

Research Paper on “Convlinksphere: A Cross Platform Application for Parent Teacher Communication”

Asst. Prof. Rakhi Punawatkar¹, Sanskruti Farde², Trupti Jadhav³, Monali Jadhav⁴

¹Asst. Professor, ^{2,3,4}Student, Department of Computer Engineering, Zeal College of Engineering and Research, Pune, Maharashtra

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ABSTRACT-There are various challenges related to parent-teacher communication. These challenges are often discussed in educational literature, news articles, forums, and other online resources. Parent-teacher communication issues can arise from factors such as busy schedules, language barriers, differing communication preferences, and the need for timely and effective information sharing. Schools and educators often seek solutions to improve communication with parents and guardians to enhance student support and overall educational experience.

Several available technologies can address parent-teacher communication challenges, such as dedicated communication apps providing messaging, event notifications, and progress sharing. Learning Management Systems offer centralized platforms for resource sharing and progress updates. Email, text messaging, and social media platforms can facilitate quick updates and engagement. Video conferencing tools enable virtual meetings, and student information systems provide parent portals for attendance and grade tracking. Enable real-time updates on student progress to complement multimedia content sharing and increase engagement. In addition, addressing potential issues related to technology training for teachers and parents will improve its implementation.

I. INTRODUCTION

The requirements for an effective parent-teacher communication solution include a user-friendly platform with real-time updates on student progress and activities. It should ensure data security, offer customization for communication preferences, and support multilingual communication to bridge language barriers.

Integration with existing systems and comprehensive technical support are essential for seamless adoption and scalability.[2]

The challenges in parent-teacher communication are multifaceted. Conventional methods like paper-based communication or face-to-face meetings can lead to untimely information sharing, while failing to cater to modern parents' digital preferences can result in exclusion. Language diversity might be inadequately addressed, causing communication gaps. Furthermore, one-way communication channels limit parent interaction and engagement, potentially creating a passive experience. The security of digital platforms can raise privacy concerns, risking unauthorized access to sensitive student data. Inconsistencies in information from various sources can lead to confusion, and approaches lacking multimedia elements may struggle to capture attention effectively. Technical barriers, especially among lower-income families, can hinder access to communication tools. The perceived additional workload for teachers and resistance to change from both educators and parents further complicate matters. These challenges underscore the need for innovative solutions for development of effective parent-teacher communication.[3]

To address the limitations inherent in current parent-teacher communication methods, suitable remedies emerge in the form of innovative solutions. These encompass the implementation of interactive digital platforms designed to foster real-time engagement, multimedia exchange, and dynamic two-way communication. This technological integration stands poised to amplify parental participation in their children's educational journey. Moreover, harnessing the potential of AI, the development of automated multilingual

translation tools emerges as a transformative avenue. By seamlessly transcending language barriers through AI-driven translation, effective communication becomes attainable across diverse parent cohorts. Augmenting these advancements, the provision of comprehensive training initiatives emerges as an indispensable facet. The equipping of both educators and parents with a profound understanding of communication tools engenders proficient utilization, thereby maximizing engagement and realizing the full potential of these progressive strategies.[4]

Solution to improve parent-teacher communication is the integration of chatbot and databases systems. A personalized chatbot can provide real-time updates on student progress, activities, and upcoming events, as well as address frequently asked questions. The database component optimizes student records, communication history, and predictions, and enables teachers to access relevant information interactively. This dynamic network facilitates communication, provides immediate support, and encourages informed and highly coordinated parent-teacher partnerships.[1]

II. LITERATURE SURVEY

Nor-Syahidatul N. Ismail, Muhamad Nazrin Kamaruddin, Syazana Syahirah Jamaluddin, Nor Saradatul Akmar "Parent Teacher Assisting Monitoring Application System (PTAMA)" (2019) The aim of this paper is to Develop an application for parent teacher communication and monitoring of students, main moto of this application are attendance monitoring homework monitoring, announcements through app. It is application that is developed using HTML and PHP language. The limitation of this application is it is only designed in web based application as a platform to access and does not have any mobile application.[1]

Černák, P. Sitarik and M. Rojček "School web portal as a means of parent-teacher communication" (2022). Journal of Educational Technology The aim of this paper is to analyse the attitudes of Estonian primary school teachers and parents regarding the role of teacher-parent digital communication in socialising the child and in the child's academic progress, their communication channel preferences, and related experiences and opinions. The research highlights differences in channel preferences by types of school and between teachers and parents of the same school, indicating the need to find ways to harmonise communication conventions.[2]

Chen, Y., et al. (2022) Data Security

and Privacy in Database-Driven Parent-Teacher Communication Systems. Educational Technology Research and Development, 70(3): It aims to ensure inclusive and equitable quality education for all. Digital technologies have emerged as an essential tool to achieve this goal. This paper is brief about the need for digital technologies in education and discusses major applications and challenges in education.[3]

Faculty, College of Engineering and Information Technology, Surigao Del Norte State University, Surigao City, Philippines "Enhancing Parental Engagement via the Grade Viewer Application" (2023). The Grade Viewer Application is a digital platform that provides real-time access to students' academic progress, attendance, and assignments, fostering seamless communication between parents, teachers, and students. The methodology used in designing and implementing the system is the Rapid Application Development system. The Communication and Messaging component enables seamless interaction between parents, teachers, and students within the application.[4]

Misty Rose Tomchuk, "Teacher Perceptions Of Parent-Teacher Communications And Practice" (2021). This study aimed to investigate the connections between teacher beliefs regarding parent-teacher relationships, teacher conversation competence, and communication frequency with parents. It recognized the importance of understanding teachers' perspectives on parent-teacher communication, given its positive impact on student academic performance. It emphasizes the critical role of teacher conversation competence in shaping the frequency of communication with parents and offers valuable insights for enhancing teacher education and professional development in communication skills. The findings deviated from prior research and initial expectations, prompting further inquiries into the intricate dynamics between these variables.[5]

Zehra Ozcinar, Lefkosa, etc. "Development of teacher-parent communication competence scale". (2020) The aim was to develop a scale for measuring teacher-parent communication in order to assess the level of communication qualification that teachers use when it comes to communicating with the parents of their students in the classroom. In this study, a 35-question tool was used to measure how well teachers can communicate with parents. This tool was first checked by experts to make sure it was valid. The reliability coefficients (Cronbach's α) of

all scales and their sub-dimensions, factor-based differentiation operations, matter-remaining and matter-total correlations were calculated. As the result of these processes, TPCCS including 33 items within 4 factors was found valid and reliable to examine the competences used by teachers to communicate with the parents of their students.[6]

Nitza Davidovitch, Roman Yavich “Who Needs Parent-teacher Meetings in the Technological Era?(2020) “The aim of this paper is to examine the parent-teacher meetings in the technological era whether parent-teacher meetings are still relevant and how they should be conducted. The effectiveness of parent-teacher meetings was examined using a questionnaire that explored use of computer-assisted communication and personal involvement, as well as parent involvement the sample consisted of 107 respondents from all regions of Israel, and was formed using a non-probabilistic sampling method One of the disadvantage was that in rural areas the use of technology for communication in parent and teacher was not that effective.[7]

Xiangcheng Wu, Bowen Feng, Wenmin Qi ,”Design and Implementation of a Novel Student Information Management System”(2020). This research project aims to develop an efficient and user-friendly student information management system, addressing issues like long development cycles and complex maintenance. The system streamlines user management, role management, performance, course selection, and logistics. However, it lacks specific system details, and user resistance to new technology and concerns about data security may pose challenges. Additionally, integrating NFC technology and associated components may present technical hurdles for schools.[8]

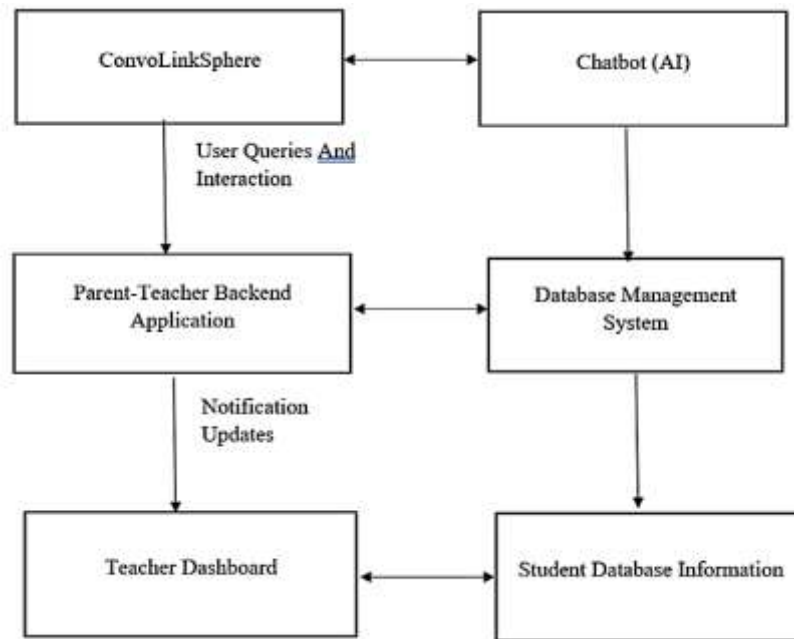
Sandra Joyce McKnight,”Parent–Teacher Online Communication and Third- Through Fifth-Grade Student Academic Achievement Grade Student Academic Achievement”(2020). The study aims to investigate the correlation between parents' utilization of a technology-based parent portal, PowerSchool, and students' academic performance in ELA and mathematics for Grades 3-5. This

online tool facilitates real-time access to assignment details, grades, and attendance for parents. The primary data analysis method employed is a simple bivariate linear regression to explore the link between the frequency of parent portal usage and students' grades, with IBM Statistical Package for the Social Sciences as the analysis tool. The study offers advantages such as using archived data, systematic examination of technology-based parent-teacher communication, and addressing data outliers. However, limitations include its limited scope to one school district and a lack of specific numerical results. Moreover, only parent demographic data is available, potentially limiting the analysis's depth.[9]

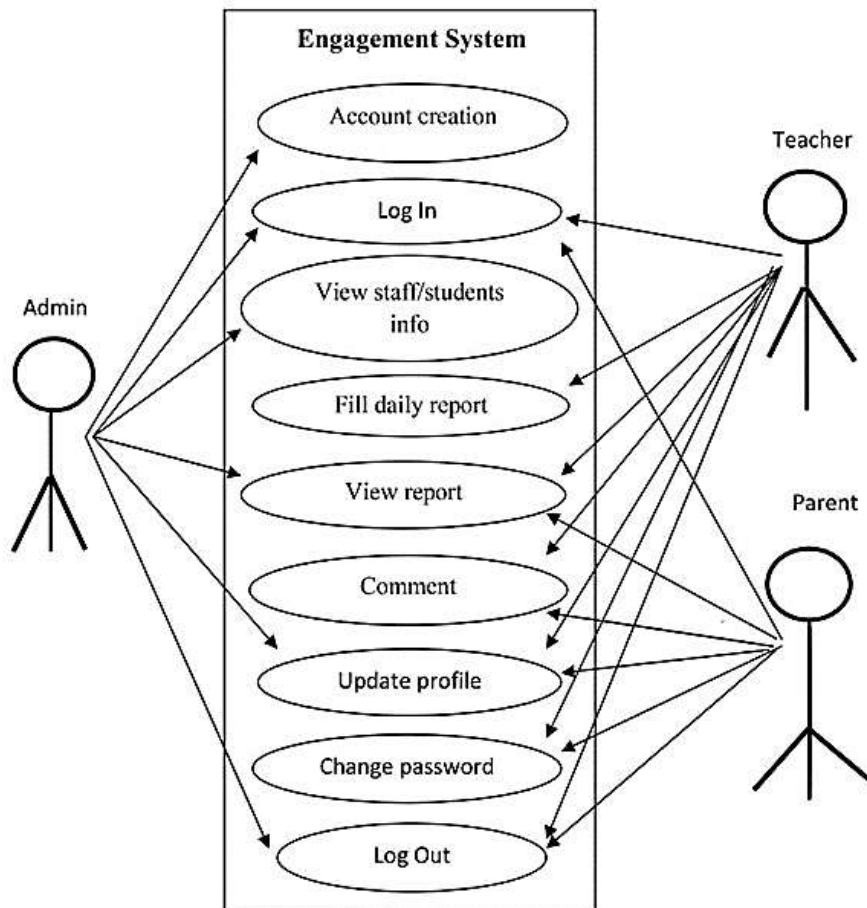
Jaun Wang “Study on Problems and Countermeasures of ParentTeacher Interaction in Parenting Education”(2020). This study aims to investigate issues and propose solutions for enhancing parent-teacher interaction in early childhood education, primarily for children. The research utilizes various data collection methods, such as event sampling, interviews, and surveys, to analyze parent-teacher interactions in educational contexts. The study highlights the importance of parent-teacher interaction and offers practical strategies for improvement, utilizing diverse data collection methods. The research lacks in-depth exploration of specific technological solutions in the "Internet+" era and doesn't provide detailed information on the statistical methods employed, limiting generalizability.[10]

III. PROPOSED SYSTEM

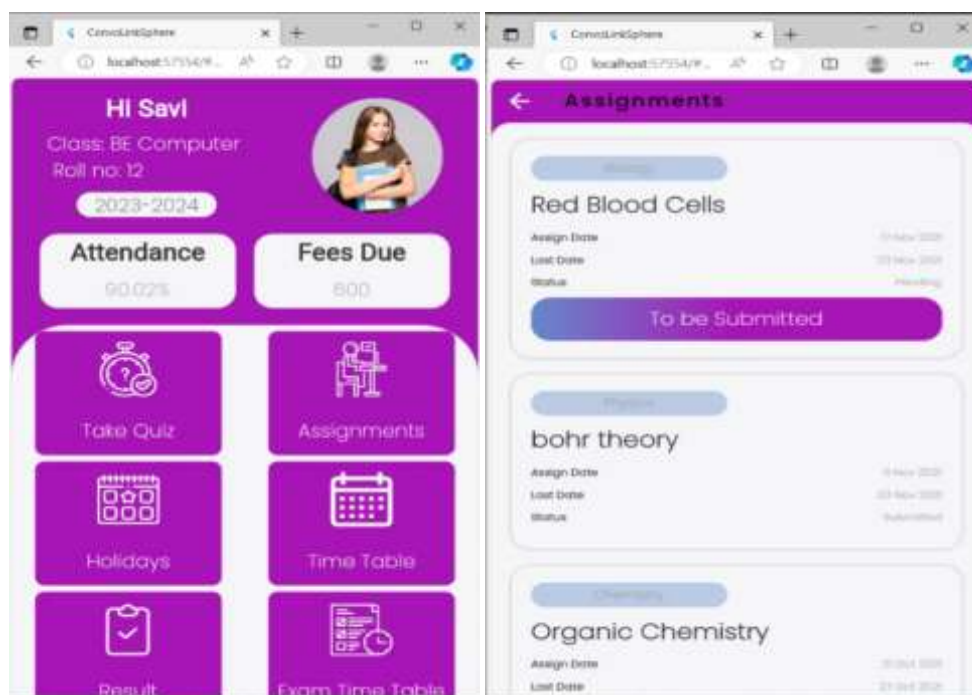
In this proposed system, parents interact with a chatbot through a mobile app, which handles user queries and provides information. The chatbot communicates with the parent-teacher backend application, where notifications, updates, and data management occur. The backend application communicates with the teacher dashboard for administrative tasks, and it also manages the student information database, which contains data related to student progress, attendance, assignments, etc.



I. System Architecture



II. Use-case Diagram



III. Outcome

IV. CONCLUSION

In conclusion, the implementation of the parent-teacher communication project, incorporating a chatbot and maintaining a comprehensive student database, represents a pivotal step towards creating a more connected and informed educational ecosystem. By leveraging technology to bridge communication gaps, the project strives to enhance parent engagement, streamline information dissemination, and promote data-driven decision-making. The integration of a chatbot offers personalized interactions, enabling parents to receive timely updates and tailored responses, fostering a stronger partnership between home and school. Simultaneously, the student database empowers educators to gain insights into student performance, enabling targeted interventions for improved learning outcomes. As technology continues to shape the education.

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