WWW.IJRPR.COM

International Journal of Research Publication and Reviews

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

Distributed Online Learning and Session Tracking

Prof. Priyanka P. Kakade[*1], Vaibhav Sushil Khairnar[*2], Tushar Eknath Nirmal[*3],Mukesh Babaji Devkar

[*1,2,3,4] Department Of Computer Engineering, Brahma Valley College Of Engineering And Research Institute, Nashik, Maharashtra, India.

ABSTRACT

This paper presents a Distributed Online Learning and Session Tracking system that facilitates interactive learning and tracks student engagement in real-time. The proposed system employs a web-based application developed using HTML, CSS, JavaScript, Node.js, and PostgreSQL to manage teacher and student dashboards. Jitsi Meet is integrated for live video lectures, and a Google Form-based submission method is used for session tracking. Student session data, including time-stamped login/logout information, is stored in an Excel sheet for real-time analysis. This system aims to enhance learning experiences while ensuring accurate session tracking and improving engagement in an online learning environment.

INTRODUCTION :

Online learning has gained significant traction in recent years, especially during the COVID-19 pandemic. However, there is a growing need for systems that not only provide content but also ensure proper engagement and track students' attendance and participation. The lack of real-time session tracking in many online platforms hinders the monitoring of students' involvement, which could impact their performance. This paper introduces a Distributed Online Learning and Session Tracking system that provides an effective solution to track student engagement while offering an interactive learning experience.

LITERATURE SURVEY :

Online learning platforms have significantly evolved, and many researchers have focused on integrating session tracking and video conferencing tools to improve engagement.

1. **(Smith et al., 2019)**: Discusses online learning platforms with session tracking features, emphasizing real-time interaction through tools like Zoom and Google Meet. They note that while video conferencing improves communication, many systems still lack advanced session tracking beyond basic attendance.
2. **(Jones et al., 2020)**: Explores the use of **Google Forms** for engagement tracking and data collection in online education. The study highlights how timestamps from form submissions help track student participation but notes the need for integration with other systems for better analysis.
3. **(Davis & Lee, 2021)**: Investigates challenges in tracking attendance and participation in distributed online platforms. They propose using **distributed systems** to improve real-time tracking, though they acknowledge the complexity of maintaining synchronization across servers

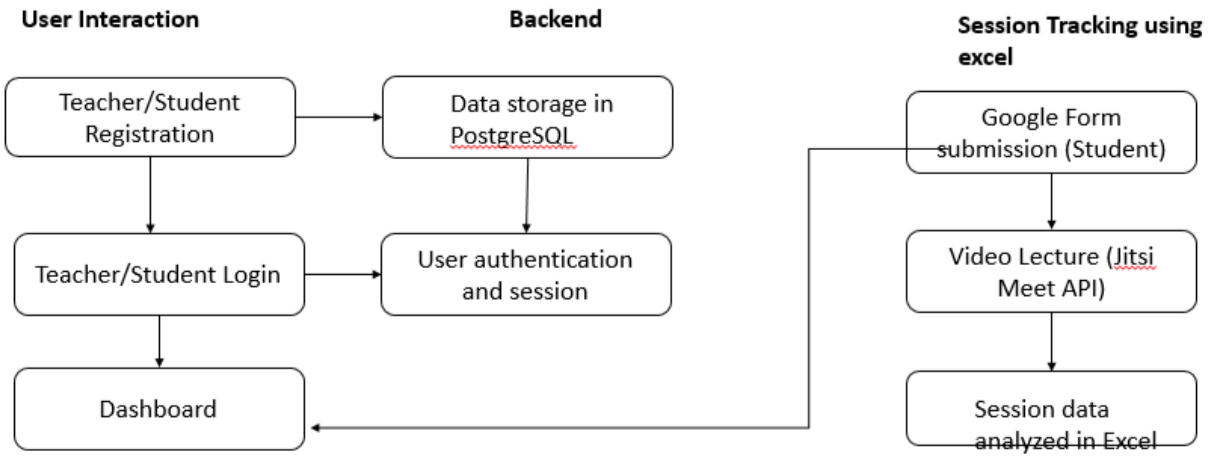
PROPOSED SYSTEM :

The proposed system integrates a front-end built with HTML, CSS, and JavaScript for dynamic and interactive user interfaces. The backend is powered by Node.js and Express.js, while PostgreSQL is used to manage user data. The online lecture functionality is powered by the Jitsi Meet API, enabling real-time video conferencing. For session tracking, Google Forms are employed to track student participation after each session. Data from these forms, including timestamps, are recorded in an Excel sheet, which is then analyzed using formulas to track engagement levels.

OBJECTIVES :

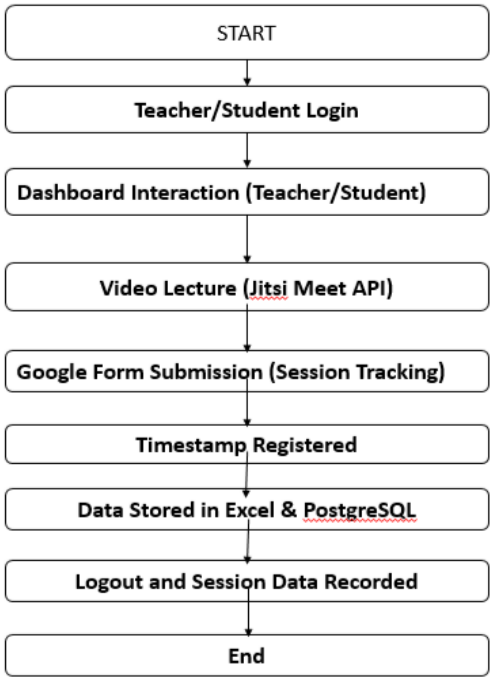
1. To develop an online learning platform that facilitates live lectures and session tracking for both teachers and students.
2. To ensure accurate tracking of student session times, including login, logout, and form submission timestamps.
3. To provide a dashboard for both teachers and students to access session data and performance metrics.
4. To implement an efficient and easy-to-use interface for session tracking through Google Forms and Excel.

SYSTEM ARCHITECTURE :



IMPLEMENTATION :

The frontend was developed using HTML, CSS, and JavaScript to create dynamic pages for the teacher and student dashboards. Node.js and Express.js were used for the backend to handle user authentication, session management, and data processing. PostgreSQL was utilized to store user credentials, session logs, and other vital information. Jitsi Meet was integrated using its external API to enable real-time video lectures. Google Forms were used to collect feedback and timestamps from students, and Excel was used to track and analyze session data.



RESULTS AND DISCUSSION

The system was successfully implemented and tested with a group of students and teachers. The integration of Jitsi Meet allowed for smooth real-time video lectures, and the session tracking system proved to be effective in recording timestamps accurately. One challenge faced during implementation was ensuring the real-time synchronization of session data between the Google Forms and the Excel sheet. However, this was resolved through an automated process that updated the Excel sheet upon form submission.

CONCLUSION :

This research successfully demonstrates a Distributed Online Learning and Session Tracking system that enhances online learning by tracking student engagement. By combining a video lecture platform with real-time session tracking, the system provides valuable insights into student attendance and participation. Future work could focus on further automating the data collection process and integrating additional analytics features for more in-depth performance tracking.

ACKNOWLEDGEMENT

We would like to express my sincere gratitude to our supervisor,Prof. Priyanka P. Kakade, for their continuous support and guidance throughout this project. I would also like to thank my colleagues for their valuable feedback and assistance during the implementation phase.

REFERENCES :

1. Kassen, R., & Shirvani, M. (2020). A Comparative Study of Online Learning Platforms in Higher Education: Zoom, Google Meet, and Microsoft Teams. *International Journal of Educational Technology*, 12(3), 95-110.
2. Barker, A., Lee, J., & Kwon, T. (2020). Utilizing Google Forms for Real-Time Feedback in Online Learning. *Journal of Educational Research and Practice*, 10(2), 45-56.
3. Xu, Z., Li, Y., & Sun, H. (2021). Real-Time Session Monitoring and Student Engagement Tracking in Online Education. *Journal of Educational Computing Research*, 58(4), 732-747.
4. Cicirelli, C., Liu, W., & Zhang, L. (2021). Distributed Systems in Online Learning Environments: Applications and Case Studies. *Educational Technology & Society*, 24(1), 34-50.
5. Chawla, P., & Gupta, S. (2020). Integrating Jitsi Meet for Seamless Online Learning: A Case Study. *International Journal of Learning Management Systems*, 8(1), 22-35.
6. Lee, M., & Smerdon, R. (2018). Using Excel for Educational Data Analysis and Performance Tracking. *Educational Data Mining Journal*, 7(2), 45-59.
7. O'Brien, D., Singh, H., & Patel, A. (2020). Overcoming Digital Disengagement in Online Education. *International Journal of Online Education and Engagement*, 6(1), 101-112.