MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Project Report

on

Government Fund Flow in Blockchain

Submitted By:

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0901CS181034

Faculty Mentor:

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A project report submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

Submitted by:

Deepanshu Malviya

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Faculty Mentor:

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Submitted to:

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CERTIFICATE

This is certified that **Deepanshu Malviya** 0901CS181034 has submitted the project report titled **Government Fund Flow in Blockchain** under the mentorship of **Mr. Mir Shahnawaz Ahmad**, in partial fulfillment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.

27/05/22

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DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfillment of requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Mr. Mir Shahnawaz Ahmad**, Assistant Professor, CSE

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

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ABSTRACT

Abstract - India, the world's fastest growing economy has the potential to attract global customers and adapt to new technologies and innovations. Digitization has great potential to re-develop and improve connectivity in almost all sectors of its economy. But sometimes the distribution of these methods is unequal between the few spheres of government. Getting used to the latest technology will also help to bring about a bigger and bigger change in the way you work / work for a larger group of people out there. Blockchain is one such technology. Because of its unique, secretive, secure, consistent nature, the nature of the evidence is used by all sectors around the world. Finance in India, on the other hand, is a tense topic and various strategies outlined in the public interest are allocated tons of money as funding. Due to a lack of transparency, Blockchain can be used to close that gap and provide a fully secure, consistent financial tracking system.

Keyword - Blockchain,Blockchain applications

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Chapter 1: INTRODUCTION

1.1 Introduction

Blockchain is the most well-known name in today's competitive and rapidly growing world. But unfortunately very few know the technology fully. While some of us refer to cryptocurrencies like Bitcoin, Ethereum as blockchain, others find that this applies to blockchain policy and what does not. Let's emphasize the issue first to get clarity in your mind. The blockchain concept was put forward by 'Satoshi Nakamoto' in his white paper.

He is also a well-known unknown figure after the development of bitcoin. Blockchain is a machine that records information in a way that makes it difficult or impossible to alter, corrupt, or alter records. It is also called Digital ledger, which is similar to a ledger kept by financial institutions to keep track of records. Likewise, the blockchain is essentially a digital ledger stored in a separate and distributed domain. Each block in the blockchain is connected to another forming a set of networks, hence the term "Blockchain". Each block has specific information such as the number of tasks and each time a payment record is updated in a peer-to-peer network of participants. This method of data classification is often referred to as "Distributed Ledger Technology" (DLT).

This process ensures that data integrity is maintained throughout the network. Today, in this age of technology and digitalization, the world is digitizing in every aspect. Technology has completely changed people's view of the world or the world and has led to a transformation of humanity that has never been seen before.

In this article, we will discuss the concept of blockchain and its application in monitoring government finances. India is one of the largest democracies in the world with a population of over 1.3 billion and the majority of the population is still in recession. The Government of India and the Regional Government are implementing a wide variety of policies and programs for the benefit of the economically disadvantaged. Sometimes the Agency and the State Government publish policies and programs that many citizens are not aware of and whose benefits are not available to citizens. In order to identify and maintain the best citizen program to bridge this gap and get the most out of these Government Programs, the Fund Monitor (State and Center) will be implemented where there is a conflict between National policies and Corporate Government policies. . blockchain method.

Chapter 2 : Main Block Chain

2.1 Stack Structure

The Stack would be like :-

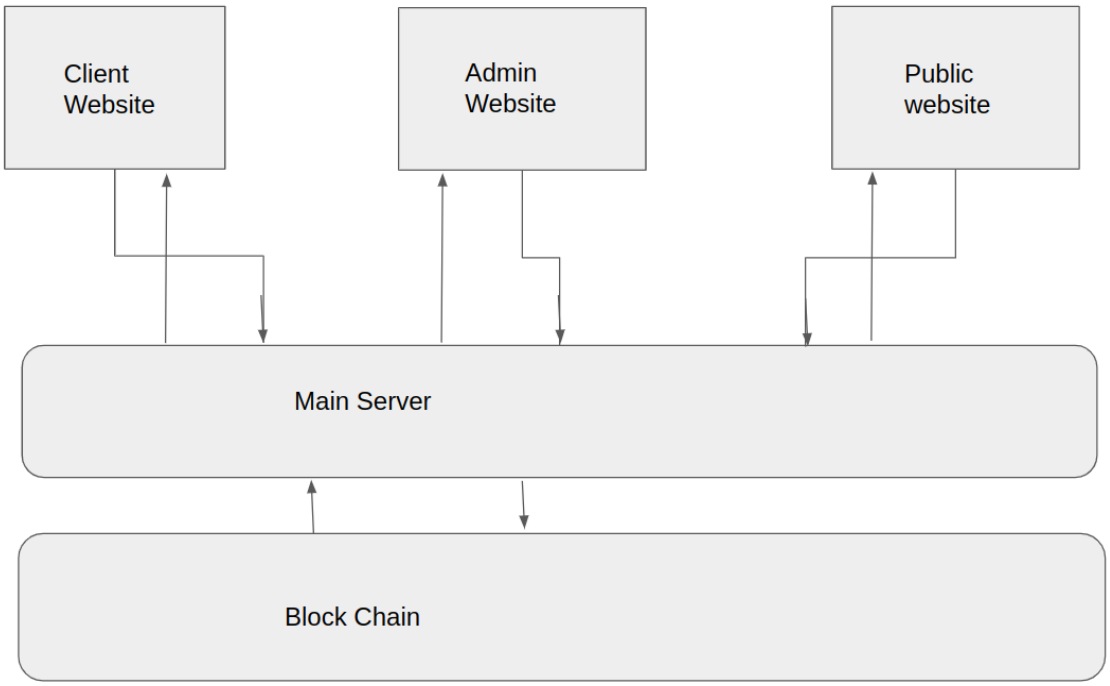


Figure 2.1 (Stack of project)

Data will be collected through the client website. Through main server data goes into the blockchain.

Through Admin website new blocks will be mined for blockchain and necessary changes can be made to other websites like adding

fields for tax form.

The public website will simply be accessing data from blockchain

and displaying it in an understandable format.

The main server is build in node.js , catering to the needs of frontend and blockchain.

Finally the blockchain can be based on hyperledger fabric or Ethereum.

2.2 Methods used in main blockchain are:

1. **Create New Block:**

   This will Create a new Block.

2. **Get Last Block:**

   This will get the data of last block,

3. **Create New Transaction:**

This will create new transaction and this will be added to pending transaction and these transactions will be added to blockchain when the block will be mined.

4. **Add Transaction To Pending Transactions:**

This will create new transaction but this will remain in pending transaction array maintained in blockchain.

5. **Hash Block:**

This method will create a hash from data of this block and hash of previous block.

6. **Proof Of Work:**

By changing the nonce value randomly to satisfy the condition of hash value that is the certain leading digits will be ‘0’.

7. **Chain Is Valid:**

The method will check if the chain is valid or not.

8. **Get Block:**

In the case an invalid block is detected, this method fetches the correct block from synchronized blockchain.

9. **Get Transaction:**

This will return the transaction requested from front-end, transaction id will be used to get the required transaction.

10. **Get Address Data:**

This will return the all the transaction requested from front-end, address id will be used to get the required transactions.

Chapter 3 : Website For Department

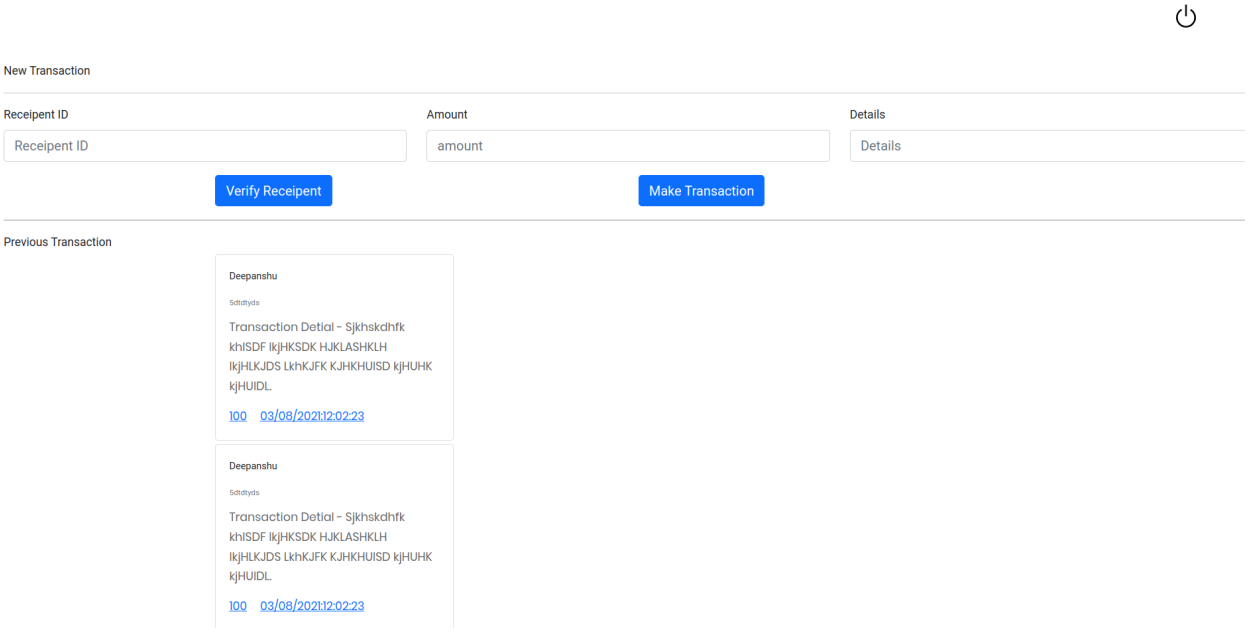


Figure 3.1 (Screenshot of webpage)

3.1 Function of Component:

This component will be used by government offices and ministries to make transactions, here their previous transactions can be seen,
the user will have to fill the recipient's unique id then by clicking on verify recipient the system will verify recipient, then other fields i.e amount and details have to filled and then transaction can be made.

3.2 Components Used In this Section:

Verify Recipient

This component verify the recipient entered by the user.
It takes the username on server and makes a query on database to verify the recipient.

Previous transactions

In this component all the previous transactions are fetched from blockchain and database and shown as a list in lower part of screen.

Make transaction

Finally this will create a block in blockchain with the provided data.

Chapter 4 : Website For Public

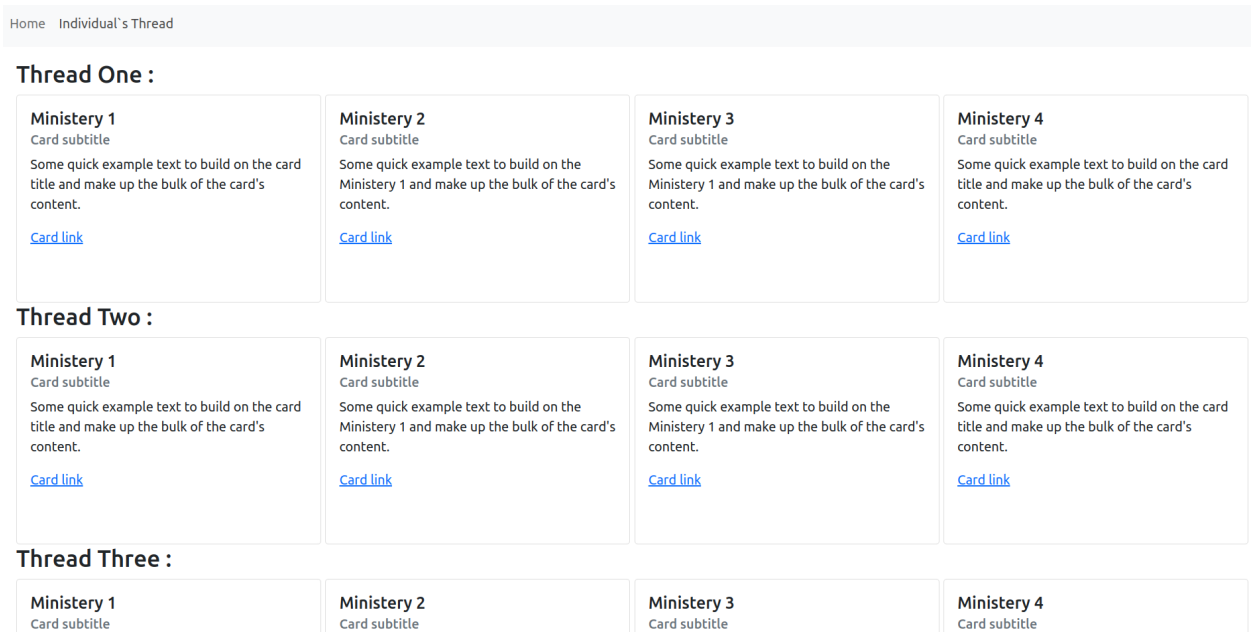


Figure 4.1 (Screenshot of webpage)

4.1 Function of Component:

This is the section which open to everyone to see the data of the blockchain. There will be several threads for every node.

4.2 Components Used In this Section:

Few get Api`s will be get hit and blockchain data will be received from server.

Chapter 5: Website For Admin

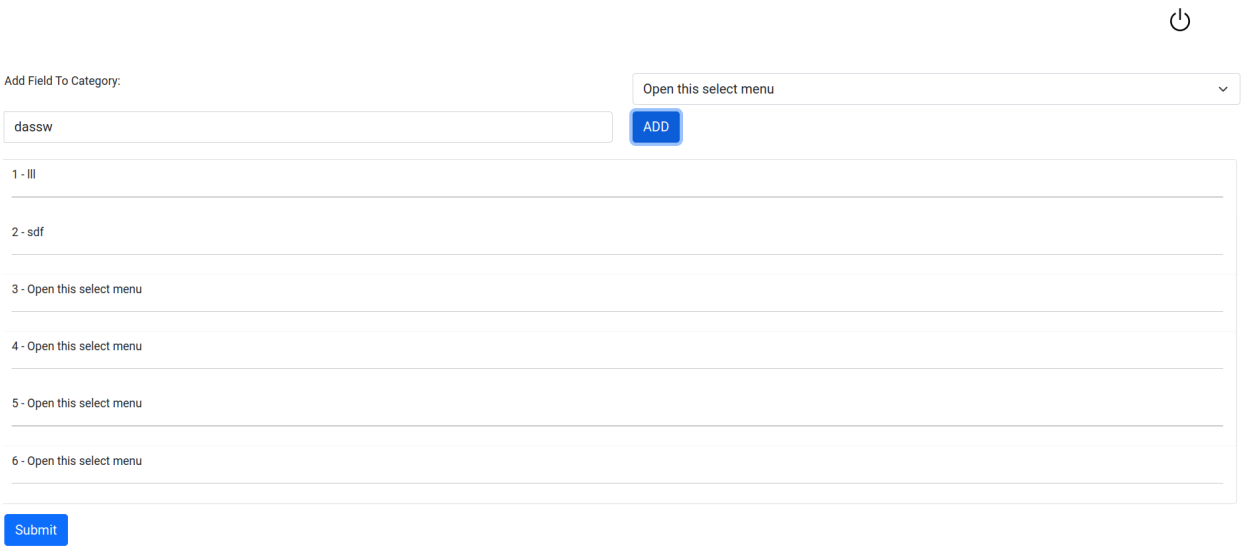


Figure 5.1 (Screenshot of webpage)

5.1 Function of Component:

The Component Gives the functionality to add fields to form to be filled by user[tax filler]. And also from here new block for blockchain can be mined and added to blockchain.

5.2 Components Used In this Section:

Mine block

This will mine the block and new block will be added to blockchain, all the pending transaction will be included to the block.

Add field to form

User have to input name of the field to be added in the tax form.

Select type of form

User will have to select the type of form in which the field have to added.

Chapter 6: Website for filing tax

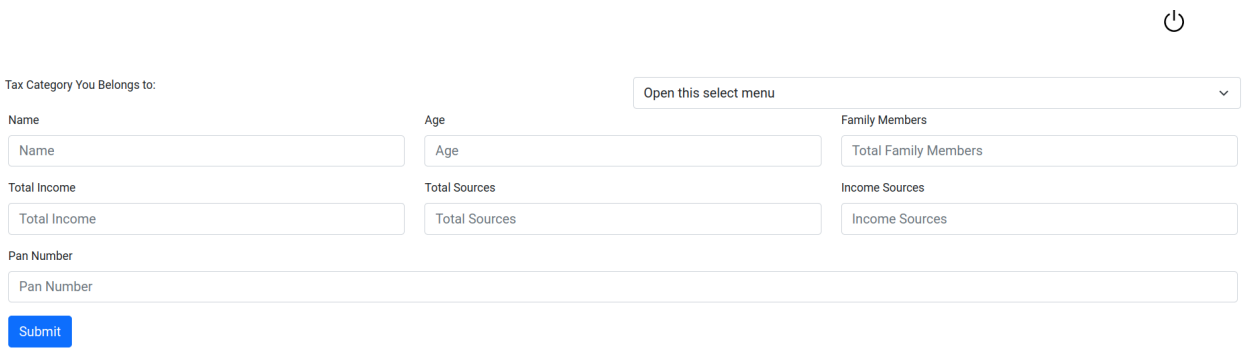


Figure 6.1 (Screenshot of webpage)

6.1 Function of Component:

The User will file the tax from this page and this will be used as a transaction in the main blockchain. The fields can be dynamically added and removed from admin panel.

6.2 Components Used In this Section:

Get fields from database:

This function brings all the fields according to the selected tax form type selected, from the server.

Submit Form

This functionality submits the form data filled by the user.

The select field from where we select the tax form type is designed in such a way that as the user selects the field, the page gets updated with the fields of the selected tax form.

Chapter 7: Current Flow of Funds in bureaucracy

7.1 Flow of Funds

7.1 Financial Flows

The first stop is RBI Weekly Publication - WSS Or Weekly Addition

Next Stop is the budget of the Government of India

You want to know about the flow of money to the Government of India.

Federal or State?

The two images below are taken from the State Government Budget

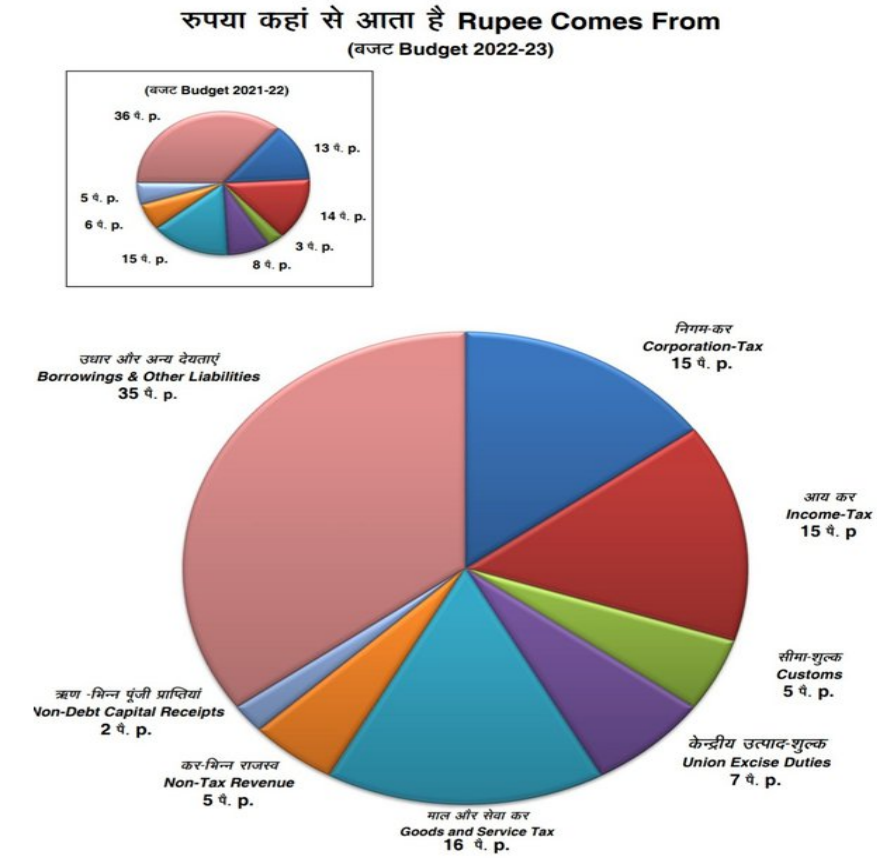


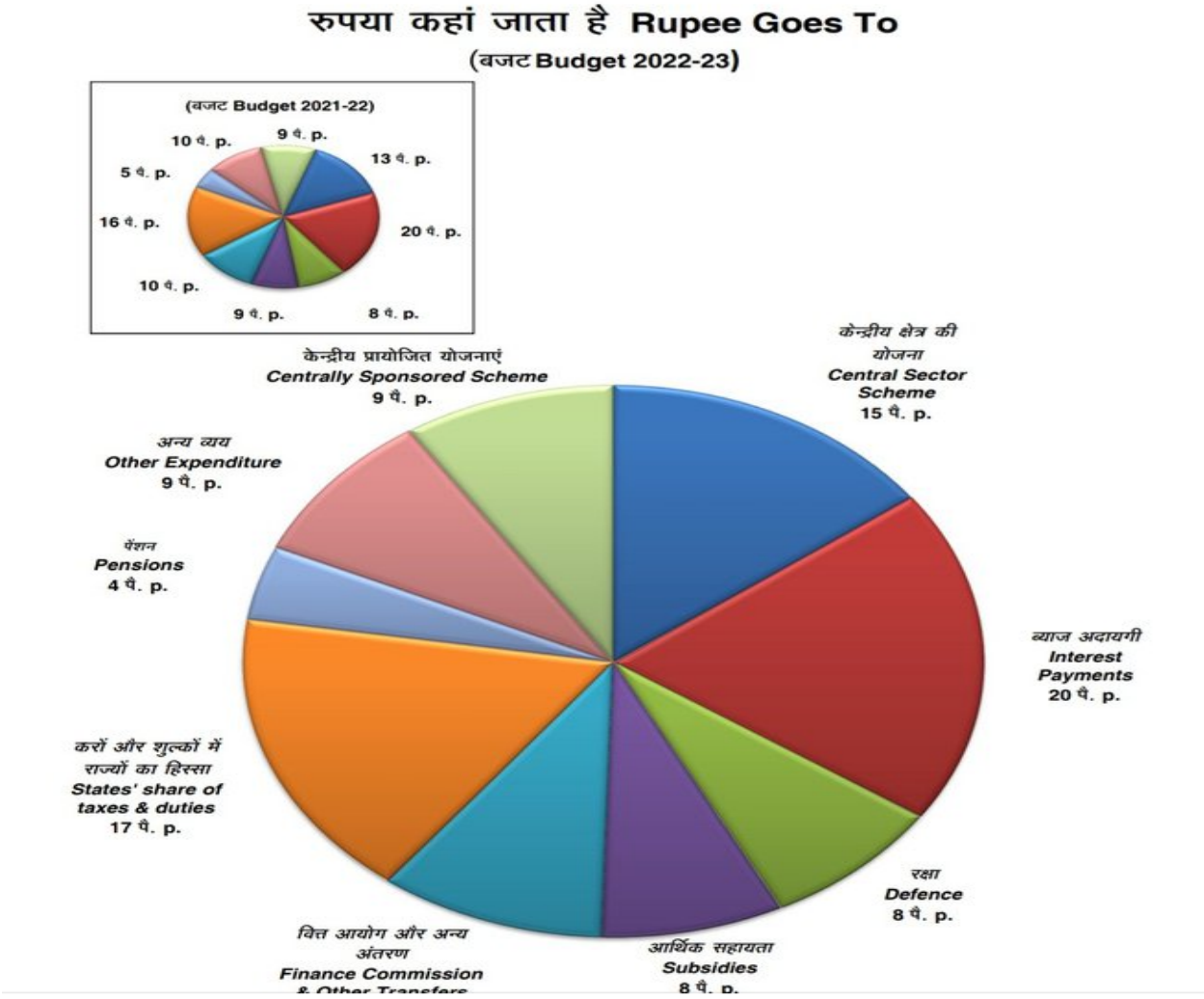
Figure 7.1 (Income source pie chart)

The first shows where the unity government comes from. 35% borrowed. Who is lending to the Federal Government of India? You. Your Provident Fund, NPS, your small savings at the Post Office. The rest of the money comes from two sources. Direct Taxes - Income

Tax, Business Tax, Customs. Indirect Tax - GST. Non-Tax Revenue is the sale of government assets such as bandwidth, PSU shares, etc.

The second shows how it is used. Note that 20% goes to repay interest on the loan. You borrow money from the government and pay interest on your taxes. What about the principal? How is the principal paid? It is payable by raising additional loans sponsored by you. You are a failure - it is not. 8% of protection and 4% of pensions are direct costs of kendriya sirkaar.

Figure 7.2 (Pie chart costs)



All rest is actually provided in the provinces directly or indirectly. The Ministers of the

Union Government are very happy boys. They have no job.

Now you know what happens to money.

A little about government loans.

The Government of India and all the governments of the world lend money by selling so-called T-Bills or Government Securities. The difference between them is that T-Bills have less than a year. Government securities have a life expectancy of 2 to 30 years. T-Bills are proposed to fill in the gaps between revenue and expenses. Government securities are determined by budget.

Chapter 8: How BlockChain will change the world

As a result of blockchain technology, many of the inefficiencies of centralized systems will be eliminated. This creates a more decentralized system. By utilizing blockchain, businesses can improve their processes to new levels. You already know if you work in an organization that controlling and monitoring different aspects of the system is impossible manually. It is easier for businesses to automate their processes with decentralization.

"METASPACE" is a new upcoming IT project I recently read about. It is the world's first 3D decentralized metaverse. It enables users to interact, build communities, own digital assets, and monetize their digital experiences. It will also have a game with a play-to-earn aspect where users can customize their avatars and purchase assets using NFTs. Metaspace’s game will be based on the polygon blockchain.

There will also be a variety of entertainment features, such as virtual concerts. Users can monetize these experiences as well. I am seriously waiting to experience this amazing virtual world with my friends.

Chapter 9: Scope Of Project

9.1 Description

A public sector blockchain can build trust, protect data and reduce costs.

Blockchain is one of the technologies that has undergone a devastating change in many industries. Currently, Blockchain is used in several places and there are many Blockchain applications yet to be discovered and used. Blockchain is characterized by its distribution nature, integrity and openness of the data stored on the chain. Because of these features, Blockchain is another area where it can be used to release government funds for a project.
Often when funds are allocated to a project, there is no information on how these funds are spent, and most of them are not disclosed in the records due to corruption. To solve this problem, a system using Blockchain to provide light has been proposed. This article also provides an overview of the prototype built using Blockchain in JavaScript. It then discusses the future development of this model and finally concludes with the implementation of Blockchain.

Chapter 10: Tools, Libraries Used:

The libraries, modules and technology used are:

10.1 Angular

I used Angular for frontend web development. It's a framework developed in javascript to build single page applications, it was developed by google, it is a fast growing technology, after version 2 it went through major changes. Its latest version is 13+.

10.2 NodeJs

Nodejs is the core technology used in this project. It's a javascript runtime that uses chrome`s v8 engine. The main blockchain is built in nodejs. NodeJs is a synchronous non blocking high level programming language.It has a big developer community and thousands of libraries.

10.3 Bootstrap

10.4 Angular Material

10.5 MongoDB

10.6 VS Code

10.7 GitHub

10.8 Heroku

10.9 FireBase

10.10 SHA256

10.11 Postman

10.12 Javascript

Chapter 11: CONCLUSIONS AND RESULTS

11.1 CONCLUSION

Blockchain features such as stability, authentication, security and isolation help to eliminate the security risks of the application. Hyperledger Fabric, similar to other blockchain technology, uses smart contracts and is a process by which participants manage their transactions. It provides good governance and access control and can be expanded as needed. Considering accessibility and privacy during development. With the continued development of the system, this system can clearly provide all government related services. By going to areas under the community, approving the proposed program will help them better understand how these programs will benefit them, and they will be able to see everything being done because of the clarity of the plan. Location. The authorities will ensure the integrity of every penny. This way every percentage of the Indian population is always in safe hands and the citizen has the right to see and question the authorities in the same way. Blockchain technology has the ability to store data in a P2P network. Blockchain Technology eliminates potential threats to any changes and modifications to the system.

11.2 FINDINGS

Now by implementing this project, human involvement and dependency in bureaucracy will be reduced hence reducing the corruption increasing transparency, optimizing the process

References:

[1] M. Möser, R. Böhme noD. Breuker, "An investigation into fraudulent tools in the Bitcoin ecosystem," 2013 APWG at Crime Researchers Summit, San Francisco, CA, 2013, pages 1-14, doi: 10.1109 / CRS. 2013.6805780.

[2] Mohanta, Bhabendu & Jena, Debasish & Panda, Soumyashree & Sobhanayak, Srichandan. (2019). Blockchain Technology: A Survey on Applications and Security Privacy Challenges. 8. 100107. 10.1016/j.iot.2019.100107.

[3] Udemy Course Used: https://www.udemy.com/course/build-a-blockchain-in-javascript/

[4] Paper used in research: https://www.ijert.org/research/government-scheme-and-funds-tracker-using-blockchain-IJERTV10IS050403.pdf

[5] Quora Question for research: https://www.quora.com/Is-there-any-resource-where-I-can-get-all-the-information-about-the-flow-of-money-in-the-Indian-government-How-does-the-money-move-step-by-step