

Optimizing Athletic Team Management through Django-Powered Website Development

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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ABSTRACT

As a member of club sports teams, both at the university and abroad, I have noticed a pervasive problem of decentralized team management. Many teams have a group chat with miscellaneous links to spreadsheets, playbooks and film, all of which require multiple applications to be used. To resolve this problem, I am utilizing Django, Bootstrap, Figma, Railway, and Vercel to build and deploy a website that will allow any team to build a customizable team portal to consolidate all of the users' team needs in a centralized place. I began this process by designing the layouts of each page and constructing an ER diagram on Figma. I am currently creating a beta version of the website, which I plan to release to my current teammates. The early release will serve to debug and add new features to the site before the final version is deployed. Eventually I would like to create an iOS application that provides the same services as the website, but with even more convenience for many users. Once this project is completed my hope is that team leaders will employ my website to aid them in optimizing team management.

1. INTRODUCTION

Across the world, there are many people who participate in team sports. In 2015 it was reported that one in four American adults play some form of a sport (Sports and Health, 2015). Throughout my life, I have been active

in these communities and currently play Ultimate Frisbee both at the university and club level. I have often thought to myself while scanning through group chats and spreadsheets searching for some information: "There must be a better way to do this."

Teams I have been a part of utilize some combination of Discord, Slack, Email, and GroupMe for team communication and Google Suite tools, external playbooks, and YouTube for logistics. While these platforms provide an excellent service, there can be an overwhelming number of channels, spreadsheets, and impossible-to-find film. These platforms also aim to solve a generic problem of group management and lack key features that would make athletic team management much easier such as centralized space for film, digital playbooks, a template for event details, and an admin page allowing each portal to be highly customizable to individual team needs.

2. RELATED WORKS

When first designing this portal, one application which influenced my design heavily was Slack. According to Johnson (2018), Slack has led to increased efficiency, transparency, and improved team culture by increasing team connectivity. Johnson also states that Slack has led to increased organization by splitting up communications into channels dedicated to certain projects and

by indexing messages. She also notes that Slack is able to increase its accessibility by having a web-based platform, and Android and iOS applications. A disadvantage she notes with Slack is that unless users upgrade to a subscription based account, they are limited to 5GB of storage, 10 external application integrations, and only the last 10,000 messages are saved. My project utilizes the advantages Johnson observed for Slack, namely indexed based searching and the concept of channels, while avoiding the downsides by offering full access to the portal for free.

Another platform I drew inspiration from is Monday.com. As Manko (2021) states, Monday.com is a prime example of “an all-in-one platform that adapts to business needs.” Further, Manko remarks that Monday.com provides a user-friendly dashboard with customizable settings in order to fulfill each company’s needs. Last, she claims that platforms like Monday.com allow companies to automate their communications, which leads to a higher degree of consistency and efficiency. My platform attempts to provide athletic teams with a customizable, user-friendly platform such as Monday.com, but with tailor-made features designed to specifically enhance athletic team coordination, efficiency, and consistency—all while providing the service for free.

3. PROPOSED DESIGN

In order to solve the issue of effective team management, I am using a Django-based technology stack in order to provide an online platform that will act as an athletic team management portal.

3.1 Review of System Architecture

The web portal’s technology stack consists of Django, Bootstrap, Figma, Railway, and Vercel. The portal uses Django as a full-stack tool, controlling the business logic on the

backend as well as the presentation on the frontend. The Bootstrap v5 library acts as a styling aid, allowing objects to be custom styled with fewer lines of code. Figma serves as a custom interface design tool and was used to design the overview of each website page as well as construct the ER Diagram. The ER diagram helps with building an efficient database structure. Last, the portal applies a combination of Vercel and Railway for deployment. Railway is a centralized database system that interacts with Vercel, allowing the website and user’s data to be accessed from anywhere. In the future, the corresponding application will be released on the iOS App Store and will be coded using Swift.

3.2 Requirements

Currently, this platform targets those in charge of team management for club, recreational, and college sports teams, specifically Ultimate Frisbee. A successful launch of this application requires ease of use, customizable options, security and authorization systems, and accessibility from multiple different platforms.

3.3 Critical Components

This web portal tries to meet and exceed all of the requirements listed above by using the critical components described in this section.

3.3.1 Easy-To-Use

The portal comes with a well-labeled navigation bar, an easy to understand control flow, input forms with custom examples, and a help page. The help page offers answers to all FAQs. All of these features, combined with a “Contact” page where users can reach out to customer support with any questions, should aid the usability of the application.

3.3.2 Customizable

By default, each team portal comes equipped with a playbook, roster, and upcoming events

pages. However, teams' administrators have the power to disable these features as well as enable practice plans, film room, and messaging. The "Contact" page provided will allow teams to request any additional custom features from the web-design team.

3.3.3 Security and Authorization

The website ensures security by granting team portal access only to authorized team members, which protects the critical team information stored on each portal. The application secures restricted access by requiring users to sign into their Google accounts before they can access any portal. Furthermore, creators of each team portal become their "Team Administrator," which includes the ability to add or remove any players from the portal access list and to appoint up to two other team administrators.

3.3.4 Accessibility

In order to guarantee application accessibility, the web portal will support both mobile and desktop applications via media queries. In the future, there will also be an accompanying app such that users can have full access to the portal with a simple click of a button.

4. ANTICIPATED RESULTS

The beta version of this application has not been released, so anticipated results are based on research and hypothetical descriptions. Ideally, once the initial website is complete, the link will be sent out to a select group of teams chosen as beta testers. These teams will provide feedback on website benefits and drawbacks. After making the changes identified through beta testing, the service will be deployed and advertised to club and college sports teams around the country. If this platform is a success and multiple teams request new features, these features would be added to the website during mobile application development.

In order to determine whether this website is a success, the platform will track and analyze the number of users, number of teams, the number of new feature requests and the amount of data stored, as well as perform a general network traffic analysis. If the user base continues to grow, developers will explore optimization options such as expanding the database, creating a custom domain, migrating to a lighter weight frontend tool like Svelte or React, and potentially expanding the development team.

Hopefully, this web portal will drastically cut down the number of hours teams spend on organization, decrease the amount of money teams spend on team management, increase transparency between team administrators, and increase the sense of community both within the organization and across the Ultimate Frisbee community.

5. CONCLUSION

In the end, my ambitious hope is for the UltiHub portal to become a staple in team management for the ultimate frisbee, and wider club sport community. The online platform provides an easy to use, transparent, and flexible web portal that would greatly assist team leadership. It provides effective, efficient, and straightforward means of planning and managing logistics. The website achieves this by offering a standardized login system via Google Login, easy-to-navigate user interfaces, a centralized and efficient additional admin page, and the ability to customize each portal to an individual team's needs.

After the Future Work steps are implemented, this portal will have the potential to achieve these ambitious goals due to the closeness of the ultimate frisbee community. This interconnectedness makes it easy for new technology and information to quickly disseminate throughout the ultimate frisbee

community, which will hopefully then transfer to the wider club sport community.

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6. FUTURE WORK

Currently, this portal is in the early stages of development. Many future endeavors are needed to produce the full-fledged platform. As of now, next steps include completing the remaining design details on the desktop-based website, adding features so the website's user interface is able to support mobile phone screens, and releasing a beta version of the website to a small group of teams to collect suggestions from different players.

Once feedback from the beta tests has been gathered, the development team will determine which suggestions will actually improve the design of the website. These changes will then be made before releasing an early version of the application to the entire Ultimate Frisbee community. If the web portal gains significant traction, a mobile application will be developed. This team will also consider expanding the team of UltiHub developers to assist in growing the portal to support other types of athletic team management.

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