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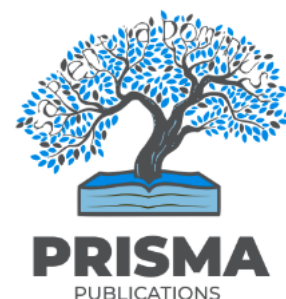
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Falcon RecZone: Enhancing Intramural Sports Through Innovation and User-Centered Design

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ABSTRACT

Participation in club and intramural sports has been linked to various academic and social benefits for college students. This study examines the relationship between involvement in recreational sports, academic success, and sense of community among college students. Using a mixed-methods approach, data was collected through surveys and academic performance metrics to assess how participation influences GPA, time management, and student engagement. Findings indicate that students involved in intramural and club sports report higher levels of academic motivation, social integration, and institutional commitment. Additionally, participation fosters a sense of belonging, which contributes to student retention and overall well-being. These results highlight the importance of recreational sports programs in higher education and their role in promoting both academic and social development.

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1 Introduction

The transition to college presents students with various academic and social challenges, requiring them to develop effective time management skills, build social connections, and maintain academic motivation.[1] One avenue that has gained increasing attention for its role in student success is participation in club and intramural sports. Beyond physical health benefits, recreational sports provide structured opportunities for students to engage with peers, develop teamwork skills, and integrate into the campus community.[2, 3, 8]

1.1 Background of the Study

Our project is a replacement system for the current intramural sports signup site. The goal is to provide a better experience for messiah students and staff to sign up for the events organized by messiah's office of student engagement. We also recognize

the lack of organized games and we will be implementing a feature that will allow students to organize their own pickup games with other messiah students. This will also grow messiah's tight living community. We will also implement AI into our project by having a chatbot at the bottom of the page that will be trained to quickly answer questions related to the sports signups.[5, 7]

We were motivated by this topic because of our love for sports and recognition of the need for a better system.[4] We know that a lot of people love sports and we love meeting new people through playing pickup sports because this makes us feel more connected to the messiah community.

1.2 Problem Statement

We are currently dissatisfied with the intramural sports sign-up platform, IMLeagues, due to several concerns. The site's outdated design is visually unappealing and lacks intuitive navigation, making it difficult for users to engage effectively. Additionally, the platform experiences slow loading times, multiplied by the presence of numerous ads. Many features and buttons also remain unresponsive, even after refreshing the page. Moreover, students eager to participate in sports often face challenges in finding enough people to form teams, which further hinders engagement. A more user-friendly and efficient platform would enhance the experience for all participants.

1.3 Project Objectives

We aim to make the app more efficient, allowing users to easily sign up and participate in intramural leagues. Additionally, we want to encourage students to meet new people by introducing a new pickup games feature, which will allow them to create and edit events. This feature will enable students to organize pickup games across various sports, with options to set preferences or restrictions as needed. Lastly, we plan to develop a functional chatbot to assist users with system or sports-related queries, providing real-time information and addressing frequently asked questions (FAQs).

1.4 Scope and Limitations:

Our team aims to implement a fully functional chatbot by integrating it with our specific data. Additionally, we seek to ensure a sufficient number of users to facilitate official games. Securing access to courts or fields for gameplay is another critical requirement. Lastly, we plan to establish a reliable verification system to confirm that users are Messiah students.

1.5 Target Audience

The intended users of this project will mostly consist of Messiah Students. Many students enjoy both watching and playing in sports, and this platform can give them an opportunity to get involved in the Messiah community and make friends along the way. In addition to students, the platform may also be of interest to faculty, staff, alumni, and members of the local community who are interested in participating in intramural sports or supporting a healthy and active campus environment.

1.6 Significance of the Project:

This application will encourage more students to join intramural sports and save them time when signing up for and researching them. Furthermore, many students, especially new students, will be able to meet other students who have similar interests as them and this could create long lasting social impact, therefore strengthening the community.

2 Benchmarking

The purpose for benchmarking this project is to critically evaluate IMLeagues, the primary competitor at Messiah. The goal is to ensure that this application's features and functionality not only meet but exceed industry standards, positioning this application as a superior alternative.

The team conducted a comprehensive analysis of IMLeagues, the primary competitor, by navigating the platform and executing various use cases. The team examined key functionalities, including user registration for leagues, team creation processes, and league search capabilities. By simulating these typical user interactions, the team was able to gain valuable insights into the platform's user experience, feature set, and overall performance. This thorough evaluation allowed us to identify areas of strength and potential improvement, which will help guide the development of a more refined and competitive application.

The key areas looked at were the signup process for leagues and additional side features that currently seem non-functional. The team's analysis focused on several critical aspects, including feature functionality, user experience, and technical performance.

2.1 Application Identification:

The criteria for selecting similar applications was based on a search for platforms specifically designed for managing intramural leagues. The team research concluded that IMLeagues is the leading choice among colleges and universities, with no significant competitors. Consequently, the team focused its benchmarking efforts on IMLeagues, allowing them to comprehensively evaluate and compare its features against the proposed project to ensure a focused approach.

The decision to use IMLeagues.com as a similar application is justified because it has the same use cases and functionality as the team's application. The only difference between the two is that Falcon RecZone will have added features and the existing features will be easier to use.

2.2 Data Collection:

The team selected people at random that weren't familiar with IMLeagues and timed them to navigate from a blank tab to open up the volleyball sport event. More than half of students reported a time of 60 seconds or more which is unacceptable from a software perspective, especially since they were only retrieving data and not updating anything.

The team then asked the students to count how many ads they saw throughout their experience and how many ads they expected to see, and all students reported seeing at least more ads than expected. As well as 46.2% of students reporting that there were ads all over the screen. The team then surveyed our guests to grade how nice the site looks on a scale of 1 to 10 and they reported an average score of 2.6. Last but not least, the team asked them to find the rules for the event and 61.5% of students reported they gave up because they couldn't find it. The most common reasons for this were the site being unintuitive and having vague navigation (Link to survey can be found in references below).

2.3 Data Analysis

The team reports that IMLeagues wastes a lot of time. The login page goes through 4-5 pages just to get into the site. Users then must wait for all the ads to load before the content can start to load. Once the page is loaded you must navigate through the site while ignoring ads taking up half the screen. The data collection in section 2.3 shows there is plenty of room for improvement for IMLeagues, ensuring the team will make a more useful application.

Falcon RecZone can easily jump ahead as soon as it hits the market. With its quick navigation design for intuitive functionality, users will quickly flock to this application. It will be free of ads and be visually updated, displaying a much more modern look, and schools will notice this quickly. Furthermore, the project has a completely additional pickup game feature which will set us apart from all competitors, especially IMLeagues.

2.4 Recommendations:

Based on the analysis of the current site the team is benchmarking, there are a few specific ideas to help this project idea stand out. The first idea is to decrease the level of ads. Users don't want ads on every page and our idea is to be ad free on the whole website, other than educational ads from Messiah University itself.

The team is also planning to implement much better functionality into their project. IMLeagues itself has extremely poor functionality, having very long processes for creating accounts, signing up for leagues, and creating/joining teams. The team plans to increase response time by making the code more efficient, decreasing the steps in the login process, and implementing an easier way to find the rules of the league.

The team plans to implement a chatbot to assist users in everyday tasks within the site. The chatbot will be able to guide users through processes such as logging in, creating an account, signing up for leagues, creating and joining teams, and finding different sections within the site. This will take the next step to modernize the application with the vastly-changing technology sector.

In conclusion, our team identified four key findings that highlight where our application stands in comparison to existing solutions on the market.

- Our research highlights the opportunity to create a more efficient and user-friendly intramural sports platform for Messiah University, positioning Falcon RecZone as a strong alternative to IMLeagues.
- While IMLeagues dominates the industry, its widespread use also reveals common frustrations among students. A more streamlined and intuitive platform could offer a compelling replacement.

- Several universities have successfully developed their own intramural sports applications, demonstrating the feasibility of our project and its potential for success.
- No existing intramural sports platforms currently have a chatbot, making Falcon RecZone the first to integrate AI-driven assistance for improved user support.

3 Method

For the development of Falcon RecZone, we followed the Software Development Life Cycle (SDLC) to ensure a structured and efficient approach. We began with the planning phase, where we identified the key objectives of our project, such as streamlining intramural league sign-ups and integrating a pickup game feature. During the analysis phase, we gathered requirements by researching similar platforms, consulting potential users, and considering constraints such as user verification and field availability. In the design phase, we created database schemas, wireframes, and system architectures to outline the app's structure and functionality before moving into development.

During the development phase, we built the web application using PHP, MySQL, and JavaScript, continuously testing features as they were implemented. The testing phase involved rigorous validation of user authentication, registration, and game scheduling to identify and fix potential issues. We also conducted user testing to gather feedback and make necessary improvements. Finally, in the deployment and maintenance phase, we hosted the application using Hostinger and monitored performance using tools like UptimeRobot and Google Analytics. Throughout the project, we iterated on our work based on testing results and user feedback, ensuring the application met its intended goals while adhering to SDLC best practices.

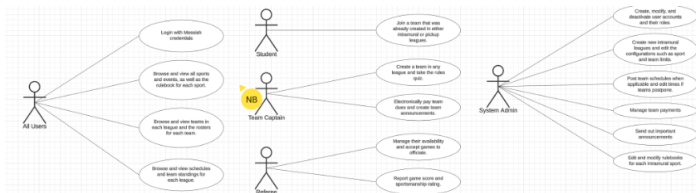


Figure 1: Use Case Diagram for Falcon RecZone

Figure 1 shows the use case diagram for all of the different user types associated with Falcon RecZone. We have five different users, starting with “All Users” or just normal users that as shown in the graph has four main functions. They are typical for an average user on a platform, being able to sign up/login, browsing and viewing each different league and event, browse different teams and rosters, and browse different schedules and team standings for each league. We implemented the principle of least privilege on our normal user type to be able to ensure that a user is not able to sign up and immediately make an impact on the platform.

Next, we have our “Student” user who has the ability of a normal user and more as well as being able to join a team that has been created in an established league. This user type ensures that this is a student at their respective college or university, then allowing them to join teams.

Thirdly, we have the “Team Captain” user who is able to create a team in an already established league. Once passing the quiz, ensuring that user knows the rules of the league, they are then able to create a team and then invite or remove users from that team. The team captain is also responsible for paying the team dues and putting out announcements about games and practices.

Next, we have the “Referee” user who has a slightly different set of abilities. They will still be a normal user, but they are able to manage their availability and either accept or decline games that they are able to officiate. Once they are finished officiating a game, the referee user will then go into the system and report both the game score and sportsmanship rating for each team.

Finally, we have the admin user. The admin user has a lot of responsibilities including creating, modifying, and deactivating user accounts, leagues, teams, and rulebooks. They are also in charge of the schedules for each league, including posting the schedule and rearranging the schedule if needed. Another important role this user type has is managing payments for each team, as well as sending out important announcements regarding the league.

4 Results and Discussion

This study also examines the usability and effectiveness of existing recreational sports management platforms, comparing IMLeagues with our newly developed system. IMLeagues, the widely used platform for club and intramural sports manage-

ment, presents several challenges related to usability, navigation, and user experience. To address these issues, we designed a more intuitive and efficient platform that enhances accessibility, simplifies team management, and improves the overall user experience for college students. Figures 2 and 3 illustrate this comparison, highlighting key differences between the two interfaces.

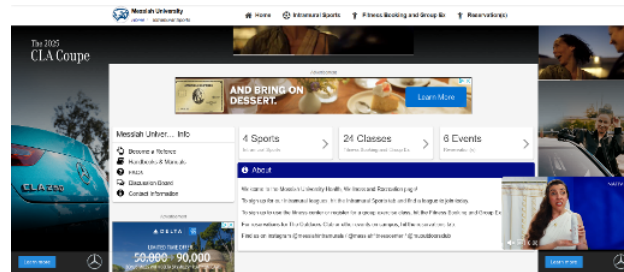


Figure 2: IMLeagues' Homepage

Figure 2 shows IMLeagues' homepage suffering from a cluttered design filled with intrusive advertisements that distract users and slow down site performance. Its outdated interface lacks clear navigation, making it difficult for users to efficiently find and access key features such as team registration, scheduling, and league management. Additionally, the site does not prioritize mobile responsiveness, which further hinders usability across different devices.

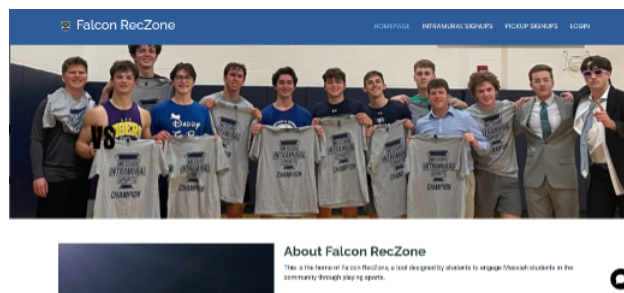


Figure 3: Falcon RecZone's Homepage

In contrast, Falcon RecZone, shown in Figure 3 is designed with a modern, user-friendly interface that eliminates unnecessary distractions by providing an ad-free experience. The layout is clean and intuitive, allowing users to navigate seamlessly and access relevant features without frustration. With a responsive design optimized for different screen sizes and improved loading speeds, Falcon RecZone ensures a smoother and more efficient experience for managing recreational sports leagues.

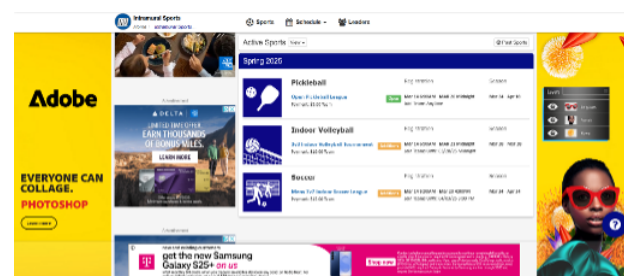


Figure 4: IMLeagues' League Page

Figure 4 shows IMLeagues' league page with a functional but outdated design, displaying a large amount of information in a straightforward yet visually unappealing format. While it effectively organizes details about leagues, registration information, and season start and end dates, its older aesthetic and lack of modern design elements make the interface feel cluttered and less engaging. Although the page provides all necessary information, its dated appearance and dense presentation may contribute to a less visually appealing user experience.

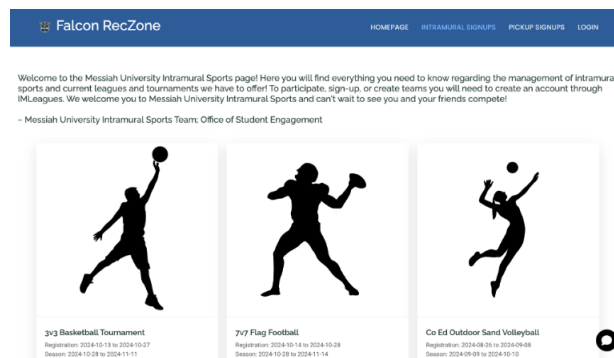


Figure 5: Falcon RecZone's League Page

Figure 5, shows Falcon RecZone, taking a more modern and user-friendly approach by prioritizing clarity and ease of navigation while maintaining essential league information. The cleaner interface reduces visual clutter, making it easier for users to focus on key details without feeling overwhelmed. While our page initially presents less information, intuitive design choices and streamlined navigation allow users to efficiently access additional details as needed, creating a more engaging and efficient experience.

Discussion

The results of our testing indicated that Falcon RecZone provides an improved user experience compared to IMLeagues. Participants consistently found our design to be more intuitive, visually appealing, and easier to navigate. The streamlined registration process, which eliminates multiple redirects, allowed users to complete tasks more efficiently. Additionally, the ad-free experience reduced distractions and improved overall usability, reinforcing the benefits of a modernized approach to recreational league management.

One of the key strengths of Falcon RecZone is its user-friendly design, which prioritizes simplicity and responsiveness. Unlike IMLeagues, which presents a dense and outdated layout, Falcon RecZone ensures a clean and structured experience, allowing users to focus on essential tasks without unnecessary obstacles. Faster call to action and improved mobile responsiveness also contributed to a smoother experience across different devices, making league management more accessible.

Looking ahead, future improvements could include refining the balance between simplicity and information density, ensuring that all essential details are readily accessible without overwhelming the user. Expanding customization options and incorporating user feedback into iterative design updates would further enhance the platform's effectiveness. By continuously refining our interface based on user needs, Falcon RecZone can continue to provide a superior alternative to IMLeagues for recreational league management.

Conclusion

Our study demonstrates that a modern, user-focused design significantly improves the user experience for recreational league management compared to IMLeagues. Through user testing and surveys, we found that Falcon RecZone's streamlined navigation, ad-free interface, and simplified registration process made it easier and faster for participants to complete essential tasks. While IMLeagues provides a wealth of information, its outdated design and cluttered layout often hinder usability.

The positive feedback on Falcon RecZone highlights the value of a clean and responsive interface in enhancing efficiency and user satisfaction. Although there are areas for improvement, such as balancing information density with simplicity, our findings suggest that a minimalistic, intuitive approach leads to a more engaging and effective user experience. Future iterations will focus on refining these aspects based on further user feedback, ensuring Falcon RecZone continues to evolve as a superior alternative for recreational sports management.

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