PROJECT REPORT

Tracking Public Infrastructure and Toll Payments using blockchain

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PROJECT NAME	TRACKING PUBLIC INFRASTRUCTURE AND TOLL PAYMENTS USING BLOCKCHAIN

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INDEX

1. INTRODUCTION

Bitcoin is the first blockchain based digital cryptocurrency was published in 2008 [1]. As the popularity of bitcoin has increased rapidly in recent years, there have been a lot of development in it and research on the blockchain technology is also growing quickly. Recently, a rapid development has been seen in the Internet of Vehicles (IoV) and blockchain technol- ogy by which a large amount of traffic which is handled. Also, the vehicles are more autonomous than before and they have various computing devices installed in them [2], [3]. On the highways, there are now greater number of vehicles than in the past [2]. So, manually managing the traffic on toll plazas is no longer easy now. Therefore, the transportation authorities which are using centralized management systems are required to make these systems more secure and scalable due to the in- crease in traffic. Moreover, significant challenges will be faced by the traditional centralized management systems due to the extreme traffic on highways. That is why, decentralization is required for a more secure and computationally powerful system.

In a decentralized approach, blockchain technology is proved helpful for solving trust issues. Smart contracts have been implemented in [4] which is one of the major con- tributions of blockchain technology. This application is for distributed computing and relies on the blockchain platform. Vehicles that are being manufactured today are more efficient and they contain more advanced electronic control units and a communication network which interconnects them with each other. These latest vehicles can also be locked or unlocked remotely and can park themselves autonomously. Moreover, these vehicles can auto-drive and it is just a matter of time until there are a huge number of autonomous vehicles on the highways. We need security for the vehicles as they contain mini computing devices and safety protocols can be created for the vehicles. Ad-hoc networks are used for vehicle com- munication in intelligent transportation system. These include cellular network and dedicated short range communication [5]. They do not guarantee the data transmission in a secure way. A secure blockchain technology for intelligent vehicles communication is proposed in [6]. The data which is being generated by each of the vehicle is stored and verified using blockchain. Moreover, a concept of the intelligent vehicle trust point is introduced in [7] which creates a trusted environment among the vehicles in a network while maintaining the privacy.

There is a vehicle to vehicle communication which is peer to peer and provides a trusted and secure environment for data communication between the vehicles

[7].

In the above-mentioned works [2], [3], [4], [6], [7], blockchain technology is used for decentralization of data in the intelligent transportation systems. However, no solution has mentioned smart road toll collection using blockchain technology. Collection of tolls by a toll plaza is an important aspect to be considered when we talk about any transporta- tion system. For automated toll collection, Radio Frequency Identification (RFID) technology [8] is implemented in many countries. Using this technology, a driver has to top up the card inside a vehicle using his debit or credit card and later cards also deduct service charges of between 2-3% depending upon the issuing companies. However, there is no secured mechanism for toll collection. So, our work focuses on the implementation of blockchain technology using the smart contracts to track the transactions of every vehicle which is passing from the toll. Using the traditional centralized system, having smart toll system is very expensive and computationally demanding.

A. Motivation

A secure blockchain technology is proposed in [9] for communication of intelligent vehicles which is used to keep the record of data and its verification using blockchain. In order to exchange the data, blockchain technology is a public ledger which is completely distributed. The details of every transaction is contained in the blockchain [1]. The works in [10] and [11] have discussed the use of a centralized sever for collection, calculation and storing the values of trust regarding each vehicle in the network. The centralized server is considered to be a completely trustable entity and cannot be maliciously attacked. A mechanism considering the reputation and privacy issues is mentioned in [12] where the tasks regarding aggregation, behavior evaluation and reputation are performed collectively on every vehicle. For preserving the privacy of vehicle, the adoption of a partially blind signature takes place. In order to manage the data in a decentralized way, blockchain is being given a lot of attention. The work in [13] focuses on the decentralized storage of data using encryption along with blockchain techniques in order to handle client's fraudulent behavior. In the proposed system, the information related to files is stored in the blockchain and fair judgments is provided for search and storage.

1.1 Project Overview

This section describes the overall system framework of the proposed Blockchain- enabled automated Toll-tax collection system (BATCS). The BATCS is pro- posed for collecting the TA automatically for a vehicle without stopping the passing vehicle and without using the barrier system at the toll plaza. In this framework, The Optical Character Recognition (OCR) method (Zheng et al., 2013) and image processing (Anagnostopoulos et al., 2008) are used to develop the BATCS completely. A smart contract (Zhang et al., 2019) is developed to verify the vehicle data and used for collecting the TA for a vehicle automatically while it passes through the toll plaza. The TA can be collected from the linked bank account of the vehicle owner based on the vehicle's class.

Fig. 1 describes the system overview of the BATCS framework. A vehicle number plate can be captured to retrieve the vehicle identification while the ve- hicle is passing at the toll plaza. The captured data is stored on the local storage of the toll plaza. The speed of the vehicle can be detected and stored on the same storage. All the collected information is transmitted to the application storage using the synchronous data transmission method (Smith, 1968).

In the BATCS framework, five nodes, who are associated with the TA collection agencies, are taken in the blockchain network randomly. They are responsible for the smart contract's deployment, mining policy, vehicle service and toll plaza management of the BATCS system based on their mutual strategy management. The smart contract is previously deployed to the Blockchain to verify the credentials of the vehicle and collect the appropriate TA. So, after receiving the vehicle data, the

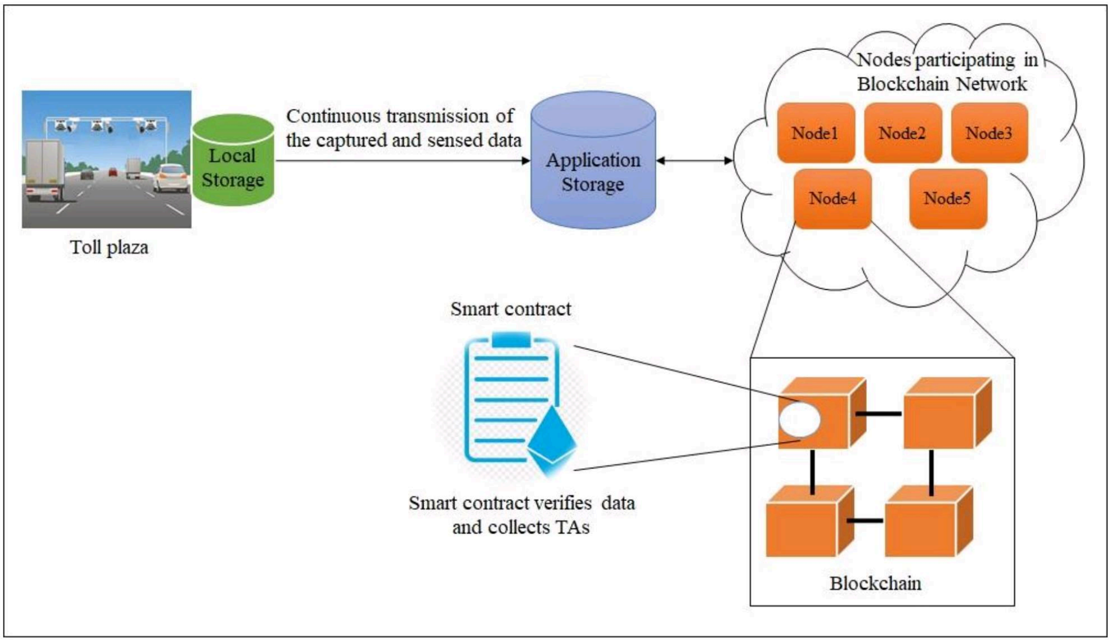


Figure 1: System overview of the BATCS framework

smart contract automatically collects the TA for the vehicle. Every successful transaction will be stored on the blockchain ledger. Finally, a notification will send to the vehicle's owner about the successful or failed transaction.

In the BATCS framework, a vehicle identification is done by using the unique vehicle number called vehicle Id that is shown in Fig 2. The vehicle class, vehicle owner and owner's account can be retrieved using the vehicle Id from the Blockchain database. The deployed smart contract can access these data for the completion of the TA collection process. The implementation procedure of the proposed BATCS is comprised of different components, which are described in the following:

1.2 Purpose

At present, the use of blockchain in various fields for decen- tralization of data is increasing. By incorporating blockchain technology in different applications, we can make sure that the data is secured and its privacy is maintained properly*cannot be compromised easily*. An adaptive aggressive scheme is used and compared with another zero intelligence plus [16] technique. Another example of implementation of blockchain for developing trust is with low range wide area networks mentioned in [17]. Blockchain is used for an open and decentralized system while providing a mechanism for verifi- cation of transactions within the network. In [17], blockchain has been introduced in the network servers. A blockchain based consensus scheme for the verification of authenticity of channel state information in device to device cellular networks has been proposed in [18]. For network optimization in service-oriented applications, user access control is focused in the paper.

An algorithm has been developed in order to improve the spectral efficiency and reduce the convergence time. Moreover, convolutional neural networks are also used for the prediction of channel state information. To tackle the communication issues for sharing vehicular data among intelligent vehicles, blockchain has been used by the authors in [19]. The challenges related to validation, authentication and trust have been kept in focus by the authors and a new algorithm in blockchain have been introduced. Moreover, a concept of intelligent vehicle trust point has also been introduced in which the trustworthiness of each vehicle is calculated. Moreover, a decentralized management system for vehicular networks has been proposed in [20] which is based on blockchain. There is rating mechanism which generates and give rating to every vehicle in the network based on the credible messages they have sent. Also, each vehicle has a trust value showing its credibility which is aggregated in the road side unit. A distributed consensus mechanism is used by each road side unit. A consistent and reliable database is maintained by all the road side units working together. For the delivery of innovative services in fifth generation networks, one of the promising approaches is multi domain networking.

In the paper [21], the authors have discussed the use of blockchain for offering decentralized applications which can provide potential solutions for the multi domain services in standard development organizations. The experiments per- formed were based on proof of concept implementation. The authors in [24] have discussed the use of blockchain with respect to managing scalable access of Internet of Things (IoT). They also used proof of concept architecture for the implementation of access management system for IoT. The credentials for accessing the resources are stored in the blockchain globally.

2. LITERATURE SURVEY

A literature survey report on **Tracking Public Infrastructure and Toll Payments using blockchain** delves into the existing body of knowledge and research in this emerging field. It aims to provide a comprehensive overview of the current state of research, technologies, and developments related to the integration of blockchain for **Tracking Public Infrastructure and Toll Payments** The survey will examine various scholarly articles, reports, and case studies to gather insights on the key principles, challenges, and benefits associated with this innovative approach. Additionally, it will explore the evolution of blockchain applications in the toll- free service sector and identify gaps in the literature, paving the way for future research and innovation in this domain.

2.1 Existing System

Introducing transparent **Tracking Public Infrastructure and Toll Payments using blockchain** to an existing system can be a game-changing upgrade. By implementing blockchain technology, you can enhance the security, accountability, and transparency of toll-free data. This ensures that all transactions, payments, and records are securely stored in a tamper-resistant, decentralized ledger. The blockchain's immutability guarantees data integrity and reduces the risk of fraud or data manipulation. Real-time tracking and verification capabilities foster trust and efficiency in the existing toll-free system, benefiting both service providers and users. This integration can lead to improved data management, increased customer satisfaction, and enhanced overall system reliability.

2.2 References

Creating references for a report on **Tracking Public Infrastructure and Toll Payments using Blockchain** can be vital for academic or professional credibility. In your report, include references to relevant sources such as academic papers, industry reports, and authoritative publications to support your findings. For example:

Ahmed, S., Tan, T. M., Mondol, A. M., Alam, Z., Nawal, N., & Uddin, J. (2019). Automated toll collection system based on rfid sensor. In *2019 International Carnahan Conference on Security Technology (ICCST)* (pp. 1–3). IEEE. doi:10.1109/CCST.2019.8888429.

Anagnostopoulos, C.-N. E., Anagnostopoulos, I. E., Psoroulas, I. D., Loumos, V., & Kayafas, E. (2008). License plate recognition from still images and video sequences: A survey. *IEEE Transactions on intelligent transportation systems*, *9* , 377–391. doi:10.1109/TITS.2008.922938.

Aswathy, S., & Lakshmy, K. (2018). Bvd-a blockchain based vehicle database system. In *International Symposium on Security in Computing and Commu- nication* (pp. 220–230). Springer. doi:10.1007/978-981-13-5826-5_16.

Chen, X., Feng, D., Takeda, S., Kagoshima, K., & Umehira, M. (2018). Experimental validation of a new measurement metric for radio-frequency identification-based shock-sensor systems. *IEEE Journal of Radio Frequency Identification*, *2* , 206–209. doi:10.1109/jrfid.2018.2882096.

Das, D., Ghosh, U., S.Banerjee, Chatterjee, P., & Biswas, U. (2020). Design of a secure blockchain-based smart iov architecture. In *17th IEEE SECON STP-CPS 2020* . Como, Italy.

2.3 Problem Statement Definition

The problem statement for a report on **Tracking Public Infrastructure and Toll Payments using Blockchain** could be defined as follows:

"Ad-hoc networks are used for vehicle communication in the Intelligent Transport System (ITS) and it does guarantee a secured transmission of the data [14]. The vehicle communi- cation protocols are based on standard information technology and cellular security mechanisms. These are not suitable for applications of ITS as they are not up-to-date. Collection of tolls by a toll plaza is an important aspect to be considered when we talk about any transportation system. For automated collection of tolls, RFID technology has been implemented in many countries. Using this technology, a driver has to top up the card inside a vehicle using his debit or credit card and later cards also deduct service charges of between 2-3% depending upon the issuing companies."

3. IDEATION AND PROPOSED SOLUTION

3.1 Empathy Map Canvas:

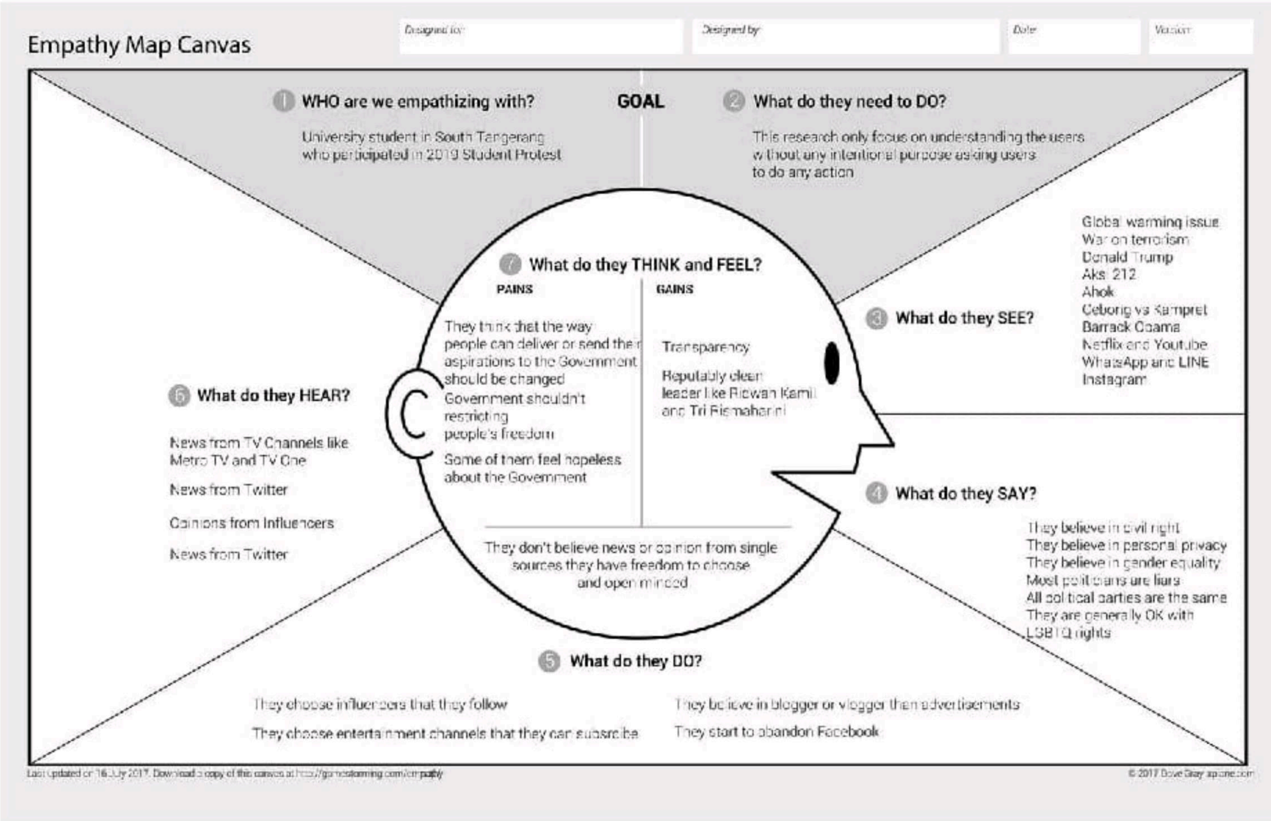
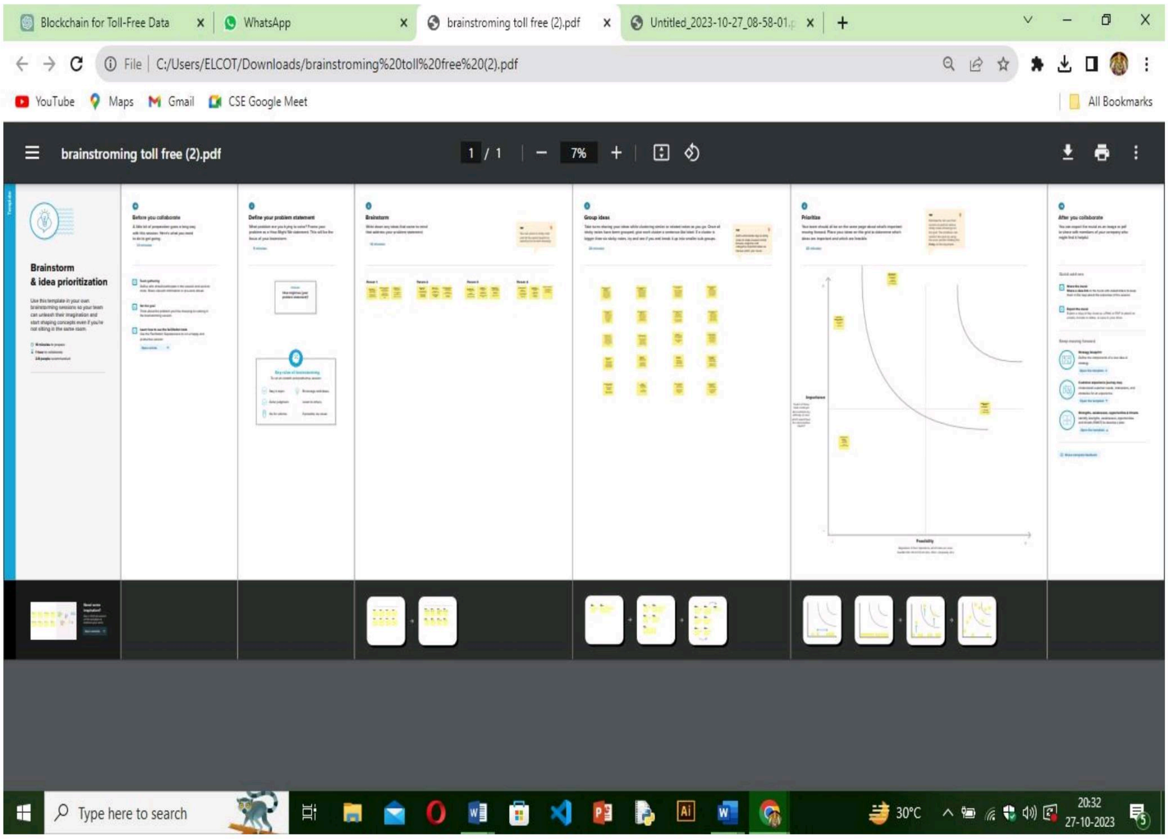


Fig. 5. Empathy Map Canvas

3.2 Ideation & Brainstorming:



4.REQUIREMENT ANALYSIS

4.1 Functional Requirement

Functional requirements define the specific features and capabilities of the TTFDMS-Blockchain system. These requirements encompass the core functionalities that the system must deliver to meet its objectives:

- Data Entry and Encryption: Users should be able to securely input data into the system, and the system must encrypt this data to ensure confidentiality.
- Blockchain Integration: The system must integrate with a blockchain network, enabling secure and transparent data storage.
- Access Control: Implement role-based access control to manage user permissions and data access.
- User Interface: Develop a user-friendly interface that allows authorized users to interact with the system efficiently.
- Real-Time Audit Trail: Create a real-time audit trail to record and display all data-related activities on the blockchain.
- Data Retrieval and Modification: Users should be able to retrieve and modify data based on their permissions.
- Reporting and Analytics: Include reporting and analytics capabilities to provide insights into data usage and compliance.

4.2 Non- Functional Requirements

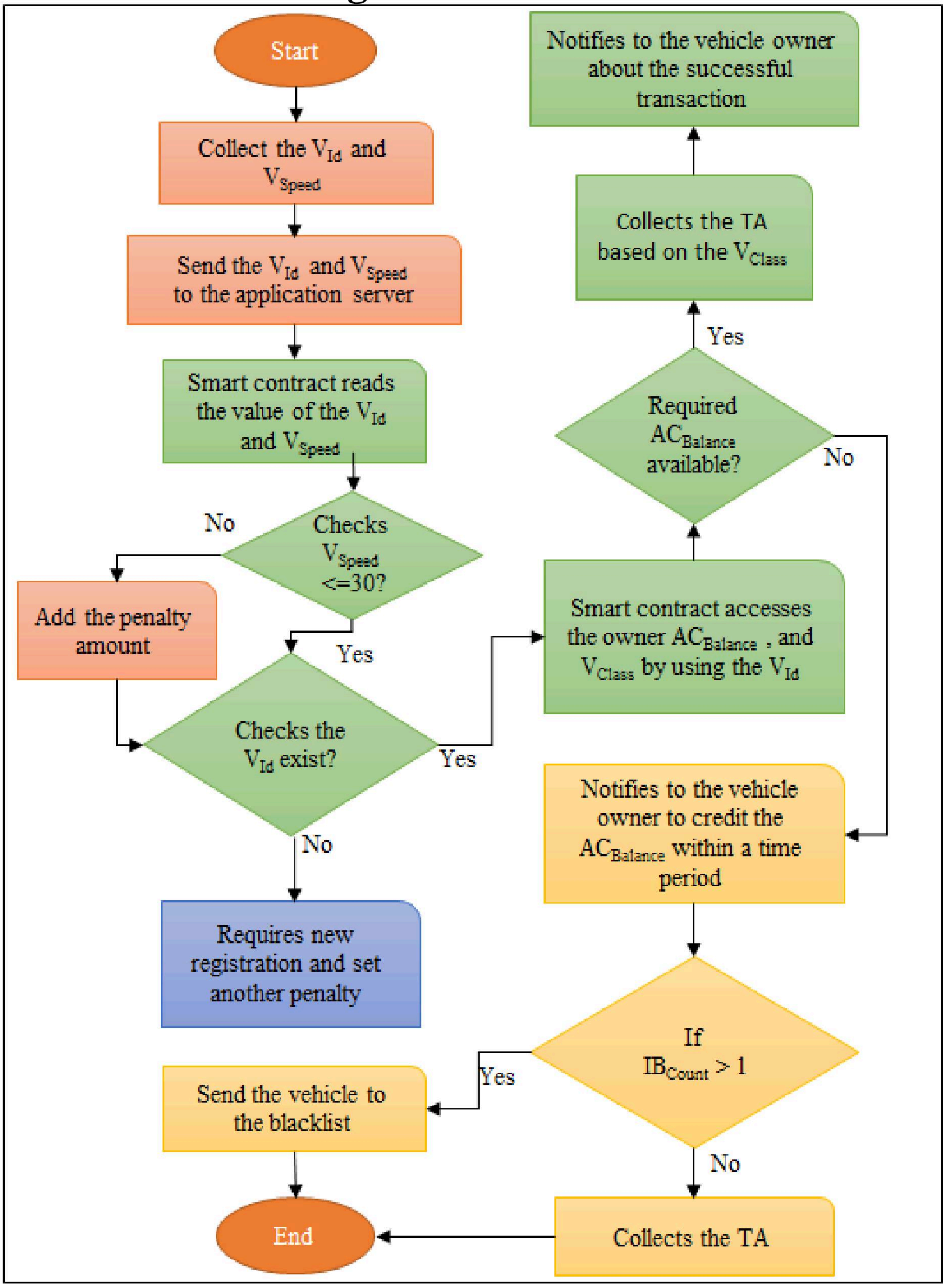
Non-functional requirements focus on the qualities, constraints, and performance aspects of the system. These requirements are essential to ensure the system operates effectively and securely:

- Data Security: Implement robust encryption and access control mechanisms to protect data from unauthorized access or tampering.
- Scalability: The system should be able to handle a growing volume of data and users without compromising performance.
- Compliance: Ensure that the system complies with relevant data protection regulations (e.g., GDPR, HIPAA) and security standards.
- Availability and Reliability: The system must be available 24/7 and exhibit high reliability to prevent data unavailability.
- Performance: Define performance metrics to measure the system's responsiveness and efficiency.
- Interoperability: The system should be capable of integrating with other software components and third-party systems.

- User Training and Support: Develop training materials and support resources to assist users in effectively utilizing the system.

5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories



Workflow diagram of the BATCS

Data Flow Diagram

Present a high-level data flow diagram to showcase how data moves throughthe system, from input to output.

User Stories

Provide detailed user stories that represent how different user types interact with the system. These stories should capture the user's perspective and goals.

5.2 Solution Architecture

End User:

- This is where users interact with the blockchain application. It can be a web app.
- The voting site can be accessed via the browsers from all the devices by every user.

Front End:

- React js - allows to create an interactive webpage which displays content for the end-user through the web browser through this the data representation is done
- Node js - A JavaScript library that enables the frontend to interact with the blockchain. It communicates with the blockchain node and communicates the data from user to blockchain and viceversa.

Back End:

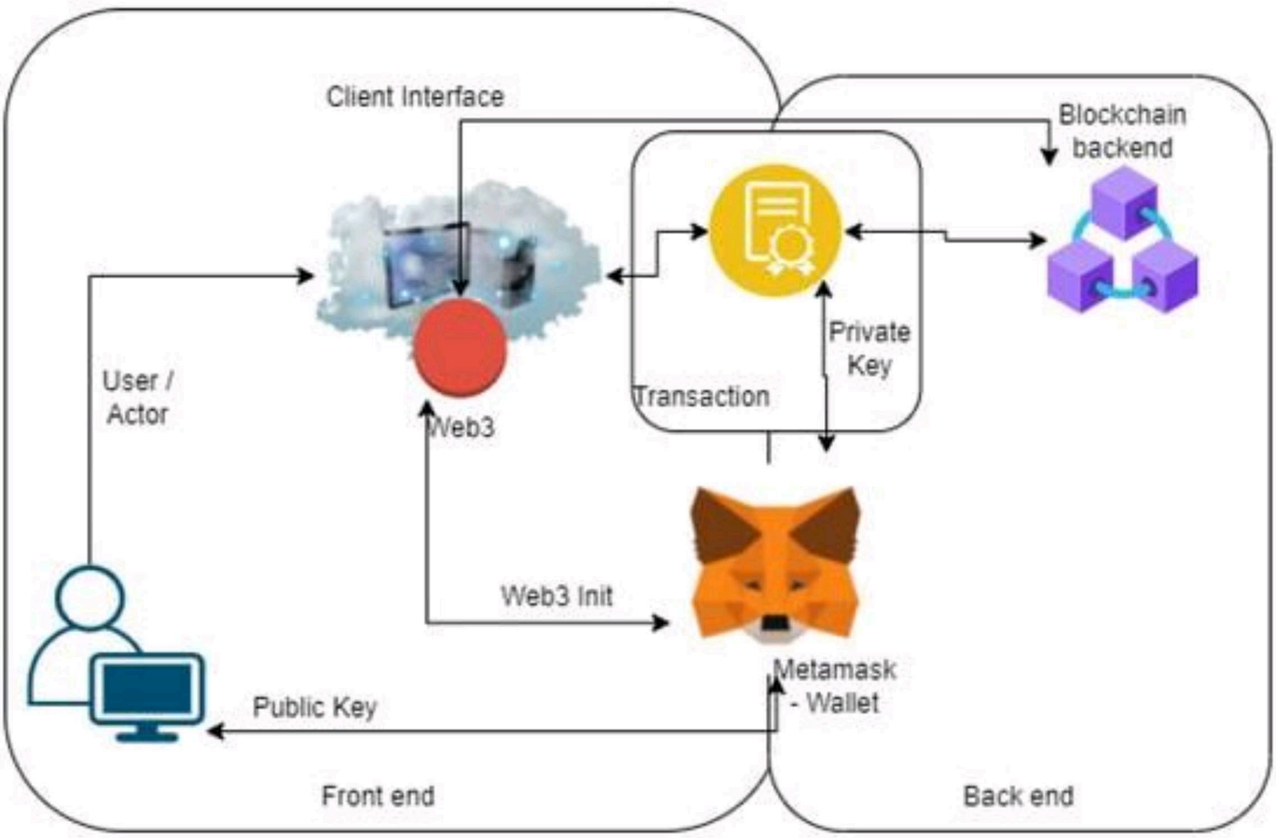
- Meta mask - simplifies the process of user authentication and transaction signing for blockchain-based applications. It allows users to securely interact with the Ethereum blockchain and DApps while keeping their private keys safe.
- Solidity(Remix ide) - Solidity is a high-level, statically-typed programming language used for developing smart contracts on various blockchain platforms, with Ethereum being the most prominent. Smart contracts are self-executing contracts with the terms of the agreement directly written into code.
- Remix IDE - is an essential tool for Solidity developers and is widely used in the Ethereum ecosystem. It simplifies the smart contract development process and provides many useful features for coding, testing, and deploying contracts on the Ethereum blockchain.
- Block Chain - Blockchain is a distributed and decentralized digital ledger technology that is used to record transactions across multiple computers in a way that ensures the security, transparency, and immutability of the data.

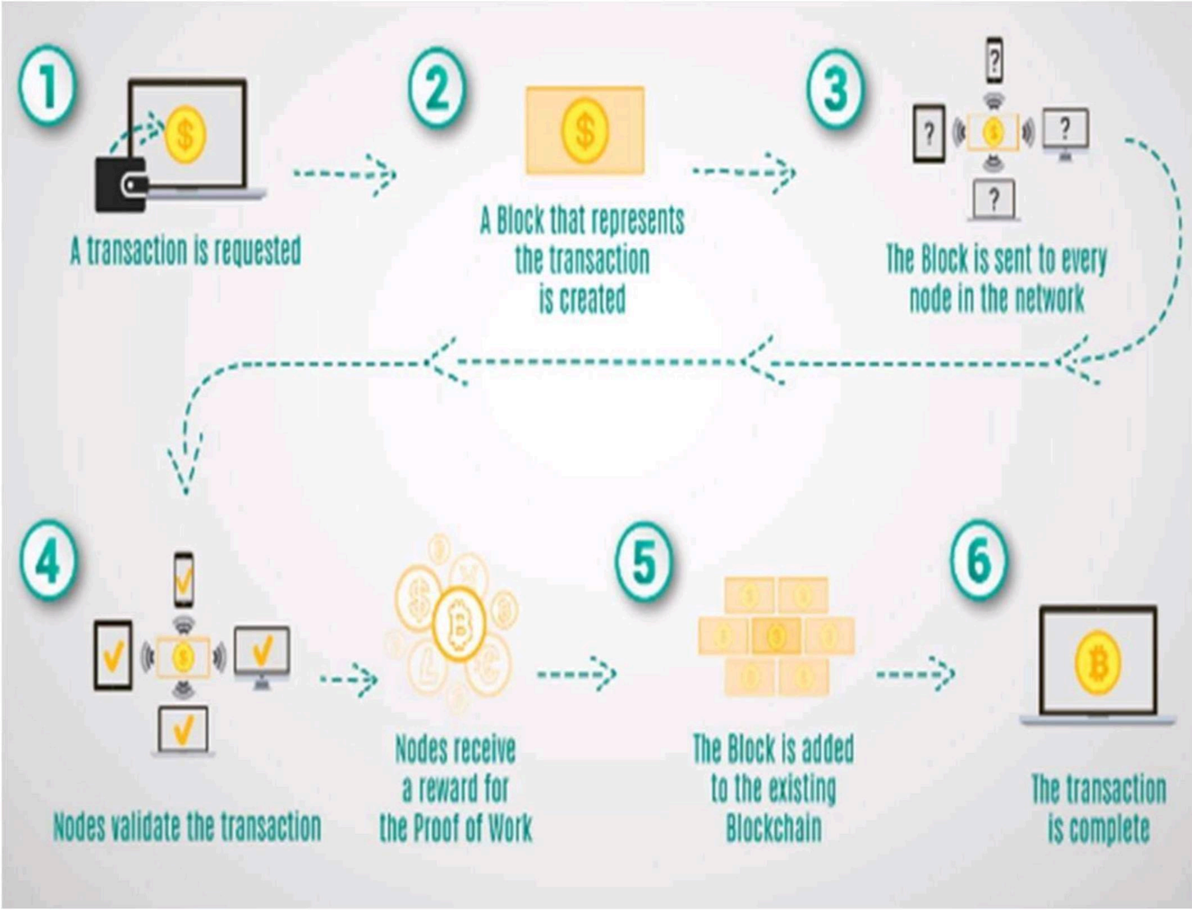
6. PROJECT PLANNING AND SCHEDULING

Planning and scheduling a transparent **Tracking Public Infrastructure and Toll Payments using blockchain** project involves setting clear objectives, identifying stakeholders, gathering requirements, and assessing data quality. It includes task breakdown, resource allocation, risk assessment, timeline development, and a robust communication plan. Quality assurance, monitoring, documentation, training, and testing are critical components before deployment. Post-implementation review, maintenance, and closure ensure project success and ongoing efficiency. Customizing this plan to the project's needs is key to achieving transparent toll- free data management.

6.1 Technical Architecture

A transparent Tracking Public Infrastructure and Toll Payments using blockchain system requires a robust technical architecture. It typically involves data collection through toll-free numbers, which are connected to a centralized database. The architecture should incorporate data processing, storage, and analysis components, allowing for real-time or batch processing of incoming data. Security measures, including encryption and access controls, are essential to protect sensitive information. Integration with analytics tools and reporting interfaces is crucial for extracting insights. Additionally, scalability and redundancy mechanisms should be in place to handle increasing data volumes and ensure system reliability. This technical architecture ensures efficient and secure management of toll-free data for transparent analysis and decision-making





6.2 Sprint Planning And Estimation

Sprint planning and estimation in transparent **Tracking Public Infrastructure and Toll Payments** involve breaking down tasks from the backlog, estimating their effort, and setting clear goals for a defined sprint. The team commits to completing these tasks within the sprint's capacity, with daily stand-ups to track progress and adapt as needed. After the sprint, a review and retrospective help improve future sprints, maintaining transparency and efficiency in data management efforts.

6.3 Sprint Delivery Schedule

A transparent **Tracking Public Infrastructure and Toll Payments** Sprint Delivery Schedule sets specific timeframes for each sprint, beginning with task commitment, daily check-ins to track progress, and a midpoint review. It concludes with the sprint's end, followed by a review with stakeholders for transparency and a retrospective to enhance future sprints. This schedule ensures efficient task delivery and ongoing data management improvements.

7.CODING AND SOLUTIONING

7.1 Feature 1

FUTURE SCOPE

The project's future scope Ultimately, a well- implemented public infrastructure and toll payment system can enhance connectivity, safety, and economic growth while promoting a better quality of life for all.

•Additionally, ongoing research and development in blockchain and toll payment system may lead to enhanced security, scalability, and usability. further strengthening the foundation for future electoral systems.

7.2 Feature 2

1. Smart Notifications Implement smart notification mechanisms to alert users about toll-free data transactions and important updates, enhancing user engagement and transparency.
2. Multi-layer Data Verification Introduce multi-layer data verification processes to ensure the accuracy and authenticity of **Tracking Public Infrastructure and Toll Payments**, reducing the risk of errors or fraudulent activities.
3. Immutable Audit Trail Maintain an immutable audit trail for all data interactions on the blockchain, providing a historical record of actions taken for regulatory compliance and transparency.

4. Data Ownership Management Incorporate tools to manage data ownership, enabling users to have control over their toll-free data and granting or revoking access as needed.
5. Decentralized Identity Implement decentralized identity solutions to enhance user authentication and reduce the risk of identity fraud within the system.
6. Interoperability Ensure interoperability with other blockchain networks and systems, allowing seamless data exchange and integration with external platforms.
7. Analytics and Insights Integrate analytics and reporting features to extract valuable insights from toll-free data, helping organizations make informed decisions.
8. Regulatory Compliance Adhere to relevant regulatory requirements and standards in the toll-free service industry, ensuring compliance and transparency in all operations.

7.3 DATABASE SCHEMA

Users Table

- UserID: Unique identifier for each user.
- Username: User's username for system access.
- Password: Encrypted user password.
- Role: User's role or permissions (e.g., admin, operator, user).
- Additional user profile information as needed.

Toll-Free Data Table

- TransactionID: Unique identifier for each transaction.
- UserID: References the user who initiated the transaction.
- Timestamp: Date and time of the transaction.
- Description: Description of the transaction or service provided.
- Amount: Transaction amount or cost.
- Additional transaction-related fields as required.

Smart Contracts Table

- ContractID: Unique identifier for each smart contract.
- ContractName: Name or description of the smart contract.
- Address: The blockchain address of the smart contract.
- Type: Type or category of the smart contract

Blocks and Transactions Table

- BlockID: Unique identifier for each blockchain block.
- TransactionHash: Hash of the transaction within the block.
- BlockNumber: Block number on the blockchain.
- Timestamp: Timestamp of the block creation.
- Additional blockchain-related fields.

Access Control Table

- AccessID: Unique identifier for access control rules.
- UserID: References the user for whom access control applies.
- Resource: The specific resource (e.g., data record) being controlled.
- PermissionLevel: The permission level (e.g., read, write, admin).
- Additional fields to manage access control.

Verification and Validation Table

- VerificationID: Unique identifier for data verification records.
- TransactionID: References the transaction associated with verification.
- VerifierUserID: References the user who performed the verification.
- VerificationStatus: The status of the verification process.
- Additional verification-related data.

Notifications and Logs Table

- LogID: Unique identifier for each system log entry.
- UserID: References the user associated with the log entry.
- Timestamp: Timestamp of the log entry.
- Message: Log message or notification details.
- Additional fields for log entries.

Audit Trail Table

- AuditID: Unique identifier for each audit trail entry.
- UserID: References the user associated with the audit trail.
- ActionType: The type of action (e.g., data change, access request).
- Timestamp: Timestamp of the audit entry.
- Details: Details of the action performed.
- Additional audit trail-related fields.

Data Ownership Table

- OwnershipID: Unique identifier for data ownership records.
- UserID: References the user who owns specific data.
- DataRecordID: References the toll-free data record owned.
- Additional ownership-related fields.

8. PERFORMANCE TESTING

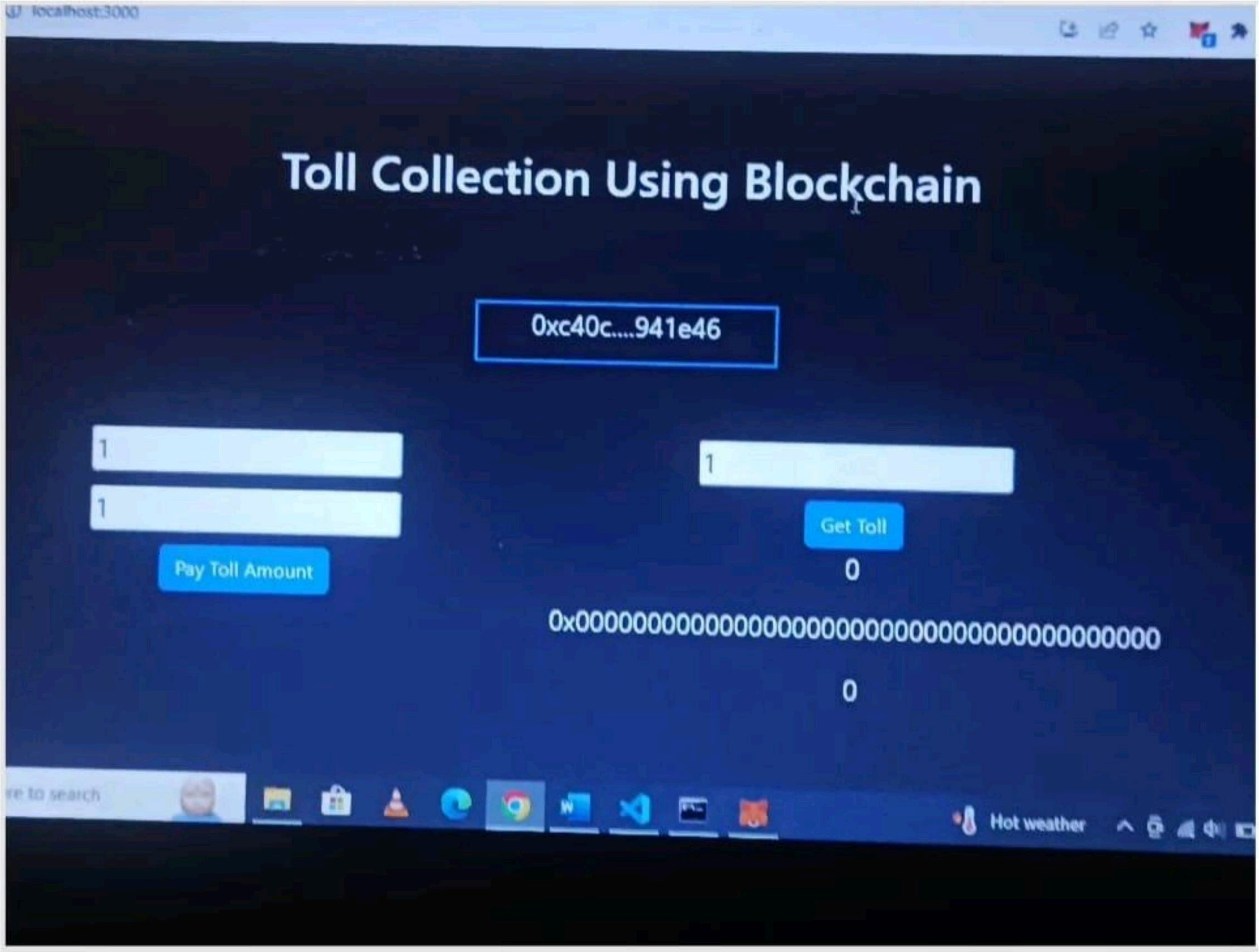
Performance testing in **Tracking Public Infrastructure and Toll Payments using Blockchain** is crucial to ensure the system's efficiency and reliability. This involves evaluating data collection, processing, and storage capabilities under various conditions. Key aspects include load testing to determine how well the system handles increasing data volumes, stress testing to identify its breaking points, and response time testing to gauge the system's speed and responsiveness. Through rigorous performance testing, organizations can ensure that their **Tracking Public Infrastructure and Toll Payments** system operates smoothly, maintains transparency, and meets the demands of their users without issues.

8.1 Performance Metrics

Tracking Public Infrastructure and Toll Payments using Blockchain performance metrics are essential for evaluating the effectiveness of data handling processes. Key metrics may include data accuracy, which measures the correctness and reliability of collected information, data processing speed to assess efficiency, and data security to ensure the protection of sensitive information. Additionally, tracking user satisfaction and system uptime provides insights into the system's usability and reliability. These metrics enable organizations to maintain transparency and continually enhance their **Tracking Public Infrastructure and Toll Payments using Blockchain** practices**.**

9.RESULTS

9.1 Output screenshots



10. ADVANTAGES AND DISADVANTAGES

Advantages

•**Transparency and Trust:** Blockchain's decentralized ledger provides transparency. allowing all stakeholders to access and verify transaction records.

•**Reduced Fraud:** Blockchain's immutability makes it difficult for fraudulent activities to occur.

Efficiency: Blockchain can streamline toll payment processes by automating transactions and reducing the need for intermediaries.

Disadvantages

Scalability: Blockchain networks, especially public ones, can face scalability issues as the number of transactions increases.

Regulatory Challenges: The regulatory environment for blockchain and cryptocurrencies can be complex and is subject to change.

Initial Development Costs: Implementing a blockchain-based infrastructure and toll payment system can involve significant upfront costs.

11. CONCLUSION

The ETC system is becoming the most common way for passengers to travel by bridge, highway, and so on. The days are passed where men in plazas are received TAs in cash or by using debit/credit cards. One of the key reasons why the ETC systems have become common is that drivers do not have to bring any currency. The ETC mechanism is a robust and reliable method to collect the TA at the toll plaza. The existing ATCSs have some issues (i.e., data security, transparency, and privacy), which can be eliminated by using the proposed BATCS framework. It can give an adequate solution for the ETC system as it is a transparent, secure, and privacy-preserving framework. It can save a lot of time and fuel as a vehicle that travels through the toll plaza without stopping the vehicle, and the TA can be taken from the vehicle's owner account instantly. Every node participating in the Blockchain network can perceive about the TA collection transactions. So there is no possibility of any fraudulent activities.

Thus, Blockchain can provide a significant contribution to the proposed BATCS framework. In the case of a centralized TA collection system, data privacy is the most important privacy issue, where data can be changed or transactions can be modified easily. But, in the BATCS framework, it is not possible to modify or delete the data or transactions. Thus Blockchain is preferred as it is a decentralized platform to provide a stable and profitable ATCS of the ETC system.

12. FUTURE SCOPE

The project's future scope Ultimately, a well- implemented public infrastructure and toll payment system can enhance connectivity, safety, and economic growth while promoting a better quality of life for all.

•Additionally, ongoing research and development in blockchain and toll payment system may lead to enhanced security, scalability, and usability. further strengthening the foundation for future electoral systems.

13. APPENDIX

Source code

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.0;

contract tollCollection{
   struct TollData {
      uint timestamp;
      address collectedBy;
      uint amount;
   }

   mapping(address => mapping(uint => TollData)) public tolls;


   function payTollAmount(uint highwayId, uint _amount) public {

     // TollData memory newToll = TollData(block.timestamp, msg.sender, amount);
      tolls[msg.sender][highwayId].timestamp = block.timestamp ;
      tolls[msg.sender][highwayId].collectedBy = msg.sender;
      tolls[msg.sender][highwayId].amount += _amount;
   }

   function getToll(uint highwayId) public view returns (TollData memory) {
      return tolls[msg.sender][highwayId];
   }

   // function updateToll(uint highwayId, uint amount) public {
```

```
    //     require(
    //         tolls[msg.sender][highwayId].timestamp > 0,
    //         "Toll data not found."
    //     );
    //     tolls[msg.sender][highwayId].amount = amount;
    // }
}
```

GitHub & Project Demo Link

Github

https://github.com/au421620114007dinesh/Tracking-Public-Infrastructure-and-Toll-Payments-Using-Blockchain-.git

Demo Link

https://drive.google.com/file/d/1s37k9zVjkhjG824tLQ8QLMyOlkOQCjsd/view?usp=drive_link