

Developing A Fantasy Football Mobile Application For Azam Premier League

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Abstract

Fantasy sports applications represent a rapidly growing segment of the mobile application economy, yet their development for African football leagues remains significantly underdeveloped compared to European counterparts. This study documents the design, development, and evaluation of a fantasy football mobile application for the AZAM Premier League, Tanzania's top-flight football division, which also attracts substantial fan engagement from Uganda and the broader East African region. The application was developed using Flutter (Dart) for cross-platform deployment on Android and iOS, with a Firebase Realtime Database backend for live data synchronization. The development followed the Agile SDLC methodology across six two-week sprints. The application incorporates player selection, team management, live scoring, league creation, and social sharing features. System testing involved 85 beta users across three countries over eight weeks. Results indicate a mean user satisfaction score of 4.1 out of 5.0, an average session duration of 14.3 minutes, and a 30-day retention rate of 68%, comparing favorably with established fantasy sports benchmarks. Key findings reveal high demand for localized content, real-time match data integration, and social competition features. The study contributes a replicable development framework for fantasy sports applications targeting African football leagues.

Keywords: Fantasy, Football, Mobile, Application and Azam Premier League

Introduction

The global fantasy sports market was valued at approximately USD 22.31 billion in 2023 and is projected to grow at a compound annual growth rate (CAGR) of 15.2% through 2030, driven primarily by the expansion of mobile internet access, sports media consumption, and gamification trends (Grand View Research, 2023). Within this landscape, African football leagues represent a largely untapped frontier. While platforms such as Fantasy Premier League (FPL), ESPN Fantasy Football, and DraftKings have achieved massive user bases for European and North American leagues, no comparable platform has been developed specifically for East African football competitions, despite the region's passionate and growing football fan base.

The AZAM Premier League, sponsored by Tanzania's AZAM Media Group and comprising 16 clubs, is the flagship football competition of Tanzania and commands a significant following across Uganda, Kenya, Rwanda, and Burundi, where AZAM TV has substantial subscriber bases (AZAM Media, 2022). The league's growing media presence, increasing match statistics availability, and expanding digital fan engagement activities create fertile conditions for a fantasy football application. Such an application would not only provide entertainment value but also deepen fan engagement, increase viewing time, and create data-driven interactions with the sport that could generate new revenue streams for clubs, broadcasters, and application developers(Christopher et al., 2024). This study therefore addresses a clear market gap and a technical research opportunity: how can a high-quality, culturally appropriate, and technically

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robust fantasy football application be developed for an African football league context? By documenting the development process, user testing outcomes, and performance characteristics of the AZAM Premier League Fantasy Football Application, this research provides both a technical blueprint and empirical insights for developers, sports organizations, and digital entrepreneurs working in the African sports technology sector.

Problem Statement

Despite the growing popularity of the AZAM Premier League across East Africa, the league lacks a dedicated fantasy football platform to enhance fan engagement(Mercy et al., 2023). The AZAM Premier League has cultivated a large and passionate regional fan base, with increasing viewership driven by local rivalries, media coverage, and regional broadcasting. However, fan interaction remains largely passive, limited to watching matches, discussing results, and following team updates on social media(Christopher & Nelson, 2024). Globally, fantasy football platforms have emerged as powerful tools for deepening fan engagement by transforming spectators into active participants. Leagues such as the English Premier League have successfully leveraged fantasy sports to sustain audience interest throughout the season. These platforms allow fans to create virtual teams, make strategic decisions based on real player performance, and compete with others, thereby increasing emotional investment and continuous interaction with the league(Frank et al., 2023). The absence of a similar system for the AZAM Premier League represents a significant gap in the digital engagement ecosystem.

Moreover, this absence constitutes a missed economic opportunity for key stakeholders, including clubs, broadcasters, and sponsors. Fantasy football platforms generate revenue through advertisements, sponsorships, premium features, and data partnerships(Julius & Matovu, 2025). Without such a platform, the AZAM Premier League ecosystem is unable to fully monetize its audience, limiting its commercial growth potential in an increasingly digital sports economy. In addition, existing global fantasy football platforms do not incorporate data from African leagues, including the AZAM Premier League. As a result, East African football fans are excluded from participating in fantasy sports experiences related to their local teams and players. This creates a disconnect between fans and the digital innovations that are shaping sports entertainment worldwide, leaving the region underserved(Sophie & Crispus, 2024). The lack of a localized fantasy football platform also restricts opportunities for data analytics development, talent visibility, and digital innovation within the regional sports industry(Julius & Kazaara, 2026). A well-designed platform could not only enhance fan engagement but also generate valuable performance data, support sports marketing strategies, and promote local players to a wider audience. Therefore, this study seeks to address this gap by exploring the development and potential impact of a dedicated fantasy football platform for the AZAM Premier League.

Main Objective

To design, develop, and evaluate a cross-platform fantasy football mobile application for the AZAM Premier League that delivers engaging, real-time user experiences.

Methods and Materials

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The application was developed using an Agile SDLC methodology, structured across six two-week sprints, each concluding with a functional deliverable reviewed by a four-person development team and a product owner representing the target user community. The technology stack comprised Flutter 3.0 (Dart programming language) for cross-platform mobile development targeting Android (API 21+) and iOS (14.0+), Firebase Realtime Database for live data synchronization and user authentication, Firebase Cloud Firestore for structured data storage, REST API integration with SportMonks football data provider for live match statistics, and Stripe payment gateway integration for premium subscription features. The development environment utilized Android Studio Arctic Fox and Visual Studio Code, with Git/GitHub for version control and Bitrise for continuous integration and deployment.

Key application features developed across sprints included: user registration and profile management, squad selection interface with budget constraints (virtual currency of 100 million TZS), real-time player performance scoring based on match statistics (goals, assists, clean sheets, yellow/red cards), mini-league creation and management, weekly team editing with transfer limits, push notification system for match reminders and score updates, and a social feed for sharing team performance. System testing employed three methodologies: functional testing using Appium automated test scripts across 15 device configurations, performance testing using Firebase Performance Monitoring to assess load times and crash rates, and user acceptance testing (UAT) with 85 recruited beta users from Tanzania (42), Uganda (28), and Kenya (15) over eight weeks. Beta user experience data were collected through in-app analytics (Firebase Analytics) and a post-testing questionnaire using the Mobile Application Usability Evaluation (MAUSE) scale.

Results

The application achieved full feature completion within the 12-week development timeline and was successfully deployed on Google Play Store (beta track) and Apple TestFlight for evaluation purposes. User engagement, technical performance, and satisfaction data are presented in the following tables.

Table 1: Beta User Engagement Metrics (8-Week Testing Period)

Engagement Metric	Value	Industry Benchmark
Total registered beta users	85	N/A
Daily Active Users (DAU) average	41.3 (48.6%)	30–45% for sports apps
Average session duration	14.3 minutes	8–12 min (sports apps)
30-day retention rate	68.2%	55–70% (gaming/fantasy)
Team transfers made per user/week	2.8	2–4 (FPL benchmark)
Push notification open rate	42.1%	30–40% (mobile apps)

Source: Primary Data, 2025

The results from the 8-week beta testing period indicated that user engagement levels were generally strong and, in several cases, exceeded typical industry benchmarks for sports and fantasy applications. A total of 85 users registered during the beta phase, providing a modest but sufficient sample for early-stage evaluation. The average Daily Active Users (DAU) rate was 41.3, representing 48.6% of total users, which slightly exceeded the standard benchmark range

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of 30–45% for sports applications. This suggested that nearly half of the registered users consistently interacted with the platform on a daily basis, reflecting a high level of user interest and habitual engagement.

Furthermore, the average session duration was recorded at 14.3 minutes, which surpassed the industry benchmark of 8–12 minutes. This implied that users were not only logging into the platform frequently but were also spending a considerable amount of time exploring features, managing teams, and interacting with content. The 30-day retention rate stood at 68.2%, positioning it toward the upper end of the 55–70% benchmark typical of gaming and fantasy platforms. This indicated strong user loyalty and satisfaction over time. Additionally, users made an average of 2.8 team transfers per week, aligning well with the Fantasy Premier League (FPL) benchmark of 2–4 transfers, suggesting that users were actively engaging in strategic gameplay. Lastly, the push notification open rate was 42.1%, exceeding the typical mobile app benchmark of 30–40%, which demonstrated the effectiveness of notifications in re-engaging users and driving platform activity.

Table 2: Application Technical Performance Results

Technical Metric	Measured Value	Target Threshold
App startup time (cold start)	2.1 seconds	< 3 seconds
Live score update latency	1.8 seconds	< 5 seconds
Crash-free session rate	98.7%	> 99% (target)
API response time (average)	0.84 seconds	< 1 second
Concurrent user capacity (tested)	500 users	300+ (initial release)

Source: Primary Data, 2025

The technical performance results demonstrated that the application generally met or exceeded its predefined performance targets, indicating a robust and reliable system during testing. The app startup time under cold start conditions was measured at 2.1 seconds, which fell well within the acceptable threshold of less than 3 seconds. This suggested that users experienced minimal delays when launching the application, contributing positively to first impressions and usability.

Similarly, live score update latency was recorded at 1.8 seconds, significantly outperforming the target threshold of less than 5 seconds. This indicated that real-time updates were delivered promptly, a critical requirement for fantasy sports applications where timely information directly influences user decisions. The crash-free session rate was 98.7%, which was slightly below the target of greater than 99%. Although this marginal shortfall indicated the presence of minor stability issues, the rate was still relatively high and suggested that the application was largely stable during user interactions. The average API response time was 0.84 seconds, meeting the target of less than 1 second. This reflected efficient backend performance and ensured smooth data retrieval and interaction within the application. Additionally, the system successfully handled up to 500 concurrent users during testing, exceeding the initial release

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target of 300+ users. This demonstrated that the platform had sufficient scalability capacity to support a growing user base in its early stages.

Table 3: MAUSE User Satisfaction Scores by Feature Category

Feature Category	Tanzania Mean	Uganda Mean	Overall Mean
Player selection interface	4.3	4.1	4.2
Live scoring accuracy	3.8	3.9	3.9
Mini-league competition	4.5	4.4	4.5
Navigation and UI design	4.0	4.2	4.1
Push notifications	3.9	4.0	4.0
Overall Satisfaction	4.1	4.1	4.1/5.0

Source: Primary Data, 2025

The user satisfaction results, measured using the MAUSE framework, revealed generally positive perceptions across all feature categories, with consistent ratings observed between respondents from Tanzania and Uganda. The overall satisfaction score was 4.1 out of 5.0, indicating a high level of user approval and acceptance of the platform. Among the evaluated features, the mini-league competition received the highest rating, with an overall mean score of 4.5. This suggested that users particularly valued the competitive and social aspects of the platform, which are central to fantasy sports engagement. The player selection interface also performed strongly, achieving an overall mean score of 4.2, indicating that users found the process of choosing and managing players to be intuitive and user-friendly. The navigation and user interface design recorded a mean score of 4.1, reflecting a generally positive user experience in terms of ease of use and visual appeal. Push notifications received a slightly lower but still favorable score of 4.0, suggesting that while users appreciated timely updates, there may have been room for improvement in personalization or frequency.

Live scoring accuracy had the lowest rating at 3.9, although it still fell within a positive range. This indicated that while users were generally satisfied with score updates, there were occasional concerns regarding precision or synchronization. Notably, the consistency between Tanzania and Uganda mean scores across all categories suggested that the platform performed reliably across different user groups and regional contexts. Overall, the findings demonstrated that the application successfully met user expectations, with only minor areas identified for further refinement.

Discussion

The results of this study validate the commercial viability and technical feasibility of developing high-quality fantasy football applications for African league contexts. The engagement metrics achieved by the AZAM Premier League application compare favorably with published performance data for established platforms, suggesting that African football fans are enthusiastic and capable adopters of fantasy sports technology when products are tailored to their

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specific team knowledge and cultural context. The particularly high valuation of the mini-league feature (4.5/5.0) aligns with research on social gaming motivation, which consistently identifies competition with known peers as the primary driver of engagement in fantasy sports (Roy & Goss, 2007). This has important implications for application marketing strategies, which should prioritize social virality and peer invitation mechanics.

The data latency issues identified in live scoring satisfaction scores point to a systemic challenge in African sports data infrastructure: the absence of reliable, low-latency official data provision from league organizers. The AZAM Premier League currently lacks a dedicated official data API, necessitating reliance on third-party providers such as SportMonks, whose data pipelines introduce latency and occasional inaccuracies. This infrastructure gap is the single most significant technical barrier to delivering the seamless live sports experience that fantasy football users expect. Resolution of this issue would require engagement with the Tanzania Football Federation and AZAM Media to establish an official data partnership, a recommendation that extends beyond the technical scope of this study but is essential for long-term application quality. The study's findings are consistent with Karimi et al. (2020), who documented similar data infrastructure challenges in the development of sports technology applications for African markets.

Conclusions

This study demonstrates that a technically robust, user-engaging, and commercially viable fantasy football application can be successfully developed for the AZAM Premier League using Flutter, Firebase, and Agile development methodologies. The application achieved a mean user satisfaction score of 4.1/5.0, a 30-day retention rate of 68.2%, and average session durations of 14.3 minutes metrics that validate the product-market fit for fantasy sports applications in the East African region. The primary technical and data quality challenges identified are addressable through infrastructure improvements and official data partnerships, providing a clear development roadmap for the next application release cycle.

Recommendations

The following recommendations are directed at the development team, the AZAM Premier League, and the broader African sports technology ecosystem. The development team should prioritize negotiation of an official data partnership with the Tanzania Football Federation to eliminate third-party data latency issues and improve live scoring accuracy. A freemium business model should be implemented for the full public launch, offering basic features at no cost with premium features (advanced statistics, unlimited leagues) available through a monthly subscription of approximately USD 2–3. Localization should be extended to Swahili and Luganda language interfaces to maximize accessibility across the East African market. The Uganda Premier League and Rwanda National Football League should be explored as near-term expansion targets, given demonstrated user interest from Uganda's 28 beta users who showed engagement metrics comparable to Tanzanian users. Finally, the development framework documented in this study should be adapted and made open-source to lower barriers for other developers seeking to create fantasy sports applications for African football leagues.

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