

# Agriculture Fund Granting Schemes (Using Blockchain)

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**Abstract:-** Current agricultural development and reform are calling for new techniques and innovations to create a more transparent and accountable environment in the agriculture sector to provide full proof, secure authentic fund allocation. The proposed system keeps track of funds allocated, as this has to be processed at each stage of state government. Thus by building a decentralized database infrastructure that would resolve the problem by providing secure transfer of funds in efficient way.

**Keywords:-** Blockchain, Ethereum, Crypto currency, Truffle- framework, Decentralized application, Transparency Allocating of funds

## I. INTRODUCTION

One of the significant challenges faced by the Government of India in the agriculture sector is to increase the delivery of subsidies by re-engineering the existing process. Nowadays most of the people may not aware of available schemes in agriculture fields provided by government. The working of government farm scheme involves huge number of transactions that need to be carried out throughout the state. One of the major hurdle that government faces is to track the low level corruption which will deprives the state progress.

Current agricultural development and reform are calling for new techniques and innovations to create a more transparent and accountable environment in the agriculture sector to provide full proof, secure authentic fund allocation & fund tracking system that helps to form an incorruptible government procedure. Many times the resources are available in abundance or scarcity. This problem will be solved easily by our application and we have used the "Blockchain Technology" for the security and privacy in data sharing.

➤ Decentralized- - Blockchains are decentralized in nature implying that no single individual or gathering holds the authority of the general organization. Donors and beneficiaries both can use the website with ease and in a decentralized manner where all the updates done are seen by donors and beneficiary each.

- Peer to Peer network – With the utilization of Blockchain, the collaboration between two gatherings through a shared model is effectively cultivated without the prerequisite of any outsider
- Permanent – The unchanging nature property of a blockchain alludes to the way that any information once composed on the blockchain can't be changed. Carefully designed – With the property of permanence installed in blockchains, it gets simpler to identify altering of any information. In the website, Any alteration done by donor will be notified to the Admin.

## II. PROBLEM DEFINITION

Governments have to provide a huge number of responsibilities of a state. The working of state governments involves immense number of transactions to be carried out towards different operations. This includes repair and maintenance work, new projects, awarding contracts, paying of government employees, farmerschemes and many more. A major difficulty the top government faces is tracking the low-level corruption, which deprives the needy people and also progress of state. Tracking it is a very complicated task due to the current system.

The proposed smart system tracks the allocated funds by the state government and public donors to beneficiaries. This will be processed at each stage using blockchain process.

## III. LITERATURE AND COMPETITION SURVEY

A literature survey or a literature review during a project reports that section that suggests the numerous analyses and studies made in the discipline of your interest and consequently the outcomes already published, thinking of the varied parameters of the project and additionally the extent of the project. A literature survey is the maximum substantial step in any reasonable study. Before beginning development, we need to test the preceding papers of our area in which we're operating and the idea of the look at what we're capable of expecting or generate the downside and start operating with the reference of preceding papers. During this phase, we briefly evaluate the associated work on the Government Fund Allocation & Tracking System and the usage of Block-chain Technology.

- In this paper, the writer attempted to discover the ability of blockchain technology to decrease embezzlement which can also additionally arise for the duration of the fund's switch of government schemes. Also discovered 8 appropriate traits of any virtual fund switch method which incorporates a sequence of layers. To make certain equity on this form of the virtual method the writer has proposed to apply blockchain-based technology through the usage of mathematical model transaction traits to officially make certain equity at all levels. This system also can be audited through common human beings to trace the cash flow of any schemes, making the system absolutely obvious and fair.
- In this paper, the author considered blockchain applications that allow maintaining transparent records with the transactional data made available on the demand basis. In this system the transactional data is encrypted using hashes. Every node maintains and verify this block of transactional data and save information within the government. In order to form a completely incorruptible government process, the system provides a way to allocate funds securely and track them authentically.
- This paper discusses the use of blockchain technology for tracking government funds. When the government issues funds for projects, often a large part of it is unutilized and is barely used for the actual project, one of the main causes being corruption. So, if blockchains are introduced here, everyone can track all the amounts regarding when and where it is being utilized. This technology is utilized in the government sector and can have a major impact on the growth and economy of a country.
- This system makes use of encryption to secure transactional data using hashes to take care of a block of transactions in a very chain manner which is maintained and verified by every node involved to verify the transaction and save the information in a very transparent way. Using the system, a transparent, incorruptible government process can be formed by providing a completely secure, authentic, and reliable system of allocation and tracking of funds.
- In this paper, the system provides tracking and allocation of funds at every single stage till it reaches the beneficiary's account. The system relies on hashing. The proposed framework expects to tackle all misrepresentations submitted within the public authority area and provides a sequence of secure exchange of information, cash, and other individual data of each transaction. There will be no requirement for the outsider and also the exchanges are regulated all the more sturdily and transparently. This system will assist in limiting human blunders and time delays in fund allocation. be an increasing interest in this technology in the next few years.

- In this paper, System provides a decentralized application that provides the functionalities of a tracking system with proof of delivery using Quark Chain at its core. A transparent behaviour of trade would be established based on smart contracts where the supplier and customer are on the same page and no third-party interference is needed. This would eliminate the scope of counterfeited products getting added to the supply chain as any inconsistencies in the ledger would be noticed, and necessary actions could be taken.

#### IV. IMPLEMENTATION

The Ethereum blockchain was used to develop Smart Start. During the creation of Smart Start, we employed the Truffle- Framework. It includes tools for creating, deploying, and testing Ethereum smart contracts. To ensure compatibility with commonly used development patterns, we employed implementation of the Ganache, truffle, solidity, mocha and chai.js.

Our application will be built on the truffle platform, we will be using ganache and metamask Ethereum wallet for the transfer of cryptocurrency, that is ether.

So basically, our project is all about buying and selling courses using cryptocurrency. Consider a seller who wants to create, upload and sell his course, so first, he will import an account from metamask, if he does not have an account then a new account has to be created. After importing an account, the seller can upload his course, at that time the course is owned by the seller himself. Now the courses are displayed to the buyer, at the buyer's end, the buyer has to import an account from metamask if he does not have an account a new account is created. After getting an account the buyer can see the displayed available course, if a buyer intends to buy a course he makes a payment using cryptocurrency ether,

This transaction is done directly between the buyer and the seller so the transaction is recorded and the cryptocurrency ether is received by the seller. Initially, the course owner was the seller, after the transaction is completed the course ownership is changed to the buyer i.e., now the course is owned by the seller. Now the buyer can access the course.

Our project's expected outcomes are that we should be able to sell and buy the courses directly between the seller and the buyer without the involvement of any third parties as it reduces the commission, also there will be a secured transaction as the data is recorded on the blockchain with an immutable ledger i.e. the data will remain unchanged.

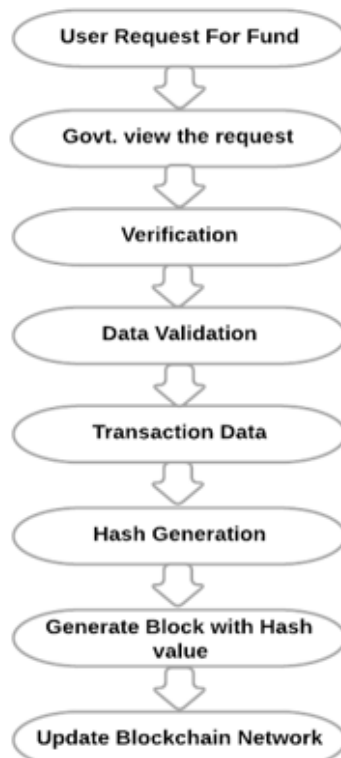


Fig 1:- Data flow diagram

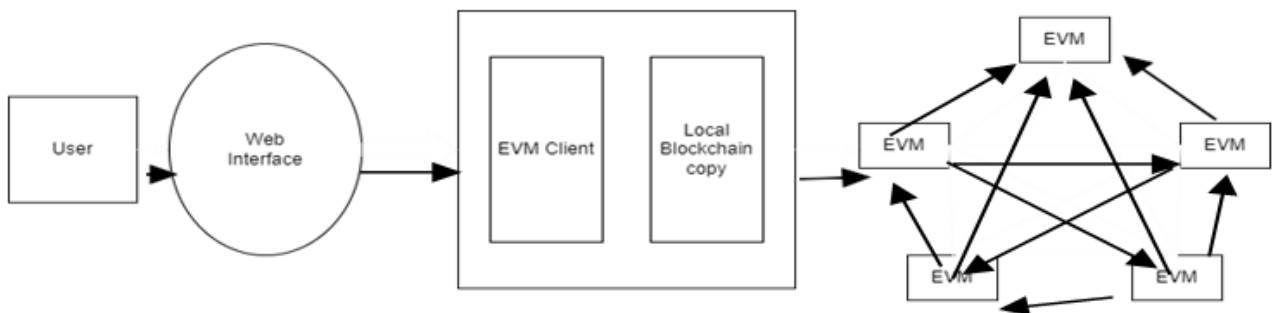


Fig 2:- Architectural diagram

**V. RESULTS AND DISCUSSION**

We investigate the approach's viability by comparing expenses of purchasing digital content via typical e-commerce methods. Gas units are used to pay for transaction charges in Ethereum. The more computationally difficult the transaction, the more gas it will cost. The cost of deploying a smart contract or running a function is stable as long as the input parameters are consistent. However, the exchange rate between ether and gas (gas prices) is continually changing. The amount of money that users are willing to spend to complete their transactions determines the exchange rate. As network traffic increases, miners will be more likely to

undertake transactions at higher gas prices. As a result, gas price volatility is factored into gas estimations as a critical factor. To determine the computational complexity of the application's transactions, gas consumption was monitored. The quantity of gas expended, as shown in Fig.4 is proportional to the transaction's computational complexity and is estimated by the Ethereum network. This is because nodes choose to do less computationally difficult tasks, which slows down transactions that require a lot of gas to complete. The typical transaction costs 4.6 gwei and takes 3.8 seconds. It only takes a fraction of a second to form a contract. This illustrates that the test network is responsive to transaction requests from the application and, as a result, is quite fast.

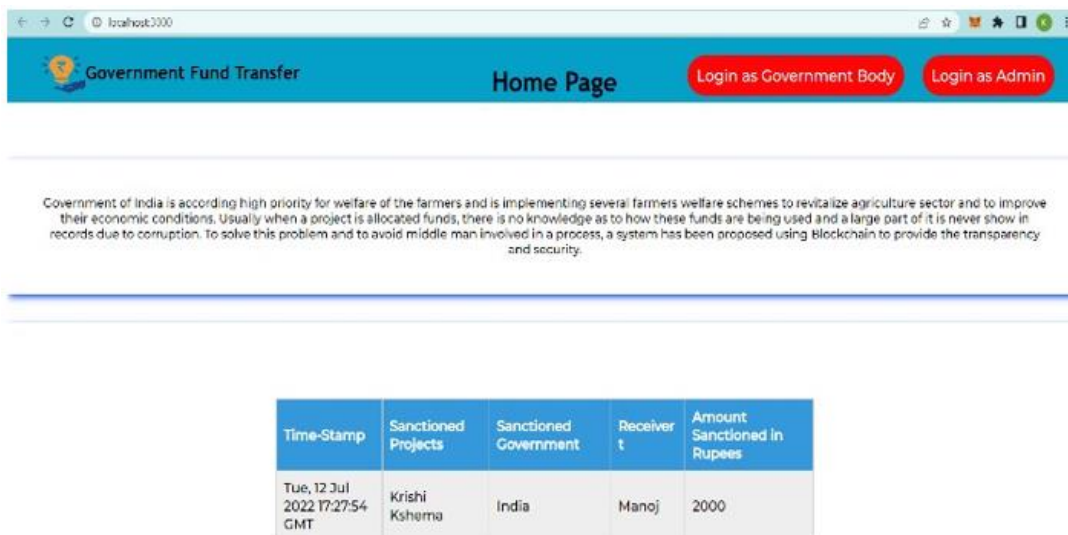


Fig 3:- Home Page

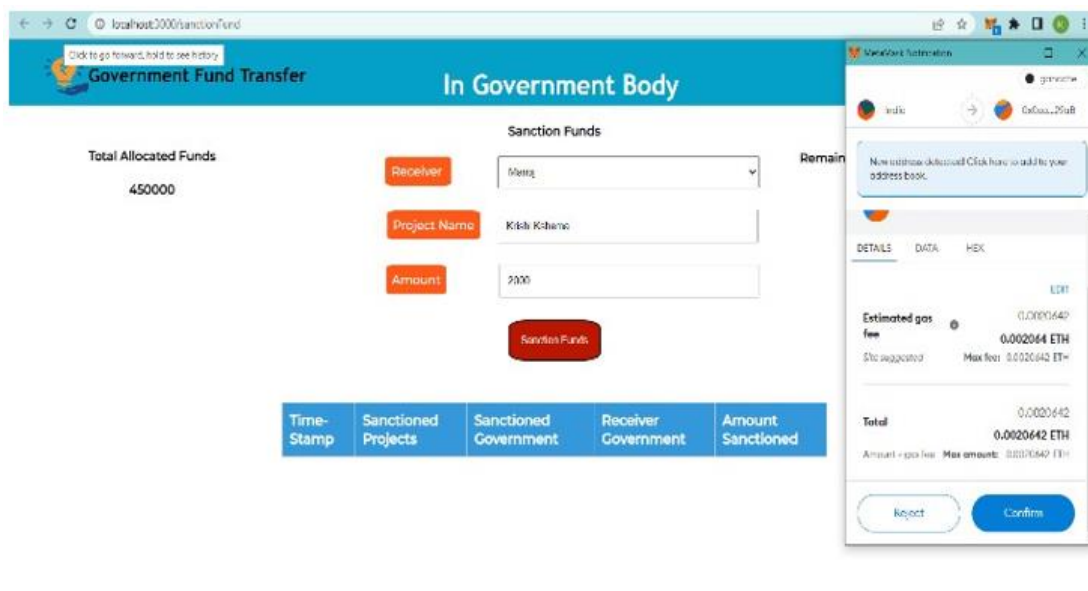


Fig 4:- Gas expended

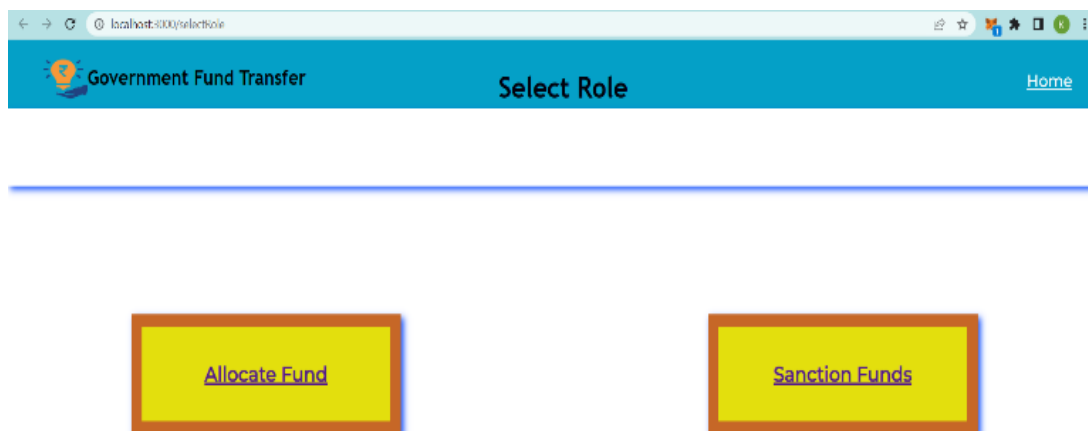


Fig 5:- Selecting Roles

ADDRESS	BALANCE	TX COUNT	INDEX
0x2460d2E3e1C0F88541B7eC433E688213edA500a3	100.00 ETH	0	2
0xf0C3a2bA4f85DD3A2D8D6a836d0EBf9A957A360F	100.00 ETH	0	3
0x9AA72F1C29D994a184eAE66B2A83884207946b33	100.00 ETH	0	4
0x72C4C3FC1Fc60e437C298aD544db6F1c06D14043	100.00 ETH	0	5
0x4Dbf82674E9E0726a7CCca5b89dcAd377661830	100.00 ETH	0	6
0x11E4A40d4Eb2Ebad7DE9a6e99c5A5fe717e8D15a	100.00 ETH	0	7
0x4447155b8E48Cd0C8519ebFC8fC43e2ff2D63644	100.00 ETH	0	8
0x972aBcF37DD4F3bC0a12A0428C015eb58082AD68	100.00 ETH	0	9

Fig 6:- Transaction Cost

## VI. CONCLUSION

In this full-proof, secure government fund allocation and tracking system, the allotted funds are tracked at each level until it reaches the beneficiaries. This proposed framework is added to assist the authorities to lessen corruption and offer transparency in all transactions because of the functions of blockchain-like immutability, proof of work, and security. It offers the right governance and transparency. It will maintain track of all transactions made. As blockchain technology is used the transactions as soon as made cannot be changed and if there's any try of tempering, we can get to recognize approximately that easily. There might be no requirement for the outsider and the exchanges might be regulated all the extrasturdily and transparently. In addition to preventing human errors and delays, it will help eliminate human errors. This framework will make the general public authority framework activities appreciably extra stable and productive. We can nevertheless upload customary schemes from everywhere in the world for fundraising to take it to the subsequent stage for big price range required the humans in need.

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