Project Report

On

Athletechain : A Blockchain Based Transparent Funding Platform

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Abstract

This project proposes a blockchain-based platform designed to bring transparency and accountability to the funding process for athletes through sponsorships, government scholarships, and sports development programs. In the current system, athletes often face challenges such as a lack of visibility into how funds are disbursed, delays in receiving financial support, and possible misuse of funds due to the presence of multiple intermediaries. The proposed solution leverages blockchain technology to create a secure and traceable flow of funds directly from sponsors, whether individuals, private organizations, or government bodies, to the athletes. Every transaction is recorded immutably on the blockchain, making the history of contributions and disbursements fully auditable at any time. Athletes can register on the platform with their basic details, and sponsors can choose to support them based on the available information. Once funds are transferred, they cannot be altered or misused, which builds trust and ensures proper utilization of resources. By introducing a transparent and tamper-proof mechanism for distributing financial support in the sports sector, this project addresses real-world concerns around inefficiency and corruption in both public and private funding systems. It demonstrates how blockchain can be effectively used to promote trust, improve accountability, and give athletes better control over the financial support they receive.

Keywords: Blockchain, Athlete Sponsorship, Transparent Funding, Smart Contracts, Sports Development, Immutable Ledger, Decentralized Application (dApp)

1. Introduction

1.1 Preface

This project titled AthleteChain focuses on building a decentralized and transparent platform for athlete funding using blockchain technology. The idea originates from the growing concern about inefficiencies and corruption in the traditional methods of financial support provided to athletes. Many talented athletes struggle to receive funds on time or fail to access them entirely due to the involvement of intermediaries and lack of accountability. To address this, AthleteChain introduces a blockchain-based system that ensures every transaction is verifiable, immutable, and securely stored on a distributed ledger.

The project utilizes Ethereum-based smart contracts to automate the process of fund allocation and release. Sponsors or donors can directly contribute to athletes through transparent transactions that are recorded on the blockchain, eliminating the possibility of manipulation or diversion of funds. The use of Ganache allows for local blockchain testing and development, while MetaMask provides a secure interface for users to interact with the decentralized application. Solidity is used to write the smart contracts that form the backbone of this funding mechanism.

AthleteChain represents a step towards digital trust and accountability in the sports ecosystem. By combining blockchain principles with a user-friendly web interface, the project creates a bridge between financial contributors and athletes, ensuring that support reaches its rightful destination without interference. The decentralized model also enhances data integrity, auditability, and traceability, offering a practical demonstration of how blockchain can solve real-world governance issues in athlete funding.

1.2 Motivation

The motivation behind AthleteChain arises from the persistent challenges faced by athletes in accessing timely and fair financial support. In many cases, talented athletes encounter delays, mismanagement, or complete denial of funds due to bureaucratic procedures and lack of transparency in the existing funding channels. These issues often result in discouragement,

decreased performance, and, in some instances, abandonment of promising sports careers.

The rapid advancements in blockchain technology provide a unique opportunity to address these challenges. Blockchain offers a decentralized, tamper-proof ledger where every transaction is recorded and visible to all participants. By leveraging these properties, AthleteChain ensures that funding processes are transparent, traceable, and resistant to manipulation. Smart contracts automate fund allocation, reducing human intervention and eliminating potential corruption or favoritism.

Additionally, the increasing adoption of digital wallets and decentralized applications among users demonstrates the readiness of stakeholders to engage with blockchain-based systems. By combining these technological capabilities with the need for accountability in sports funding, AthleteChain aims to provide a secure, reliable, and efficient platform that benefits both athletes and sponsors.

1.3 Problem Statement

In India, the process of providing financial support to athletes is often plagued by multiple challenges beyond corruption. One major issue is the delay in fund approvals and disbursements, which can negatively impact an athlete's training and performance. Bureaucratic procedures and complex verification requirements create obstacles for athletes, especially those from rural or underprivileged backgrounds. In many cases, funds are misallocated or remain unused due to the involvement of multiple intermediaries, which reduces accountability and increases the risk of mismanagement.

Another significant problem is the lack of a reliable verification system. It is difficult for sponsors and authorities to track whether the allocated funds reach the intended athletes or are utilized for their intended purpose. AthleteChain addresses these issues by providing a blockchain-based platform that ensures transparent, secure, and timely funding. Every transaction is recorded on a distributed ledger, making it immutable and auditable.

1.4 Objectives

1. To create a transparent and secure platform for athlete funding using blockchain technology.

2. To eliminate delays and inefficiencies in the disbursement of funds to athletes.

3. To ensure traceability and accountability of all funding transactions.

4. To provide a reliable verification system for athlete eligibility and fund utilization.

5. To facilitate direct interaction between sponsors and athletes without intermediaries.

1.5 Scope

The platform caters to athletes across different sports disciplines and levels, including those from rural and underrepresented areas. It allows sponsors, sports authorities, and funding agencies to monitor the allocation and usage of funds in real time. AthleteChain incorporates smart contracts that automate the funding process. These contracts define conditions for fund release, ensuring that funds are only disbursed when eligibility criteria are met. The project also includes a user-friendly interface for athletes and sponsors. Finally, AthleteChain has the potential to scale beyond individual sports programs. The system can be adapted for use by national sports organizations, private academies, and international funding agencies.

2. Literature Review

Blockchain technology has emerged as a transformative tool for creating decentralized, secure, and transparent systems. In recent years, it has been widely studied and applied in various sectors, including finance, supply chain, healthcare, and governance. Researchers have highlighted its potential to reduce fraud, improve traceability, and automate processes through smart contracts. In the context of funding, blockchain ensures that transactions are recorded on an immutable ledger, providing a high level of accountability and trust among stakeholders.

Several studies have explored the use of blockchain for governance and funding management. Smart contracts have been demonstrated to automate fund disbursement based on predefined conditions, eliminating human intervention and minimizing the risk of mismanagement. Research also emphasizes that blockchain can enhance transparency in donation and sponsorship programs, allowing contributors to track the flow of funds and verify the final utilization.

In sports management, blockchain has been applied to areas such as ticketing, athlete contracts, and fundraising. Decentralized platforms have been proposed for transparent sponsorship deals and secure management of athlete profiles. Studies suggest that blockchain can mitigate challenges such as delayed payments, corruption, and lack of verification, making it particularly suitable for athlete funding platforms.

Financial applications of blockchain demonstrate its robustness in handling secure transactions and distributed record keeping. Cryptocurrencies, decentralized finance platforms, and crowdfunding mechanisms have shown that blockchain can manage large volumes of financial operations while maintaining transparency and security. These examples provide a foundation for applying similar principles to sports funding, where accountability and traceability are critical.

Several existing projects and platforms have implemented blockchain to improve funding efficiency and governance. For instance, decentralized donation platforms allow donors to monitor the use of funds in real time. Case studies indicate that blockchain can significantly reduce operational costs and enhance stakeholder trust.

3.Methodology

3.1 Blockchain

Blockchain is a distributed and decentralized digital ledger technology that records transactions in a secure and immutable manner. Unlike traditional centralized systems, blockchain allows multiple participants to maintain and verify a shared record of transactions without relying on a single authority. Each transaction is grouped into a block, which is linked to the previous block using cryptographic hashes, forming a chain that is resistant to modification or tampering.

In the context of AthleteChain, blockchain serves as the backbone for secure and transparent fund management. Every contribution from a sponsor or donor is recorded as a transaction on the blockchain. Once validated by the network, the transaction becomes permanent and cannot be altered, ensuring accountability and preventing misappropriation of funds.

Smart contracts are an essential feature of blockchain that allows automated execution of predefined conditions. In AthleteChain, smart contracts handle fund allocation, eligibility verification, and fund release to athletes. This automation reduces the need for manual oversight, eliminates delays, and minimizes the risk of human error or corruption.

The Ethereum blockchain is used in this project because of its wide adoption, support for smart contracts, and ease of integration with development tools such as Ganache and MetaMask. Ganache provides a local testing environment where smart contracts can be deployed and tested before going live, while MetaMask acts as a secure wallet for users to sign and manage transactions.

Blockchain also provides transparency and traceability, which are critical for building trust among sponsors, athletes, and regulatory authorities. Each transaction can be audited at any time, and the complete history of fund allocation is permanently stored on the distributed ledger. This ensures that all stakeholders have visibility into the funding process and can verify that funds are used as intended.

3.2 Proposed System

The proposed system, AthleteChain, is designed to create a decentralized and transparent platform for funding athletes. The system enables sponsors, donors, and sports authorities to contribute directly to athletes while ensuring that every transaction is recorded on a blockchain ledger. By removing intermediaries, the platform reduces the chances of corruption, mismanagement, and delays in fund disbursement.

AthleteChain integrates smart contracts to automate fund allocation and release. Each athlete must register and provide verified information, which forms the basis for eligibility. Sponsors can choose athletes to support, and the smart contracts execute the transaction only if the conditions defined in the contract are met. This ensures that funds are released securely and transparently.

The system also provides a dashboard interface for both athletes and sponsors. Athletes can track their received funds, view their funding history, and update their profiles, while sponsors can monitor fund allocations, track ongoing projects, and verify that their contributions are used as intended. This interface simplifies interaction with the blockchain, making the system accessible to non-technical users.

Additionally, AthleteChain supports auditability and traceability by maintaining an immutable record of all transactions. Regulators and authorities can review the complete history of fund disbursements at any time, ensuring compliance and transparency. The proposed system, therefore, not only streamlines the funding process but also builds trust among all stakeholders. The platform is designed to be scalable, allowing more athletes, sponsors, and sports programs to join over time. By leveraging blockchain technology, smart contracts, and secure user interfaces, AthleteChain offers a practical and efficient solution to the challenges of traditional athlete funding in India.

3.3 Modules

The AthleteChain platform is divided into several modules, each responsible for a specific part of the system. This modular approach ensures clarity, ease of development, and maintainability.

Athlete Registration Module

This module allows athletes to create and verify their profiles. Personal details, sports discipline, achievements, and eligibility documents are submitted and stored securely. Verified profiles form the basis for funding eligibility.

Sponsor Module

Sponsors can browse registered athletes, select whom they want to support, and initiate funding. The module provides an interface to track contributions, view funding history, and monitor ongoing projects.

Smart Contract Module

Smart contracts automate fund disbursement based on predefined conditions. Once a sponsor initiates funding, the contract validates the transaction, checks eligibility criteria, and releases funds to the athlete. All transactions are recorded on the blockchain ledger.

Transaction Module

This module manages all interactions between sponsors, athletes, and the blockchain. It records every transaction, ensures immutability, and provides an auditable history. Users can view their transaction records through the dashboard.

Dashboard and Notification Module

The dashboard provides real-time updates to both athletes and sponsors. Athletes can track received funds, while sponsors can monitor fund allocation. Notifications alert users about successful transactions, pending approvals, or contract execution.

4. Implementation

4.1 Smart Contract Architecture

The smart contract architecture of AthleteChain is designed to automate athlete funding and ensure secure, transparent transactions. The contracts are developed in Solidity and tested on a local Ethereum blockchain using Ganache. MetaMask acts as the wallet interface for users to interact with the contracts.

Workflow

1. Athlete Registration

- Athlete fills out personal details, sports discipline, achievements, and uploads eligibility documents through the platform.
- Registration function in the smart contract validates inputs and stores the data on the blockchain.
- An event is triggered confirming successful registration, which updates the dashboard for sponsors.

2. Sponsor Contribution

- Sponsor selects an athlete to support and specifies the funding amount.
- Funding function in the smart contract checks if the athlete is verified and if the sponsor has sufficient balance.
- Upon validation, the smart contract executes the transfer automatically. A blockchain transaction record is created, visible to both athlete and sponsor.

3. Fund Verification

- The smart contract maintains a mapping of all contributions per athlete.
- Each transaction triggers an event that updates the dashboard and transaction logs.
- Auditors or regulators can query the blockchain to verify the flow of funds.

4. Access Control

- Only verified athletes can receive funds, and only registered sponsors can contribut

- ❖ Admin functions are included to manage participant verification and handle disputes.

5. Modular Design

- ❖ The contract is divided into modules: Registration, Funding, Verification, and Auditing.
- ❖ Each module operates independently, allowing easy updates and scalability without disrupting the system.

This architecture ensures that all operations are automated, transparent, and auditable while minimizing human intervention.

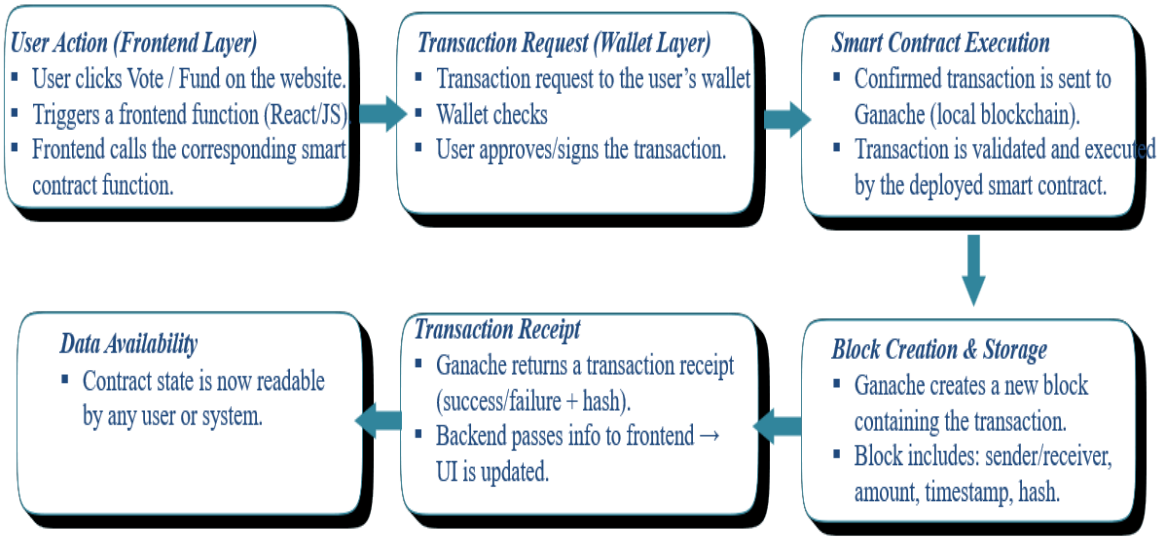
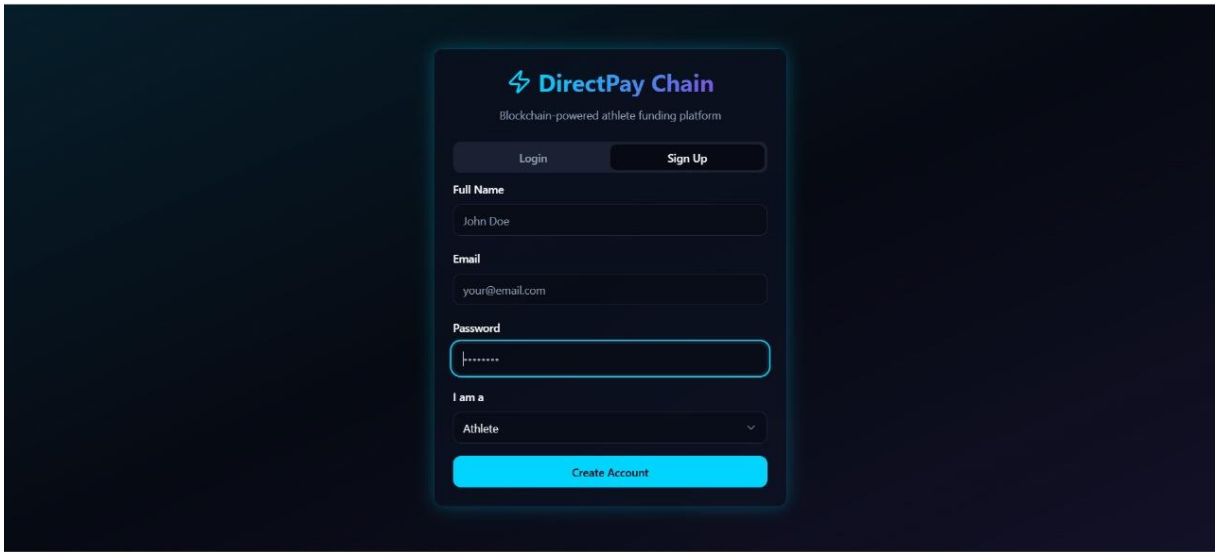


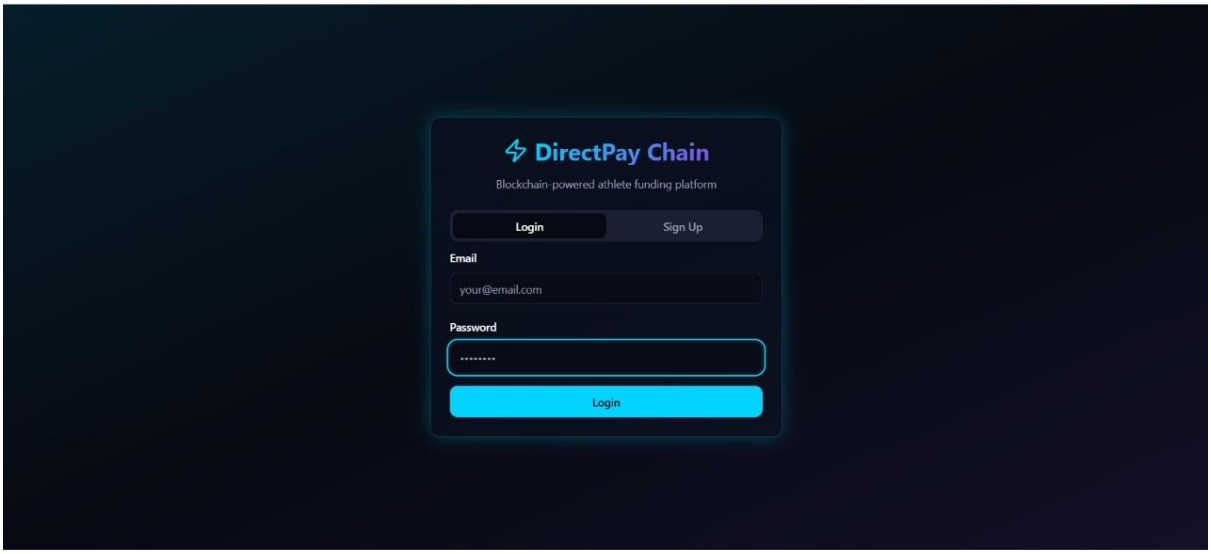
Fig : Blockchain Based Funding Workflow

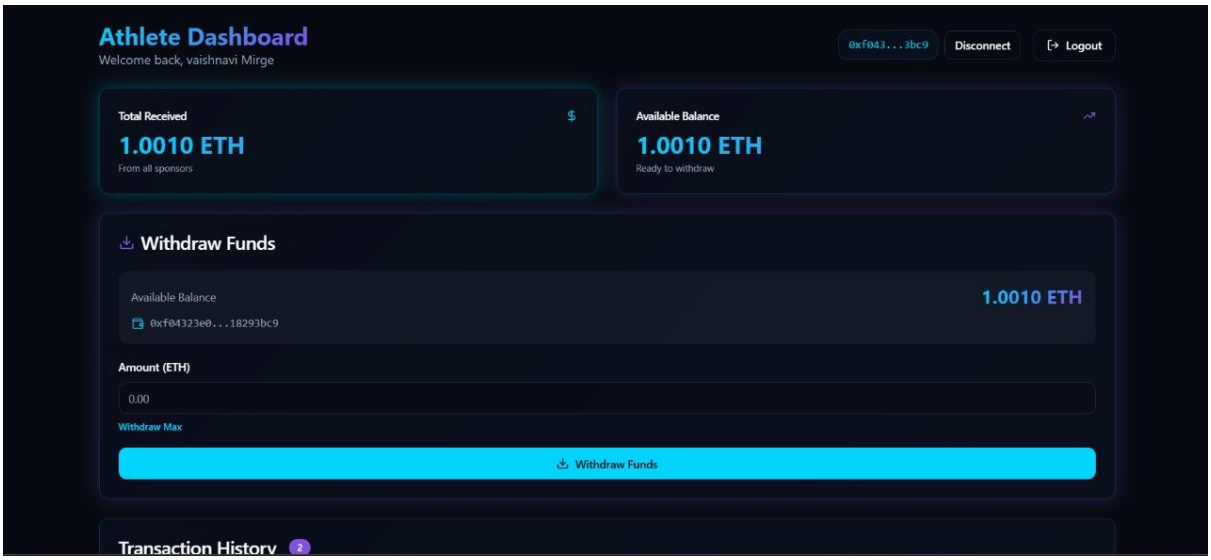
4.2 Code

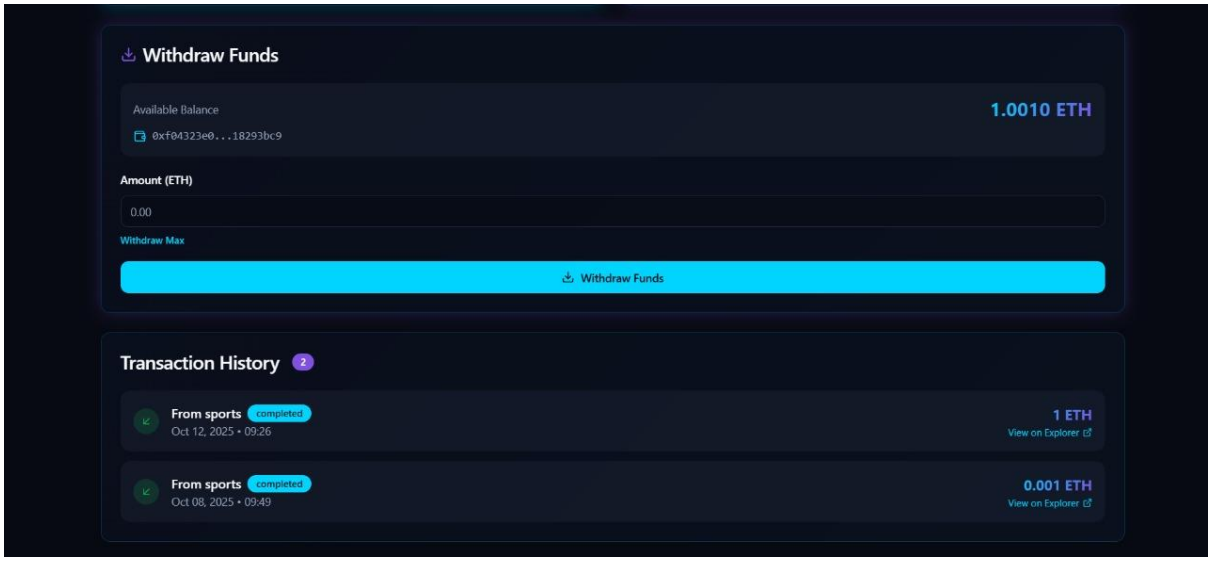
```
function registerAthlete(details) {
  require(valid(details));
  store(details);
  emit RegistrationConfirmed(athleteAddress);}
function fundAthlete(athlete, amount) {
  require(verified(athlete));
  transferFunds(amount);
  emit FundTransferred(athlete, amount);}
function registerSponsor(details, walletAddress) {
  require(valid(details));
  store(details, walletAddress);
  emit SponsorRegistered(walletAddress);}
function updateAthleteProfile(athlete, updates) {
  require(verified(athlete));
  store(updates);
  emit ProfileUpdated(athlete);}
function fundAthlete(athlete, amount) {
  require(verified(athlete));
  require(balance(sponsor) >= amount);
  transferFunds(athlete, amount);
  emit FundTransferred(athlete, amount); }
function updateDashboard(user) {
  fetchEvents(user);
  displayTransactions(user);}
function transferFunds(athlete, amount) {
  require(verified(athlete));
  executeTransaction(athlete, amount);
  emit FundTransferred(athlete, amount);}
```

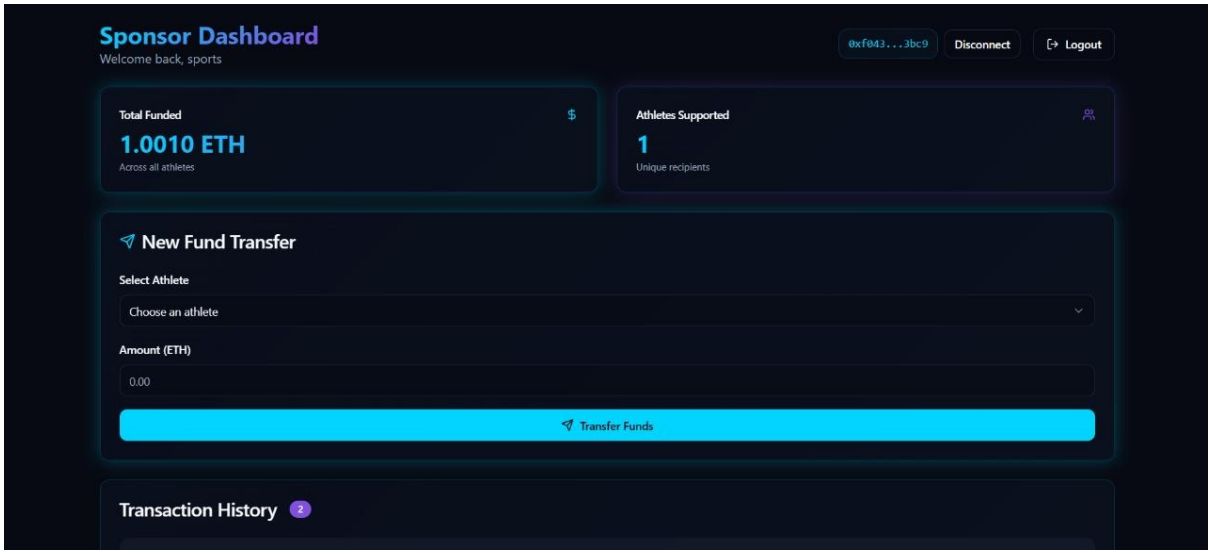
4.3 Output


DirectPay Chain
Blockchain-powered athlete funding platform
Login
Sign Up
Full Name
John Doe
Email
your@email.com
Password
I am a
Athlete
Create Account


DirectPay Chain
Blockchain-powered athlete funding platform
Login
Sign Up
Email
your@email.com
Password
Login


Athlete Dashboard
Welcome back, vaishnavi Mirge
0xf043...3bc9
Disconnect
Logout
Total Received
1.0010 ETH
From all sponsors
Available Balance
1.0010 ETH
Ready to withdraw
Withdraw Funds
Available Balance
1.0010 ETH
0xf04323e0...18293bc9
Amount (ETH)
0.00
Withdraw Max
Withdraw Funds
Transaction History


Withdraw Funds
Available Balance
1.0010 ETH
0xf04323e0...18293bc9
Amount (ETH)
0.00
Withdraw Max
Withdraw Funds
Transaction History
2
From sports
completed
Oct 12, 2025 • 09:26
1 ETH
View on Explorer
From sports
completed
Oct 08, 2025 • 09:49
0.001 ETH
View on Explorer


Sponsor Dashboard
Welcome back, sports
0xf043...3bc9
Disconnect
Logout
Total Funded
1.0010 ETH
Across all athletes
Athletes Supported
1
Unique recipients
New Fund Transfer
Select Athlete
Choose an athlete
Amount (ETH)
0.00
Transfer Funds
Transaction History
2

5. Result and Discussion

The AthleteChain platform was successfully implemented on a local Ethereum blockchain using Ganache. The smart contracts for athlete registration, sponsor funding, and verification were tested thoroughly. All functions performed as expected, and transactions were recorded immutably on the blockchain ledger. The dashboard reflected real-time updates for both athletes and sponsors, confirming that the system workflow is functional and user-friendly.

During testing, multiple scenarios were evaluated including successful fund transfers, invalid transactions, and unauthorized access attempts. The smart contracts effectively prevented fund release to unverified athletes and blocked any actions from unregistered sponsors. This demonstrated the reliability and security of the blockchain-based approach compared to traditional centralized systems.

A comparative analysis shows the advantages of AthleteChain over conventional funding methods:

Feature	Traditional System	AthleteChain
Transparency	Low, prone to corruption	High, all transactions on blockchain
Fund Disbursement	Manual, delayed	Automated via smart contracts
Verification	Manual, error-prone	Automated and secure
Traceability	Limited	Complete, auditable history
Accessibility	Restricted	Open to verified participants

Fig : Advantages of AthleteChain over conventional funding methods

The results indicate that AthleteChain not only improves transparency and accountability but also streamlines the funding process. Sponsors can track their contributions, and athletes receive timely financial support, ensuring fair allocation and increased trust. The platform also demonstrates potential for scaling to national or international levels with minimal modifications.

6. Conclusion

AthleteChain demonstrates how blockchain technology can effectively address the challenges of transparency, accountability, and efficiency in athlete funding. By leveraging smart contracts, decentralized ledgers, and secure user interactions, the platform ensures that funds are allocated fairly, disbursed on time, and recorded immutably for audit purposes. The system reduces human intervention, prevents corruption, and provides a scalable model that can be extended to various sports programs and funding initiatives. Overall, AthleteChain offers a practical and reliable solution for transforming the sports funding ecosystem in India.

References

[1] R. Bucea-Manea-Țoniș, A. G. Antonescu, and C. Mihăilă, "Blockchain in Sports: A Comparative Analysis of Applications and Perceptions in Football and Basketball," *Applied Sciences*, vol. 15, no. 12, p. 6829, 2025.

[2] W. Song, "A Blockchain-Based Fund Management System for Construction Projects," *arXiv*, 2023. [Online]. Available: https://arxiv.org/pdf/2308.12834.

[3] H. Wei and Y. Zhang, "Research on the Digital Transaction Model of the Sports Industry Chain Based on Blockchain Technology," *Scientific Reports*, vol. 15, p. 25131, 2025. [Online]. Available: https://www.nature.com/articles/s41598-025-10045-7.

[4] V. A. Principe et al., "A Systematic Literature Review of Blockchain Technology and the Sports Industry," *Cultura, Ciencia y Deporte*, vol. 20, no. 63, pp. 2208–2225, 2025. [Online]. Available: https://ccd.ucam.edu/index.php/revista/article/view/2208/1421.

[5] C. Blanco-González-Tejero, "Leveraging Blockchain for Industry Funding: A Social Media Perspective," *ScienceDirect*, 2024. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S2773032824000014.