International Journal of Enhanced Research in Management & Computer Applications
ISSN: 2319-7471, Vol. 13, Issue 4, April-2024, Impact Factor: 8.285
Presented at "ICRETETM-2024", Organized by GSMCOE, Pune, on 22nd - 23rd April 2024

Fake Product Identification using Image Processing in Blockchain

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ABSTRACT

In this assignment the working of blockchain technology and the possible use or influence it may have on current SCM registry systems and the role of legal experts are described. The spread of blockchains is bad for anyone in the trust business government authorities that are deemed sufficiently trustworthy to handle transactions. The proposed system maintains the blockchain basetransaction management SCM records and automatic data recovery from third party attacks the systems also address the issues of data inconsistency during the transaction the main objectives were to explain how blockchain can replace the supply chain and logistics industry the most common challenges in these spheres were considered and the main key features of blockchain that can solve these adversity were marked in survey we were find out possible challenges or advantages of blockchain based applications considering the current situation in the supply chain and logistics industry this thesis can empower different businesses to start working with the companies that are creating blockchain-based applications.

Keywords– Fake Product Detection, Image Processing, Java, Blockchain

INTRODUCTION

Blockchain technology or the distributed secure ledger technology has gained huge attention in recent years this paper presents a detailed survey of blockchain technology literature and its applications the sources of blockchain literature examined for this survey include researchpapers books and book chapters journal papers specific Cryptocurrency sites and wikis conference papers company point of views POVs whitepapers published by various organizations implementing and experimenting in blockchain blockchain being a much hyped and experimented technology a lot of literature is found in content hosted on proprietary forums such as company websites web articles etc. this survey is extensive and covers the various aspects of blockchain including consensus algorithms and their variations as well as currently implemented and possible future applications.

This survey will not cover the details of technical aspects of blockchain however references that coversheet aspects may be found in bibliography this survey is extensive and covers the various aspects of blockchain including consensus algorithms and their variations as well as currently implemented and possible future applications the manufacturer generates the QR code using the users order-entered transfer information the user then uses a web application to read the QR code dynamic QR-code and unique id generation for each productdocument in the proposed system the smart contract system also allows the updates in entire blockchain

LITERATUR SURVEY

According to [1] a basic Iota blockchain fusion model with four layers which contains different types of Iota devices distributed file system is considered in the model to store huge amount of Iota data then a case study for blockchain- based Iota application a machine- to-machine m2m autonomous trading system is proposed on the ethereal blockchain we build smart contracts for device registration data storage service provision and fair payment and the proof-of- concept is implemented using two raspberry Pies to interact with smart contracts the proposed system verifies that blockchain could improve Iota applications in transparency traceability and security.

According to [2] Eugene (EDGE+ intelligence figure 1) is proposed to serve as a blockchain-enabled edge-computing

platform to intelligently manage massive decentralized applications DApps in Iota usecases1 to extend the range of blockchain to iot-based dapps edgence adopts master node technology to connect to a closed blockchain-based system to the real world a master node contains a full node of the blockchain and a collateral and is deployed on an edge cloud of mobile edge computing which is convenient for the master node to use resources of the edge cloud to run iot dapps.

According to [3] Introduces hcloud a trusted joint cloud platform for iot systems using server less computing model hcloud allows an iotserver to be implemented with multiple servers less functions and schedules these functions on different clouds based on a schedule policy the policy is specified by the client and includes the required functionalities execution resources latency price and so on hcloud collects the status of each cloud and dispatches server less functions to the most suitable cloud based on the schedule policy by leveraging the blockchain technology we further enforce that our system can neither fake the cloud status nor wrongly dispatch the targetfunctions.

According to [4] introduce the concept of a decentralized gasified service ex- change platform where the solution providers can dynamically offer and request services in an autonomous peer- to-peer fashion cost and decision to exchange services are set during operation time based on gasification policies. According to business goals the proposed concept is based on blockchain technology to provide a tokenized economy where the iot solution providers can implement gasification techniques using smart contracts to maximize profits during service offering and requesting.

According to [5] A gesture-based secure interaction system with smart home iot health devices to support elderly people or people withspecial needs the framework uses a decentralized blockchain consensus for storing the smart home iot health data and user identities the framework leverages off-chain solution for storing raw multimedia iot sensory payload and gesture data using our proposed health monitoring framework a smart homeowner or service provider can create a cyber-physical space with a secure digital wallet for each human resident and authorized iot health devices multiple authorized home residents can interact with the iot- based smart home monitoring sensors carry out user and iot health sensory media registration and transfer transactional values via secure tokens as well asraw iot health data payload through gesture.

According to [6] A scheme to generate seed needed for key generation and a scheme to manage the public key using blockchain first is a random seed generation scheme needed for key generation in order to prevent the risk of a man- in-the-middle attack and reverse engineering seeds are generated by using out-of- band communication and hardware variation second is a key management system for the iot using blockchain the scheme we propose is to distribute the public key on the blockchain network the public key is used to encrypt a session key that will be used for communication in-between devices/

According to [7] initially reviewed and identified the security and privacy issue exists in iot system secondly as per blockchain technology provides some security solutions the details analysis including enabling technology and integration of iot technologies are explained lastly a case study is implemented using the ethererum based blockchain system in a smart iot system and the results are discussed.

According to [8] according to 8 on one such implementation experience for smart toll trans- action application in the domain of mobility our paper showcases a possible solution by leveraging negotiations decision making distributed learning capabilities at the devices level using ai- enabled multi- agent systems and the real-time smart contracts between the cars and tolls using blockchain this solution also showcases the monetization of real time data coming from various iot devices which are part of vehicles and infrastructurewhile blockchain secures the privacy of the participants it also acts as an economic transactional layer and governance layer between the devices in the network.

According to [9] a content selection algorithm of edge cache nodes. The algorithm adopts markov chain model, improves the utilizationof cache space and reduces the content transmission delay. The hierarchical caching strategy is adopted and the secondary cache stores slides of contents to expand the coverage of cached content and to reduce user waiting time. Regional node cooperation is adopted to expand the cache space and to support the regional preference of cache content. Compared with the classical substitution algorithm, simulation results show that the algorithm in this paper has higher cache hit ratio and higher space utilization. Proposing a node selectionstrategy of content deployment which aims to improve the quality of service and to reduce the waste of bandwidth resources.

According to [10] Based on a sharing economy, this framework allows energy trading between households, bringing flexibility and decreasing the dependency on energy providers. In parallel, the increasing adoption of electric vehicles and the development of vehicle- to-grid (V2G) technology open new ways to store, trans- port and deliver renewable energy. V2G-enabled cars could contribute to the flexibility of peer-to-peer energy marketplaces. Our physical demonstrator illustrates the benefits of V2Genabled vehicles in the contextof local energy marketplaces in terms of economic gain, overall

power balancing and consumed renewable energy rate. The demonstratoris composed of smart contracts implementing such marketplace running on a local Ethereum blockchain deployed on Raspberry Pis, autonomous agents simulating the energy consumption and production behavior of 4 households as well as their buying/selling behavior, and finally a V2G car whose behavior is controlled by a user through a tablet

PROJECT SCOPE AND LIMITATIONS

Blockchain, the digital ledger technology that can securely maintain continuously growing lists of data records and transactions, has the power to potentially trans- form medicine and health care supply chain management, according to industry experts. By simplifying and expediting the way the transaction industry processes data in such areas as revenue cycle management, health data interoperability and supply chain validation, blockchain has the power to dramatically reduce back- office data input and maintenance costs and improve dataaccuracy and security.

Limitations

If someone has more than 51% computing power, then he/she can find Nonce value quicker than others, means he/she has authority todecide which block is permissible. What it can do is:

- Modify the transaction data; it may cause double spending attack.
- To stop the block verifying transaction.
- To stop miner mining any available block.

A majority attack was more feasible in the past when most transactions were worth significantly more than the block reward and whenthe network hash rate was much lower and prone to reorganization with the advent of new mining technologies

METHODOLOGY FOLLOWED

This system leverages blockchain technology to combat the growing menace of counterfeit products by integrating blockchain into theproduct supply chain each item is assigned a unique and immutable identifier this identifier is stored on a decentralized ledger making it tamper-proof and transparent consumers can verify the authenticity of a product by scanning a QR code or utilizing a dedicated app the blockchain ensures the accuracy of the products origin manufacturing details and distribution history offering a robust solution to identify and eliminate fake products this innovative approach not only safeguards consumers but also strengthens supply chain integrity fostering trust in the authenticity of goods this system highlights the implementation of e-transaction system using blockchain for such a proposal from a practical point view in both development deployment and usage contexts concluding this work is a potential roadmap for blockchain technology to be able to support complex applications several techniques for implementing a blockchain-based supply chain management system have been presented by several groups of academics one of them demonstrated a mechanism for identifying fake goods by searching for them in the blockchain network using a web application a mechanism for identifying phony products using QR codes and the blockchain all of the companies data including the manufacturers account address is saved on the blockchain network and the contract address is sent to the manufacturer after a product is added to the blockchain a QR code is generated and used to verify its authenticity after registering dealers will gain access to the manufacturers wholesale pricing the QR code will allow you to monitor the products ownership change

Overview of Project Modules

- Admin
- Make transaction
- Block Generation and blockchain validation
- Consensus Algorithm validation and block chain recovery
- Results Generation
- The central outline of the proposed algorithm is the implementation of sup- ply chain management distribution data storage using blockchain.

- System creates the trustworthy communication between multiple parties without using any third party interface.
- We use the Hash generation algorithm and the Hash will be generated for the given string.

- Before executing any transaction, we use peer to peer verification to validate the data.
- If any chain is invalid then it will recover or update the current server blockchain.
- This will validate till the all nodes are verified and commit the query.
- Mining algorithm is used for checking the hash generated for the query till the valid hash is generated.

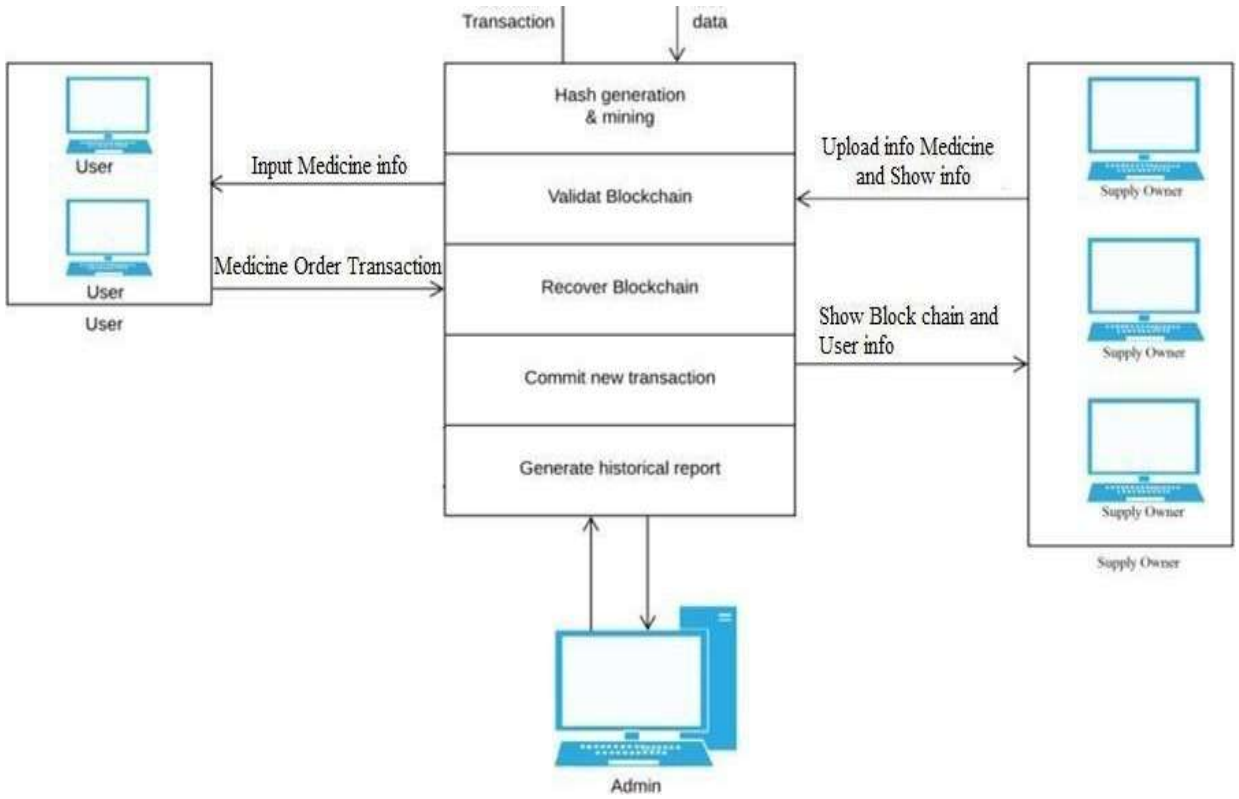

Fig no 1.System Architecture

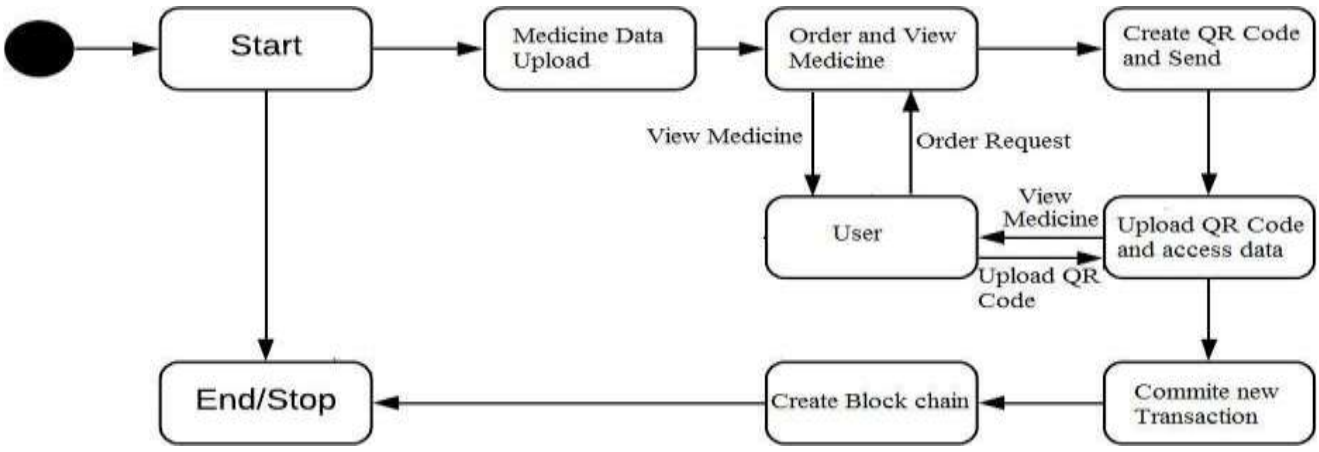

Fig no 2.State Diagram

TEST CASES AND RESULTS

After implementation section while tester assessments code it detects the a few fault or disorder inside the code. The faults correctedthrough a few method in short time. While testing the performed by means of creating the test instances there are

person test cases performed for every state of affairs, and it tested with the anticipated output by way of system or software. The following table indicates that everyone the check cases which might be vital for project. Below Table shows the suite of test cases which are executedand passed.

During this project the system solution are investigating and presenting the new framework for addressing the problem of finding relevant result. The aim of this project was to improve the performance of algorithm presented in base system. The results demonstrated in this project are showing the current state of work done over practical implementation of this algorithm

Table 1: Test cases of system

Case id	Description	Expected out-come	Actual Out-come	Pass / Fail
1	User and Distributor Register	Register Successfully	New Registered successfully	Pass
2	Login Process Email-id and Password	Allow login to authenticated useronly	System allow lo gin to authenticated user only	Pass
3	Medicine Information upload	Attribute must be and upload onserver	Medicine Information uploadsuccessfully	Pass
4	Medicine Name, ID And General information Show	Order Process and QR Code Send successfully	Medicine Information show successfully	Pass
5	Data Show and Transaction	Transaction Update success	Block chain success	Pass

RESULTS

1. **User and Distributor Register**
- Description: Register Successfully - New Registered Successfully
- Expected Outcome: Successful registration for new users and distributors.
- Actual Outcome: Registration was successful for new users and distributors. Pass/Fail: Pass

2. **Login Process**
- Description: Process Email-id and Password - Allow login to authenticated user only
- Expected Outcome: Allow login only for authenticated users using their email and password.
- Actual Outcome: System allowed login only for authenticated users using email and password. Pass/Fail: Pass

3. **Medicine Information Upload**

- Description: Attribute must be and upload on server - Medicine Information upload successfullyExpected Outcome: Attributes must be filled and uploaded to the server for medicine information.
- Actual Outcome: Medicine information was successfully uploaded with all attributes filled. Pass/Fail: Pass

4. **Medicine Name, ID, and General Information Show**

Description: Order Process and QR Code Send successfully - Medicine Information show successfully Expected Outcome: Successful display of medicine name, ID, and general information along with order processing and QR code sending.

Actual Outcome: Medicine information was displayed successfully, and order processing along with QR code sending was Successful.
Pass/Fail: Pass

5. Data Show and Transaction

Description: Transaction Update success - Blockchain success
Expected Outcome: Successful transaction update and utilization of blockchain technology.
Actual Outcome: Transaction update was successful, and blockchain technology was utilized successfully. Pass/Fail: Pass

CONCLUSION

By reason of the complexities of this area along with the need for more stable and efficient information management frameworks there are several research directions to apply blockchain technology to the transaction industry in several cases of transaction usage that face similar data exchange and communication problems an interoperable architecture will certainly play a significant role further re- search on safe and efficient software practice for the use of blockchain technology in transactions is also required to educate software engineers and domain experts on the potential and also limitations of this new technology whether to build a decentralized application using an established blockchain the algorithm has chosen the acceptable complexity efficiency and complexity of execution to operate the system through empirical studies we have a better understanding of the pace of knowledge creation in the supply chain there are several important hurdles to getting on the blockchain reaching its full potential and applyingit to health is the most important issue technology scalability and data controls

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