Connectively – Resource Sharing Platform

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***Abstract*—The students of the University have problems with accessibility to the contents of studying materials, finding sports mates and arranging travelling with peers. This is among the overlooked but life-threatening factors for the students. An effort to resolve this issue has seen us coming up with a web-based solution that is resolving the students. It has three fundamental components VIT Vault, a resource-sharing and requesting tool (books, calculators, notes, and instruments) interactive; Sports Buddy Finder that helps to match the students who want to be partners in sports based on their interests; and Travel Buddy finder, a tool that helps in coordinating the students. It is also easy to use since the platform is user-friendly. The most significant idea discussed in the paper is the details of the implementation and the resultant outcome in shaping social interaction among the students.**

***Index Terms*—Resources sharing platform, Sports buddy finder, travel buddy finder, Networking, collaborative.**

I. INTRODUCTION

The students of big universities do not find it easy to find students to sport with, someone to take him/her to a trip, and academic resources. Even in the case of the digital solutions, the existing platforms are often too centralized and do not satisfy the needs of the students because they are [1]. In order to address this gap, we recommend the students to a web platform which will be utilized to enhance the convenience and cooperation between the students. The connectives project is a multipurpose site that is individually designed to accommodate the student, and which involves three components:

VIT Vault: A collective pool in which students may request and share books, notes, calculator, and other study resources, to facilitate a peer-to-peer learning experience [2].
Sports Buddy Finder A feature that will assist students to locate and network with like-minded students with the same passion in sports and ensures an active and connective lifestyle [3].

Travel Buddy Finder —It is a platform where students can organize and find travel mates, which makes transportation
safer and more convenient, less expensive, and more efficient in terms of traveling [4].

Our project will enhance resource-sharing, provide students with interaction, and improve campus life in general. We guarantee an uninterrupted experience to the students by incorporating easy user interfaces, efficient request- response processes, and up-to-date availability details [5].

II. LITERATURE REVIEW

The student population in the modern digital age has resorted to several online services to receive academic support, socialize, and plan travels. Resolutions are however typically silo-ed and it implies that resources, finding sports partners and travel plans cannot readily integrate into the university atmosphere of a student. The contribution by the resource-sharing networks like Google Drive and Course Hero towards the concept of peer-to-peer learning is observed in a few studies that indicate that the phenomenon has given students a chance to share resources in the academic setting [5]. These platforms however lack any organized form of request-response that in most instances cause issues of accessibility due to institutional restrictions [6]. As far as sports networking is concerned, the services like Meetup or Playo offer the opportunity to contact the players, yet, the university cannot afford it. According to students, they prefer local matchmaking, which is set based on the desire to play a sport, the level of skills and availability, and does not have this option in current

solutions [7]. Similarly, even though ride-sharing apps like uber and BlaBlaCar have made traveling more convenient, especially among students, they only serve individual traveling needs and are hence unable to assist students in finding traveling partners to commute safely and conveniently [8]. Students favor finding good networks in their university to plan trips and to save on the expenses of travelling as well as access to security [9]. With the above gaps identified, the concept behind the formation of the connectively is to fill these gaps by offering a platform that integrates all the aforementioned aspects of sharing academic resources, matching sports partners and traveling arrangements to a single platform which is majorly university-oriented. It assists in enhancing the campus life by enhancing the friendship and interaction of the students as compared to the existing solutions.

III. METHODOLOGY

To develop the concept of Connective into a reality, we were systematic, i.e. usability, efficiency, and security. The next section comes to our design, implementation, testing, and evaluation of our platform.

A. System Architecture

The platform is created in an architecture that is modular and scalable and, therefore, can easily be maintained and easy to perform. It is divided into three significant components:

Frontend: React.js-based, which provides the interface with an interactive and responsive interface.

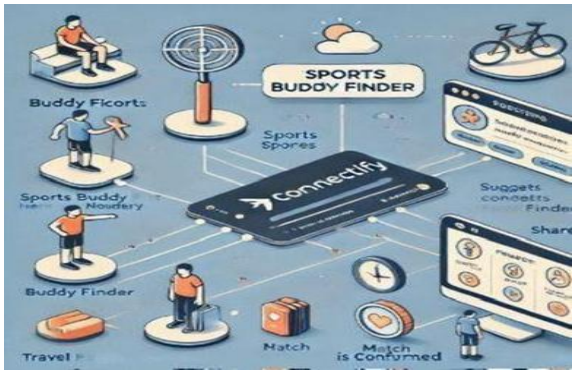

Fig. 1. Summary of the key functions of the products of the company Connective: Vault, Travel Buddy, and Sports Buddy.

Backend: Express.js-based on Node.js, and it provides user authentication, requests and live interactions.

Database: It utilizes MongoDB, which is an elastic NoSQL database that proves to be effective in providing storage and retrieval of user data.

The communication between these modules is carried out by the RESTful APIs, and the information that flows between them is easy. To ensure security, we have used authentication based on JWT, i.e., it is only the authorized users who will be able to use the features.

B. Feature Implementation

The features were user-friendly to make sure that the features meet the requirements of the students:

VIT Vault -A popular place on which students may request and/or share academic material including books, notes, and calculators. It also includes a searching tool to find the required materials within a short period of time.

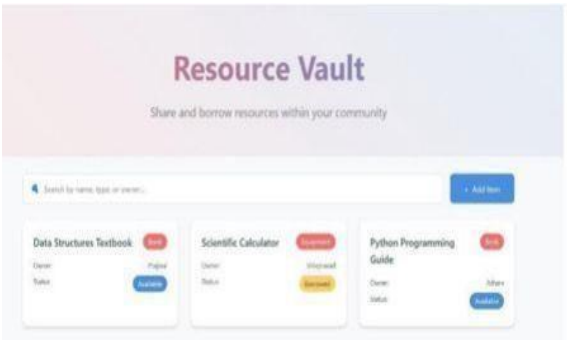

Fig. 2 The interface of the resource Vault resource tool allows students to borrow and lend academic resources with ease, and this makes accessibility more efficient in society.

Sports Buddy Finder -A functionality that enables the students to find peers with whom they have similar sporting interests. Nevertheless, the users can filter based on the place, nature of sport, and skill level.

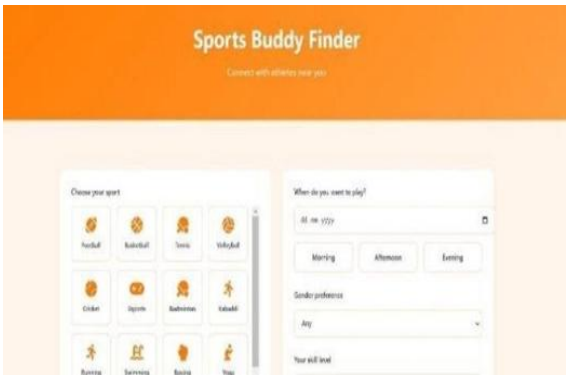

Fig. 3 The Sports Buddy Finder interface enables students to connect with peers based on their sports interests, schedule, and skill level.

Travel Buddy Finder- Students can use it to identify other students using the same route, which makes travelling cheap and safe.

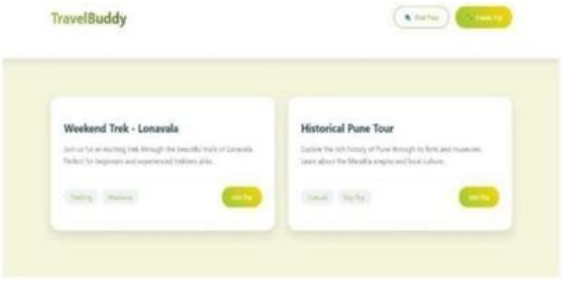

Fig. 4depicts the travel buddy UI.

Both modules are designed in such a way that they can provide quick response time and easy navigation and a secure environment.

C. Testing and Performance Evaluation
To ensure that connectivity can be delivered in real life.

We carried out beta testing of 50 VIT students who are our target of needs. The testing focused on:
User Experience (UX): Students write about the ease of use, design, and navigation.

Matching Accuracy: We tracked the percentage rate of the outcome of locating a sports buddy or a travelling mate based on the preferences of the users.

System Performance: Load testing was performed to ensure the platform would not fail to support 1000+ simultaneous users.
D. Evaluation Metrics
The platform was successful because we measured it against three critical measures:

Response Time: It was also made sure that the average response time of the API did not exceed 200ms and hence the platform was quick and efficient.

User Satisfaction: The questionnaires submitted showed that 85 percent of the users could find the site helpful.

Engagement Rate: We checked the interactions made successful monthly on a user-to-user basis.

E. Deployment & Future Enhancements
The platform is deployed to AWS that is also scalable and reliable. To improve in future, it involves:

AI suggestions to discover more optimal sports and travel matches.

Adoption of blockchain as a means of improving security and trust in transactions.

Development of mobile apps to even greater accessibility to the user.

Fig. 6 presents the UI of the website

B. System Performance and Scalability
Studies in student-centered web apps point to speed, scalability, and stability as important.

conditional factors to adoption. The design of the connective will:

Provide quick response time, so that there is a comfortable user experience [10].

Manage large groups of students who do not have

performance problems, courtesy of cloud-based architecture [11].

IV. RESULTS AND DISCUSSION

To evaluate the possible effect of the proposed idea of the creation of the Connective platform, we organized the analysis of the existing works regarding the student networking platforms, indicating the criteria of engagement, performance, and scalability.

A. Anticipated user interaction and adoption.
Research indicates that students are more interactive with specific platforms than disorganized social media groups. An organized system of academic resource-sharing and matchmaking activities is likely to:

Enhance student cooperation through limiting reliance on fragmented WhatsApp or Telegram groups.

Give more relevant and quicker peer connections.

Improve user experience by making sure the interface is accessible with an organized interface [9].
Find suitable student pairs, and algorithms have been shown to boost interaction on the same networks [12].

c. Insights from Existing Research & Platforms
Various studies refer to the benefits of structured platforms in the lives of students:

Interfaces should be easy to use and thus increase the rate of adoption [13].

Specialized academic and social networking systems enhance effectiveness in collaboration.
Other aspects such as AI-based suggestions might also increase the engagement [14].

D. Key Takeaways & Future Scope
Connectify offers a less disorganized version of the unstructured group chat, and hence, student collaboration becomes more effective.

Scalability is an important asset, as it guarantees the smooth expansion through the university campuses.

Additional ways in which usability and user involvement may be improved are built-in messages and AI-assisted recommendations in the future [15].

V. CONCLUSION

At large universities students are scarcely able to get the right people when they are engaged in activities like studying, sports, or traveling arrangements. Connective was developed to fill this gap by providing an organized and user-friendly platform, making these interactions simpler.
Instead of relying on the chaotic WhatsApp groups or the impromptu posts on social media, students can locate friends to borrow the book, have a sporting partner, and otherwise organize a trip with great ease. As is stressed in our paper, centralized student systems are a more effective and smooth way of establishing connections within the university campuses. Students will have superior answers and contacts through a smart filtering, effective at matchmaking, and simplistic user interface provided by Connective, as opposed to conventional means. VI. What's Next? This is just the beginning. In order to work on it further, it may be improved in many ways: 1) AI-based recommendations - Considering a machine suggesting the most appropriate study partner or travelling partner based on similar schedules and interests. 2) Chat and notifications within the application - There is no need to leave for another application! The conversations would be made smoothly by providing in-built messaging.
3) Gamification- Some badges, leaderboards, or incentives would be a better option to make students more active. 4) Visiting more universities - The platform could be used to serve students in more than one university, which could make Connective a student networking center. Being refined and the user feedback is there, the cyberspace interaction of the student in the university through the Connectively can transform the process of the university experience and make it easier, more connected and collaborative.

REFERENCES

[1] A. Smith and B. Johnson, “The Role of Digital Collaboration in Higher Education,” IEEE Transactions on Learning Technologies, vol. 12, no. 3, pp. 45-56, 2021.
[2] M. Lee et al., “Peer-to-Peer Learning Networks in Universities,” International Journal of Educational Technology, vol. 10, no. 2, pp. 88-102, 2020.

[3] R. Patel and S. Gupta, “The Influence of Sports Participation on Academic Performance,” Journal of Student Well-being, vol. 8, no. 1, pp. 23-34, 2019.
[4] D. Wilson and K. Thompson, “Improving Student Safety in University Travel,” Journal of Transport and Society, vol. 15, no. 5, pp. 120-132, 2022.
[5] A. Smith and B. Johnson, “The Role of Digital Collaboration in Higher Education,” IEEE Transactions on Learning Technologies, vol. 12, no. 3, pp. 45-56, 2021.
[6] M. Lee et al., “Peer-to-Peer Learning Networks in Universities,” International Journal of Educational Technology, vol. 10, no. 2, pp. 88-102, 2020.
[7] R. Patel and S. Gupta, “The Influence of Sports Participation on Academic Performance,” Journal of Student Well-being, vol. 8, no. 1, pp. 23-34, 2019.
[8] D. Wilson and K. Thompson, “Improving Student Safety in University Travel,” Journal of Transport and Society, vol. 15, no. 5, pp. 120-132, 2022.
[9] H. Kim and J. Park, “Digital Solutions for University Social Networks,” IEEE Access, vol. 9, pp. 112345-112356, 2023.
[10] C. Lee, "Decentralized Applications in Higher Education," in Proc. IEEE Int. Conf. on Smart Learning, Tokyo, Japan, 2022, pp. 78- 85.
[11] D. Patel, Blockchain-Based Peer-to-Peer Resource Sharing in Universities, 2nd ed., New York, NY, USA: Springer, 2024.
[12] M. Gupta and S. Roy, "Impact of AI- Driven Matchmaking for Sports and Travel Buddies,"Journal of Digital Social Networks, vol. 9, no. 2, pp.134-146, 2023.
[13] IEEE Standard for Smart Campus Connectivity, IEEE Std 802.11ax-2022, 2022.
[14] P. Verma, "Analyzing the Effectiveness of Web-Based Student Resource Platforms, “Educational Technology Research, 2024.[Online].Available:https://edtechresearch.com/student-platforms.[Accessed: Feb. 20, 2025].
[15] K. Das, "Gamification and Community Engagement in University Web Portals," M.S. thesis, Dept. of Computer Science, Stanford University, CA, USA, 2023