s)	Title	Year of publication	Proposed work	Research gaps
Ibrahim <i>et al.</i>	Student-Industry Matching for Internship Placement	2021	Introduces a profile-matching system to improve internship placements using fuzzy logic to correlate student profiles with industry needs.	Highlights gaps in the precision and efficiency of current student-industry matching systems [8].
Nuca <i>et al.</i>	New Opportunities for Internship for the Technical University of Moldova	2017	Discusses opportunities and challenges in organizing internships for engineering students to enhance practical skills and capacity building.	Emphasizes the importance of internships but notes logistical challenges in implementation [9].
Muslih <i>et al.</i>	Implementation of Impact Zachman Framework on Internship Architecture Data Management	2021	Applies the Zachman Framework to model an internship data management system, addressing issues in current apprenticeship processes.	Demonstrates the effectiveness of the Zachman Framework in managing internship Programs [10].
Mydyti and Kadriu	Using Internship Management System to Improve the Relationship Between Internship Seekers, Employers, and Educational Institutions	2020	Proposes a centralized Internship Management System (IMS) to enhance communication and coordination between stakeholders.	Highlights the lack of centralized systems to address fragmented processes [11].
Raza and Hasib	Digital Transformation of Education Toward Successful Internships: A Methodology Developed Over Seven Years and Tested During COVID-19	2023	Focuses on how digital transformation in education supports successful internships, highlighting methodologies refined over an extended period.	Suggests the need for continuous adaptation of methodologies to ensure relevance in a post-COVID landscape [6].
Wang	“Internet + Internship Management”: College Internship Management Optimization	2020	Describes an internet-based internship management model implemented to optimize efficiency and reduce workloads for administrators and educators.	Emphasizes leveraging big data for real-time tracking and communication but notes scalability challenges [12].

CONCLUSION

The current Internship Management System (IMS) faces challenges due to manual processes, The traditional process is slow and inefficient, but with the web portal in place, recruitment becomes more streamlined, and interns can effortlessly update their information. A key feature, the AI-powered Resume Builder, helps students create professional resume using the latest AI technology. Moreover, the system streamlines internship applications, helps administrators manage applicants efficiently, and provides useful insights for better decision-making. With its simple and user-friendly design, the system reduces workload, enhances accuracy, and improves the overall experience for students and recruiters.

REFERENCES

1. Li D, Chen X. Research on the Cultivation of International Talents in Colleges and Universities in the Context of the Belt and Road Initiative. In 2020 IEEE International Conference on Big Data and Informatization Education (ICBDIE). 2020 Apr 23; 182–186.
2. Zarouk M, Olivera E, Peres P, Khaldi M. The impact of flipped project-based learning on self-regulation in higher education. *Int J Emerg Technol Learn*. 2020 Sep 11; 15(17): 127–47.
3. Kharel A, Shrestha S, Bhattarai S, Pauline Oosterhoff, Karen Snyder. Assessment of outreach and engagement with prospective migrants by the agencies recruiting labourers for foreign employment. Brighton: Institute of Development Studies; 2022 May; (571).

4. Juhana A, Abdullah AG, Somantri M, Aryadi S, Zakaria D, Amelia N, Arasid W. E-portfolio web-based for students' internship program activities. In IOP Conf Ser: Mater Sci Eng. 2018 Feb 1; 306(1): 012003. IOP Publishing.
5. binti Jaafar AN, binti Rohafauzi S, bin Mohd Fauzi FD, bin Amron MT. Development of internship monitoring and supervising web-based system. In 2017 IEEE 15th Student Conference on Research and Development (SCORED). 2017 Dec 13; 193–197.
6. Raza A, Hasib M. Digital transformation of education toward successful internships: A methodology developed over seven years and tested during COVID-19. IEEE Trans Educ. 2022 Dec 5; 66(3): 244–53.
7. Bhattarai Saurab. A Project Proposal on "Internship Management and Portal System". Lamachaur, Pokhara: Pashchimanchal Campus, Tribhuvan University; 2023. Available from: 371501704_A_PROJECT_PROPOSAL_ON_Internship_Management_and_Portal_System_Submitted_By_Aashish_Katila_PAS076BCT001_Ashish_Acharya_PAS076BCT007_Nitesh_Devkota_PAS076BCT019_Saurab_Bhattarai_PAS076BCT037
8. Ibrahim N, Hanum HM, Bakar ZA, Abdullah NA. Student-Industry Matching for Internship Placement. In 2021 IEEE Fifth International Conference on Information Retrieval and Knowledge Management (CAMP). 2021 Jun 15; 122–126.
9. Nuca I, Burduniuc M, Nuca I, Grigorița A, Mirco V. New opportunities for internship for the technical university of Moldova's students. In 2017 IEEE International Conference on Electromechanical and Power Systems (SIELMEN). 2017 Oct 11; 375–379.
10. Muslih M, Nurjanah D, Fauziah FS, Permana MA, Irawan C, Asian J. Implementation of Impact Zachman Framework on Internship Architecture Data Management. In 2020 IEEE 6th International Conference on Computing Engineering and Design (ICCED). 2020 Oct 15; 1–6.
11. Mydyti H, Kadriu A. Using Internship Management System to Improve the Relationship between Internship Seekers, Employers and Educational Institutions. ENTERprise REsearch InNOVation (ENTRENOVA). 2020 Sep 21; 6(1): 97–104.
12. Wang L. "Internet+ Internship Management": College Internship Management Optimization. In 2020 IEEE International Conference on Computer Engineering and Application (ICCEA). 2020 Mar 18; 312–314.