iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** III **Month of publication:** March 2023

DOI: https://doi.org/10.22214/ijraset.2023.49541

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue III Mar 2023- Available at www.ijraset.com

Incentivise Mechanism for Authors and Readers with Blockchain

Pragun Dua[1], Aabhash Pansari[2], Jenice Tomar[3], Yogesh Sharma[4]
[1, 2, 3]*Maharaja Agrasen Institute Of Technology, New Delhi*
[4]*Assistant Professor, CSE Department, Maharaja Agrasen Institute Of Technology, New Delhi*

Abstract: ***With the advent of popularity of long form publishing of written media in the form of novels and graphics novels, there arises a need for a platform to incentivise authors to get constant, periodic feedback for their work, so that it is optimized for adaptations for mainstream media as well as a cult following in terms of content and character likability and relatability. Blockchain and its associated technologies have made transactions and tipping extremely easy, and with L2 chains like Polygon which have low transaction fees, combined with the immutability and security of smart contracts make for an excellent enabler for this industry. The following research paper seeks to use blockchain to create a publishing platform that enables an author to put out individual chapters and gain rapid feedback on it in the form of voting by the users on the next storyline, while readers make some money in return for their feedback.***
Keywords: Blockchain, Publishing Platform, Decentralised, Smart Contracts, Voting

I. INTRODUCTION

There has been a large demand in serialized reading material all over the world. Publishing is a pain point for authors all around the world — they spend months and years on a project only for it to not perform well in the market. With our publishing platform, we want Authors to have smaller feedback loops on their ideas, while readers earn money on the side while also helping out their favorite up and coming authors. Authors also don't need to give away rights to their stories to publications for them to be reviewed, refined and edited. This is done by creating a market around the chapters and their serialization — decentralizing and democratizing the course a story takes.

We wanted to combine the following powers:

1) Of the benefits of blockchains: open, permissionless, censorship resistant.
2) Of the benefits of Matic: small micropayments and bulk transactions. Multiple markets may resolve at the same time.
3) Of the power of decentralized writing communities like Wikipedia and combined with the ideas from game and market theory.

A. Working of the Platform

1) Writer incentivizes readers to read by putting in some token amount as skin in the game.
2) Readers jump on the opportunity of making some money on the side and give feedback based on their risk appetite.
3) For feedback each chapter is a round where an author gives out the next possible storylines and users vote on it. The storyline that wins majority is taken forward by the author, and the users who win for majority get rewards for their feedback and opinions.

II. SYSTEM ARCHITECTURE

A. Client Side UI

In this project, we will be using ReactJS to implement client-side rendering.
React is a JavaScript library used for creating user interfaces and is often used for building single-page and mobile applications. It was developed by Facebook and has a unidirectional data flow, where the flow of data in a React application is managed by a single, top-level component known as the "root" component. This streamlines the process of understanding how the application's state is being managed and makes it easier to troubleshoot issues. We use various helper libraries, such as web3.js, and ethers.js to interact with EVM-based smart contracts

B. Backend

For the backend of this project, we will be using Firebase to store books and chapters written by authors. The backend will be integrated with the client-side application through https calls, serving as a REST API. REST APIs are web APIs that use the HTTP protocol to facilitate communication between systems, and they adhere to the REST architectural style, which promotes simplicity and flexibility. These APIs use standard HTTP methods such as GET, POST, PUT, DELETE, and PATCH to manipulate resources that are represented as URLs and are defined by a set of HTTP endpoints. REST APIs are stateless, meaning they do not retain any information about previous requests, which allows for better scalability since the server does not need to store data to process requests.

C. Smart Contracts

Smart contracts are digital agreements that are stored on a blockchain and automatically execute terms when specific conditions are met. They help facilitate, verify, and enforce the execution of a contract and are not able to be changed once deployed on the blockchain. Smart contracts provide a secure and transparent way for parties to transact without the need for intermediaries, leading to reduced costs and increased efficiency. They can be used in many situations and offer a reliable way to exchange value and perform transactions.

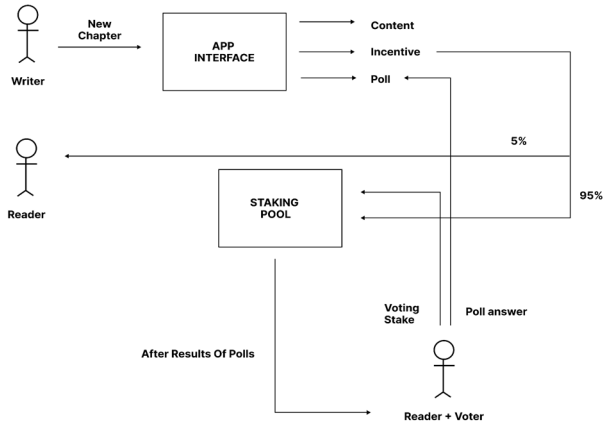
Advantages of Smart Contracts

1) Automation: Smart contract can be automated, allowing convenience in terms of execution
2) Accuracy: Smart contracts are written with code, minimizing errors and chances of things going wrong.
3) Security: Smart contracts are based on a decentralized blockchain network, making them secure and resistant to tampering.
4) Efficiency: Smart contracts ensure there are no intermediaries in between, enabling a great deal of efficiency.
5) Transparency: Terms of a smart contract are open and visible.
6) Immutability: Smart contracts cannot be altered once deployed, following the principle of “code is law”

D. Polygon (Previously known as MATIC Network)

As a layer 2 solution built on Ethereum, Polygon enables developers to build and deploy decentralized applications (dApps) and offers faster and cheaper options for executing transactions and smart contracts compared to Ethereum. It utilizes Ethereum as its base layer and allows for interaction with Ethereum-compatible protocols and blockchains through its own set of smart contracts and APIs. Polygon has its own native cryptocurrency called MATIC, which is used to pay for fees on the network. Its high transaction throughput makes it suitable for applications that require fast and reliable processing of transactions, such as decentralized exchanges and gaming platforms. Polygon also provides a variety of tools and resources for developers, including a modular platform for building dApps, a library of pre-built smart contracts, and a user-friendly development environment

E. System Architecture Diagram



III. LITERATURE SURVEY

A. *The QQ Reading model, famous in China [ref] is vastly Different from Traditional Publishing Platforms*

Paid books allow readers to access up to ⅔ of the book for free, allowing them to become interested in the story before they need to pay to unlock the ending.

Books can also be sold in smaller increments, with readers paying per 1,000 words for serialized works. For example, 一世倾城, one of the most popular books of 2014, has over 10,000 chapters and is still being updated, making it more than 46 times the length of the entire Harry Potter series.

By publishing chapters piecemeal, authors can also incorporate reader feedback and make changes to the plot or characters. Some authors offer free books and illustrations, build a loyal audience, and then collect money through tips, with an overlay button at the end of each chapter allowing readers to tip from $0.15 and up. The platform has a value of $1.1 billion and boasts 850 million active users.

B. *Market for Serialised Graphic Novels*

Japanese Graphic Novels called Manga are extremely popular all over the world, and are used to make animated shows called Anime. They have an extremely popular fan base and Intellectual Property worth billions in terms of merchandise, theme parks, and publishing and/or media rights.

IV. METHODOLOGY AND PLATFORM FLOW

A. *For a New User*

1) Connect metamask of user to the site
2) allow user to create transactions on matic network
3) Dashboard consists of a list of books being written on the platform
4) New user is able to
- Read other books
- Write a new Book

B. *While Writing a Book*

1) User can write a chapter of a new Book or
2) User can continue writing new chapters for an existing book
3) Whenever a new chapter is uploaded, user puts some eth on stake for that chapter.
4) For the chapter being uploaded, Author is allowed to create polls with binary answer
5) All readers who read the chapter get 5% of the Author's stake amount

C. *About Polls by Author*

1) Readers are allowed to take part in poll by putting their a part of their stake.
2) Voters who were in minority, would lose their staked amount.
3) Voters who secured majority, will receive rewards
4) Rewardpool comprise of: All the staked amount by readers+ 95% of the Author's stake
5) Every voter in winning pool gets rewards in proportions to their staked amount.

D. *While Reading Books*

1) User selects a book, and a list of chapters of that book is displayed
2) User selects a chapter, and chapter content is displayed.
3) User can finish reading and not take part in polls.
4) User can decide to participate in poll and put stake on any option.
5) Upon finishing reading, user can submit a transaction to indicate that reading was completed.
6) To participate in poll, user can submit a transaction, indicating the vote and the stake.

E. When Polling period ends for a Chapter

1) 5% of Author's stake is eligible to be claimed by all readers.
2) All readers are eligible to claim their share from 5% of the Author's stake.
3) All readers and voters are eligible to initiate disbursal of Poll rewards.

V. RESULT

We arrive at a platform that facilitates rapid feedback from the readers and enables authors to optimize for market likability. A few game theory behaviors were observed in retrospect:

A. Writers with More Stake get More Feedback in General

1) Though more feedback from reader's perspective dilutes their reading incentive:
2) More people read, more their reading incentives dilute.
3) And hence the incentive would be to vote.
4) More people vote, the odds become more volatile.

B. Writers With Less Stake Are Automatically More Desirable Given The Above Game Theory

1) Less readers read, less their reading dilution.
2) And hence when readers enter voting, the odds become more even.

VI. CONCLUSION

We can conclude that with the help of such a platform, getting shorter feedback loops helps the author prioritize feedback on his work, and also incentivises users to make money and support underrated and underappreciated works of art by having access to it before mainstream media. All of this is possible because of the security, programmability, and flexibility of blockchain based smart contracts and the cheap transaction costs of Polygon.

VII. FUTURE SCOPE

A. Product Scope

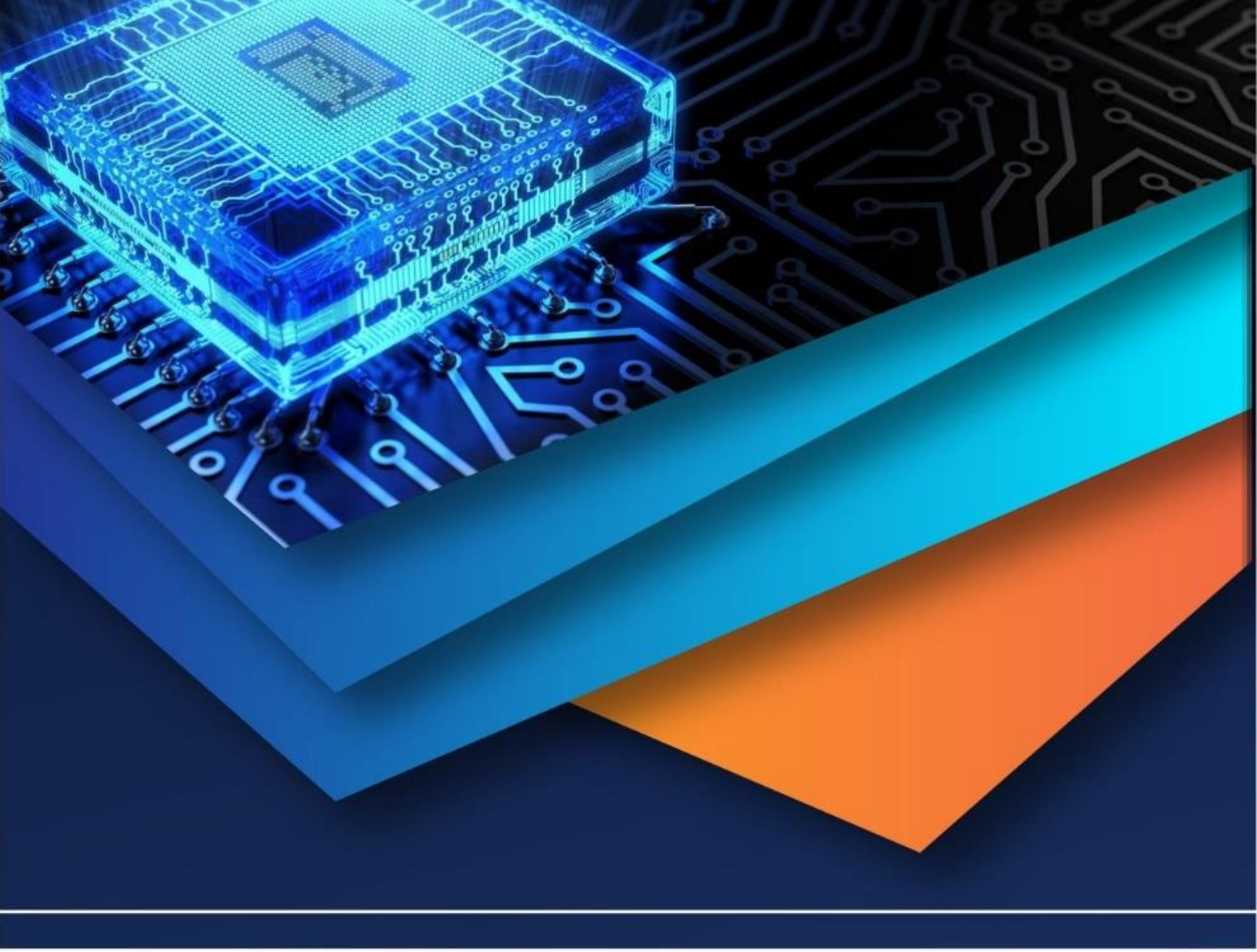
1) Somehow people get tokens for early book launches and then they partake in books sales that happen later.
2) Book forking: allow diversity in consensus. Books are opinionated in creative work.

B. Tech Scope

1) Privacy on votes.
2) Time based resolution of the market on chain.
3) Decentralised, on chain storage for content

REFERENCES

[1] Victoria Lemieux,Quinn DuPont-"Blockchain and Web3: Mirrors, "Jouissance" and Social & Personal Identity Formation"-September 20, 2022
[2] Chen Feng,Jianyu Niu,Ziyu Wang-"Incentive Analysis of Bitcoin-NG, Revisited"-October 2, 2020
[3] https://a16z.com/2018/12/07/when-advertising-isnt-enough-multimodal-business-models-product-strategy/
[4] https://www.simplilearn.com/tutorials/blockchain-tutorial/what-is-web-3-0
[5] hyperledgerfabric.readthedocs.io/en/release-2.2/



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY