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Unified Teacher Guardian Platform

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ABSTRACT: Effective student management is a critical aspect of educational institutions, requiring robust systems for monitoring, allocating, and managing student resources efficiently. This research explores a dynamic student allocation framework that integrates a guardian assignment mechanism based on predefined academic parameters such as branch, class, batch, and section. The system aims to streamline administrative workflows by providing an automated method for fetching and displaying student details, enabling bulk allocation of guardians through a structured selection process. The proposed solution enhances institutional efficiency by reducing manual effort, improving data accessibility, and ensuring accurate record-keeping. By leveraging structured data retrieval methods, the system retrieves student records from a centralized database, allowing administrators to view, filter, and allocate guardians to multiple students simultaneously. Additionally, the interface facilitates seamless interaction, providing administrators with essential student details while incorporating security measures to ensure data integrity and privacy. This research contributes to the domain of student management systems by offering a structured and scalable approach to student-guardian allocation. The study evaluates the effectiveness of the proposed framework in optimizing administrative efficiency and minimizing errors in guardian assignment. Future advancements may incorporate intelligent automation techniques, predictive analytics, and broader institutional integrations to further enhance the robustness of student management solutions.

KEYWORDS: Text detection, Inpainting, Morphological operations, Connected component labelling.

I. INTRODUCTION

Education is a dynamic process that extends beyond traditional classroom interactions. The relationship between teachers, students, and guardians plays a crucial role in shaping academic success. However, many educational institutions face challenges in establishing seamless communication and efficient student management. The Unified Teacher Guardian Platform aims to bridge this gap by providing an integrated solution that enhances collaboration, academic monitoring, and student support. In many institutions, student management and communication between stakeholders remain fragmented, leading to inefficiencies, miscommunication, and delays in addressing student concerns. Traditional methods of student tracking, guardian involvement, and academic monitoring often rely on manual processes, which are not only time-consuming but also susceptible to data inconsistencies. Additionally, students and parents frequently face difficulties in staying updated about academic progress, performance, and administrative requirements. There is a pressing need for a centralized and intelligent system that connects all stakeholders while ensuring transparency, security, and ease of access.

Objectives of the Unified Teacher Guardian Platform:

The Unified Teacher Guardian Platform is designed as a comprehensive digital ecosystem that facilitates seamless interaction between students, teachers, and guardians. The platform consists of a web-based application for administrators and educators and a mobile application for students and parents to ensure real-time engagement. The objectives of the platform include:

II. LITERATURE SURVEY

The Unified Teacher Guardian Platform integrates modern technological advancements to enhance student-teacher parent communication and support academic development. This literature review explores previous studies in key areas





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relevant to this project, including parental involvement in education, the role of ICT, mobile technology in learning, Natural Language Processing (NLP) for automated responses, deep learning-based query systems, smart inquiry systems, and optimized query generation for document retrieval.

1. Parental Involvement and Academic Achievement

Parental involvement in education is a critical factor influencing students' academic success. Research has shown that when parents actively engage with teachers and school activities, student performance and motivation improve significantly [1][5]. Schools that implement structured parental involvement programs create a collaborative environment that enhances student learning outcomes [1]. A meta-analysis on urban secondary school students found that parental engagement has a positive effect on academic achievement, particularly in underprivileged areas [5]. The Unified Teacher Guardian Platform builds upon this research by offering a communication bridge between parents and teachers. By enabling guardians to monitor student progress, receive notifications, and interact with teachers, the system fosters a collaborative learning environment that contributes to improved student performance.

2. Role of Information and Communication Technology (ICT) in Education

The adoption of ICT in educational institutions has transformed traditional teaching methods, providing digital tools that improve communication, administration, and student performance tracking. Studies indicate that ICT integration in secondary education plays a vital role in streamlining learning processes, with the school computer coordinator acting as a facilitator for these technologies [2]. ICT-based platforms enhance administrative efficiency by digitizing records, automating repetitive tasks, and offering personalized learning experiences. The Unified Teacher Guardian Platform leverages ICT to centralize academic data, allowing teachers to manage student profiles, record attendance, track grades, and schedule meetings. By incorporating web and mobile applications, the platform aligns with research that highlights the benefits of technology-enhanced learning environments [2].

3. Mobile Technology and Its Impact on Learning

The widespread adoption of mobile technology in education has revolutionized student engagement. Studies indicate that mobile applications enable seamless access to academic materials and foster real-time communication between students and educators [3]. Socioeconomic factors also influence mobile learning adoption, with research highlighting the role of mobile technology in bridging educational gaps in low-income communities [3]. By integrating a mobile application for students and guardians, the Unified Teacher Guardian Platform ensures that stakeholders remain updated on academic progress and institutional notices. The mobile application supports document sharing, enquiry submission, and notifications, ensuring that communication between teachers and guardians remains effective and accessible.

4. Natural Language Processing (NLP) for Automated Response Generation

Automated response systems powered by NLP have significantly improved the efficiency of communication in educational settings. NLP techniques enable machines to process human language, extract meaningful insights, and generate contextually relevant responses [4][9]. Research has shown that automated feedback systems, which use NLP for query resolution, enhance student learning experiences by providing immediate assistance without requiring direct teacher intervention [4]. The Unified Teacher Guardian Platform applies NLP methodologies such as Term FrequencyInverse Document Frequency (TF-IDF) and cosine similarity to improve response accuracy. The system processes student enquiries, extracts keywords, and identifies the most relevant responses, ensuring that queries receive appropriate answers. If existing responses do not meet the student's needs, the system allows them to submit their enquiry for further processing, thereby refining the database over time.

III. METHODOLOGY

The proposed methodology for the Unified Teacher Guardian Platform focuses on automating the student enquiry handling process using Natural Language Processing (NLP), Term Frequency-Inverse Document Frequency (TF-IDF), and Cosine Similarity. The system ensures efficient communication between students, teachers, and guardians while streamlining academic and administrative operations.





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IV. EXPERIMENTAL RESULTS

Here in this chapter we are proposing the results that we get from implementation of the project. As we created the website for the individual person so that he can directly login or register his/her account and provide certain functions on the web site for the individual person.

Fig : Website Include : Login Page, Login Faild, Student form, Register Notice, Post Enquiries.

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Logerd in as 1011 (start)	Pending Enquiries	19		
Student Name	Enquiry			
Kale Akhilesh Rajendra	Collage Near hostel	Reply		

Fig : Android App Include : Student Login Page , Student Dashboard, Notices, Post Enquries.



V. CONCLUSION

The Unified Teacher Guardian Platform enhances communication between students, teachers, and guardians by leveraging TF-IDF and Cosine Similarity for automatic response generation. The system efficiently processes student enquiries by extracting keywords using Natural Language Processing (NLP) and ranking relevant responses. If a suitable response is not found, the enquiry is forwarded to the assigned guardian, ensuring an effective resolution mechanism. The proposed method improves accuracy, response time, and user satisfaction, as demonstrated in the





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performance evaluation. By reducing manual intervention and improving response relevance, the platform significantly contributes to academic support and seamless communication in educational institutions.

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