

# **DonationChain: A New Platform for Blockchain-Based Donation-Tracking System**

Chaimaa Nari<sup>1</sup>, Murtaza Cicioğlu<sup>1\*</sup>, Ali Çalhan<sup>2</sup>

<sup>1</sup>Department of Computer Engineering, Bursa Uludağ University, 16059, Bursa, Türkiye

<sup>2</sup>Department of Computer Engineering, Düzce University, 81620, Düzce, Türkiye

## ***Abstract***

A donation-tracking system using smart contracts and blockchain technology has the potential to revolutionize the way charitable giving is tracked and managed. This article explores how smart contracts and blockchain can be used to create a transparent and secure ledger for tracking charitable donations. We discuss the limitations of traditional donation systems and how a blockchain-based system can help overcome these challenges. We describe how smart contracts work, how they can be used in donation tracking, and the benefits they offer, including automated processes, reduced transaction fees, and increased accountability. We also discuss how blockchain technology provides a decentralized and tamper-proof ledger that can increase transparency and help prevent fraud. Finally, we examine some of the challenges that must be addressed when implementing a smart contract-based donation tracking system, such as the need for technical expertise and the potential for security breaches. Overall, a donation-tracking system using smart contracts and blockchain has the potential to increase trust and accountability in the donation process, which can ultimately help ensure that donations are used for their intended purposes.

***Keywords— Smart contracts, Blockchain technology, Donation tracking***

## **I. INTRODUCTION**

Charitable giving has always been an integral part of human society, providing a means for individuals and organizations to support causes they care about and make a positive impact on the world [1]. From helping vulnerable populations in times of crisis to supporting scientific research, and contributing to the arts, charitable giving has the power to make a significant difference in the lives of people and communities around the world [2]. It is important to ensure that charitable giving is transparent, efficient, and trustworthy to maximize its impact and build public trust. The emergence of blockchain technology and smart contracts provides an opportunity to improve the traditional donation ecosystem, address its challenges, and create a more effective and equitable donation system [3].

In recent years, there has been growing concern about transparency and accountability in the charitable sector [4], as well as a need to improve the efficiency of the donation process. In

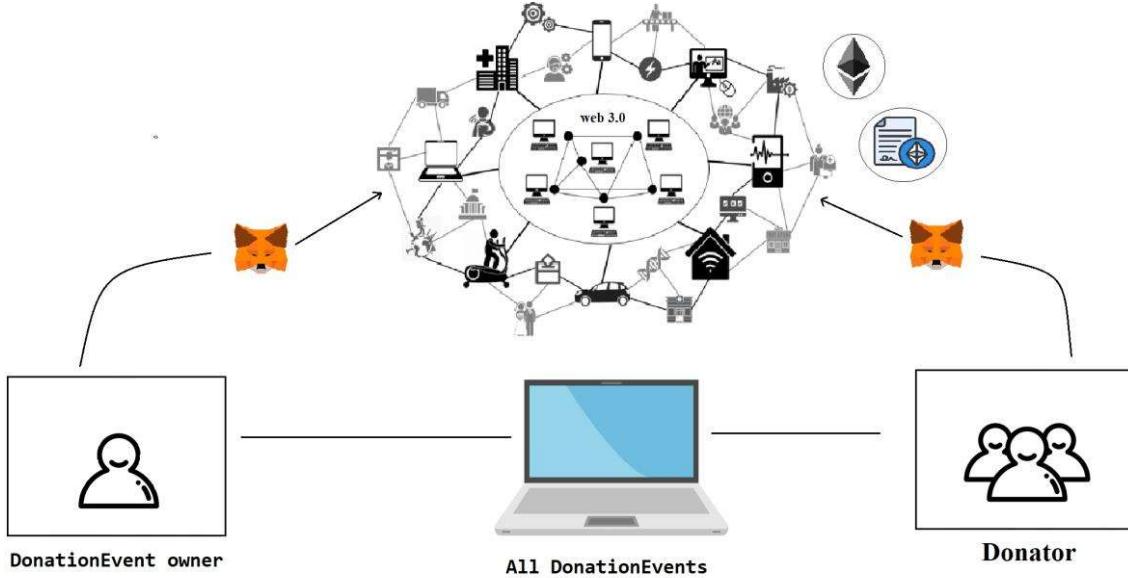
response to these challenges, many organizations have begun exploring the use of technology to improve donation tracking and increase transparency [5].

One technology that has shown great promise in this area is blockchain. Blockchain is a decentralized digital ledger that allows for secure, transparent, and tamper-proof transactions. By using blockchain technology, donation tracking systems can provide an immutable record of all donations made, as well as ensure that donations are going to their intended recipients. This level of transparency can help increase trust in the charitable sector and encourage more people to donate to worthy causes [6].

Traditional donation systems have several limitations that can hinder transparency, accountability, and efficiency [7]. One of the primary challenges is the lack of transparency in the donation process. With traditional systems, it can be difficult for donors to track their contributions and ensure that they are being used for their intended purpose. This lack of transparency can also make it challenging for organizations to demonstrate the impact of their work and build trust with donors. Another limitation of traditional donation systems is the high fees associated with processing transactions. Intermediaries such as banks, credit card companies, and payment processors can charge significant fees, reducing the amount of money that ultimately reaches the intended recipient.

In summary, the limitations of traditional donation systems can hinder transparency, accountability, and efficiency [8]. Blockchain technology provides a solution to these challenges by offering a more secure, transparent, and accountable donation tracking system [9]. In the context of donation tracking, the use of smart contracts also ensures that all transactions are transparent and immutable, meaning that once a transaction is recorded on the blockchain, it cannot be altered or deleted [10]. This provides an additional layer of security and accountability, as all parties involved in the transaction can see the details of the transaction and verify that it has been executed correctly.

Another key benefit is the reduction in transaction fees. Traditional donation systems often involve intermediaries, such as banks or payment processors, that charge fees for their services [11]. However, with blockchain technology and smart contracts, these intermediaries can be eliminated, leading to significant cost savings. This reduction in fees means that more funds can go directly towards the intended beneficiaries, ultimately increasing the impact of the donation.



**Figure 1:** “DonateBlocks” Donation Tracking System

DonateBlocks, our project, introduces a transparent, efficient, and secure system to track contributions, aiming to revolutionize traditional donation systems. By developing a new donation tracking system, we enhance efficiency and transparency in the process. As depicted in Figure 1, the system allows donors to track their donations in real time and provides regular updates on how their contributions are being utilized. Additionally, the system allows donors to connect their Metamask wallet to the platform, providing a secure and seamless way to access the web3 ecosystem. This system has the potential to revolutionize the way in which donations are tracked and managed, and could have a significant impact on the overall effectiveness of charitable organizations.

In this paper, we will explore the benefits of using blockchain technology and smart contracts in donation-tracking systems. We will examine the current issues faced by traditional donation tracking systems, such as lack of transparency and accountability, and explore how blockchain technology can help address these issues. Additionally, we will discuss the benefits of smart contracts in automating donation transactions and ensuring fund utilization according to their intended purpose. Furthermore, we will provide a comprehensive overview of the technical aspects of implementing a blockchain-based donation tracking system, including the use of digital signatures and decentralized networks.

The major contributions of this article are as follows:

- Providing a comprehensive overview of the use of blockchain technology and smart contracts in the donation tracking system

- Analyzing the benefits of using blockchain technology and smart contracts in terms of transparency, security, and accountability in donation tracking
- Discussing the potential impact of blockchain technology and smart contracts on the future of donation tracking and the nonprofit sector.

To facilitate understanding, this article has been organized into several sections. [Section 2](#) provides a comprehensive review of related work, while [Section 3](#) discusses the blockchain-based donation tracking system. [Section 4](#) focuses on the implementation details of the proposed system architecture, including the system setup, smart contract, smart contract deployment, and possible vulnerabilities. In [Section 5](#), we evaluate the performance of the system. Finally, the article concludes in [Section 6](#).

## II. RELATED WORK

In recent years, there has been a growing interest in using blockchain technology for various applications [12], including donation-tracking systems for charitable giving. Several studies have explored the potential benefits and challenges of implementing blockchain-based donation tracking systems. One study found that a blockchain-based system can provide increased transparency, security, and efficiency in the donation process [13]. Another study suggested that blockchain can help address the issue of trust and accountability in charitable organizations [14].

Previous research has explored the potential applications of blockchain technology in the non-profit sector. One study conducted by the Charities Aid Foundation (CAF) found that blockchain technology could be used to create a more transparent and accountable donation system [15]. The study suggested that blockchain could provide a tamper-proof ledger for tracking donations, which would help build trust with donors and increase transparency in the donation process.

Furthermore, a report published by the United Nations Development Programme (UNDP) highlighted the potential of blockchain technology in promoting social and economic development [16]. The report suggested that blockchain could be used to create a more efficient and transparent donation system, which would enable a more effective allocation of resources to social causes.

Overall, previous research has shown that blockchain technology has the potential to revolutionize the way donations are tracked and managed in the non-profit sector. The use of blockchain technology can increase transparency, reduce transaction fees, and improve accountability, ultimately leading to a more efficient and effective donation ecosystem.

Similar donation-tracking systems that use blockchain technology and smart contracts have been developed by various organizations and companies. One such example is the BitGive Foundation

[17], which has created a donation platform called GiveTrack that utilizes blockchain technology to provide transparency and accountability for charitable donations.

Another example is the Binance Charity Foundation [18], which has developed a blockchain-based donation platform called Binance Charity. The platform uses smart contracts to ensure that donations are used for their intended purpose and provides donors with real-time updates on the impact of their contributions.

Additionally, the United Nations World Food Programme (WFP) has implemented a blockchain-based donation platform called Building Blocks [19]. The platform uses smart contracts to track food deliveries and ensure that donations are being used to provide food assistance to refugees.

These examples demonstrate the potential of blockchain technology and smart contracts to create more transparent and efficient donation-tracking systems. By leveraging these technologies, organizations and individuals can have greater confidence in their charitable giving, knowing that their contributions are being used for their intended purpose.

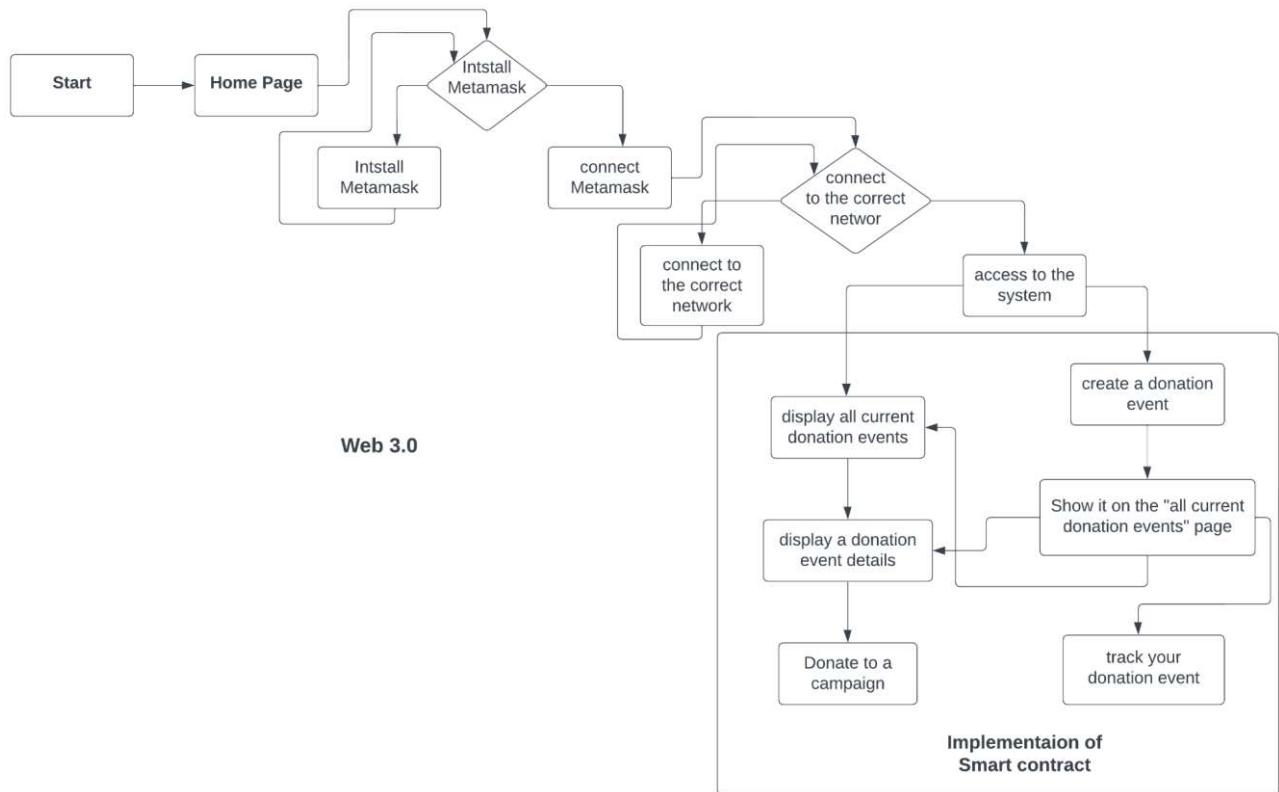
There are several academic articles and research papers that explore the potential benefits and limitations of blockchain technology and smart contracts in the non-profit sector. One such paper is "Blockchain for Social Impact: Moving Beyond the Hype," which examines the potential for blockchain technology to create a more efficient and transparent non-profit sector [20]. The paper discusses the benefits of using blockchain technology, such as increased transparency, reduced transaction costs, and greater accountability, while also acknowledging the challenges that must be addressed, such as scalability and regulatory compliance.

Furthermore, "Proposed solution for trackable donations using blockchain" [21] proposes a system called Charity-Chain, which is a decentralized network built on the Ethereum blockchain that aims to increase transparency and accountability in social organizations. The system uses smart contract-based incentives to ensure the impact of projects is independently verified and accessible to all parties involved, making it easier for funders to monitor their transactions and restore trust in social organizations.

Overall, these academic articles and research papers demonstrate the growing interest in using blockchain technology and smart contracts to improve the efficiency and accountability of the non-profit sector. They provide valuable insights into the potential benefits and challenges of implementing these technologies and can inform the development of future donation-tracking systems.

### III. PROPOSED SYSTEM: BLOCKCHAIN-BASED DONATION TRACKING SYSTEM

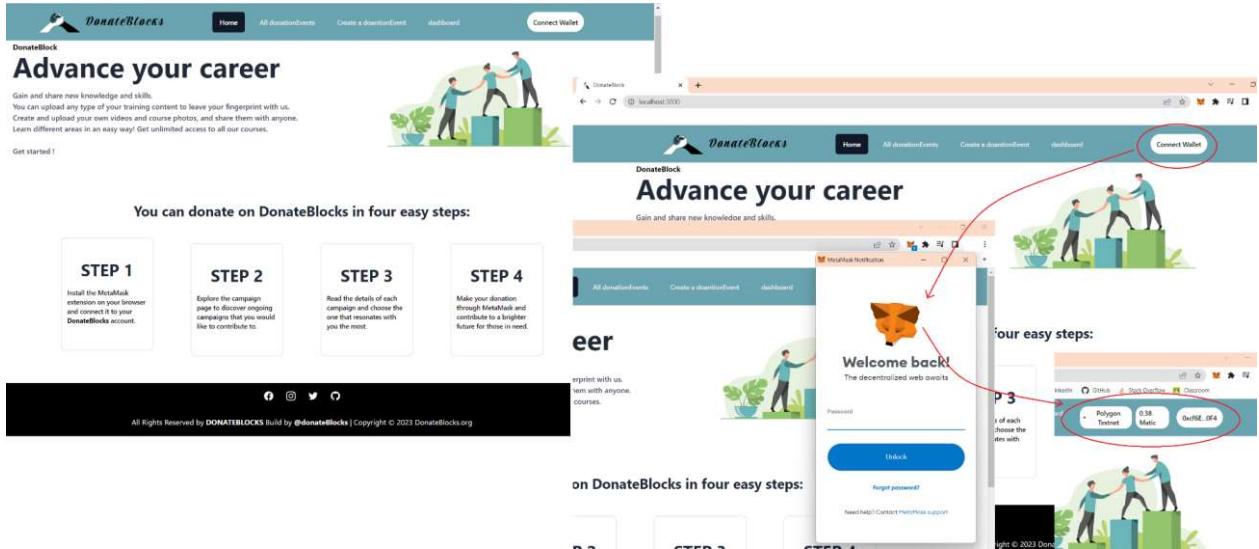
Our proposed blockchain-based donation tracking system utilizes blockchain technology's principles of decentralization, transparency, immutability, and security to enhance transparency and accountability in the donation process. Through distributed ledger technology, the system records and verifies donation transactions, providing real-time access to all stakeholders. Smart contracts automate transactions, eliminating intermediaries and reducing the risk of fraud. Donors can track their donations, ensuring fund utilization for intended purposes, while recipient organizations benefit from a secure and transparent method of receiving donations. The system's user interfaces offer simplicity and convenience for donors and recipient organizations to engage in the donation process. Overall, our architecture promotes transparency, and accountability, and ensures that every donation fulfills its intended purpose.



**Figure 2:** Donation tracking system architecture

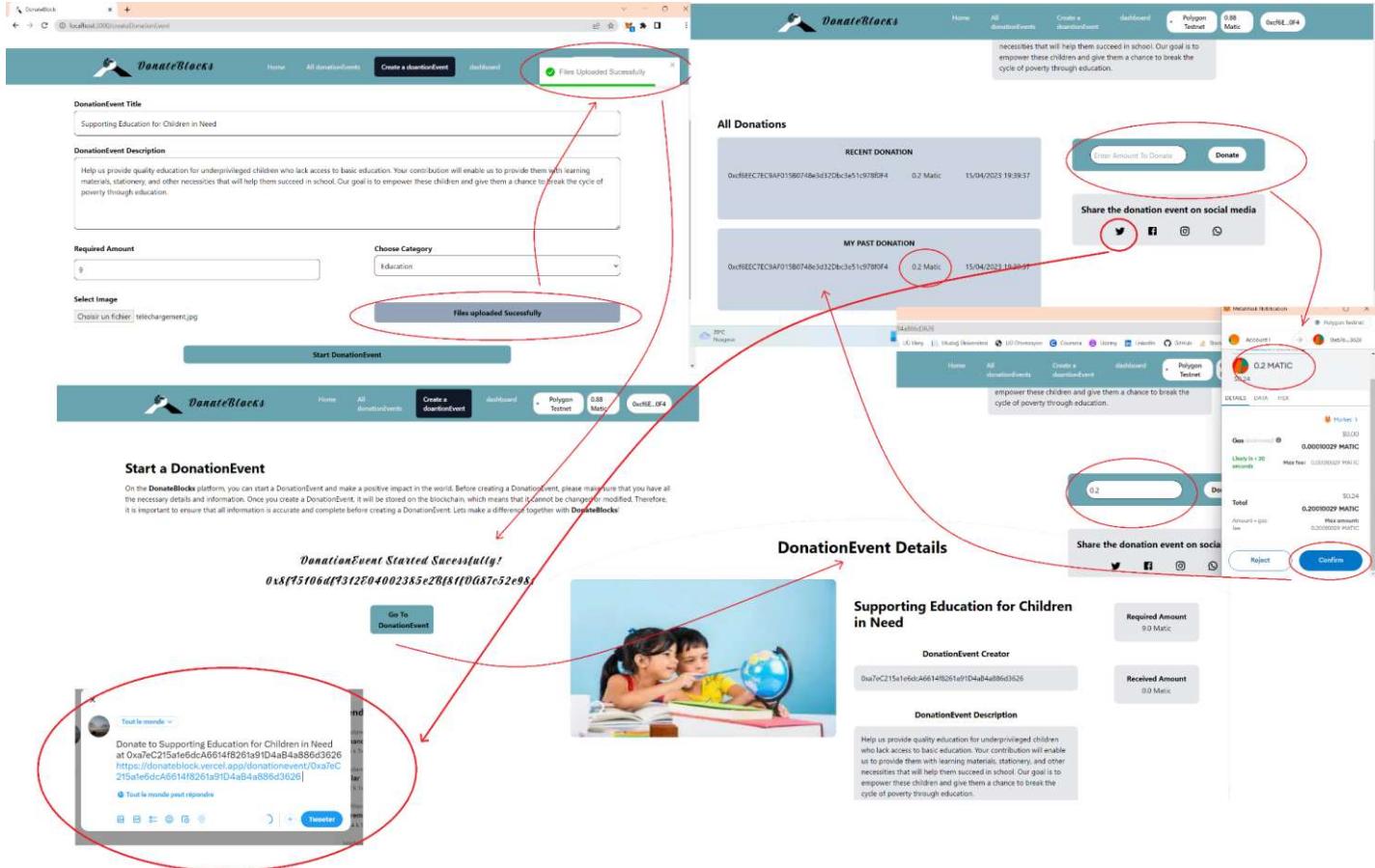
As shown in Figure 2, the blockchain network is the foundation of the proposed blockchain-based donation tracking system, providing a decentralized platform for recording and verifying donation transactions. The network comprises a distributed ledger that securely stores all donation transaction data, with smart contracts regulating the rules and regulations governing the donation process to ensure transparency and eliminate the possibility of manipulation or fraud. The

platform's workflow can be illustrated in Figure 3, and Figure 4, providing users with a clear and visual representation of the platform's features and functionalities at each step.



**Figure 3:** Main page of the DonateBlocks platform

Upon visiting the main page of the DonateBlocks platform, users are greeted with a clear and intuitive interface that outlines the platform's workflow in a series of easy-to-follow steps. The page features a prominent navbar at the top of the screen, which provides users with quick access to key platform features. One of the main buttons in the navbar is the "Connect Wallet" button, which allows users to connect their digital wallet to the platform. Once a user has connected their wallet, the "Connect Wallet" button transforms to display important wallet information, including the wallet address, the amount of Matic cryptocurrency in the wallet, and the name of the network (in this case, the Polygon network). In addition to the "Connect Wallet" button, the navbar also includes four other buttons that take users to different pages within the platform. The "Home" button returns users to the main page of the platform, while the "All DonationEvents" button displays a list of all ongoing donation events on the platform. The "Create a DonationEvent" button allows users to create their own donation event, while the "Dashboard" button takes users to a personalized dashboard that displays their ongoing donations and fundraising progress.



**Figure 4:** Creating and sharing a DonationEvent

Figure 4 provides a step-by-step guide for creating a donation event on the platform. Users can easily fill out the donation event title, description, required amount in Ether, and upload an image for their event. After filling out the form, the image is uploaded to IPFS and a donation event is started. Once the donation event is created, users are taken to a loading page where the transaction is executed. Once the transaction is confirmed, users are taken to the donation event details page. Here, users can see everything related to the donation event, including the current amount raised and the number of donors. To donate to the event, users can simply click on the "Donate" button and then use their MetaMask wallet to send Ether to the donation event's address. All donation transactions are shown on the page, and users can see the most recent transactions as well as their own donation history to the event. Additionally, users can easily share the donation event on social media platforms like WhatsApp, Instagram, Twitter, and Facebook by using the IPFS protocol. In the figure, we demonstrate how to share the event on Twitter using IPFS.

#### **IV. IMPLEMENTATION DETAILS**

The proposed donation tracking system is a complex system that requires several programming languages and frameworks to build. The front-end of the system is built using HTML, React.js, Tailwind CSS, and JavaScript. These technologies are commonly used for creating modern, responsive web applications with a user-friendly interface.

The back-end of our system is implemented using Solidity, a programming language specifically designed for creating smart contracts on the Ethereum blockchain. These smart contracts govern various aspects of the system, including the creation and management of donation events, handling donations, and tracking donor information.

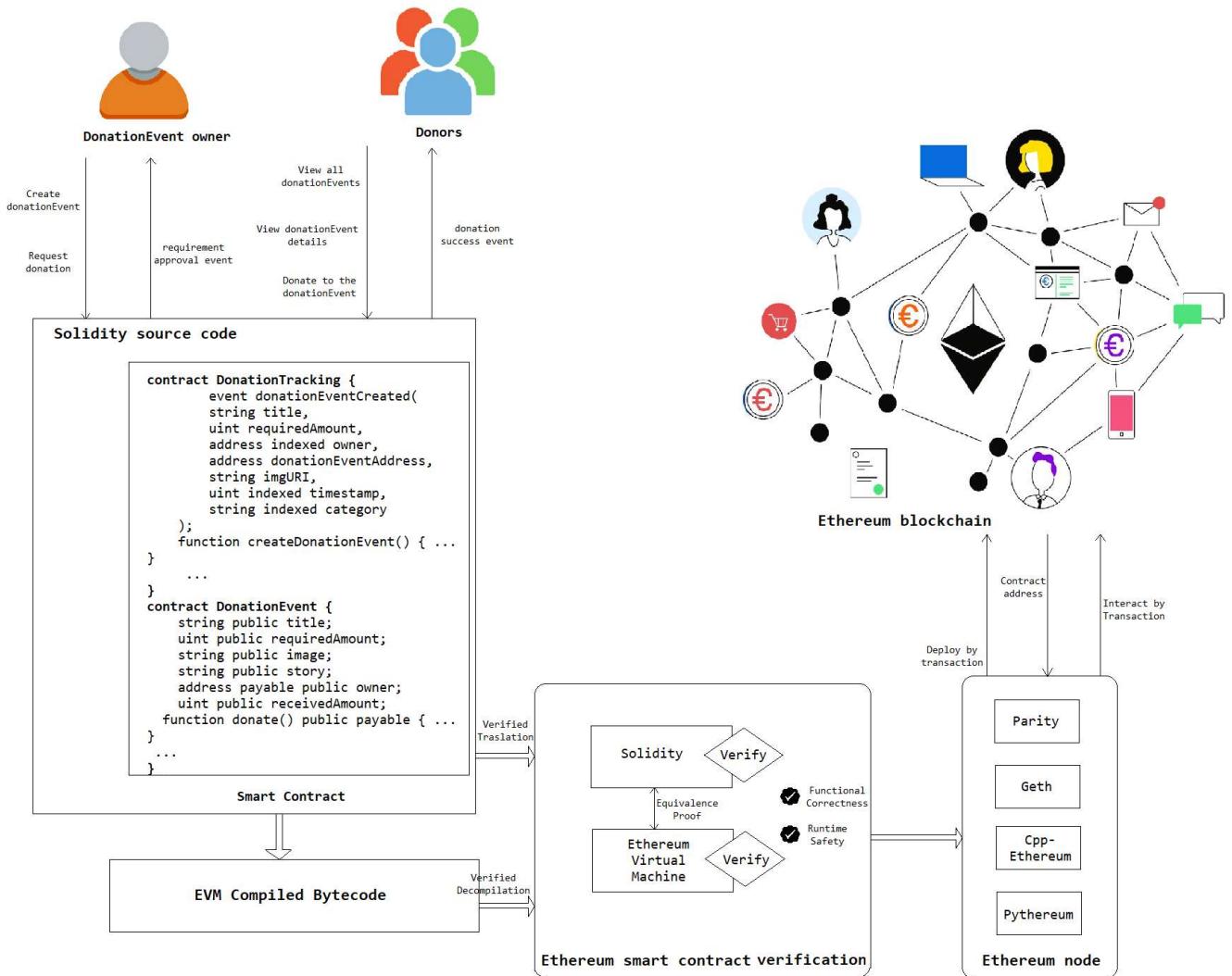
To develop, test, and deploy smart contracts, we utilize the Ethereum blockchain and the Polygon network. Ethereum serves as a popular platform for decentralized applications, while Polygon provides a layer-2 scaling solution that enhances transaction speed and cost efficiency. This combination of Ethereum and Polygon ensures a robust and secure infrastructure for our donation tracking system, enabling transparency, accountability, and efficiency in managing charitable donations. To facilitate the development and testing of our smart contracts, we make use of Hardhat, a development environment. Hardhat offers built-in functionality for compiling, deploying, and testing smart contracts and can be extended through plugins. With Hardhat, we are able to compile our Solidity code, deploy the contracts, and execute automated tests, ensuring the reliability and functionality of our system.

By leveraging Solidity, Ethereum, Polygon, and Hardhat, we have established a strong foundation for our back-end implementation, enabling effective management of donation events and ensuring the integrity of the donation tracking system.

To facilitate seamless communication between the front-end and back-end components of our system, we utilized Web3.js, a JavaScript library that provides a user-friendly interface for interacting with the Ethereum blockchain. With the help of various Web3 libraries, we were able to test and deploy our smart contracts on the Ethereum blockchain, ensuring smooth integration between the different system components. In our development process, we leveraged Ethereum-waffle, a library specifically designed for testing smart contracts. Ethereum-waffle simplified our testing efforts by offering a clean and intuitive API, allowing us to write automated tests for our smart contracts. Additionally, we employed Ethers, a JavaScript library that simplifies interactions with Ethereum. Ethers provided a straightforward and consistent API, enabling us to write front-end code that interacts with our smart contracts. This allowed users to donate and view donation events within the system seamlessly. By leveraging these Web3 libraries, we efficiently developed and tested our smart contracts and front-end code, resulting in a robust and user-friendly donation tracking system on the Ethereum blockchain.

In our donation tracking system, we integrated IPFS (InterPlanetary File System) for decentralized file storage, allowing users to store and retrieve images and media files. Each file uploaded is assigned a unique hash stored on the blockchain, ensuring accessibility even if the original uploader or storage node is unavailable. This integration ensures reliable and secure storage, enhancing the system's functionality.

Additionally, we integrated social media platforms into our system, enabling users to share their donations and promote donation events. Leveraging IPFS's social media sharing feature, users can easily share content from the platform on platforms like Facebook, Twitter, WhatsApp, and Instagram. This integration aims to increase visibility and encourage wider participation in donation events. The integration with social media was a smooth process, providing an effective tool to maximize the impact of hosted donation events.



**Figure 5: "DonateBlocks" System Architecture**

The system architecture of the "DonateBlocks" platform is illustrated in Figure 5. It enables donation event owners to create new events by deploying smart contracts to the Ethereum blockchain. These smart contracts store relevant information such as the event title, required amount, image, story, and total donations received. Donors interact with the smart contract by donating Ether to the contract address of the donation event.

Two types of smart contracts are utilized in our system: DonationEvent contracts and DonationTracking contracts. DonationEvent contracts are created by donors to govern the donation process, specifying the donation amount, recipient organization, and any additional instructions or conditions. These contracts execute automatically without intermediaries. DonationTracking contracts are created by recipient organizations and provide a public record of all donations received. They ensure transparency and accountability, allowing donors to view their donation history and facilitating accurate financial reporting by recipient organizations. These contracts include parameters such as a minimum threshold and deadline for a successful donation campaign.

The Solidity source code for DonationTracking and DonationEvent contracts can be compiled into EVM bytecode using a Solidity compiler. The bytecode is then deployed to the Ethereum blockchain using an Ethereum node through a transaction to the contract address. Contract deployment can be verified on the Ethereum blockchain by confirming bytecode-source code correspondence.

In summary, the "DonateBlocks" platform utilizes Ethereum as the blockchain platform, Solidity as the smart contract programming language, and Web3 libraries for smart contract interaction. The system architecture comprises smart contracts for storing donation event information and a user interface for donors to view and contribute to events. Ethereum's decentralized architecture allows for scalability through parallel processing by multiple network nodes.

## V. PERFORMANCE EVALUATION

In this section, we will compare the performance of our system with other similar systems benchmarks. It's important to note that there are many factors that can affect the performance of a blockchain-based system, such as the size of the network, the complexity of the smart contracts, and the hardware specifications of the nodes.

Before presenting the comparison table, it's important to note several key factors that can greatly influence the effectiveness of a system. First, user-friendliness is a crucial aspect of any system, as it can greatly impact the user's experience and the system's adoption. Additionally, cost-effectiveness is another important consideration, as it can affect the system's affordability and sustainability in the long term. Customizability and flexibility are also key factors, as they can help

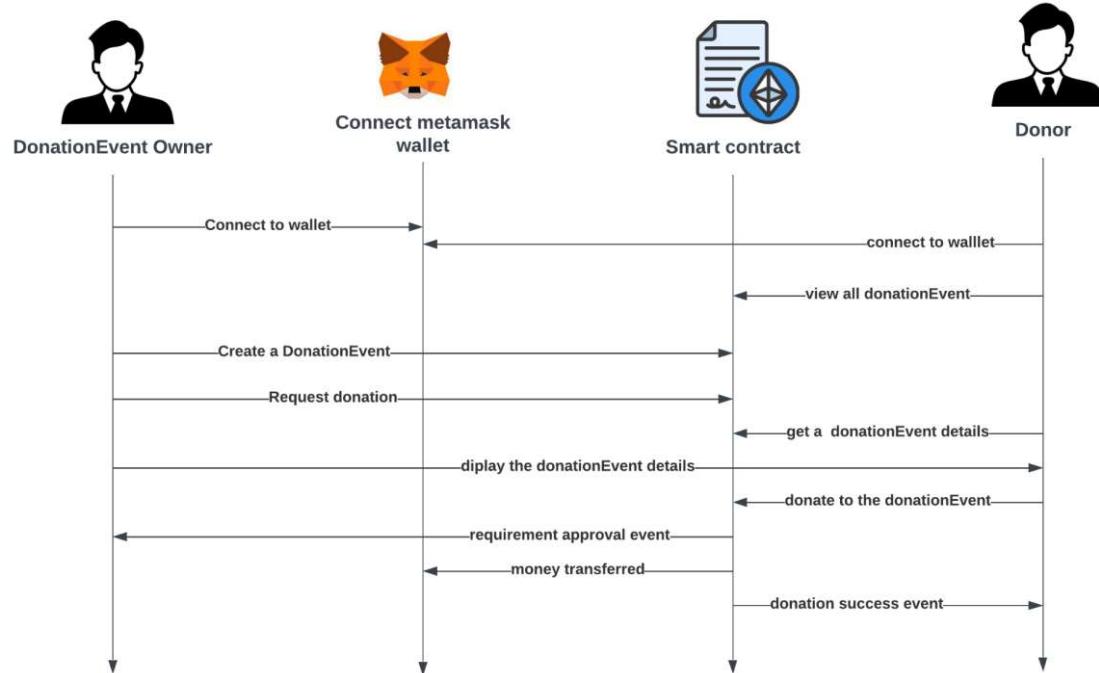
the system adapt to the specific needs and requirements of different organizations or users. Scalability is also a significant factor, as it can determine whether the system can handle increasing amounts of data or users without sacrificing performance or security. Finally, reliability is critical, as it can affect the system's uptime and the ability to minimize errors or downtime. By comparing these factors across different systems, organizations can make informed decisions about which system is best suited for their needs.

Table 1 provides a comparison between the existing offline and online donation systems and the proposed DonateBlocks system based on several key factors. By comparing the systems based on these factors, we can gain insights into the strengths and weaknesses of each system and understand how the proposed DonateBlocks system can potentially improve upon the existing systems.

**Table 1:** Comparison of System Management Technologies

Division	Existing offline system	Existing online system	“DonateBlocks” proposed system
User-friendliness	Limited user-friendliness due to manual processes and lack of user interface	Generally user-friendly, but may require technical knowledge to navigate and use effectively	User-friendly interface with clear instructions and easy-to-use features, resulting in a positive user experience
Cost-effectiveness	Higher costs associated with manual processes, such as physical record-keeping and paperwork	Varies depending on the platform used and the level of customization required	Higher than the existing online system, as it eliminates the need for intermediaries and reduces transaction fees
Customizability	Limited customizability, not easily adapted to other organizations' requirements	Moderate customizability, limited in scope or may require additional fees	High customizability, modular design easily configurable to meet different organizations' needs
Flexibility	Lack of flexibility, manual processes for changes or updates	Some flexibility, but limitations due to technology or vendor-specific solutions	Highly flexible and customizable, accommodates changes and updates easily
Scalability	Significant challenge, manual processes and resource-intensive	More scalable, but limitations due to technology or architecture	Designed to be highly scalable with a decentralized architecture that handles increased data and users effectively
Reliability	Prone to human error, maintenance and upgrades can be costly	Can vary, downtime and technical issues can occur	Inherently reliable with secure blockchain transactions, decentralized nature reduces downtime and technical issues

By considering these factors, it becomes apparent that the DonateBlocks proposed system offers significant improvements over the existing offline and online systems. It combines user-friendliness, cost-effectiveness, customizability, flexibility, scalability, and reliability to create a robust and efficient donation tracking system. The integration of blockchain technology enhances transparency, privacy, and security, making it a promising solution for organizations seeking a more efficient and trustworthy way to manage donations.



**Figure 6:** “DonateBlocks” system diagram

As shown in the figure 6, the donation event owner creates a new `DonationEvent` by calling the `createDonationEvent` function in the smart contract. The function takes as input the owner's address and name, title, description, target amount, deadline, and image, and creates a new instance of the `DonationEvent` struct. The MetaMask wallet provides secure storage and management of cryptocurrencies and enables donors to register and make donations to their chosen charitable cause. The donor first connects their MetaMask wallet to the platform, and then selects the donation event they wish to donate to. The smart contract manages the creation and tracking of donation events and donations. It includes functions such as `createDonationEvent`, `donateToDonationEvent`, `getDonors`, and `getDonationEvents`. When a donor makes a donation by calling the `donateToDonationEvent` function with the required parameters, the smart contract updates the `DonationEvent` struct with the new donation and the corresponding donor's address. The donor selects the donation event they wish to donate to and makes a donation by calling the

donateToDonationEvent function with the required parameters, including the amount of the donation and their own address. The smart contract then updates the DonationEvent struct with the new donation and the corresponding donor's address, ensuring secure tracking and recording of all donations on the Ethereum blockchain.

The DonateBlocks platform offers a secure and decentralized solution for tracking donations, leveraging blockchain technology and smart contracts. It provides transparency, trust, and accountability in the donation process. With features such as MetaMask integration, user-friendly interface, donation tracking and reporting, payment gateway integration, and smart contract management, the platform ensures secure storage and management of funds, real-time updates on campaign progress, and convenient donation methods. By optimizing smart contract code and using a high-performance blockchain network, the platform is scalable, cost-effective, and secure. Overall, DonateBlocks has the potential to enhance transparency, accountability, and trust in donations, ensuring they are used for their intended purposes.

## VI. CONCLUSION

In conclusion, a donation-tracking system using smart contracts and blockchain can provide a transparent, secure, and decentralized solution for tracking charitable donations [22]. By leveraging the benefits of blockchain technology and smart contracts, the system can increase transparency, accountability, and trust in the donation process [23]. The proposed system architecture involves several components, including a donor interface, smart contracts, a blockchain network, nodes, a recipient organization interface, and a payment gateway. By working together, these components provide a tamper-proof and decentralized ledger for tracking donations.

The performance of a donation tracking system using smart contracts and blockchain can be evaluated based on factors such as transaction speed, transaction fees, scalability, and security. By optimizing smart contract code, using a high-performance blockchain network, and automating many of the processes involved in donation tracking, the system can provide a scalable, low-cost, and secure solution for tracking donations.

Overall, a donation-tracking system using smart contracts and blockchain has the potential to increase transparency, accountability, and trust in the donation process, ultimately helping to ensure that donations are used for their intended purposes [24]. As such, it represents an important step forward in the field of charitable giving and has the potential to make a significant impact in the world of philanthropy.

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## References

- [1] "Concept, Purpose, and Importance of Charity in Our Society," 19 02 2018. [Online]. Available: <https://www.transparenthands.org/concept-purpose-and-importance-of-charity-in-our-society/>.
- [2] P. Vallely, "There are more philanthropists than ever before. Each year they give tens of billions to charitable causes. So how come inequality keeps rising?," 08 09 2020. [Online]. Available: <https://www.theguardian.com/society/2020/sep/08/how-philanthropy-benefits-the-super-rich>.
- [3] C. Ugaz-Burga, R. Valverde-Grados et D. Cardenas-Salas, "Blockchain and smart contract for donation traceability," chez 2021 5th International Conference on Trends in Electronics and Informatics (ICOEI), Tirunelveli, India, 2021.
- [4] A. Singh, R. Rajak, H. Mistry, P. Raut et P. Raut, "Aid, Charity and Donation Tracking System Using Blockchain," chez 4th International Conference on Trends in Electronics and Informatics (ICOEI), June 2020.
- [5] H. Saleh, S. Avdoshin et A. Dzhonov, "Platform for Tracking Donations of Charitable Foundations Based on Blockchain Technology," chez 2019 Actual Problems of Systems and Software Engineering (APSSE), Moscow, Russia, 2019.
- [6] E. Shaheen, M. A. Hamed, W. Zaghloul, E. A. Mostafa, A. E. Sharkawy, A. Mahmoud et A. Labeb, "A Track Donation System Using Blockchain," chez 2021 International Conference on Electronic Engineering (ICEEM), Menouf, Egypt, 2021.
- [7] [En ligne]. Available: [https://snowballfundraising.com/mobile-donations-safe/conference:%202021%205th%20International%20Conference%20on%20Trends%20in%20Electronics%20and%20Informatics%20\(ICOEI](https://snowballfundraising.com/mobile-donations-safe/conference:%202021%205th%20International%20Conference%20on%20Trends%20in%20Electronics%20and%20Informatics%20(ICOEI).
- [8] B. D. Friedman et A. M. Wolcott, "Secrecy and Transparency in Nonprofit Organizations: If a Nonprofit Prefers Secrecy, What Does It Want to Hide? chez Paper for Presentation at the Southeastern Conference on Public Administration, Panel on "Nonprofit Management: Managing Change and Public Values", Birmingham, Ala, September 21, 2018.
- [9] A. Almaghrabi et A. Alhogail, "Blockchain-based donations traceability framework," Journal of King Saud University - Computer and Information Sciences, vol. 34, pp. 9442-9454, 2022.
- [10] M. Li, Y. Chen, L. Zhu, Z. Zhang, J. Ni, C. Lal et M. Conti, "Astraea: Anonymous and Secure Auditing Based on Private Smart Contracts for Donation Systems," IEEE, pp. 1 - 17, 05 September 2022.
- [11] C. W. Cai, "Disruption of financial intermediation by FinTech: a review on crowdfunding and blockchain," Wiley Online Library, vol. 58, pp. 965-992, 25 September 2018.

- [12] B. M. Ramageri et M. Arjunwadkar, "Applications of Blockchain Technology in Various Sectors:A Review," International Journal of Future Generation Communication and Networking , vol. 13, n° %12, pp. 94-99, April 2020.
- [13] J. Lee, A. Seo, Y. Kim et a. Jeong, "Blockchain-Based One-Off Address System to Guarantee Transparency and Privacy for a Sustainable Donation Environment," vol. 10, n° %112, p. 4422, 26 November 2018.
- [14] A. Christie, "Can Distributed Ledger Technologies Promote Trust for Charities? A Literature Review," Global School of Business and Law, RMIT University, Melbourne, VIC, Australia, vol. 3, 2020.
- [15] R. Davies, "Submission to Treasury Select Committee Call for Evidence on Digital Currencies," April 2018.
- [16] "Harnessing Blockchain for Sustainable Development: Prospects And Challenges," 2021.
- [17] "bitgivefoundation," [En ligne]. Available: <https://www.bitgivefoundation.org/>.
- [18] "BINANCE charity," [En ligne]. Available: <https://www.binance.charity/>.
- [19] "Building Blocks," [En ligne]. Available: <https://innovation.wfp.org/project/building-blocks>.
- [20] "Blockchain for Social Impact: Moving Beyond the Hype," [En ligne]. Available: <https://www.rippleworks.org/blockchain/>.
- [21] N. S. Sirisha, T. Agarwal, R. Monde, R. Yadav et R. Hande, "Proposed Solution for Trackable Donations using Blockchain," chez 2019 International Conference on Nascent Technologies in Engineering (ICNTE), Navi Mumbai, India, 02 January 2020.
- [22] N. S. Sirisha, T. Agarwal, R. Monde et R. Hande, "Proposed Solution for Trackable Donations using Blockchain," chez 2019 International Conference on Nascent Technologies in Engineering (ICNTE), January 2019.
- [23] S. Tunçer, A. Özdede and C. Karakuzu, "Transparent Donation Management with Smart Contract-Based Blockchain," Journal of Engineering Research and Technology, vol. 3, December 2022.
- [24] A. Singh, M. Ahad et H. M. Malik, "Donation Tracking System using Blockchain" International Research Jouran of Engineering and Technology (IRJET), vol. 10, January 2023.