

APPLICATION OF MOBILE TECHNOLOGY IN SPORTS: INCREASING PERFORMANCE, ENGAGEMENT AND ACCESSIBILITY

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Abstract: *The integration of mobile applications in sports has significantly transformed various aspects of the industry, including athlete performance, fan engagement and sports management. In this paper, we will present various applications of mobile technology in sports and its significant impact on athletes and spectators. As technology continues to advance, the role of mobile apps in the world of sports will certainly continue to evolve, presenting new opportunities and challenges. The focus will be on how mobile applications contribute to the overall improvement of the sports experience. This paper serves as an overview of the current situation in this area, as well as to indicate the importance of the application of mobile technology in shaping the future of sports.*

Key words: *mobile technologies, sport, physical activity, applications.*

INTRODUCTION

The widespread use of mobile technology has revolutionized the sports industry, offering innovative solutions to improve athlete performance, engage fans and simplify sports management. Mobile apps address a wide range of needs, from personalized training regimens to immersive fan experiences, shaping the future of sports. Mobile technology has not only transformed the way athletes train and track their performance but has also changed how fans experience sports. Through fitness tracking apps, performance analysis platforms, and interactive fan applications, sports have become more interactive and accessible. At the same time, apps facilitate sports organizations in managing events and teams. This development in mobile technology enables not only better management but also personalized training and real-time analysis.

MOBILE APPLICATIONS FOR MONITORING THE PERFORMANCE OF ATHLETES

Training and Fitness Apps:

Mobile applications play a very important role in the training of athletes by providing personalized exercise plans, nutrition guidelines and real-time performance monitoring. Apps like NTC (Nike Training Club) and FitOn empower athletes to optimize their physical fitness and track progress. With the advancement of artificial intelligence and machine learning, more applications are integrating sophisticated algorithms to provide personalized training plans and recommendations. Apps like Whoop and Strava use data collected through wearable devices to give athletes insights into their physical condition, fatigue, and injury potential. Additionally, sports analytics apps like Hudl enable athletes and coaches to track video analysis and improve their strategies.



Picture 1 NTC



Picture 2 FITON

Performance Analysis:

Sports analytics applications allow coaches and athletes to analyze performance data, track key

metrics and identify areas for improvement. Technologies such as GPS tracking, accelerometers and video analysis applications contribute to a deeper understanding of athletes' strengths and weaknesses.



Picture 3 Analyzing the lift trajectory of an athletic grip

FAN ENGAGEMENT THROUGH MOBILE APPS

Social media integration:

Sports-focused mobile apps provide fans with real-time updates, news and highlights. Integration with social media platforms increases fan involvement, allowing users to share experiences, opinions and connect with fellow enthusiasts.

Virtual Reality (VR) and Augmented Reality (AR):

Mobile applications using VR and AR technologies provide fans with immersive experiences, such as virtual stadium tours, augmented reality games and interactive content. These apps bridge the gap between the physical and digital worlds, creating a more engaging fan experience.

The AR and VR market is divided into three segments based on application: business, industrial, and residential, with the consumer segment projected to hold the majority of the market share in 2028. Growth in this segment is primarily due to increased understanding of AR and VR. In the coming years, the number of gamers worldwide is expected to increase, resulting in increased demand for immersive and interactive games.

If virtual reality technologies can enhance the experience of sports fans at home, augmented reality applications provide fans in stadiums. As a result, AR apps allow you to improve the fan experience in the stadium by providing real-time statistics about the athletes on the field, adjusting each fan's seat and reminding the fan where their friend is sitting.

Digital, augmented or mixed sports environments are evolving, becoming more immersive in almost every area, from fan enjoyment of content to athlete growth, training and recruitment, thanks to a huge leap in technology in the last two years.



Picture 4 Application of VR and AR

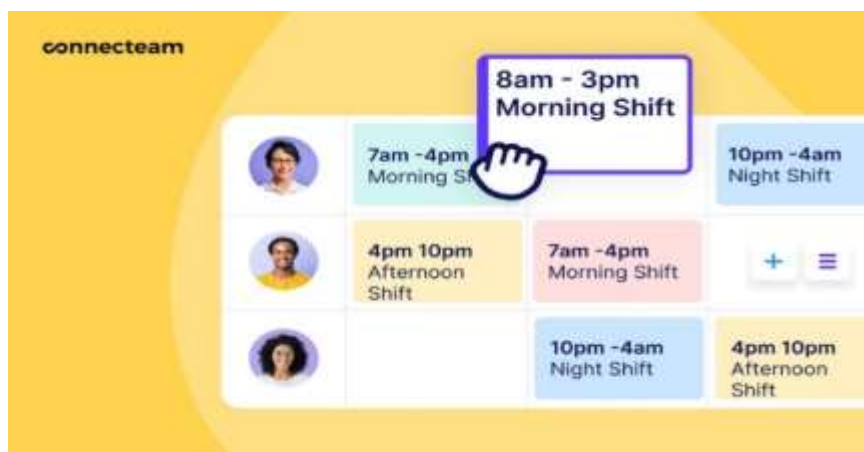
MANAGEMENT IN SPORTS AND ADMINISTRATION

Tickets and Merchandise:

Mobile apps simplify the ticketing process, allowing fans to secure seats at sporting events with ease. In addition, the sale of fan and club merchandise through mobile platforms contributes to a seamless and convenient shopping experience for fans.

Team and League Management:

Sports organizations benefit from mobile applications for efficient team communication, scheduling and logistics. These applications simplify administrative tasks, allowing teams and leagues to focus on optimizing their operations.



Picture 5 Connectteam

CHALLENGES AND FUTURE PROSPECTS

While the integration of mobile apps in sports has been largely positive, challenges such as data security, privacy concerns and technological barriers must be addressed. Looking ahead, advances in artificial intelligence, machine learning and 5G technology are expected to further enhance the capabilities of sports-related mobile applications.

Several contemporary authors agree that mobile software will be increasingly used in the practice of physical education. Fitness trackers and smartwatches hit the market every year and these devices are equipped with different types of sensors, algorithms and mobile apps. The appearance of an increasing number of mobile applications, which are easy to download and install on smartphones, speaks of the great growth of the application of new technology. According to independent estimates, there are about 40,000 such mobile applications on the Internet today. Mobile fitness applications allow users to easily monitor exercise parameters, and depending on the user's needs, they offer a variety of exercise programs, special training for the development of certain abilities (mainly speed, strength and endurance). The most applicable are applications that contain images and video analysis of training, one of these applications is Coach's Eye.

CONCLUSION

The application of mobile technology in sports has redefined the landscape of athlete performance, fan engagement and sports management. With constant technological advancements, mobile apps are poised to play an increasingly important role in shaping the future of the sports industry, providing a holistic and interactive experience for athletes and fans. In the future, with the development of 5G networks and advanced analytics technologies, mobile applications in sports are expected to become even more advanced. They will enable faster data transmission, more detailed real-time performance tracking, and integration with wearable devices to provide deeper insights into athletes' physical condition. However, with these technological advancements come new challenges, particularly regarding data security and user privacy, which will be key factors in the further development of applications.

REFERENCES

1. Aničić, Z. (2018). Primena softvera u fitnes industriji. Paper presented at Sinteza 2018 - International Scientific Conference on Information Technology and Data Related Research. doi:10.15308/Sinteza-2018-306-310
2. Hutchins, B., & Boyle, R. (2020). A community of practice: Sport journalism, mobile media and institutional change. In *Changing Sports Journalism Practice in the Age of Digital Media* (pp. 4-20). Routledge.
3. Ratten, V. (2020). Sport technology: A commentary. *The Journal of High Technology Management Research*, 31(1), 100383.
4. Goebert, C., & Greenhalgh, G. P. (2020). A new reality: Fan perceptions of augmented reality readiness in sport marketing. *Computers in Human Behavior*, 106, 106231.
5. Rajšp, A., & Fister Jr, I. (2020). A systematic literature review of intelligent data analysis methods for smart sport training. *Applied Sciences*, 10(9), 3013.
6. Gadžić, A., Živković, A., Ratković, T., Ilić, R. (2019). Mogućnosti primene informacionih tehnologija u fizičkom vaspitanju. Paper presented at Sinteza 2019 - International Scientific Conference on Information Technology and Data Related Research. doi:10.15308/Sinteza-2019-647-654
7. Henriksen, A., Mikalsen, M.H., Woldaregay, A.Z., Muzny, M., Hartvigsen, G., opstock, L.A., & Grimsgaard, S. (2018). Using Fitness Trackers and Smartwatches to Measure Physical Activity in Research: Analysis of Consumer Wrist-Worn Wearables. *Journal of Medical Internet Research*, 20(3), 110e.

PRIMENA MOBILNE TEHNOLOGIJE U SPORTU: POVEĆANJE PERFORMANSI, ANGAŽOVANJA I PRISTUPAČNOSTI

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Sažetak: Integracija mobilnih aplikacija u sportu značajno je transformisala različite aspekte industrije, uključujući

performanse sportista, angažovanje navijača i sportski menadžment. U ovom radu predstavimo različite primene mobilne tehnologije u sportu i njen značajan uticaj na sportiste i gledaoce. Kako tehnologija nastavlja da napreduje, uloga mobilnih aplikacija u svetu sporta sigurno će nastaviti da se razvija, predstavljajući nove mogućnosti i izazove. Fokus će biti na tome kako mobilne aplikacije doprinose ukupnom poboljšanju sportskog iskustva. Ovaj rad služi kao pregled trenutnog stanja u ovoj oblasti, kao i da ukaže na značaj primene mobilne tehnologije u oblikovanju budućnosti sporta.

Ključne reči: mobilne tehnologije, sport, fizička aktivnost, aplikacije