A

Major Project

On

PRIVATE CRYPTO TOKEN EXCHANGE SYSTEM

(Submitted in partial fulfilment of the requirements for the award of Degree)

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

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2018-22

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project entitled "**PRIVATE CRYPTO TOKEN EXCHANGE SYSTEM**" being submitted by **P. TUSHAR (187R1A05G8), PRAVEEN KUMAR SAHU (187R1A05H1), RAJESH NISHAD (187R1A05H1) & VISHESH KUMAR JAIN (187R1A05J0)** in partial fulfilment of the requirements for the award of the degree of B.Tech in Computer Science and Engineering to the Jawaharlal Nehru Technological University Hyderabad, is a record of bonafide work carried out by him/her under our guidance and supervision during the year 2021-22.

The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

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ACKNOWLEGDEMENT

Apart from the efforts of us, the success of any project depends largely on the encouragement and guidelines of many others. We take this opportunity to express our gratitude to the people who have been instrumental in the successful completion of this project. We take this opportunity to express my profound gratitude and deep regard to my guide

Mr. B. P. Deepak Kumar, Assistant Professor for his exemplary guidance, monitoring and constant encouragement throughout the project work. The blessing, help and guidance given by him shall carry us a long way in the journey of life on which we are about to embark. We also take this opportunity to express a deep sense of gratitude to Project Review Committee (PRC) **Dr. M. Varaprasad Rao, Mr. J. Narasimha Rao, Dr. T. S. Mastan Rao, Dr. Suwarna Gothane, Mr. A. Uday Kiran, Mr. A. Kiran Kumar, Mrs. G. Latha** for their cordial support, valuable information and guidance, which helped us in completing this task through various stages.

We are also thankful to **Dr. K. Srujan Raju,** Head, Department of Computer Science and Engineering for providing encouragement and support for completing this project successfully.

We are obliged to **Dr. A. Raji Reddy,** Director for being cooperative throughout the course of this project. We also express our sincere gratitude to Sri. **Ch. Gopal Reddy,** Chairman for providing excellent infrastructure and a nice atmosphere throughout the course of this project.

The guidance and support received from all the members of **CMR Technical Campus** who contributed to the completion of the project. We are grateful for their constant support and help.

Finally, we would like to take this opportunity to thank our family for their constant encouragement, without which this assignment would not be completed. We sincerely acknowledge and thank all those who gave support directly and indirectly in the completion of this project.

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ABSTRACT

A private crypto token exchange system which can replace the fiat currency exchange inside any organizational premises. The private tokens are generated and maintained based on the fundamental guidelines of Blockchain technology. It helps in solving the problem of transparency in the existing system. We will create a private network and create fixed number of crypto tokens to be circulated in this private network. A private crypto wallet built using Flutter is used for all the transactions. This wallet is connected to the private network and ensures the tokens are not valid outside the private network.

The ability to deploy tokens at a low cost relatively effortlessly on a public infrastructure is a game-changer because it makes it economically feasible to represent many types of real-life assets in a digital way that might not have been feasible before. Examples could be fractional ownership of art or real estate. This might improve the liquidity and transparency of existing asset markets. It might also fundamentally impact our economic interactions, much more than might meet the eye at such an early stage of their existence.

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1. INTRODUCTION

1.INTRODUCTION

1.1 PROJECT SCOPE

This Application is more efficient compared to other systems and can be easily use by various users. This project is specially designed for the users who lost their valuable items: -

- Users who want to track their crypto coins can find their items via this app which provides a user-friendly UI/UX environment and easy to use interface.
- This application is also useful while paying money to Big Organization with more Security and efficiency

1.1 PROJECT PURPOSE

The idea proposed here, is to develop a Hybrid application in which the users can Track their money or tokens via Blockchain on Private network. So, basically this is an application comprising of two major panes- SELL and BUY. It provides a user-friendly UI/UX interface for the users wants to track their tokens or want to invest their capital to use in Organisation. Because of this the security for preventing any theft is increased. Also, it is easier for users to communicate with each other to know details of their transaction over the Blockchain.

1.1 PROJECT FEATURES

The main feature of this application is to create a friendly awareness among the users regarding the Safety while doing online transaction. This application also provides various options for users such as categories, location, time, date so that searching and tracking will become easier when details are given.

2. SYSTEM ANALYSIS

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SYSTEM ANALYSIS

System Analysis is the important phase in the system development process. The System is studied to the minute details and analysed. The system analyst plays an important role of an interrogator and dwells deep into the working of the present system. In analysis, a detailed study of these operations performed by the system and their relationships within and outside the system is done. A key question considered here is, "what must be done to solve the problem?" The system is viewed as a whole and the inputs to the system are identified. Once analysis is completed the analyst has a firm understanding of what is to be done.

2.1 PROBLEM DEFINITION

"Cash is heavy, inequitable, quaint(technologically speaking), expensive, obsolete." This is how James Gleick(1996) summarizes the case against cash or fiat currency. By contrast electronic means of payment are clean, technologically advanced and supposedly cheap and convenient. Fiat money value is usually backed and controlled by their respective governments and are prone to lose the market value due to inflation, government restrictions, etc. Traditional fiat currency exchange inside organizational premises is not entirely secured and transaction history is not monitored, due to this many unauthorized transactions happens. Fiat currency does not allow secure payments through online transaction. whenever a third person tries to make a transaction at organizational grounds his transaction history is not monitored, and the record of transaction is not stored in the database.

2.2 EXISTING SYSTEM

To overcome the problems of the traditional system we are providing a solution which makes the transaction easy and secure for the users inside the organization and the organization can monitor the flow of tokens which makes this a transparent system. The proposed cryptocurrency is in contrast cheap and convenient unlike fiat currency. It allows the respective organization to control the monetary value of the currency. Fiat currency or cash exchange does not have a public record which might lead to unnoticed events in the closed organizational premises. The proposed system keeps a transaction record in the public ledger for future references.

2.2.1 LIMITATIONS OF EXISTING SYSTEM

- No transparency in transactions
- Transaction history is not recorded
- Inconsistency
- Hyper inflation

2.3 PROPOSED SYSTEM

Cryptographic tokens represent programmable assets or access rights, managed by a smart contract and an underlying distributed ledger. They are accessible only by the person who has the private key for that address and can only be signed using this private key.

- The proposed system is a private exchange with a complex architecture.
- The system consists of three main components: -
  1. Crypto Token
  2. Private Network
  3. Wallet

2.3.1 ADVANTAGES OF THE PROPOSEDSYSTEM

The system is very simple in design and to implement. The system requires very low system resources, and the system will work in almost all configurations. It has got following features:-

1. More secure and flexible.
2. Transparency in transaction.
3. Transaction history is recorded.
4. Data is Consistent and can be monitored.

2.4 FEASIBILITY STUDY

The feasibility of the project is analysed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. Three key considerations involved in the feasibility analysis are

- Economic Feasibility
- Technical Feasibility
- Social Feasibility

2.4.1 ECONOMIC FEASIBILITY

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require. The following are some of the important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also, all the resources are already available, it give an indication of the system is economically possible for development.

2.4.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4.3 BEHAVIORAL FEASIBILITY

This includes the following questions:

- Is there sufficient support for the users?
- Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioural aspects are considered carefully and conclude that the project is behaviourally feasible.

2.5 HARDWARE & SOFTWAREREQUIREMENTS

2.5.1 HARDWARE REQUIREMENTS:

Hardware interfaces specifies the logical characteristics of each interface between the software product and the hardware components of the system. The following are some hardware requirements.

- Processor : Desktop (with i5/i7/i9)
- Hard disk : 50GB
- Input Devices : Smart Phone (Android)
- RAM : 8GB

2.5.2 SOFTWARE REQUIREMENTS:

Software Requirements specifies the logical characteristics of each Interface of software components of the system. The following are some o f the prior software requirements,

- Operating system : Windows 8/10, Linux,Aıdroid
- Front End : Flutter, Android Studio
- Database : Firebase, MongoDB
- Tool : VS Code, Flutter,
  Ethereum, Remix,
  Metamask, Ganache
  Postman API, Rust API

3. ARCHITECTURE

3.ARCHITECTURE

3.1 PROJECT ARCHITECTURE

This project architecture shows the procedure followed for Private crypto token exchange system

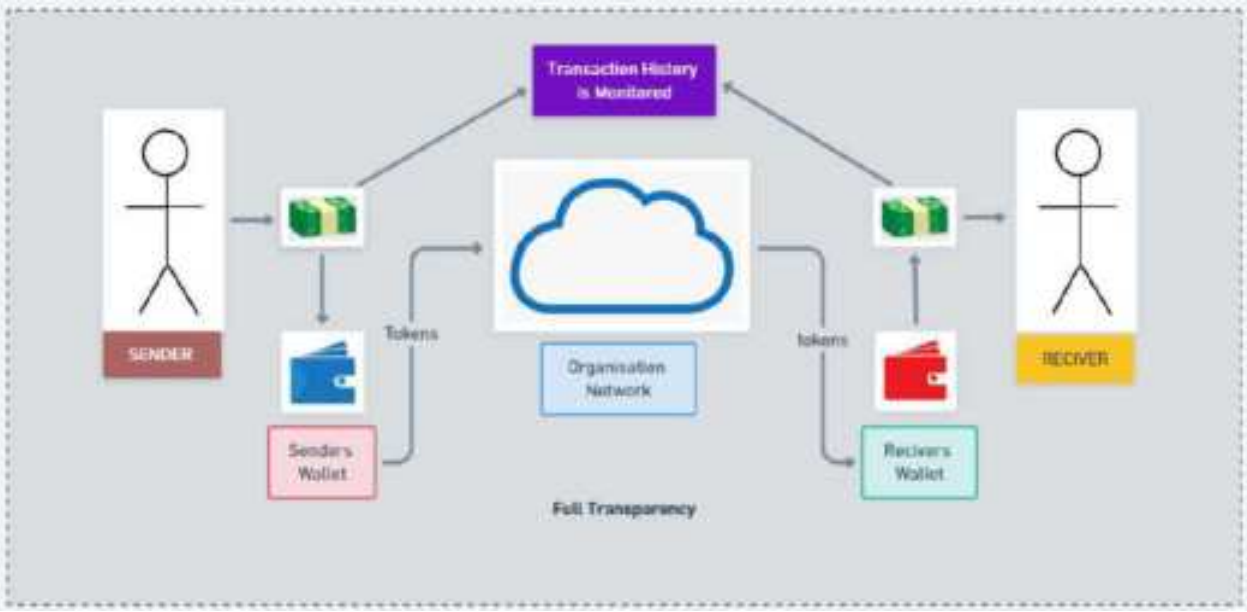


Figure 3.1: Project Architecture of Private crypto token exchange system

3.2 DESCRIPTION

Authentication and Authorization: Authentication means confirming your own identity, whereas authorization means being allowed to access the system. So, it uses a relational database to store the user's credentials which are further used for authentication.

API: API is the acronym for Application Programming Interface, which is a software intermediary that allows two applications to talk to each other. Each time you use an app like Facebook, send an instant message, or check the weather on your phone, you're using an API.

Flutter: Flutter is an open-source framework by Google for building beautiful, natively compiled, multi-platform applications from a single codebase.

File System: A picture can be uploaded by the user so that other people can have a better understanding of the post.

Firebase: Firebase helps teams from startups to global enterprises build & run successful apps. Release Apps Confidently. Monitor App Performance. Customize Your App.

3.3 USE CASEDIAGRAM

In the use case diagram, we have basically two actors who are the user and the administrator. The user has the rights to login, access to resources and to view the crime details. Whereas the administrator has the login, access to resources of the users and the right to update and remove the crime details, and he can also view the user files.

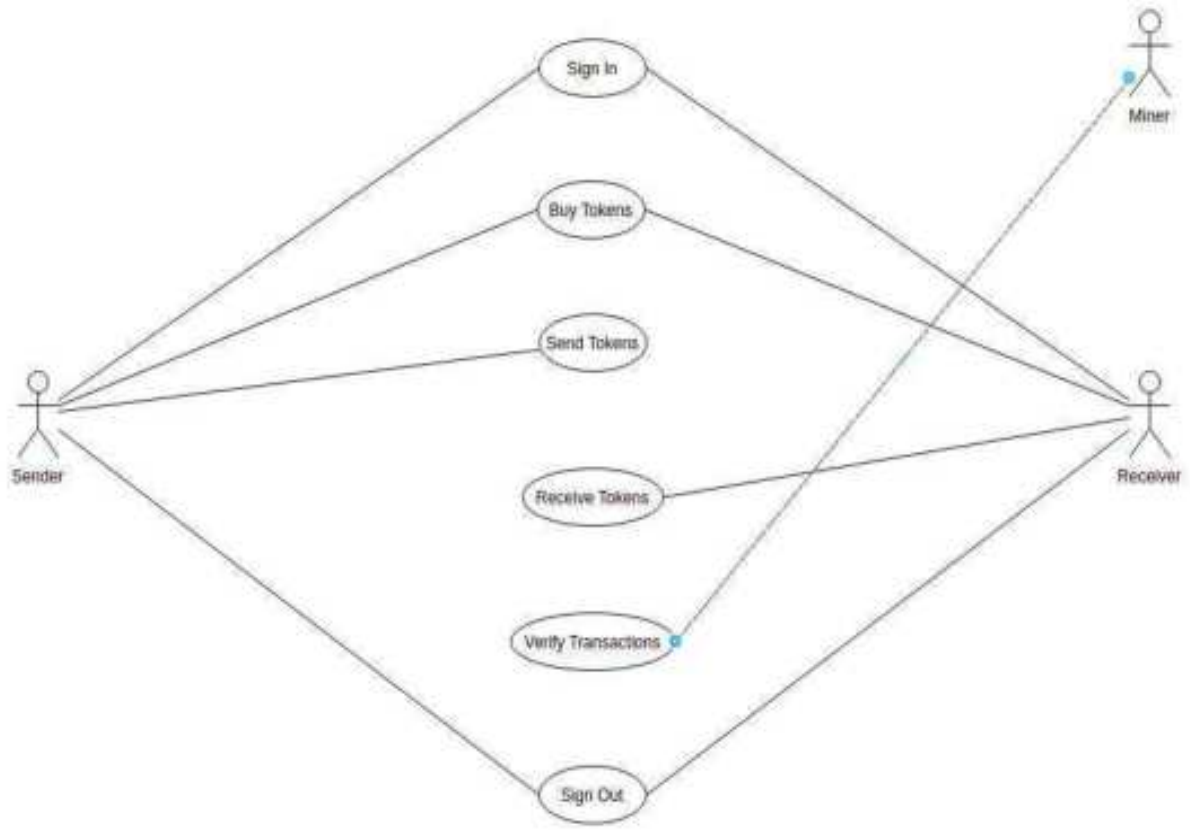


Figure 3.2: Use Case Diagram for Private crypto token exchange system

3.4 CLASSDIAGRAM

Class Diagram is a collection of classes and objects.

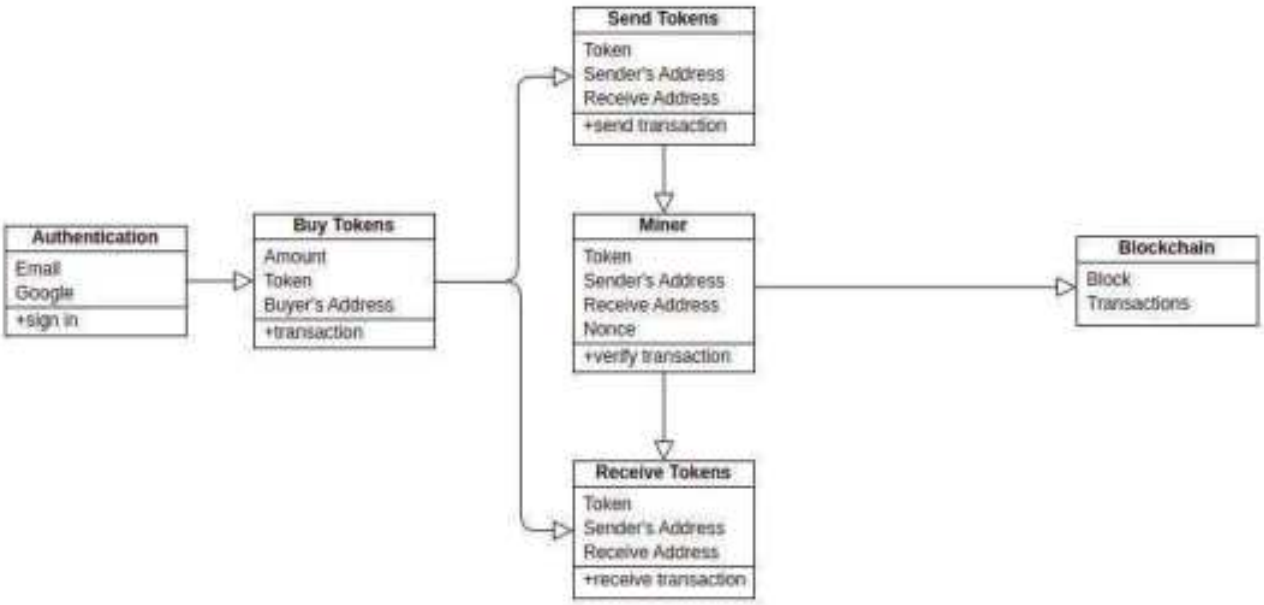


Figure 3.3: Class Diagram for Private crypto token exchange system

3.5 SEQUENCE DIAGRAM

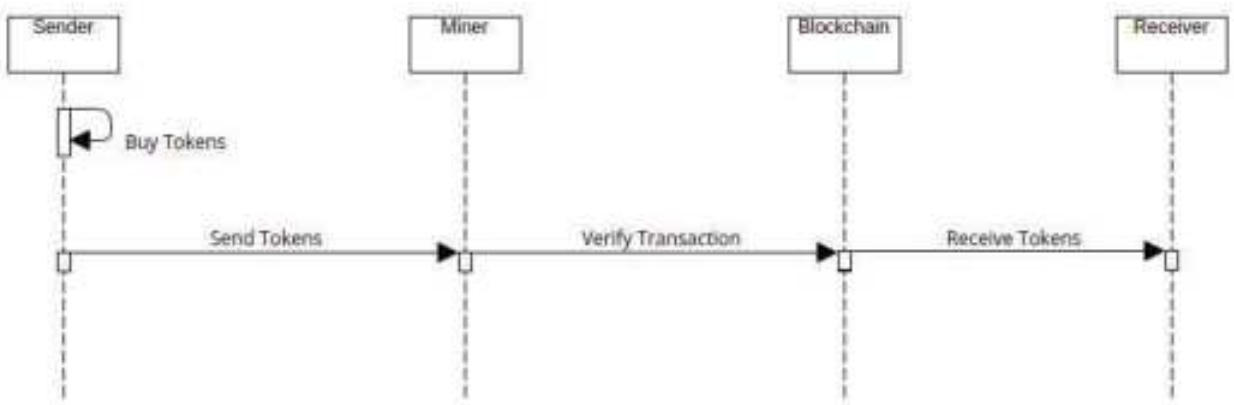


Figure 3.4: Sequence Diagram for Private crypto token exchange system

3.6 ACTIVITYDIAGRAM

It describes about flow of activity states.

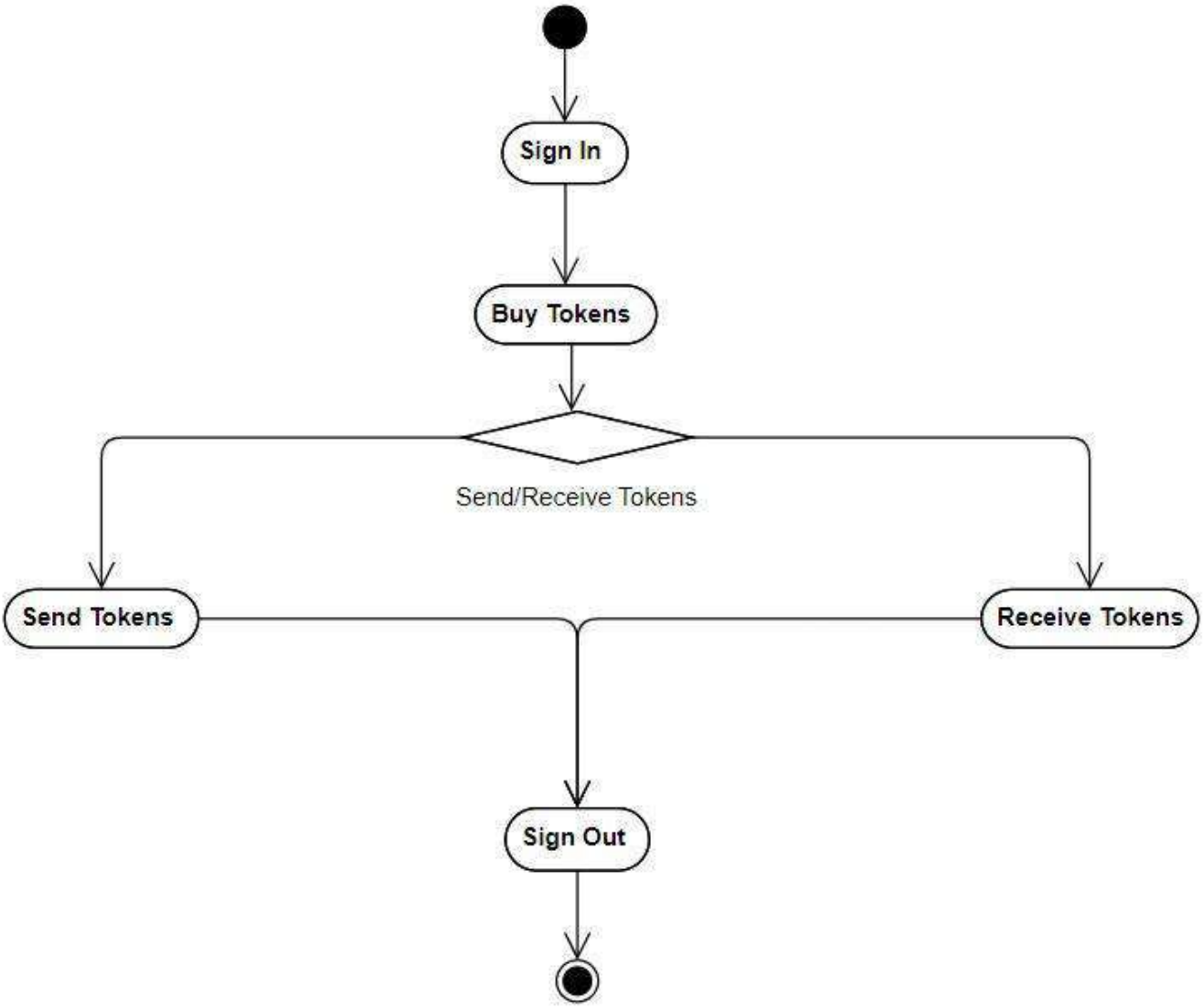


Figure 3.5: Activity Diagram for Private crypto token exchange system

4. IMPLEMENTATION

4. IMPLEMENTATION

4.1 SAMPLE CODE

Main.Dart

```
import 'package:flutter/material.dart';
import 'package:hello_world_dapp/Contracts/contract_linking.dart';
import 'package:provider/provider.dart';
import 'Wallet Pages/home_page.dart';
void main() {
 runApp(const MyApp());
}

class MyApp extends StatelessWidget {
 const MyApp({Key? key}) : super(key: key);

 // This widget is the root of your application.
 @override
 Widget build(BuildContext context) {
  return MultiProvider(
   providers: [
    ChangeNotifierProvider(create: (context) => ContractLinking()),
   ],
   child: MaterialApp(
    title: 'Flutter Demo',
    theme: ThemeData(
      primarySwatch: Colors.blue,
      textTheme: const TextTheme(
       titleLarge: TextStyle(
        color: Colors.white,
        fontSize: 14,
        fontFamily: "Calibri",
       ),
```

```
    )),
      home: const HomePage(),
    ),
   );
  }
}
class MyHomePage extends StatefulWidget {
  const MyHomePage({Key? key}) : super(key: key);

  @override
  State<MyHomePage> createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  String? _name = "Dummy";

  @override
  Widget build(BuildContext context) {
   return Scaffold(
     appBar: AppBar(
      title: const Text("Hello World DApp"),
      centerTitle: true,
      backgroundColor: Colors.amber,
     ),
     backgroundColor: Colors.cyan,
     body: Padding(
      padding: const EdgeInsets.symmetric(vertical: 20, horizontal: 20),
      child: Column(
       mainAxisAlignment: MainAxisAlignment.center,
       children: [
        Row(
         children: [
          const Text(
```

```
"Hello ",
                  style: TextStyle(fontSize: 50, color: Colors.white),
                ),
                Consumer<ContractLinking>(
                  builder: (context, value, child) {
                    if (value.isLoading == false) {
                      // _name = value.deployedName;
                    }
                    return Text(
                      _name!,
                      style: const TextStyle(
                          fontSize: 50, color: Colors.amberAccent),
                    );
                  },
                ), ],
              ),
              const SizedBox(
                height: 10,
              ),
              TextField(
                decoration: const InputDecoration(
                  border: OutlineInputBorder(),
                  hintText: 'Enter Name',
                ),
                onChanged: (String name) {
                  _name = name;
                },
              ),
              const SizedBox(
                height: 10,
              ),
              MaterialButton(
                onPressed: () {
```

```
// context.read<ContractLinking>().setName(_name!);
              },
              color: Colors.green,
              shape: const RoundedRectangleBorder(
                borderRadius: BorderRadius.all(Radius.circular(20)),
              ),
              child: const Text(
                "Update Name",
                style: TextStyle(fontSize: 14, color: Colors.white),
              ),
            ),
          ],
        ),
      ),
    );
  }}
```

Wallet Page:

```
import 'package:flutter/material.dart';

import '../Widgets/balance_card.dart';
import '../Widgets/operations_card.dart';
import '../Widgets/transactions_card.dart';

class HomePage extends StatelessWidget {
  const HomePage({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.black,
      drawer: drawer(context),
      appBar: AppBar(
```



```
      title: const Text("WALLET"),
      centerTitle: true,
```

```
        backgroundColor: Colors.transparent,
        actions: const [
          Padding(
            padding: EdgeInsets.only(right: 12),
            child: Icon(Icons.notifications_active),
          )
        ],
      ),
      body: ListView(
        padding: const EdgeInsets.symmetric(vertical: 12.0, horizontal: 12.0),
        children: [
          balanceCard(context),
          const OperationsCard(),
          transactionsCard(context),
        ],
      ),
    );
  }
}
Widget drawer(BuildContext context) {
  return Drawer(
    backgroundColor: const Color.fromRGBO(12, 12, 12, 1),
    child: ListView(
      children: [
        DrawerHeader(
          decoration: const BoxDecoration(
            borderRadius: BorderRadius.all(Radius.circular(12)),
            gradient: LinearGradient(
              begin: Alignment.topLeft,
              end: Alignment.bottomRight,
              colors: [Color(0xffec9f05), Color(0xffff4e00)],
            ),
          ),
```



```
        child: Text(
          "Tushar Pulakala",
```

```
            style: Theme.of(context)
                .textTheme
                .titleLarge
                ?.copyWith(fontSize: 30),
          )),
      ListTile(
        title: Text(
          "Send Address",
          style: Theme.of(context).textTheme.titleLarge,
        ), ),
      ListTile(
        title: Text(
          "Receive Address",
          style: Theme.of(context).textTheme.titleLarge,
        ),
      ),
      ListTile(
        title: Text(
          "Settings",
          style: Theme.of(context).textTheme.titleLarge,
        ),
      ),
      ListTile(
        title: Text(
          "Sign Out",
          style: Theme.of(context).textTheme.titleLarge,
        ),
      ),
    ],
  ),
 );
}
```


Contract Linking Logic:

```
import 'dart:convert';
```

```
import 'package:flutter/material.dart';
import 'package:flutter/services.dart';
import 'package:http/http.dart';
import 'package:web3dart/web3dart.dart';
import 'package:web_socket_channel/io.dart';

class ContractLinking extends ChangeNotifier {
  final String _rpcUrl = "http://10.0.2.2:7545";
  final String _wsUrl = "ws://10.0.2.2:7545";
  final String _privateKey =
      "599e88531cff96185162a838a1fb50fd063e78504945cd76957bfbe445f17604";

  Web3Client? _client;
  bool? isLoading = true;

  String? _abiCode;
  EthereumAddress? _contractAddress;

  Credentials? _credentials;

  DeployedContract? _contract;
  ContractFunction? _getBalanceTPC;
  // ContractFunction? _getBalanceINR;
  ContractFunction? _buyTPC;
  ContractFunction? _sellTPC;

  int? _balance = 0;
  EthereumAddress? _address;

  int? get getCurrentBalance => _balance;
```



```
  ContractLinking() {
    initialSetup();
  }
```

```
initialSetup() async {
  // establish a connection to the ethereum rpc node. The socketConnector
  // property allows more efficient event streams over websocket instead of
  // http-polls. However, the socketConnector property is experimental.
  _client = Web3Client(_rpcUrl, Client(), socketConnector: () {
    return IOWebSocketChannel.connect(_wsUrl).cast<String>();
  });

  await getAbi();
  await getCredentials();
  await getDeployedContract();
}

Future<void> getAbi() async {
  // Reading the contract abi
  String abiStringFile =
      await rootBundle.loadString("src/artifacts/TupperCoin.json");
  var jsonAbi = jsonDecode(abiStringFile);
  _abiCode = jsonEncode(jsonAbi["abi"]);

  _contractAddress =
      EthereumAddress.fromHex(jsonAbi["networks"]["5777"]["address"]);
}

Future<void> getCredentials() async {
  // _credentials = await _client.credentialsFromPrivateKey(_privateKey);
  _credentials = EthPrivateKey.fromHex(_privateKey);
  _address = await _credentials?.extractAddress();
}

Future<void> getDeployedContract() async {
```



```
// Telling Web3dart where our contract is declared.
    _contract = DeployedContract(
        ContractAbi.fromJson(_abiCode!, "TupperCoin"), _contractAddress!);
```

```
  // Extracting the functions, declared in contract.
  _getBalanceTPC = _contract?.function("equity_in_tuppercoins");
  // _getBalanceINR = _contract?.function("equity_in_inr");
  _buyTPC = _contract?.function("buy_tuppercoins");
  _sellTPC = _contract?.function("sell_tuppercoins");
  getBalance();
 }
 getBalance() async {
  // Getting the current balance declared in the smart contract.
  try {
    var currentBalance = await _client?.call(
        contract: _contract!, function: _getBalanceTPC!, params: [_address]);
    BigInt value = currentBalance![0];
    _balance = value.toInt();
    isLoading = false;
    notifyListeners();
  } catch (e) {
    debugPrint(e.toString());
  }
 }

 buyTPC(BigInt? amount) async {
  // Call the buy_tuppercoins function in smart contract
  try {
    isLoading = true;
    notifyListeners();
    await _client?.sendTransaction(
        _credentials!,
        Transaction.callContract(
          contract: _contract!,
```



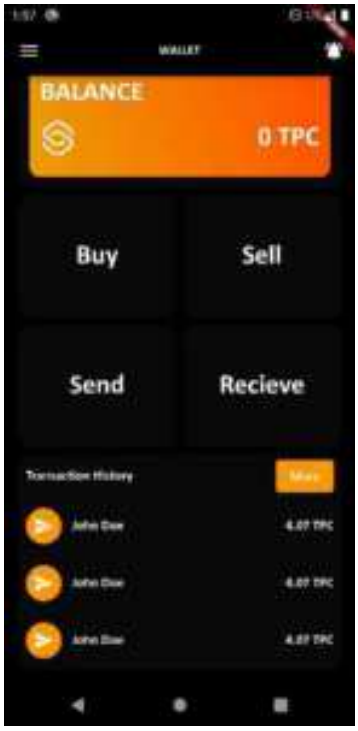
```
    function: _buyTPC!,
          parameters: [_address, amount],
```

```
            // maxFeePerGas: EtherAmount.fromUnitAndValue(EtherUnit.ether, 100),
          ));
      getBalance();
      debugPrint("Bought $amount TPCs");
    } catch (e) {
      debugPrint("Didn't Bought $amount TPCs");
      debugPrint(e.toString());
    }
  }

  sellTPC(BigInt? amount) async {
    // Call the sell_tuppercoins function in smart contract
    try {
      isLoading = true;
      notifyListeners();
      await _client?.sendTransaction(
          _credentials!,
          Transaction.callContract(
              contract: _contract!,
              function: _sellTPC!,
              parameters: [_address, amount]));
      getBalance();
    } catch (e) {
      debugPrint(e.toString());
    }
  }
}
```

5. SCREENSHOTS

5.1 Home Page



Screenshot 5.1: Home Page

5.2 Selling Coin Page

Screenshot 5.2: Sell TPC

5.3 Buying Coin Page

Screenshot 5.3: Buy TPC

5.4 Profile Page

Screenshot 5.4: Profile Page

6. TESTING

6. TESTING

6.1 INTRODUCTION TO TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover Every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of tests. Each test type addresses a specific testing requirement.

6.2 TYPES OF TESTING

6.2.1 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

6.2.2 INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

6.2.3 FUNCTIONAL TESTING

Functional tests provide systematic functions tested are available as demonstrations that specified by the business and system documentation, and user technical requirements, manuals.

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows data fields, predefined processes.

6.3 TEST CASES

6.3.1 Registration and Login

Test Case ID	Test Case Name	Purpose	Test Case Description	Output
1	Sign Up/Sign In	User Authentication	User should be able to sign up/sign in using Email/Google Account	User Authentication Successful
2	Sign Out	User sign out	User should be able to sign out of their Account	User Sign Out Successful

6.3.2 User Functions

Test Case ID	Test Case Name	Purpose	Test Case Description	Output
1	Check Balance	To fetch user balance from the network	Application should fetch the user balance from the public ledger record	Balance Fetched Successfully
2	Buy Tokens	To buy tokens from the network	User should be able to buy tokens and the transaction should be recorded	Buy Tokens Successful
3	Sell Tokens	To sell tokens to the network	User should be able to sell tokens and the transaction should be recorded	Sell Tokens Successful
4	Send Tokens	To send tokens to other users	User should be able to send tokens to other users based on their unique address	Send Tokens Successful
5	Receive Tokens	To receive tokens from other users	User should be able to share their unique address to other users to receive tokens	Receive Tokens Successful

7. CONCLUSION

7. CONCLUSION & FUTURESCOPE

7.1 PROJECT CONCLUSION

The project titled as “Private Crypto Token Exchange System” is a smartphone-based Hybrid application. The proposed system is a mobile application which helps as a medium for the people who find or lost something to report it. This is a separate platform where people can be honest and help the society. We created a hybrid mobile application using flutter for the UI/UX part and firebase for the backend which has a user-friendly interface. And by which it takes less efforts from users while entering the lost items details and retrieves the information from the backend accordingly using a location and category-based search algorithm that we came up with. Once the lost item is found in the application, the users can contact each other using the call button on the found details page.

7.2 FUTURE SCOPE

The token exchange system can be applied in various fields and organizations in a closed private system. We can implement the real-world token’s monetary value fluctuations based on supply/demand system similar to today’s public cryptocurrencies. The proposed system uses consensus for open permissionless system also known as Proof of Work(PoW). The future enhancements are to implement consensus models for permissioned systems such as Byzantine Fault Tolerance(BFT), Practical Byzantine Fault Tolerance(PBFT), Cross Fault Tolerance(CFT), etc.

8. BIBILOGRAPHY

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8.1 REFERENCES

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8.2 WEBSITES

[1] https://flutterflow.io/
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8.3 GITHUB REPOSITORY LINK

https://github.com/Tusharcoder18/private_crypto_exchange_system

International Journal of Scientific Research and Engineering Development-– Volume 5 Issue 3, May-June 2022

Available at www.ijsred.com

RESEARCH ARTICLE OPEN ACCESS

Private Crypto Token Exchange System

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Abstract:

A private crypto token exchange system which can replace the fiat currency exchange inside any organizational premises. The private tokens are generated and maintained based on the fundamental guidelines of Blockchain technology. It helps in solving the problem of transparency in the existing system. We will create a private network and create a fixed number of crypto tokens to be circulated in this private network. A private crypto wallet built using Flutter is used for all the transactions. This wallet is connected to the private network and ensures the tokens are not valid outside the private network.

Keywords — Blockchain, crypto Token, Wallet,Secure Transaction,Transparency,Flutter.

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I. INTRODUCTION

Traditional fiat currency exchange inside organization premises is not entirely secured and transactions are not monitored, due to this many unauthorized transactions happen. Fiat currency does not allow secure payments through online transactions. Whenever a third person tries to make a transaction at organization grounds his transaction history is not monitored, and the record of the transaction is not stored in the database. Because of this many problems arise. Fig.1 shows the basic idea of the traditional system.

To overcome the problems of the traditional system we are providing a solution which makes the transaction easy and secure for the users inside the organization and the organization can monitor the flow of tokens which makes this a transparent system.

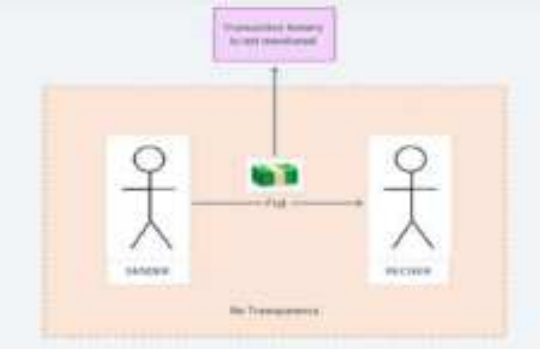

Fig.1 Traditional currency exchange system.

1.1 Disadvantages of traditional system

1.1.1 No transparency in transactions

There is no transparency in the transactions which are taking place inside the organization. As a result the transactions are not fully auditable.

1.1.2 Transaction history is not recorded

There is no record of the transactions maintained which are going on inside the organization, so it can be verified later.

1.1.2 Hyper inflation

Since the government can easily print new banknotes, the fiat currency likely suffers from inflation.

1.1.3 Government-bound value

Relying on government stability. The worst-case scenario is that the value of the fiat currency may completely collapse.

II. PROPOSED SYSTEM

To overcome the problems in the existing system we proposed a private crypto token exchange system. Through this the organization will be able to monitor all the transactions which are occurring in the organization. As this is based on the Blockchain technology it is very secure when compared to the existing ecosystem. Not only for the organization it is very easy for the users with easy to use Graphical User interface of the wallet.

In the proposed system we will have a Private network which will be managed by the corresponding organization, Crypto token which will be exchanged on the private network and a wallet which will be connected to the network and will be used to store the tokens.

2.1 System Architecture

In this system any transaction that happens will be done through the wallet of the user; it can be either to send a token or to receive a token on the network.

Fig.2 Architecture of the system

As shown in the Fig.2 all the associated users will have their separate wallets, which are connected to the network of the organization. To make a transaction on the network,first the sender will use his wallet application to initiate the transaction, then that transaction will be verified by the organization and then the receiver will get the token in his wallet.

All the transactions which are happening on the network can be viewed by the organization, which makes the transaction transparent. And the organization has the authority to decide who can be the part of the network and who has the access to view the transaction over the network.

III. SAMPLE OUTPUTS OF THE SYSTEM

Fig.3 shows the sample of the wallet UI which is a flutter based Application. It is an application for the users through which the users can send or receive the token. First the sender will initiate the transaction from his wallet and the organization will verify the transaction and after that the token will be credited to the receiver wallet.

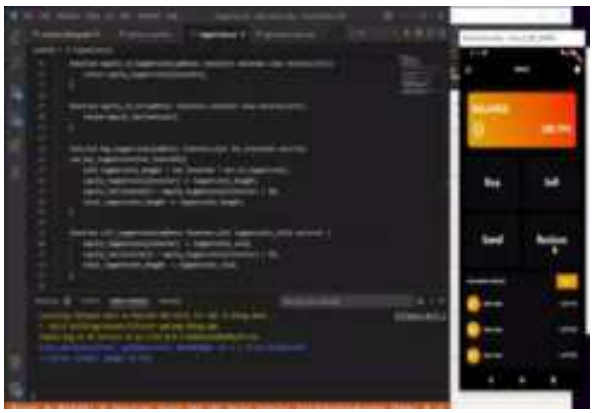

Fig.3 Wallet Interface

Fig.4 Sample transaction on the network

Fig.4 shows the sample transaction on the network and how the transaction of the users will be stored on the network.

IV. CONCLUSIONS

This system can be implemented at organizational premises which will provide more security in transactions with much more transparency. Wallet makes this application more easy to use so the user will not find any difficulty in exchange of tokens over the network.

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International Journal of Scientific Research and Engineering Development

(International Peer Reviewed Open Access Journal) ISSN : 2581 - 7175

Certificate of Publication

This is to Certify that Paper Entitled

"Private Crypto Token Exchange System"

Authored by

"B.P.Deepak Kumar"

has been Published in Volume 5 Issue 3, May- June 2022

International Journal of Scientific Research and Engineering Development

Paper ID : IJSRED-V5I3P140

Editor in Chief, IJSRED

International Journal of Scientific Research and Engineering Development

(International Peer Reviewed Open Access Journal) ISSN : 2581 - 7175

Certificate of Publication

This is to Certify that Paper Entitled

"Private Crypto Token Exchange System"

Authored by

"P.Tushar"

has been Published in Volume 5 Issue 3, May- June 2022

International Journal of Scientific Research and Engineering Development

Paper ID : IJSRED-V5I3P140

Editor in Chief, IJSRED

International Journal of Scientific Research and Engineering Development

(International Peer Reviewed Open Access Journal) ISSN : 2581 - 7175

Certificate of Publication

This is to Certify that Paper Entitled

"Private Crypto Token Exchange System"

Authored by

"Praveen Kumar Sahu"

has been Published in Volume 5 Issue 3, May- June 2022

International Journal of Scientific Research and Engineering Development

Paper ID : IJSRED-V5I3P140

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Editor in Chief, IJSRED

International Journal of Scientific Research and Engineering Development

(International Peer Reviewed Open Access Journal) ISSN : 2581 - 7175

Certificate of Publication

This is to Certify that Paper Entitled

"Private Crypto Token Exchange System"

Authored by

"Nishad Rajesh"

has been Published in Volume 5 Issue 3, May- June 2022

International Journal of Scientific Research and Engineering Development

Paper ID : IJSRED-V5I3P140

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IMPACT FACTOR
5.386

Editor in Chief, IJSRED

International Journal of Scientific Research and Engineering Development

(International Peer Reviewed Open Access Journal) ISSN : 2581 - 7175

Certificate of Publication

This is to Certify that Paper Entitled

"Private Crypto Token Exchange System"

Authored by

"Vishesh Kumar Jain"

has been Published in Volume 5 Issue 3, May- June 2022

International Journal of Scientific Research and Engineering Development

Paper ID : IJSRED-V5I3P140

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