Employee Rewarding System using Blockchain

Mrs.B.ANGALAPARAMESWARI M.E., Head of the Department,

Department of Computer Science and Engineering

Mr. J.ARUL JERALD,B.E, Student of Computer Science Engineering

Mr.R.MOHAMMED AL OSSAMA, B.E, Student of Computer science and Engineering

St. Joseph College of Engineering, Sriperumbudur, Chennai.

Abstract

The success of every firm in today's cutthroat business environment depends on its ability to keep top talent and inspire staff. Conventional employee incentive schemes may be bureaucratic and opaque, which can cause employee disengagement and demotivation. In this work, we propose a blockchain-based decentralised employee incentive system that offers an automated, transparent, and safe method of rewarding employees. The system is constructed on a blockchain platform, which guarantees the security and openness of all transactions. Each employee gets a personal digital wallet where they may save their rewards and check the amount and transaction history at any time. To automate incentive distribution based on specified criteria, like reaching or surpassing benchmarks, providing great customer service, or going above and above the call of duty, the system employs a smart contract.Employers may define specific incentive criteria, establish award amounts, and examine data on employee performance and compensation. The system gives employees the freedom to select how they want to spend their incentives by allowing them to be converted into fiat cash or used to buy products and services.The system offers a cutting-edge and distinctive method of rewarding employees that can boost employee retention and loyalty rates.

Index terms: Blockchains, smart contracts, distributed ledgers, businesses, modems, decentralized applications, real-time system

Introduction

Businesses of all sizes struggle to retain top talent and inspire staff members. Conventional employee incentive schemes may be bureaucratic and opaque, which can cause employee disengagement and demotivation. In this article, we suggest a blockchain-based system for rewarding employees that offers a transparent, safe, and automatic method of doing so.

To automate the awarding process and improve accountability and transparency, the system makes use of blockchain technology and smart contracts.

The transformative power of the blockchain technology is without dispute, and there is no hint that its rapid advancement will be slowed down any time soon. It has stimulated innovation across a wide variety of fields and given companies the opportunity to introduce new goods. One of the effects is the creation of decentralized applications, or dApps; these apps provide reputable, open-source software to consumers as well as businesses. A rising number of decentralized applications (dApps) being used in the banking and financial industry is one indication that blockchain's popularity is on the rise. The logic for carrying out tasks is often kept in a data center in an app that has a centralized architecture. When the request is received by the server, it performs an analysis on it and then keeps the results in memory until those results are required to produce a response. Every node in the network has access to the contract's governing logic, which makes it possible for decentralized applications to function. Once the contract has been mined, all of the participating nodes will add transactions to their own blockchains using the same contract-based logic.

A server cluster, which offers an additional layer of safety, is not required nor desired in this circumstance since there are no specific rules that are being followed by the scenario. Therefore, it does not serve any purpose and offers no advantages in any form. There is no way that adding a server cluster would improve the existing configuration's level of safety. You won't have to worry about anything going wrong since the network has redundancy built in; everything will be handled without any involvement on your part. This is because the redundancy is built in.

Literature Survey

The contemporary world provides a diverse selection of incentive systems to choose from. The vast majority of them are developed with the main goal of acquiring new customers as their primary objective. In today's highly competitive marketplaces, loyalty reward programmers have achieved universal support as a very effective promotional tool. This is due in large part to the fact that they are extremely cost effective. They are compatible with a wide variety of standard operating systems. Punch cards, tiered programmers, fees, cash back, points, and coalition loyalty programmers are the most common types of loyalty programmers. Other types of loyalty programmers include:

In spite of this, there are a few variants on the typical loyalty reward scheme. Things may get difficult when trying to keep track of and estimate the costs associated with consumers redeeming their loyalty points. Individualized programmers designed to enhance customer loyalty are not only very unlikely to succeed, but they also have the potential to drive up the liabilities expenses on the balance sheet of the company and decrease customer loyalty throughout the course of the company's existence. Customers may decide to conduct business with a competitor that does not provide a loyalty reward programmer if the granting of loyalty points is not permitted, if incentives are not consistent across all channels, or if it is not feasible to update awarding databases in real time

Customers could skip a company that offers loyalty benefits if they do not like the limits placed on participation in the programmer or if they do not want to fill out the paperwork that is necessary. Applications built on blockchain technology could be able to tackle a good number of these problems.

This method of providing incentives to workers has a number of advantages, the most important of which are that it promotes the kind of behavior that is desirable, that it is open and unchangeable, that it makes the construction of assertions easier, and that it removes the requirement for a middleman.

There are currently active deployments of a number of consumer incentive programmers that are based on the blockchain.

P. Kaur, A. Parashar, K. Duggal and S. Sunita, "A Blockchain-based Approach for Educators' Profile Management and Reward system," 2021 International Conference on Computing Sciences (ICCS), 2021, pp. 206-211, doi: 10.1109/ICCS54944.2021.00048.

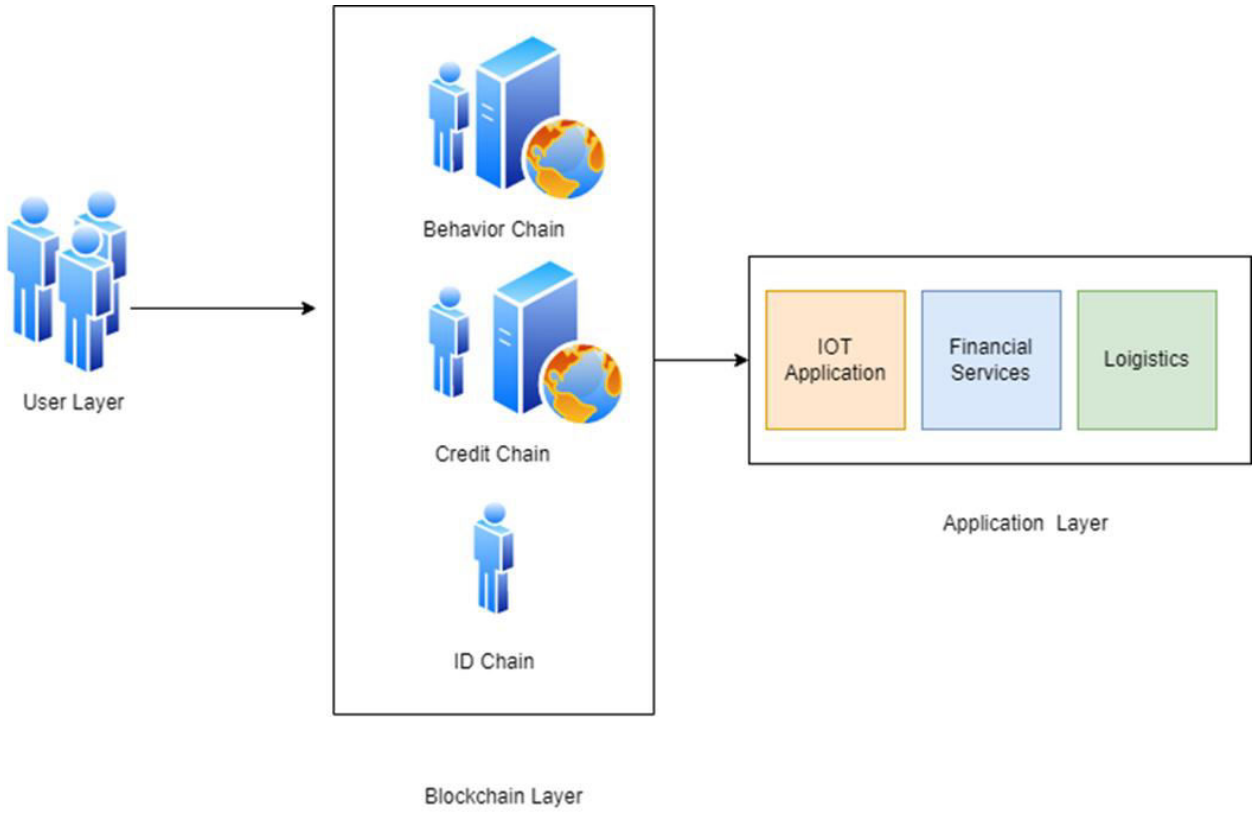
Blockchain technology has impacted the education sector as a result of its extensive application in research as well as its numerous superior qualities. While the majority of the effort is focused on maintaining student data records, the work suggested in this paper is teacher-centric. In this study, a framework for educators has been developed to help with their employability in the future. To provide feedback to educators while they carry out various educational activities, a supervisory entity has been developed.

System Design

By utilising a decentralised, transparent, and secure approach, the proposed blockchain-based employee compensation system is intended to overcome the shortcomings of conventional reward systems. By using a smart contract, the solution eliminates the need for manual procedures and increases transparency and flexibility by automatically executing incentives based on pre-defined criteria.

Lack of transparency: By enabling workers to examine the criteria for incentives and the prizes themselves on the blockchain, the proposed blockchain-based employee rewarding system improves transparency. As the system is decentralised and all network users can see transactions, incentives are distributed in a fair and transparent manner.

Manual procedures: The suggested solution does away with manual procedures by automating incentive allocation through the use of smart contracts. This decreases the possibility of mistakes and inaccuracies in the incentive allocation process while also saving time.



The Smart Contract, the Blockchain, and the Employee and Employer/Admin applications make up the three key parts of the proposed blockchain-based employee incentive system design. The logic and regulations for rewarding workers are included in the smart contract component, which is implemented as a self-executing smart contract on the blockchain. All of the employee award transaction data is safely and openly stored using the Blockchain component. The interfaces that employees and employers utilise to communicate with the system are the Employee and Employer/Admin applications.

IMPLEMENTATION

I. ERC-20 Standard Token Smart Contract implementation:

```
pragma solidity ^0.4.11;

contract ERC20Interface
```

```
{
        uint256 public total Supply;
        function balance Of (address _owner) constant returns (uint256 balance);
        event Approval (address indexed _owner, address indexed _spender, uint256 _value);
        }
        contract Owned {
        address public owner;
        address public new Owner;
        function Owned() {
        owner = msg.sender;
        }
        modifier owner Only {
        assert(msg.sender == owner);
        }
```

Transfer sender's tokens to a given address

```
    function transfer(address _to, uint256 _value) when Not Frozen only Pay  load Size(2)
returns (bool success) {
        require(_to != 0x0);
        balances[msg.sender] = sub(balances[msg.sender], _value);
     balances[_to] += _value;
        Transfer(msg.sender, _to, _value)
        return true;
        }

function claimTokens(address _token) ownerOnly {
        if (_token == 0x0) {
```

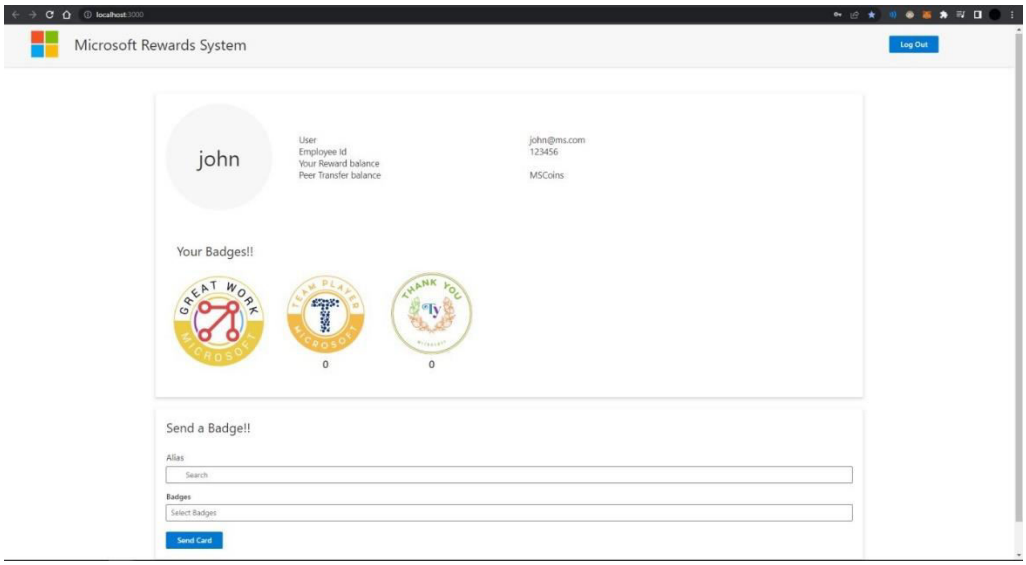
```
                    owner.transfer(this.balance);
                    return;
        }
        TNB Token token = TNB Token(_token);
        uint balance = token.balance Of(this);
        token.transfer(owner, balance);
        Transfer(_token, owner, balance);
      }
        event Freeze (address indexed owner);
        event Unfreeze (address indexed owner);
  }
```

// SPDX-License-Identifier: MIT

```
pragma solidity ^0.8.0;

contract Migrations {

  address public owner;

  uint public last_completed_migration

  constructor() {

    owner = msg.sender;

  }

  modifier restricted() {

    if (msg.sender == owner) _;

  }

  function setCompleted(uint completed) public restricted {

    last_completed_migration = completed;

  }

  function upgrade(address new_address) public restricted {
```

```
    Migrations upgraded = Migrations(new_address);
    upgraded.setCompleted(last_completed_migration);
  }
}
pragma solidity >=0.4.22 <0.9.0;
contract SimpleStorage {
  uint256 value;
  function read() public view returns (uint256) {
    return value;
  }
  function write(uint256 newValue) public {
    value = newValue
}
}
```

SNAPSHOTS


Microsoft Rewards System
Log Out
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User
Employee Id
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Peer Transfer balance
john@ms.com
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MSCoins
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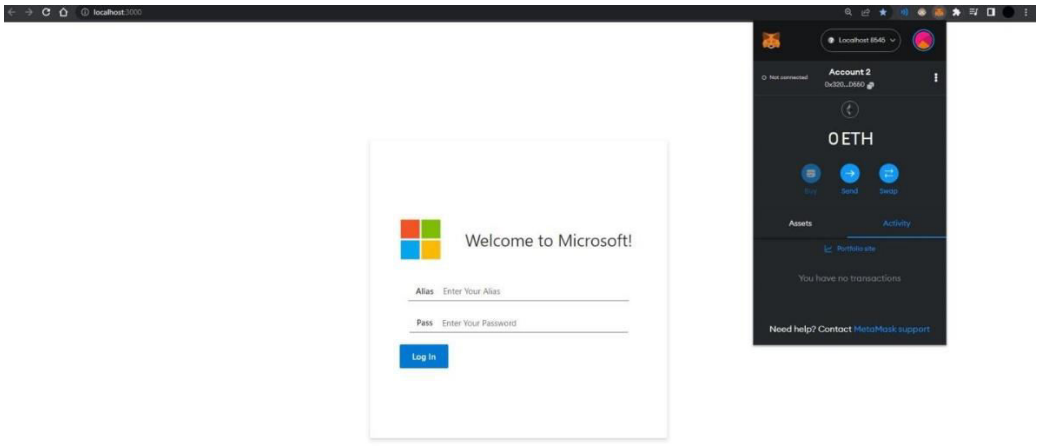
Welcome to Microsoft!
Alias Enter Your Alias
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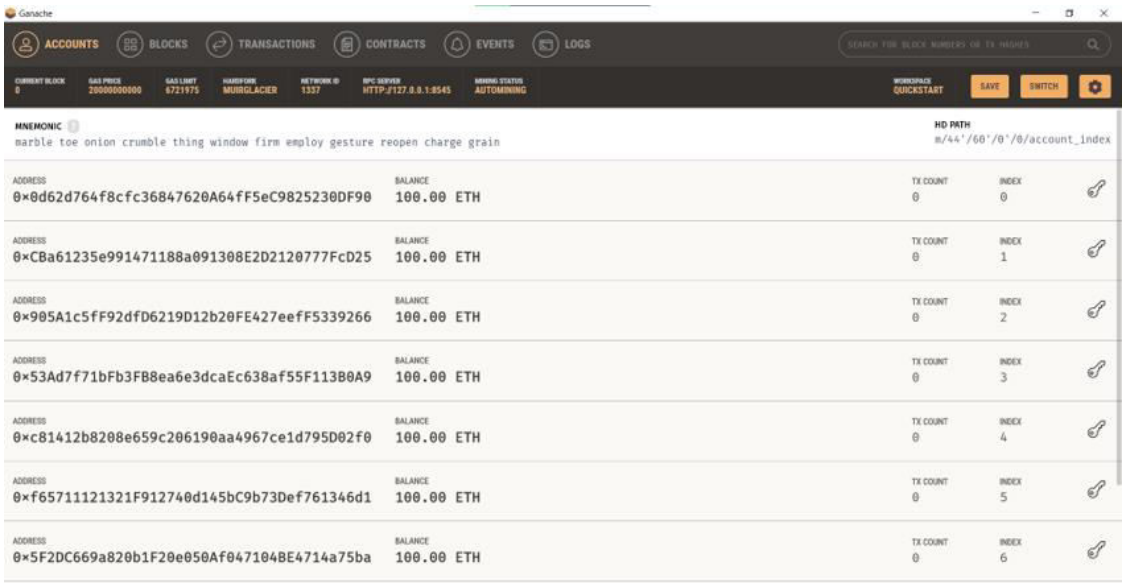

CONCLUSION

The suggested blockchain-based employee reward system differs from conventional reward systems in a number of ways. More transparency, automation of incentive distribution procedures, flexibility, a reduction in technological complexity, ease of implementation, adherence to pertinent rules, and scalability are all benefits. The solution offers the security and transparency of blockchain technology while being simple for non-technical consumers to utilise. Future development may involve connecting the system to other HR software, utilising AI and machine learning methods, working with other firms, and investigating various blockchain platforms. Ultimately, the suggested approach may give businesses a more effective, safe, and equitable way to reward their staff members.

FUTURE ENHANCEMENTS

This project helps to predict the stroke risk using prediction model in older people and forpeople who are addicted to the risk factors are mentioned in the project. In future the sameproject can be extended to give the update in stroke risk percentage using the output of current project. This project can also be used to find the stroke probabilities in young people and underage by

collecting respective risk factor information's and doctor consulting.

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AUTHOR 1

Mrs.B.Angalaparameswari M.E Is a Assistant professor in department of computer science and engineering at st.Joseph college of engineering, sriperumbudur,chennai.she has done his M.E CSE in MGR University in the year 2015.Mrs.B.Angalaparameswari has 1 year of teaching experience in this college

AUTHOR 2

Mr. J.ARUL JERALD B.E., Student of Computer Science and Engineering at St.Joseph College of Engineering, Sriperumbudur, Chennai, TamilNadu. I had attended many Workshops, Seminars in Python, Machine Learning. I got placed in Reputed Companies like Sight Spectrum, Q Spider and some respected companies.

AUTHOR 3

Mr. R. MOHAMMED AL OSSAMA B.E., Student of Computer Science and Engineering at St.Joseph College of Engineering, Sriperumbudur, Chennai, TamilNadu. I had attended many Workshops and Seminars in the area of Python and Machine Learning.