

E-VOTING SYSTEM USING BLOCKCHAIN

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Engineering degree in Computer Science and Engineering

By

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**INSTITUTE OF SCIENCE AND TECHNOLOGY
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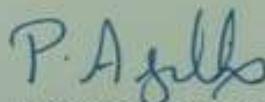
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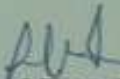
BONAFIDE CERTIFICATE

This is to certify that this Project Report is the Bonafide work of **U V V RAMA MOHANA KRISHNA SAI (40111362)** and **TULASI RAM NAIDU.K (40111356)** who carried out the project entitled "**E-VOTING SYSTEM USING BLOCKCHAIN**" under my supervision from November 2023 to April 2024.



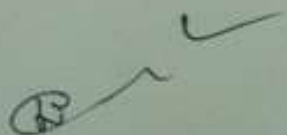
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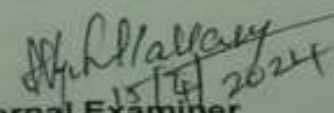
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DECLARATION

I, K.TULASIRAM NAIDU (40111356), hereby declare that the Project Report entitled "E-VOTING SYSTEM USING BLOCKCHAIN" done by me under the guidance Dr. P. Ajitha, M.E., Ph.D is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in **Computer Science and Engineering**.

DATE: 15-04-2024

PLACE: CHENNAI



SIGNATURE OF THE CANDIDATE

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ABSTRACT

Voting is a method for a group of individuals to make a collective decision or voice their cumulative opinion to arrive at a consensus. The results of a vote can have far reaching consequences due to which it is imperative to maintain integrity by ensuring that there is no scope for fraud or cheating to occur while the votes are being cast. It is highly crucial that voting is carried out in a fair and just manner. This Electronic Voting System has been developed to help eliminate any chance of tampering and improve the reliability and dependability of a voting system. This system consists of two entities namely; The Admin and The Voter (The User). Once the Voter has logged in to the system using their valid username and password, they can view the upcoming elections and the candidates contesting the election. Users can also view results once the elections have concluded. This Electronic Voting System has been devised to eradicate any possibilities of tampering and bolster the reliability and trustworthiness of the voting mechanism. Comprising two primary entities - The Admin allows Users, upon authentication with valid credentials, to access information regarding upcoming elections and participating candidates. Additionally, Users can review election results post-election. Furthermore, the system provides Users with a history of their past participations in elections. Conversely, the admin interface offers access to candidate lists, voter registers, and election records. Leveraging blockchain technology for data management, this system stands out for its high dependability and ability to be scrutinized for any indications of tampering or misconduct.

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CHAPTER 1

INTRODUCTION

Electronic voting systems have been the subject of active research for decades, with the goal to minimize the cost of running an election, while ensuring the election integrity by fulfilling the security, privacy and compliance requirements [1]. Replacing the traditional pen and paper scheme with a new election system has the potential to limit fraud while making the voting process traceable and verifiable [2]. Blockchain is a distributed, immutable, incontrovertible, public ledger. This new technology has three main features: (i) Immutability: Any proposed “new block” to the ledger must reference the previous version of the ledger. This creates an immutable chain, which is where the Blockchain gets its name from, and prevents tampering with the integrity of the previous entries. (ii) Verifiability: The ledger is decentralized, replicated and distributed over multiple locations. This ensures high availability (by eliminating a single point of failure) and provides third-party verifiability as all nodes maintain the consensus version of the ledger. (iii) Distributed Consensus: A distributed consensus protocol to determine who can append the next new transaction to the ledger. A majority of the network nodes must reach a consensus before any new proposed block of entries becomes a permanent part of the ledger. These features are in part achieved through advanced cryptography, providing a security level greater than any previously known record-keeping system. Blockchain technology is therefore considered by many [3], including us, to have a substantial potential as a tool for implementing a new modern voting process.

CHAPTER 2

LITERATURE SURVEY

Literature survey is the most important step in software development process. Before developing the tool it is necessary to determine the time factor, economy and company strength. Once these things are satisfied, then the next step is to determine which operating system and language can be used for developing the tool. Once the programmers start building the tool the programmers need lot of external support. This support can be obtained from senior programmers, from book or from websites. Before building the system the above consideration are taken into account for developing the proposed system. The major part of the project development sector considers and fully survey all the required needs for developing the project. For every project Literature survey is the most important sector in software development process. Before developing the tools and the associated designing it is necessary to determine and survey the time factor, resource requirement, man power, economy, and company strength. Once these things are satisfied and fully surveyed, then the next step is to determine about the software specifications in the respective system such as what type of operating system the project would require, and what are all the necessary software are needed to proceed with the next step such as developing the tools, and the associated operations.

2.1 INFERENCES FROM LITREATURE SURVEY

1.Deduplication in Cloud Computing for Improvising Efficiency Towards Potential Practical Usage,2020

In this System, If the duplicate of files is available on the cloud server, the application needs to map the original files to the current files that is uploaded so that the user will

not get affected by the mapping but on the backend no duplicate files will be created but the files get mapped by the application, In this way the duplication files on the cloud server will be avoided thereby reducing the storage space requirement on the cloud server.

2. Secure Data De-Duplication On 2PVC Algorithm In Web Services,2017

They proposed several increasingly stringent levels of policy consistency constraints, and present different enforcement approaches to guarantee the trustworthiness of transactions executing on web services.

3.Data Deduplication in Cloud Storage with and Ownership Management, may 2020:

De-duplication method is very effective when multiple users storing the same data in outsource. This time relating security and ownership issues. The Proof-of-ownership schemes allow any owner of the same data to prove to the cloud storage server that he owns the data in a robust way. Then many users are likely to encrypt their data before outsourcing them to the cloud storage to preserve privacy, but this hampers de duplication because of the randomization property of encryption.

4.Database Management and Storage Optimization Using Data De-Duplication and Fog Computing, April 2018:

This system is designed to be low cost and expandable. The aim of this project is to build an android application which will store only unique contents and de-duplicated files from the server which can be accessed from anywhere in the campus.

5. Achieving Efficient Data Deduplication and Key Aggregation Encryption System in Cloud, may 2022:

The project implemented a scenario where the cloud service can de duplicate the uploaded data. The data users are provided with the proper data. The data was prevented from unwanted exposure and unauthorized access by placing a proper access control mechanism. Authorized data deduplication aims at data security to keep the data secured and avoid unauthorized access. Deduplication at encryption level saves a lot of memory and memory can be utilized efficiently.

6. Harnessing Block chain for Transparent E-Voting, may 2023:

They presented a detailed scientific analysis of a blockchain-based e-voting system and provides a mathematical framework to address its key components, including security, transparency, privacy, and robustness. The proposed framework leverages cryptographic techniques and mathematical formulas to ensure the integrity and trustworthiness of the voting process. Through a rigorous analysis, we demonstrate the effectiveness of the blockchain-based e-voting system in preventing fraud, preserving privacy, and enhancing overall trust in the electoral process.

7. Decentralized voting system using block chain, may 2023:

Decentralized voting system using block chain technology and face recognition. The end is to produce a secure, transparent, and accessible voting process that ensures the integrity and delicacy of election results while icing the insulation of pickers. The system will use block chain technology to produce a decentralized and tamper-substantiation census of votes, and face recognition technology to insure that each vote is cast by an eligible name. The design aims to contribute to the ongoing sweats

to develop farther secure and accessible voting systems that enhance popular processes and cover the integrity of choices.

8. De duplication in Cloud Computing for Improvising Efficiency Towards

Potential Practical Usage, 2020:

In this System, If the duplicate of files is available on the cloud server, the application needs to map the original files to the current files that is uploaded so that the user will not get affected by the mapping but on the backend no duplicate files will be created but the files get mapped by the application, In this way the duplication files on the cloud server will be avoided thereby reducing the storage space requirement on the cloud server.

2.2 OPEN PROBLEMS IN EXISTING SYSTEM

In existing system, the Author proposed an improvisation on FOO voting scheme using smart contracts and hyper ledger fabric-based blockchain network by addressing the limitation or weakness in existing FOO voting system like third party involvement being replaced with smart contracts and others. The authors of the proposed a blockchain-based framework where verification is done through a central party. To guarantee anonymity to the voters, the system uses NIZKP for wallet generation, but there is no clear specification of how exactly NIZKP will be integrated. They also ask that the voters trust the third party for authentication/verification and wallet generation, which is a deal-breaker.

Disadvantages :

- Time consumption.
- Less security.
- Server issues happen often.

CHAPTER 3

REQUIREMENT ANALYSIS

3.1 FEASIBILITY STUDIES/RISK ANALYSIS OF THE PROJECT

Hardware requirements

System	Pentium i3 Processor.
Hard Disk	500 GB.
Monitor	15" LED
Input Devices	Keyboard, Mouse
Ram	4 GB

Software requirements

Operating system	:	Windows 10.
Coding Language	:	Java

3.2 SOFTWARE REQUIREMENTS SPECIFICATION DOCUMENT

Introduction

Java is one of the world's most important and widely used computer languages, and it has held this distinction for many years. Unlike some other computer languages whose influence has with passage of time, while Java's has grown.

Application of java

Java is widely used in every corner of world and of human life. Java is not only used in software but is also widely used in designing hardware controlling software

components. There are more than 930 million JRE downloads each year and 3 billion mobile phones run java.

- Developing Desktop Applications
- Web Applications like Linkedin.com, Snapdeal.com etc
- Mobile Operating System like Android
- Embedded Systems
- Robotics and games etc.

3.3 FEATURES OF JAVA:

The prime reason behind creation of Java was to bring portability and security feature into a computer language. Beside these two major features, there were many other features that played an important role in molding out the final form of this outstanding language. Those features are

1) Simple

Java is easy to learn and its syntax is quite simple, clean and easy to understand. The confusing and ambiguous concepts of C++ are either left out in Java or they have been re-implemented in a cleaner way.

Eg: Pointers and Operator Overloading are not there in java but were an important part of C++.

2) Object Oriented

In java everything is Object which has some data and behavior. Java can be easily extended as it is based on Object Model.

3) Robust

Java makes an effort to eliminate error prone codes by emphasizing mainly on compile time error checking and runtime checking. But the main areas which Java improved

were Memory Management and mishandled Exceptions by introducing automatic Garbage Collector and Exception Handling.

4) Platform Independent

Unlike other programming languages such as C, C++ etc. which are compiled into platform specific machines. Java is guaranteed to be write-once, run-anywhere language.

On compilation Java program is compiled into byte code. This byte code is platform independent and can be run on any machine, plus this byte code format also provide security. Any machine with Java Runtime Environment can run Java Programs.

5) Secure

When it comes to security, Java is always the first choice. With java secure features it enable us to develop virus free, temper free system. Java program always runs in Java runtime environment with almost null interaction with system OS, hence it is more secure.

6) Multi-Threading

Java multithreading feature makes it possible to write program that can do many tasks simultaneously. Benefit of multithreading is that it utilizes same memory and other resources to execute multiple threads at the same time, like While typing, grammatical errors are checked along.

7) Architectural Neutral

Compiler generates byte codes, which have nothing to do with a particular computer architecture, hence a Java program is easy to interpret on any machine.

8) Portable

Java Byte code can be carried to any platform. No implementation dependent features. Everything related to storage is predefined, example: size of primitive data types

9) High Performance

Java is an interpreted language, so it will never be as fast as a compiled language like C or C++. But, Java enables high performance with the use of just-in-time compiler.

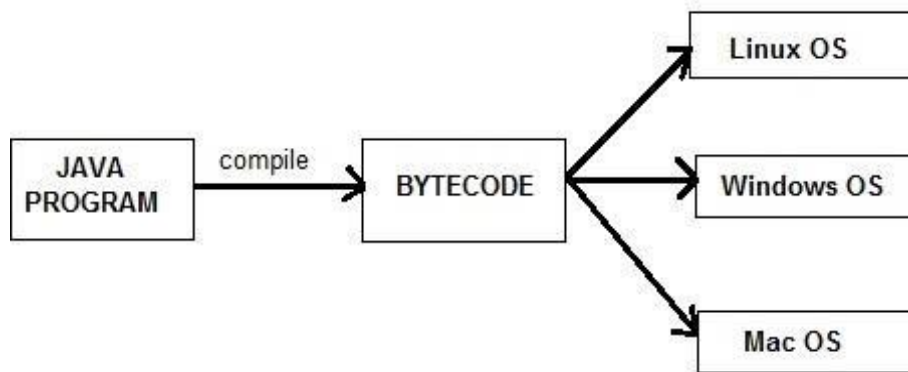


Fig 3.3 Features of java

COLLECTION FRAMEWORK:

Collection framework was not part of original Java release. Collections was added to J2SE 1.2. Prior to Java 2, Java provided ad hoc classes such as Dictionary, Vector, Stack and Properties to store and manipulate groups of objects. Collection framework provides many important classes and interfaces to collect and organize group of alike objects

3.4 FEASIBILITY STUDY

The feasibility of the project is analyzed 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. For feasibility analysis, some understanding of the major requirements for the system is essential.

3.4.1 Economical feasibility

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

3.4.2 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. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

3.4.3 Social feasibility

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

CHAPTER 4

DESCRIPTION OF PROPOSED SYSTEM

4.1 PROPOSED SYSTEM

In this system, the admin is the sole authority to manage elections, candidates and voters. Admin can also view the votes. Admin can also check if any vote is tampered, thus checking and verifying the block.

Voter can view Elections and cast their vote, also can view the winner but cannot see the winning ratio or votes etc. The system uses Blockchain technology to create a block of every vote thus protecting its identity.

Advantages :

- User friendly.
- More Enhanced compared to previous.
- Always active .
- There is know server issues.

4.2 SELECTED METHODOLOGY OR PROCESS MODEL

In this project the below list of modules shows how each method tells about the e-voting system using block chain in an individual way

.

4.2.1 Admin module

In this module, Admin having all of their credentials who all are given their details in their voting requirements, the admin manage all the candidates and voters/users at the same time admin will view the votes may some people did the tampered vote that admin find out and checking all the requirements of the voting and verifying the block using blockchain.

4.2.2 User module

In this module, Users are having authentication and security to access the detail which is presented in the ontology system. Before accessing or searching the details user should have the account in that otherwise they should register first. At the very least, you need to provide an email address, username, password, display name, and whatever profile fields you have set to required. The display name is what will be used when the system needs to display the proper name of the user.

4.2.3 Data entry module

The user/voter can see and cast their vote , even though user/voter can see the winner not to see the percentage of the winner. And it will be secure by blockchain.

4.2.4 Secure system

The block chain with smart contracts comes out as an honest process to utilize in progression of shielded, in-expensive, more firm, more transpicuous and easier-to-use electronic voting systems. Since each vote is taken as an individual block it is not possible to tamper any votes.

4.3 SYSTEM ARCHITECTURE

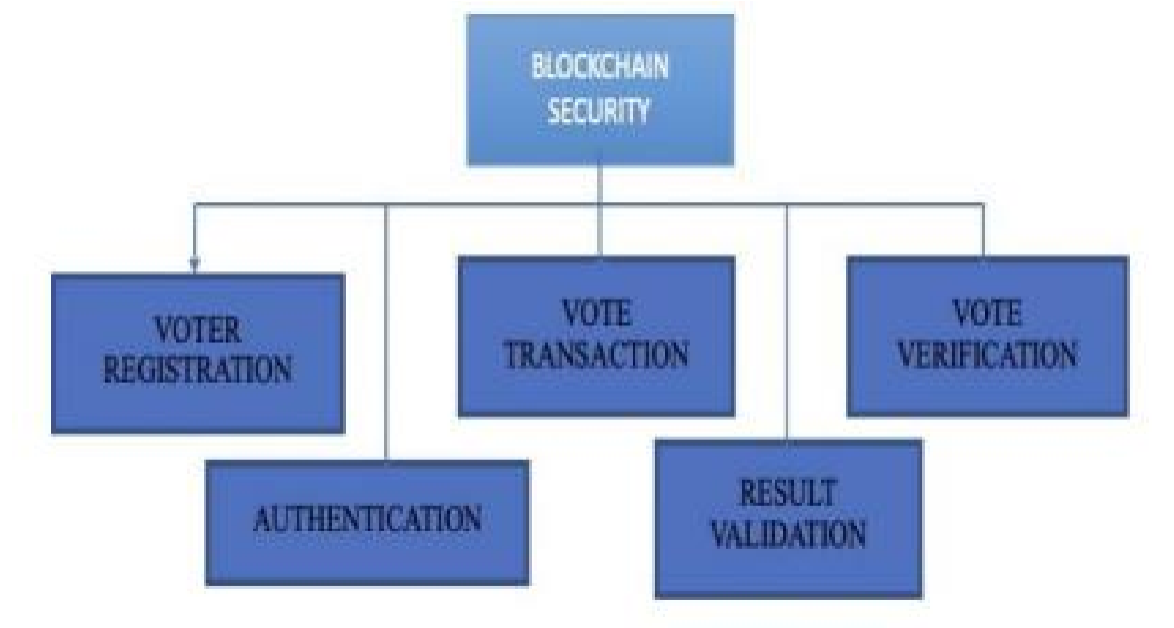


Fig 4.3 System Architecture

4.4 DATAFLOW DIAGRAM

The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.

The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.

DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.

DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail.

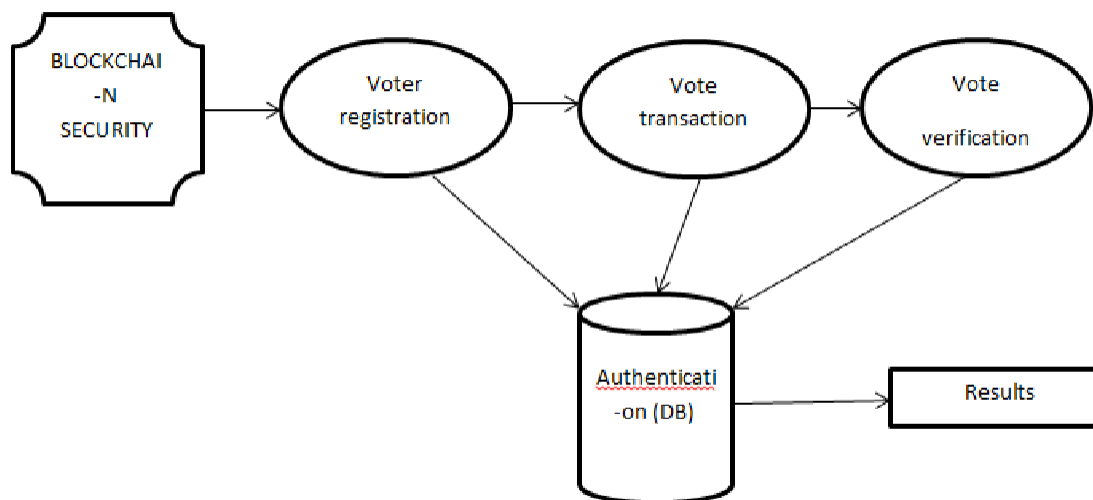


Fig 4.4 Data Flow of Bubble chart

4.5 USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

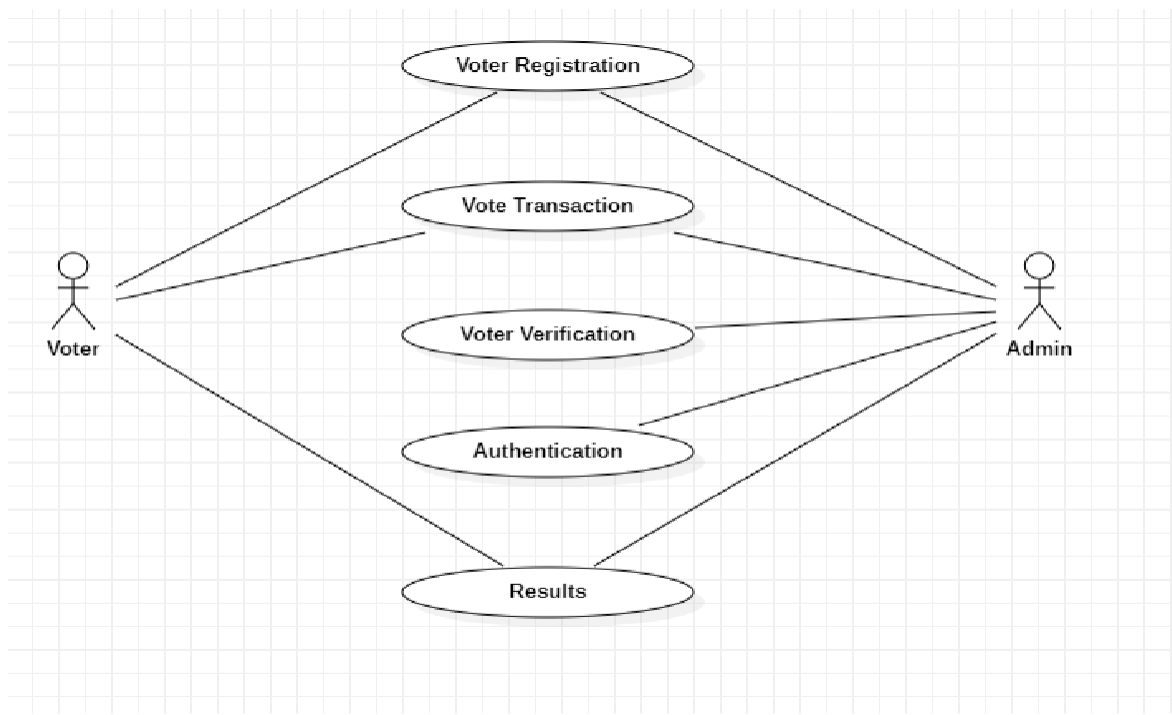


Fig 4.5 Use case diagram

4.6 SEQUENCE DIAGRAM

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

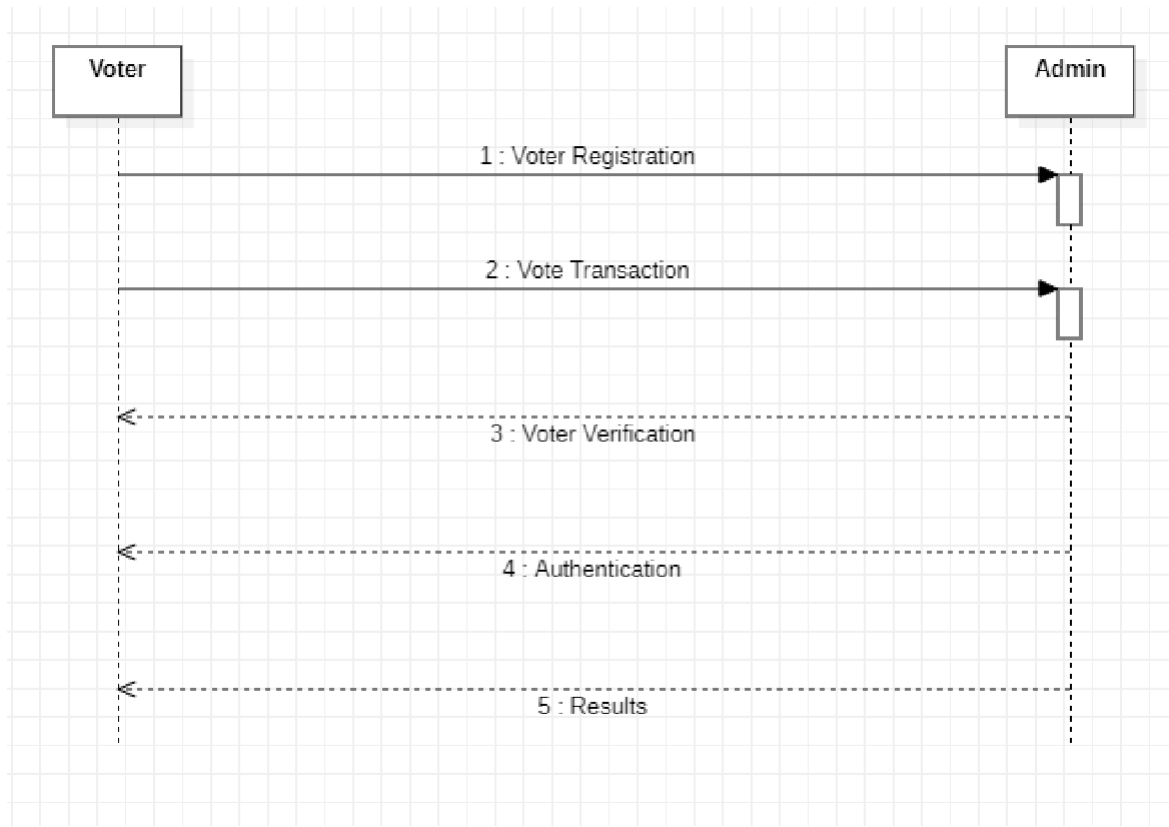


Fig 4.6 Sequence diagram

ACTIVITY DIAGRAM

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

4.7 FUNCTIONAL REQUIREMENTS

It is a technical specification requirement for the software products. It is the first step in the requirement analysis process which lists the requirements of particular software systems including functional, performance and security requirements. The function of

the system depends mainly on the quality hardware used to run the software with given functionality.

Usability

It specifies how easy the system must be use. It is easy to ask queries in any format which is short or long, porter stemming algorithm stimulates the desired response for user.

Robustness

It refers to a program that performs well not only under ordinary conditions but also under unusual conditions. It is the ability of the user to cope with errors for irrelevant queries during execution.

Security

The state of providing protected access to resource is security. The system provides good security and unauthorized users cannot access the system there by providing high security.

Reliability

It is the probability of how often the software fails. The measurement is often expressed in MTBF (Mean Time Between Failures). The requirement is needed in order to ensure that the processes work correctly and completely without being aborted. It can handle any load and survive and survive and even capable of working around any failure.

Compatibility

It is supported by version above all web browsers. Using any web servers like localhost makes the system real-time experience.

Flexibility

The flexibility of the project is provided in such a way that is has the ability to run on different environments being executed by different users.

Safety

Safety is a measure taken to prevent trouble. Every query is processed in a secured manner without letting others to know one's personal information.

4.8 NON- FUNCTIONAL REQUIREMENTS

Portability

It is the usability of the same software in different environments. The project can be run in any operating system.

Performance

These requirements determine the resources required, time interval, throughput and everything that deals with the performance of the system.

Accuracy

The result of the requesting query is very accurate and high speed of retrieving information. The degree of security provided by the system is high and effective.

Maintainability

Project is simple as further updates can be easily done without affecting its stability. Maintainability basically defines that how easy it is to maintain the system. It means that how easy it is to maintain the system, analyze, change and test the application. Maintainability of this project is simple as further updates can be easily done without affecting its stability.

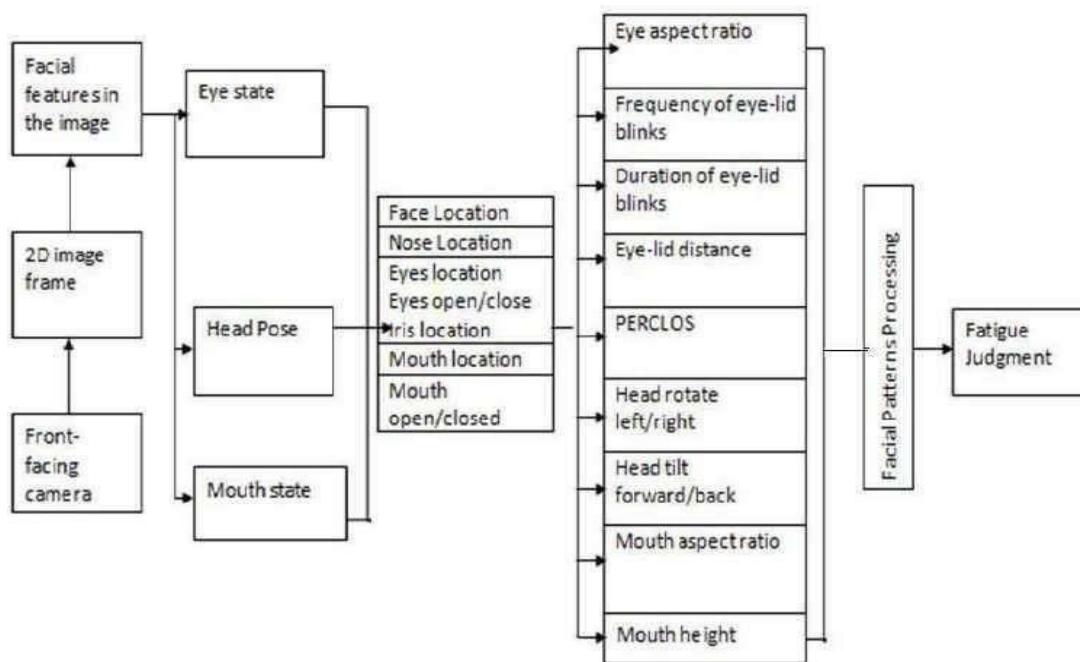


Fig 4.8 Maintainability

4.9 DESCRIPTION OF SOFTWARE FOR IMPLEMENTATION AND TESTING

PLAN OF THE PROPOSED MODEL/SYSTEM

Testing Process

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 test. 0Each test type addresses a specific testing requirement.

TYPES OF TESTS

Unit Testing

Unit testing involves the design of test cases that validate that the internal Program logic is functioning properly, and that program input produces 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 business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration Testing

Integration tests are designed to test integrated software components to determine if they actually 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.

Functional Testing

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

Functional testing is centered on the following items:

Valid Input is used to identified classes of valid input must be accepted. Invalid Input is used to identified classes of invalid input must be rejected. Functions is used to identified functions must be exercised. Output is used to identify classes of application outputs. Systems/Procedures is used to 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, and successive Processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

SYSTEM TESTING

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre Driven process links and integration points.

WHITE BOX TESTING

White Box Testing is a testing in which the software tester has knowledge of the inner workings, structure and language of the software, or at least it's purpose. It is used to test areas that cannot be reached from a black box level.

BLACK BOX TESTING

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or

requirements document, such as specification or requirement document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

1. All field entries must work properly.
2. Pages must be activated from the identified link.
3. The entry screen, messages and responses must not be delayed. Features to be tested.
4. Verify that the entries are of the correct format No duplicate entries should be allowed.
6. All links should take the user to the correct page.

INTEGRATION TESTING

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications.

ACCEPTANCE TESTING

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

ALPHA TESTING

In software development, alpha test will be a test among the teams to confirm that your product works. Originally, the term alpha test meant the first phase of testing in a software development process. The first phase includes unit testing, component testing, and system testing. It also enables us to test the product on the lowest common denominator machines to make sure download times are acceptable and preloads work.

BETA TESTING

In software development, a beta test is the second phase of software testing in which a sampling of the intended audience tries the product out. Beta testing can be considered "pre-release testing." Beta test versions of software are now distributed to curriculum specialists and teachers to give the program a "real world" test.

CHAPTER 5

IMPLEMENTATION DETAILS

Setting up the Blockchain Network: You'll need to choose a suitable blockchain platform for your e-voting system. Ethereum, Hyperledger Fabric, and EOS are among the popular choices. This network will serve as the underlying infrastructure for recording and verifying votes.

Voter Registration: Before an election, voters need to be registered on the blockchain network. Each eligible voter would have a unique identifier (e.g., a cryptographic key pair) associated with them. This ensures that only authorized individuals can participate in the voting process.

Voting Process: When it's time to vote, voters can access the e-voting platform, which would be a user-friendly interface connected to the blockchain network. They would use their cryptographic key to securely cast their votes. The votes are then encrypted and stored on the blockchain, ensuring transparency and immutability.

Smart Contracts: Smart contracts are self-executing contracts with the terms of the agreement directly written into code. In the context of e-voting, smart contracts can be used to automate various aspects of the voting process, such as verifying voter eligibility, tallying votes, and ensuring that each voter can only cast one vote.

Privacy and Anonymity: While the blockchain ensures transparency and integrity, preserving voter privacy is crucial. Techniques such as zero-knowledge proofs or ring

signatures can be employed to allow votes to be counted without revealing the identity of the voter.

Vote Tallying and Verification: Once the voting period ends, the votes are tallied using the data stored on the blockchain. Since the blockchain is immutable, the integrity of the voting process can be verified by anyone, ensuring trust in the election results.

Auditing and Transparency: One of the main advantages of blockchain-based e-voting is the transparency it provides. Anyone can audit the voting process by examining the blockchain data, ensuring that the election was conducted fairly and accurately.

Security Measures: Strong cryptographic techniques and consensus mechanisms are essential to secure the e-voting system against attacks. Regular security audits and testing should be conducted to identify and address any vulnerabilities.

Regulatory Compliance: Ensure that the e-voting system complies with relevant regulations and laws governing elections in your jurisdiction. This may include data protection laws, regulations on electronic voting systems, and compliance with election procedures.

User Education and Adoption: To ensure the success of the e-voting system, it's essential to educate voters about how to use the platform securely and encourage their adoption. Providing clear instructions and support can help increase voter confidence in the system.

CHAPTER 6

RESULTS AND DISCUSSION

A set of snap shots turned into taken for evaluation. The collection of those files is contained in folders with one-of-a-kind extensions. There are duplicate documents within the folder. A sample set of 580 rows and six columns is considered. The desk under suggests the folder length earlier than and after discount.

Only directors have rights in this putting they manage elections, applicants and votes. Administration you also can see the votes. Admin exams that too every time period has inverse, so test and prove as a way to prevent a voter also can view elections and vote. You can see the winner however no longer the victory like machine or vote. uses device blockading. The method of recording every word in this way keep your identity safe. In this voting shows the home page of the e-voting system using block chain where it shows the home page, login citizen, new register, admin and contact us for helping user guidelines.

CHAPTER 7

CONCLUSIONS

This provides a deductive idea of logo identification. Protects statistics protection among unique consumer privileges in reproduction check there also are numerous new deductive structures that we have delivered. Recognizes reproduction authentication in hybrid cloud architectures that comprise duplicates information files are created by way of non-public cloud servers with personal keys. Security analysis indicates that our packages are comfortable from insiders and outsiders. Typical assault proposed protection model. For proof of concept, we a version of our proposed authority turned into implemented to re-study the proposed and conduct bench testing on our prototype. We have proved our right the dual injection machine requires minimum overhead in comparison to essential encryption and become brought to the network.

REFERENCES

- [1] CeerthiBala U.K, Sarath TV, Internet of things based Intelligent Drowsiness Alert System, Fifth International Conference on Communication and Electronics Systems (ICCES2020).
- [2] Joao Ruivo Paulo, Gabriel Pires, and Urbano J. Nunes, Cross-Subject Zero Calibration Driver's Drowsiness Detection: Exploring Spatiotemporal Image Encoding of EEG Signals for CNNClassification.
- [3] Mika Sunagawa, Shin-ichi-Shikii, WataruNakai, Makoto Mochizuki, Koichi Kusakame, and Hiroki Kitajima, Comprehensive Drowsiness Level Detection Model Combining MultimodalInformation.
- [4] Monagi H. Alkinani, Wazir Zada Khan, and Quratulain Arshad, Detecting Human Driver Inattentive and Aggressive Driving Behaviour using Deep Learning: Recent Advances, Requirements, and OpenChallenges.
- [5] MkhuseleNgxande, Jules-Raymond Tapamo and Michael Burke, Driver drowsiness detection using Behavioural measures and Machine Learning Techniques: A review of state-of-arttechniques.
- [6] Naveen SenniappanKaruppusamy, Bo-Yeong Kang, Multimodal System to Detect Driver Fatigue using EEG, Gyroscope, and ImageProcessing.
- [7] Rateb Jabbar, Mohammed Shinoy, Mohamed Kharbeche, Khalifa Al-Khalifa, MoezKrichen, Kamel Barkaoui, Driver Drowsiness Detection Model using CNN Techniques for AndroidApp.
- [8] Dr. K.S. Tiwari, Supriya Bhagat, Nikita Patil, Priya Nagare, IOT Based Driver Drowsiness Detection&Health MonitoringSystem.
- [9] Yaocong Hu, Mingqi Lu, Chao Xie, and Xiabo Lu, Driver Drowsiness Recognition via 3D Conditional GAN and Two-level AttentionBiLSTM.

[10] Md. Yousuf Hossain, Fabian Parsia George, IOT based Real-time Drowsy Driving Detection System for the Prevention of RoadAccidents.

[11] Bhavani Thuraisingham “Blockchain Technologies and their Applications in DataScience and Cyber Security”, 3rd International Conference on Smart BlockChain (SmartBlock) (2020).

[12] LinHao Bai, LuoHui Liu, “Research on Software Defined Network Security ModelBased on Blockchain”, 2021 IEEE 6th International Conference on Intelligent Computing and Signal Processing (ICSP 2021).

[13] S. Semenzin, D. Rozas, and S. Hassan, “Blockchain-based application at a governmental level: Disruption or illusion? The case of Estonia,” Policy Soc., vol. 41, no. 3, pp. 386–401, 2022.

[14] A. Ojo and S. Adebayo, “Blockchain as a next generation government information infrastructure: A review of initiatives in D5 countries,” in Government 3.0—Next Generation Government Technology Infrastructure and Services. 2017, pp. 283–298.

[15] M. Goede, “E-Estonia: The E-government cases of Estonia, Singapore, andCuraçao,” Arch. Bus. Res., vol. 7, no. 2, pp. 1–13, 2019.

[16] D. Springall, T. Finkenauer, Z. Durumeric, J. Kitcat, H. Hursti, M. MacAlpine, and J. A. Halderman, “Security analysis of the Estonian internet voting system,” in Proc. ACM SIGSAC Conf. Comput. Commun. Secur., Nov. 2014, pp. 703–715.

[17] M. Jun, “Blockchain government—A next form of infrastructure for the twenty-first century,” J. Open Innov., Technol., Market, Complex., vol. 4, no. 1, p. 7, 2018.

[18] M. M. Olembo, P. Schmidt, and M. Volkamer, “Introducing verifiability in the POLYAS remote electronic voting system,” in Proc. 6th Int. Conf. Availability, Rel. Secur., Aug. 2011, pp. 127–134.

- [19] D. Y. Marcos del Blanco and M. Gasco, "A protocolized, comparative study of helios voting and Scytl/iVote," in Proc. 6th Int. Conf. eDemocracy eGovernment (ICEDEG), Apr. 2019, pp. 31–38.
- [20] M. D. Castillo. (Feb. 2018). Russia is Leading the Push for Blockchain Democracy. [Online]. Available: <https://www.coindesk.com/markets/2018/02/21/russia-is-leading-the-push-for-blockchain-democracy/>
- [21] E. Akcagündüz, "Can blockchain technology increase participation in local governments? A review on blockchain-based voting systems in local governments," R&S-Res. Stud. Anatolia J., vol. 5, no. 1, pp. 121–147, Jan. 2022.
- [22] D. Di Francesco Maesa and P. Mori, "Blockchain 3.0 applications survey," J. Parallel Distrib. Comput., vol. 138, pp. 99–114, Apr. 2020. [142] S. Panja, S. Bag, F. Hao, and B. Roy, "A smart contract system for decentralized Borda count voting," IEEE Trans. Eng. Manag., vol. 67, no. 4, pp. 1323–1339, Nov. 2020. [143] (2022). Polys Blockchain-the Technology for 21st Century Elections. [Online]. Available: <https://polys.vote/blockchain>
- [23] Bhavani Thuraisingham "Blockchain Technologies and their Applications in DataScience and Cyber Security", 3rd International Conference on Smart Blockchain (SmartBlock) (2020).
- [24] LinHao Bai, LuoHui Liu, "Research on Software Defined Network Security ModelBased on Blockchain", 2021 IEEE 6th International Conference on Intelligent Computing and Signal Processing (ICSP 2021
- [25] S. Semenzin, D. Rozas, and S. Hassan, "Blockchain-based application at a governmental level: Disruption or illusion? The case of Estonia," Policy Soc., vol. 41, no. 3, pp. 386–401, 2022. A. Ojo and S. Adebayo, "Blockchain as a next generation government information infrastructure: A review of initiatives in D5 countries," in Government 3.0—Next Generation Government Technology Infrastructure and Services. 2017, pp. 283–29

APPENDIX

A.SOURCE CODE

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.*;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 *
 * @author ADMIN
 */
@WebServlet(urlPatterns = {"/Admin"})
public class Admin extends HttpServlet {

    /**
     * Processes requests for both HTTP
     <code>GET</code> and <code>POST</code>
     * methods.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error
     occurs
```

```

    * @throws IOException if an I/O error occurs
    */

    protected void processRequest(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");

        String a,b;

        a=request.getParameter("name");
        b=request.getParameter("password");

        try
        {
            Class.forName("com.mysql.jdbc.Driver");

            Connection
con=DriverManager.getConnection("jdbc:mysql://localhost/online","root","root");

            PreparedStatement
query=con.prepareStatement("select * from admin where
name='"+a+"' and password='"+b+"' ");

            ResultSet rs=query.executeQuery();

            if(rs.next())
            {
                String c=rs.getString("name");

                request.getSession(true).setAttribute("temp1", c);

                PrintWriter out =
response.getWriter();

                out.println("<script

```

```

type=\"text/javascript\">");
                                out.println("alert(\"Welcome
Mr.\"+a+\"\\)\");
                                out.println("</script>");

                                RequestDispatcher
rd=request.getRequestDispatcher("adminhome.jsp");
                                rd.include(request,response);
                                }
                                else
                                {
                                    PrintWriter out =
response.getWriter();
                                    out.println("<script
type=\"text/javascript\">");
                                    out.println("alert(\"Sorry
Mr.\"+a+\"\\)\");
                                    out.println("</script>");

                                    RequestDispatcher
rd=request.getRequestDispatcher("admin.jsp");
                                    rd.include(request,response);
                                    }

                                }
                                catch (ClassNotFoundException e)
                                {
                                    // TODO Auto-generated catch block

```

```

        e.printStackTrace();
    }
    catch (SQLException e)
    {
        // TODO Auto-generated catch block
        e.printStackTrace();
    }
}

```

```
package java.lang;
```

```

import java.lang.ref.Reference;
import java.lang.ref.ReferenceQueue;
import java.lang.ref.WeakReference;
import java.security.AccessController;
import java.security.AccessControlContext;
import java.security.PrivilegedAction;
import java.util.Map;
import java.util.HashMap;
import java.util.concurrent.ConcurrentHashMap;
import java.util.concurrent.ConcurrentMap;
import java.util.concurrent.locks.LockSupport;

import jdk.internal.misc.TerminatingThreadLocal;
import sun.nio.ch.Interruptible;
import sun.reflect.CallerSensitive;
import sun.reflect.Reflection;
import sun.security.util.SecurityConstants;

```

/**

- * A `Thread` is a thread of execution in a program. The Java
- * Virtual Machine allows an application to have multiple threads of
- * execution running concurrently.
- *
- * Every thread has a priority. Threads with higher priority are
- * executed in preference to threads with lower priority. Each thread
- * may or may not also be marked as a daemon. When code running in
- * some thread creates a new `Thread` object, the new
- * thread has its priority initially set equal to the priority of the
- * creating thread, and is a daemon thread if and only if the
- * creating thread is a daemon.
- *
- * When a Java Virtual Machine starts up, there is usually a single
- * non-daemon thread (which typically calls the method named
- * `main` of some designated class). The Java Virtual
- * Machine continues to execute threads until either of the following
- * occurs:
- *
 - * - The `exit` method of class `Runtime` has been
 - * called and the security manager has permitted the exit operation
 - * to take place.
 - * All threads that are not daemon threads have died, either by
 - * returning from the call to the `run` method or by
 - * throwing an exception that propagates beyond the `run`

* method.

*

* $\langle p \rangle$

* There are two ways to create a new thread of execution. One is to

- * declare a class to be a subclass of `Thread`. This

* subclass should override the `run` method of class

* `Thread`. An instance of the subclass can then be

* allocated and started. For example, a thread that computes primes

* larger than a stated value could be written as follows:

* `<hr><blockquote><pre>`

```
* class PrimeThread extends Thread {
```

```
* long minPrime;
```

```
* PrimeThread(long minPrime) {
```

```
*      this.minPrime = minPrime;
```

$$\ast \quad \}$$

*

```
* public void run() {
```

```
* // compute primes larger than minPrime
```

[illegible]
$$\ast \quad \}$$
$$* \quad \}$$

* <p>

* The following code would then create a thread and start it running:

* <blockquote><pre>

```
* PrimeThread p = new PrimeThread(143);
```

```
* p.start();
```



```

* <p>
* Every thread has a name for identification purposes. More than
* one thread may have the same name. If a name is not specified when
* a thread is created, a new name is generated for it.
* <p>
* Unless otherwise noted, passing a {@code null} argument to a constructor
* or method in this class will cause a {@link NullPointerException} to be
* thrown.
*
* @author unascrbed
* @see    Runnable
* @see    Runtime#exit(int)
* @see    #run()
* @see    #stop()
* @since  JDK1.0
*/

public
class Thread implements Runnable {
    /* Make sure registerNatives is the first thing <clinit> does. */
    private static native void registerNatives();

    static {
        registerNatives();
    }

    private volatile String name;
    private int          priority;
    private Thread       threadQ;

```

```

private long      eetop;

/* Whether or not to single_step this thread. */
private boolean   single_step;

/* Whether or not the thread is a daemon thread. */
private boolean   daemon = false;

/* JVM state */
private boolean   stillborn = false;

/* What will be run. */
private Runnable target;

/* The group of this thread */
private ThreadGroup group;

/* The context ClassLoader for this thread */
private ClassLoader contextClassLoader;

/* The inherited AccessControlContext of this thread */
private AccessControlContext inheritedAccessControlContext;

/* For autonumbering anonymous threads. */
private static int threadInitNumber;

private static synchronized int nextThreadNum() {
    return threadInitNumber++;
}

```

```
}
```

```
/* ThreadLocal values pertaining to this thread. This map is maintained  
 * by the ThreadLocal class. */
```

```
ThreadLocal.ThreadLocalMap threadLocals = null;
```

```
/*
```

```
 * InheritableThreadLocal values pertaining to this thread. This map is  
 * maintained by the InheritableThreadLocal class.
```

```
*/
```

```
ThreadLocal.ThreadLocalMap inheritableThreadLocals = null;
```

```
/*
```

```
 * The requested stack size for this thread, or 0 if the creator did  
 * not specify a stack size. It is up to the VM to do whatever it  
 * likes with this number; some VMs will ignore it.
```

```
*/
```

```
private long stackSize;
```

```
/*
```

```
 * JVM-private state that persists after native thread termination.
```

```
*/
```

```
private long nativeParkEventPointer;
```

```
/*
```

```
 * Thread ID
```

```
*/
```

```

private long tid;

/* For generating thread ID */
private static long threadSeqNumber;

/* Java thread status for tools,
 * initialized to indicate thread 'not yet started'
 */

private volatile int threadStatus = 0;

private static synchronized long nextThreadID() {
    return ++threadSeqNumber;
}

/**
 * The argument supplied to the current call to
 * java.util.concurrent.locks.LockSupport.park.
 * Set by (private) java.util.concurrent.locks.LockSupport.setBlocker
 * Accessed using java.util.concurrent.locks.LockSupport.getBlocker
 */
volatile Object parkBlocker;

/* The object in which this thread is blocked in an interruptible I/O
 * operation, if any. The blocker's interrupt method should be invoked
 * after setting this thread's interrupt status.

```

```

*/

private volatile Interruptible blocker;

private final Object blockerLock = new Object();

/* Set the blocker field; invoked via sun.misc.SharedSecrets from java.nio code
*/

void blockedOn(Interruptible b) {
    synchronized (blockerLock) {
        blocker = b;
    }
}

/**
 * The minimum priority that a thread can have.
 */
public final static int MIN_PRIORITY = 1;

/**
 * The default priority that is assigned to a thread.
 */
public final static int NORM_PRIORITY = 5;

/**
 * The maximum priority that a thread can have.
 */
public final static int MAX_PRIORITY = 10;

```

```

/**
 * Returns a reference to the currently executing thread object.
 *
 * @return the currently executing thread.
 */
public static native Thread currentThread();

```

```

/**
 * A hint to the scheduler that the current thread is willing to yield
 * its current use of a processor. The scheduler is free to ignore this
 * hint.
 *
 * <p> Yield is a heuristic attempt to improve relative progression
 * between threads that would otherwise over-utilise a CPU. Its use
 * should be combined with detailed profiling and benchmarking to
 * ensure that it actually has the desired effect.
 *
 * <p> It is rarely appropriate to use this method. It may be useful
 * for debugging or testing purposes, where it may help to reproduce
 * bugs due to race conditions. It may also be useful when designing
 * concurrency control constructs such as the ones in the
 * {@link java.util.concurrent.locks} package.
 */
public static native void yield();

```

```

/**
 * Causes the currently executing thread to sleep (temporarily cease

```

* execution) for the specified number of milliseconds, subject to
* the precision and accuracy of system timers and schedulers. The thread
* does not lose ownership of any monitors.

*

* @param millis

* the length of time to sleep in milliseconds

*

* @throws IllegalArgumentException

* if the value of {@code millis} is negative

*

* @throws InterruptedException

* if any thread has interrupted the current thread. The

* *interrupted status* of the current thread is

* cleared when this exception is thrown.

*/

public static native void sleep(long millis) throws InterruptedException;

/**

* Causes the currently executing thread to sleep (temporarily cease
* execution) for the specified number of milliseconds plus the specified
* number of nanoseconds, subject to the precision and accuracy of system
* timers and schedulers. The thread does not lose ownership of any
* monitors.

*

* @param millis

* the length of time to sleep in milliseconds

*

```

* @param nanos
*      {@code 0-999999} additional nanoseconds to sleep
*
* @throws IllegalArgumentException
*      if the value of {@code millis} is negative, or the value of
*      {@code nanos} is not in the range {@code 0-999999}
*
* @throws InterruptedException
*      if any thread has interrupted the current thread. The
*      <i>interrupted status</i> of the current thread is
*      cleared when this exception is thrown.
*/
public static void sleep(long millis, int nanos)
throws InterruptedException {
    if (millis < 0) {
        throw new IllegalArgumentException("timeout value is negative");
    }

    if (nanos < 0 || nanos > 999999) {
        throw new IllegalArgumentException(
            "nanosecond timeout value out of range");
    }

    if (nanos >= 500000 || (nanos != 0 && millis == 0)) {
        millis++;
    }
}

```

```

        sleep(millis);
    }

    /**
     * Initializes a Thread with the current AccessControlContext.
     * @see
     * #init(ThreadGroup,Runnable,String,long,AccessControlContext,boolean)
     */
    private void init(ThreadGroup g, Runnable target, String name,
                      long stackSize) {
        init(g, target, name, stackSize, null, true);
    }

    private void init(ThreadGroup g, Runnable target, String name,
                      long stackSize, AccessControlContext acc,
                      boolean inheritThreadLocals) {
        if (name == null) {
            throw new NullPointerException("name cannot be null");
        }

        this.name = name;

        Thread parent = currentThread();
        SecurityManager security = System.getSecurityManager();
        if (g == null) {
            /* Determine if it's an applet or not */

            /* If there is a security manager, ask the security manager

```

```

        what to do. */
    if (security != null) {
        g = security.getThreadGroup();
    }

    /* If the security doesn't have a strong opinion of the matter
       use the parent thread group. */
    if (g == null) {
        g = parent.getThreadGroup();
    }
}

/* checkAccess regardless of whether or not threadgroup is
   explicitly passed in. */
g.checkAccess();

/*
 * Do we have the required permissions?
 */
if (security != null) {
    if (isCCLOverridden(getClass())) {
security.checkPermission(SUBCLASS_IMPLEMENTATION_PERMISSION);
    }
}

g.addUnstarted();

```

```

this.group = g;
this.daemon = parent.isDaemon();
this.priority = parent.getPriority();
if (security == null || isCCLOverridden(parent.getClass()))
    this.contextClassLoader = parent.getContextClassLoader();
else
    this.contextClassLoader = parent.contextClassLoader;
this.inheritedAccessControlContext =
    acc != null ? acc : AccessController.getContext();
this.target = target;
setPriority(priority);
if (inheritThreadLocals && parent.inheritableThreadLocals != null)
    this.inheritableThreadLocals =
        ThreadLocal.createInheritedMap(parent.inheritableThreadLocals);
/* Stash the specified stack size in case the VM cares */
this.stackSize = stackSize;

/* Set thread ID */
tid = nextThreadID();
}

```

B. SCREENSHOTS



Fig B.1 Home page

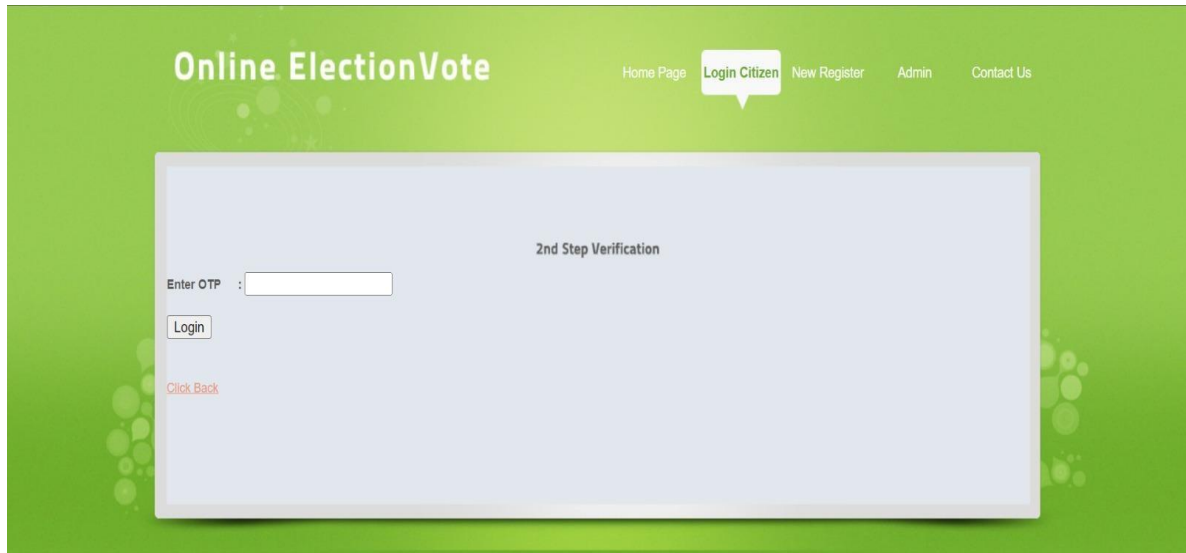


Fig B.2 Login citizen

Register To The Your Aadhaar

This is website is vote for the Tamil nadu government using local election in used for the new technology in the online service

Aadhaar Number

Name

Password

Date of Birth

Citizen New Registration for the Tamil Nadu Election

Gender

Finger Print

Choose File No file chosen

Address

Mobile

Mail:

Fig B.3 Registration

Admin View Added All Place and Party

Id	Candidate Name	Party Place	Party Symbols	Party Post	Party Name
1	Mohan	Mayiladuthurai		MLA	DMK
6	Jeevanantham	Mayiladuthurai		MLA	ADMK
7	sathya	vadapalani		MLA	DLK
8	Modi	Dehli		PM	BJP

Fig B.4 Admin view

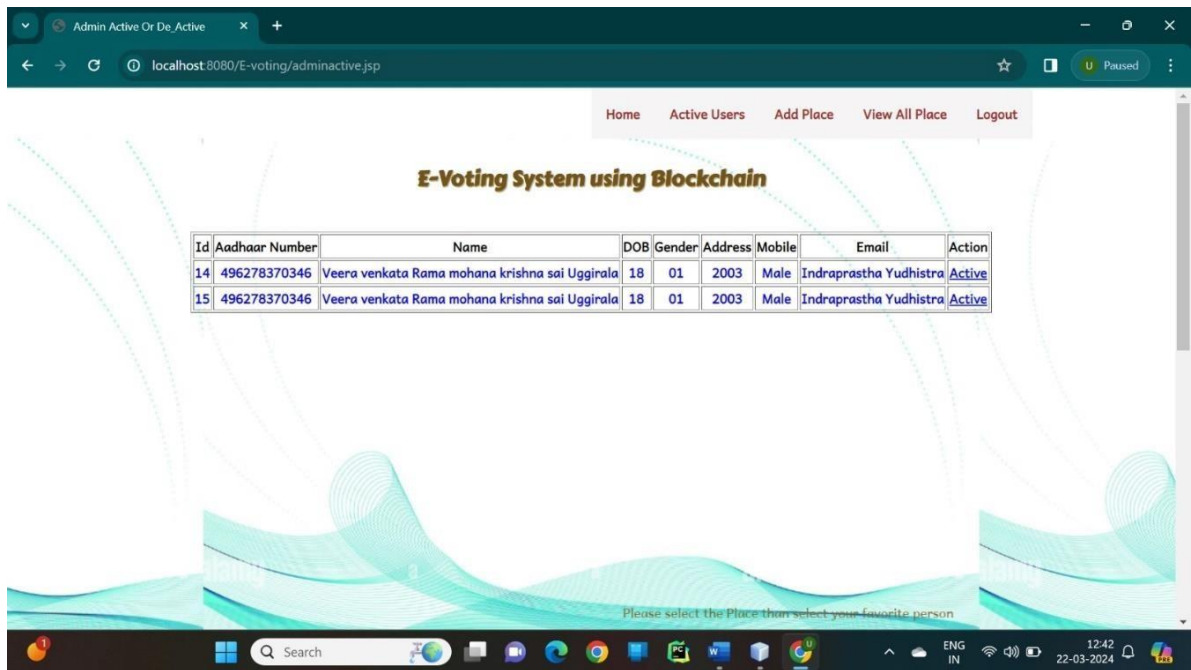


Fig B.5 Admin Active or Deactivate users

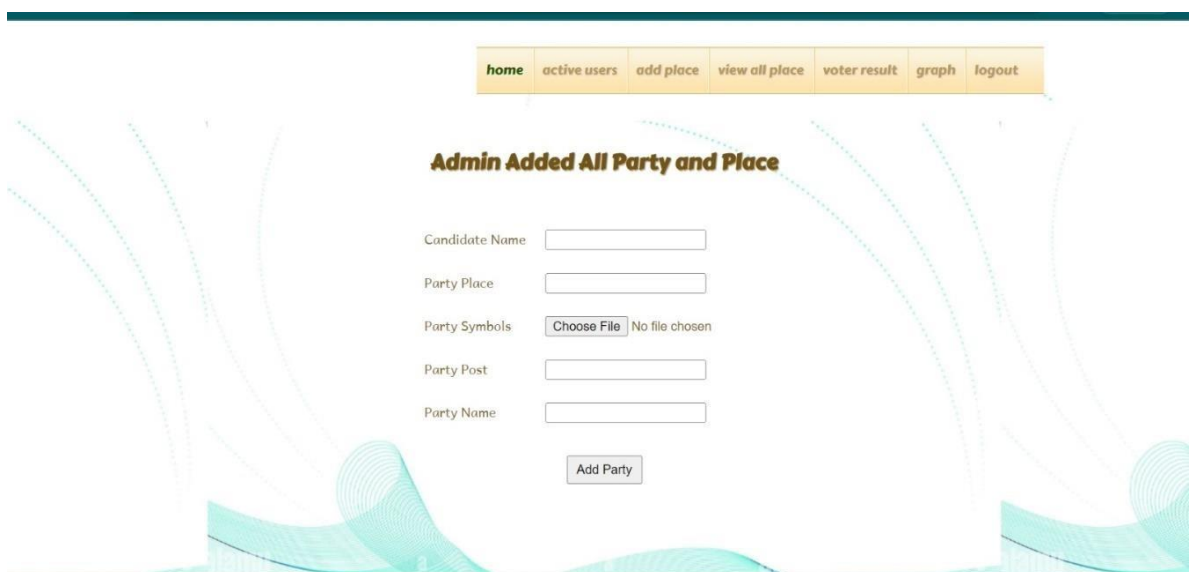


Fig B.6 All Party and Places

C. RESEARCH PAPER

E- VOTING SYSTEM USING BLOCK CHAIN

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Abstract:- Voting is a way of taking collective selections with the aid of a group of human beings. Your comment or opinion for the agreement. The final results of the referendum should have extreme effects. Integrity should be maintained in this kind of way that there is no difference fraud or fraud in balloting. This is very It is critical that the voting is honest and impartial. This electronic voting machine is designed to eliminate all possibilities of fraud and enhance the reliability and credibility of voting. This purpose consists of things, viz. Administrators and Senior (Users). When electorate log in the usage of their valid username and password, they could view the upcoming elections and look at the applicants contesting the elections. Users can test the effects after the election is over. The device additionally indicates how a lot a user's likes have been shared. On the other hand, the administrator of the software can view the listing of contesting applicants, voter listing and voter list. Since it stores facts the use of a system lock, it's far very at ease and can be effortlessly checked for symptoms of tampering and misuse.

KEYWORDS: Industries, Law, Instruments, Sociology, Block chains, Security, Electronic voting.

INTRODUCTION

Electronic voting structures have been the concern of energetic research for many years. It is critical to make choices at the same time as making sure equity of choice security, privacy and compliance necessities . Instead of traditional pen and paper the new election system has the capability to prevent antique irregularities. The procedure is monitored and confirmed . A barrier, immutable, unbreakable; public records this new technology has three major functions: i) Immutability: Any target the "new volume" in the registry should consult with the older model of the registry. He has finished it takes its call from an immutable chain, block chain, that forestalls unauthorized get admission to integrity of beyond facts. Second. It is copied and disbursed at many locations. It provides availability (*due to) does not involve a unmarried factor of failure) and presents 1/3-party verification with all lymph nodes to keep a steady version of the registry. Distributed Consent: Distribution A consensus protocol determines who can add the following new transaction to the post. A majority of community nodes must attain consensus before a new block can be proposed. The entries have grow to be a permanent part

expected brief description Therefore, the intervention of generation is many, which incorporates for us, it's going to have massive capacity as a device for imposing a new contemporary balloting procedure. this article evaluates using segmentation as a carrier to enable electronic voting. (Electronic Voting). The following have been introduced to the authentic paper:

- (i) It is proposed. A block chain-based digital balloting gadget that uses a “permissioned block chain” and
- (ii) Verification: The present block chain device is suitable for growing a restaurantprimarily based digital vote casting machine.

Our principal purpose is to layout and increase on-line software. The voting system is primarily based on block chain era which enables keep it relaxed. Election, election, election. With virtual platforms, they do away with the want voting the use of paper or in person. They too protect the integrity of your citizens by using denying them the opportunity to vote vote multiple instances. Electronic voting has foremost blessings over paper vote casting. Settings to boom and decrease performance and errors. Electronics the intention of voting systems is to maximize the participation of users by way of permitting them to take part Vote from any device, everywhere with an Internet connection. Block chain is a brand new, decentralized and distributed generation. Various enhancements are promised along side a stronger cryptographic basis features of many industries. Extending electronic voting to block chain technology can be the solution to cutting-edge problems Electronic voting. Here we propose a way based totally balloting block curb voter fraud and make the vote casting procedure simple and secure useful.

Sanitization in cloud computing for progressed performance for capability sensible use

In this machine, if there are reproduction documents at the cloud server, the software matches the digital documents connected to the unique files, therefore now not affecting the consumer's documents, however there are not any reproduction documents within the historical past. Created, however files do not healthy the utility. This manner, you could keep away from having files copied to the cloud server, thereby decreasing the storage area required at the cloud server.

Secure information extraction using 2PVC algorithm in net services/en. Amuda1, Dr. S Sujatha/2017

We propose a number of strict coverage consistency controls and numerous enforcement procedures to bolster the credibility of companies in managing Internet services.

Data Deduplication in Cloud Storage with Object Management / Nandana Guttapan / 2020

The deductive approach is maximum beneficial whilst more than one users store the equal outsourced statistics. This time we are talking approximately protection and assets. Proof of ownership technology allows everybody who owns the equal statistics to show that the data on a cloud garage server is theirs. Many customers may additionally encrypt their information before transferring it to cloud garage to maintain privacy, but the inconsistent nature of encryption makes it tough to duplicate.

Database management and data garage optimization using records deduplication and cloud computing

The gadget is designed to be cheap and scalable. The objective of this venture is to broaden an Android utility that shops simplest personal content material and excluded documents from a subject-accessible server.

Efficient Data Deduplication and Key Aggregation Encryption System in Cloud / Dr. MK Jayanti, B. Srivapavi, P.V. Naga Saitya, Y. Harshitha Reddy/2020

A undertaking device for a situation wherein a cloud service may additionally lessen the quantity of statistics retrieved. Relevant records is furnished to facts users. Data is blanketed from undesirable disclosure and unauthorized get right of entry to by means of installing vicinity suitable manipulate mechanisms. The purpose of authorizing information harvesting is to make sure facts safety and save you unauthorized access. Doubling the encryption level saves extra memory and may be used more correctly.

EXISTING SYSTEM

In the existing machine, the writer cautioned intelligent foo polling system upgrade contracts and block chain based totally on hyper-ledger addressing network, obstacles or vulnerabilities the modern foo vote casting gadget is much like 0.33 events partnerships had been replaced by way of purchaser contracts other. Authors recommend block chain era the structure wherein verification is performed the company will assure the anonymity of the party voter. it uses nizkp to create a pockets, however it isn't obvious a description of how nihcp could be correctly coordinated. they additionally ask voters to believe third events. Authentication/verification and wallet creation that's a deal breaker.

ADVANTAGES

- A consumer cannot confirm voter statistics
- Voices aren't jointly distinct
- The block is used for balloting

DISADVANTAGES

- Possibility of candidates or veterans getting their tickets cut.
- Not every veterinarian has get right of entry to to a network or computer.
- Voters can also vote by means of visiting polling stations within the country.

PROPOSED SYSTEM

Only directors have rights in this putting they manage elections, applicants and votes. Administration you also can see the votes. Admin exams that too every time period has inverse, so test and prove as a way to prevent a voter also can view elections and vote. You can see the winner however no longer the victory like machine or vote. uses device blockading. The method of recording every word in this way keep your identity.

BLOCK DIAGRAM

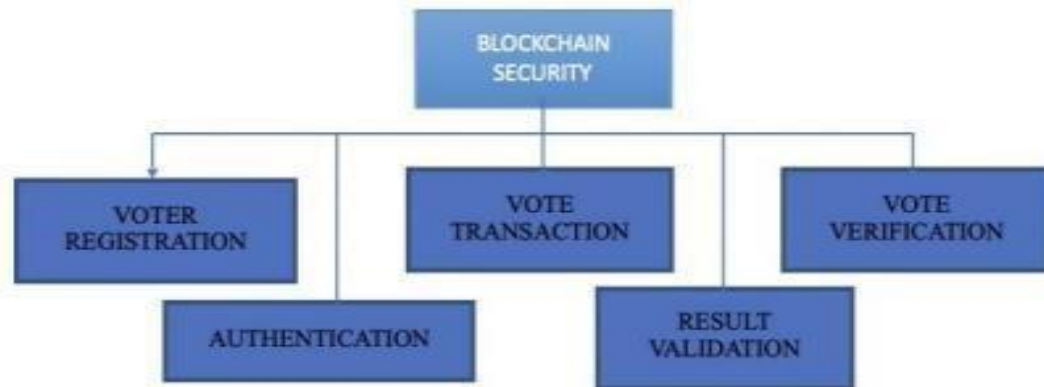


Fig 1:Block Diagram

METHODS

- Administrative Block
- Custom Block
- Records Entry Module
- At Ease System

Administrative Block:In this module the administrator lists all his files and information in reporting necessities. Admin manages all the applicants and balloting customers collectively. An administrator will evaluation the votes. The administrator involves realize that a few votes might also have been tampered with. Reviewing all important ballots and proving that the ultimate has closed.

Custom Block:In this module, users are subjected to authentication and protection to get right of entry to the info furnished in the ontology gadget. Before gaining access to or querying statistics, a consumer need to have an account, in any other case they need to first sign in. At a minimum, you will want to provide an e-mail cope with, username, password, display name, and any other fields you decide as needed. Display call is used whilst the gadget call refers to the person's own requirement.

Records Entry Module:User/vote can view and vote, but person/vote can see the winner but now not the **share** of winner. And it's miles safe to use the block.

At Ease System:Block chain with clever contracts is a honest technique used to makeelectronic balloting systems comfortable, cheap, reliable, transparent, and clean to use. Votes cannot be recorded due to the fact each vote is processed as a separate block.

Conducting a literature survey stands as a crucial initial phase within the software development process. It is imperative to ascertain factors such as time constraints, economic considerations, and the company's capabilities before initiating tool development. Subsequently, determining the appropriate operating system and programming language becomes paramount. As programmers commence tool construction, they often require substantial external support, which may come from senior colleagues, literature sources, or online resources. These considerations lay the groundwork for the proposed system's development. Indeed,

comprehensive scrutiny of project requisites is integral to the project development domain. Every project necessitates a meticulous literature survey as a cornerstone in its software development journey. Preceding tool development and associated design, meticulous assessment of time, resource, manpower, economic factors, and organizational strength is indispensable. Only upon thorough evaluation and satisfaction of these prerequisites can decisions regarding software specifications, such as the required operating system and necessary software components, be made, thus advancing to subsequent stages of tool development and associated operations.



Fig 2: E-Voting System Using BlockChain

REQUIREMENT ANALYSIS

Requirement analysis, also known as requirement engineering, involves identifying user

home	active users	add place	view all place	voter result	graph	logout
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Admin View Added All Place and Party

Id	Candidate Name	Party Place	Party Symbols	Party Post	Party Name
1	Mohan	Mayiladuthurai		MLA	DMK
6	Jeevanantham	Mayiladuthurai		MLA	ADMK
7	sathya	vadapalani		MLA	DLK
8	Modi	Dehli		PM	BJP

Fig 3 :Admin View All Place and Par

expectations for a newly modified product. This process includes tasks such as analyzing, documenting, validating, and managing software or system requirements. The requirements must be documentable, actionable, measurable, testable, and traceable, addressing identified business needs or opportunities and specifying a level of detail adequate for system design.

Maintainability: Maintainability pertains to the ease of managing a system, covering analysis, modification, and testing of the application. In this project, maintaining the system is straightforward, as further updates can be smoothly integrated without jeopardizing its stability.

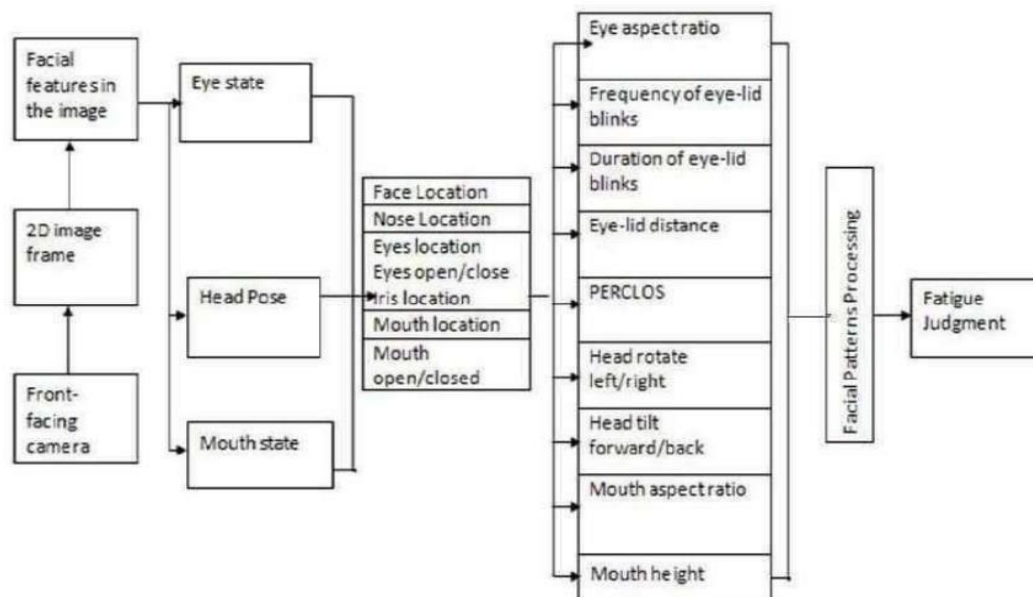


Fig 4 Managing System

The Facial features in the image tells about the Eye state, Head pose, Mouth state this all make face location nose location eyes location mouth location this all are present facial patterns processing this are called as fatigue judgment.

RESULT AND DISCUSSION

A set of snap shots turned into taken for evaluation. The collection of those files is contained in folders with one-of-a-kind extensions. There are duplicate documents within the folder. A sample set of 580 rows and six columns is considered. The desk under suggests the folder length earlier than and after discount.

Fig 5 Register to the your Aadhaar

Fig 6 Online Election Vote

The online election voting process typically involves several steps:

Voter Registration: Voters need to register online by providing personal information and verifying their identity.

Ballot Access: Voters receive access to the online ballot either through email, a secure website, or a dedicated voting platform.

Authentication: Voters must authenticate their identity using a secure method, such as a unique login ID, password, or multi-factor authentication.

Voting: Once authenticated, voters can cast their votes electronically by selecting their choices on the ballot.

Verification: The system verifies that each vote is valid and counts it towards the respective candidates or measures.

Security Measures: Various security measures are in place to ensure the integrity of the voting process, such as encryption, audit trails, and protections against hacking or fraud.

Confirmation: After casting their votes, voters may receive a confirmation message to ensure their vote was successfully recorded.

Tabulation: Once voting concludes, the system tabulates the votes and generates results.

Results Announcement: Election officials announce the results to the public, often accompanied by an audit process to verify the accuracy of the outcome.

It's important for online election systems to prioritize security, privacy, and accessibility to ensure a fair and reliable voting process.

CONCLUSION

This paper provides a deductive idea of logo identification. Protects statistics protection among unique consumer privileges in reproduction check there also are numerous new deductive structures that we have delivered. Recognizes reproduction authentication in hybrid cloud architectures that comprise duplicates information files are created by way of non-public cloud servers with personal keys. Security analysis indicates that our packages are comfortable from insiders and outsiders. Typical assault proposed protection model. For proof of concept, we a version of our proposed authority turned into implemented to re-study the proposed and conduct bench testing on our prototype. We have proved our right the dual injection machine requires minimum overhead in comparison to essential encryption and become brought to the network.

REFERENCES

1. Prof. Mrunal Pathak , Amol Suradkar , Ajinkya Kadam , Akansha Ghodeswar , Prashant Parde's "Blockchain Based EVoting System"-International Journal of Scientific Research in Science and Technology (2021). [2] Abishek Yadav, Ashish Uttamrao, Yash Urade "E-Voting using Blockchain Technology" International Journal of Engineering Research & Technology, July-2020.
2. Friðrik Þ. Hjálmarsson, Gunnlaugur K. Hreiðarsson "Blockchain Based E-voting System" International Journal of Scientific Research in Science and Technology(2019).
3. Ashish Singh and Kakali Chatterjee "Secure Electronic Voting System Using Blockchain" International Conference on Computing, Power and Communication Technologies (GUCON) Galgotias University, Greater Noida, UP, India. Sep 28-29, 2018.
4. D. Dwijesh Kumar , D. V. Chandini , B. Dinesh Reddy , Debnath Bhattacharyya and Tai-hoon Kim "Secure Electronic Voting System using Blockchain" International Journal of Advanced Science and Technology Vol.118 (2018).
5. Cosmas Krisna, Rikard Hjort, Hiroyuki Sato "A Proposal of Blockchain-based Electronic Voting System" 2018 Second World Conference on Smart Trends in System, Security and Sustainability (2018).
6. Kashif Mehboob, Junaid Arshad, Muhammad Mubashir Khan "Secure Digital Voting System based on Blockchain Technology" International Journal of Electronic Governement Research (2018).
7. Yash Dalvi, Shivam Jaiswal, Pawan Sharma, "E-voting using Blockchain", International Journal of Engineering Research & Technology (IJERT), 2021.
8. Bhavani Thuraisingham "Blockchain Technologies and their Applications in Data Science and Cyber Security", 3rd International Conference on Smart BlockChain (SmartBlock) (2020).
9. LinHao Bai, LuoHui Liu, "Research on Software Defined Network Security Model Based on Blockchain", 2021 IEEE 6th International Conference on Intelligent Computing and Signal Processing (ICSP 2021).
10. S. Semenzin, D. Rozas, and S. Hassan, "Blockchain-based application at a governmental level: Disruption or illusion? The case of Estonia," Policy Soc., vol. 41, no. 3, pp. 386–401, 2022.
11. A. Ojo and S. Adebayo, "Blockchain as a next generation government information infrastructure: A review of initiatives in D5 countries," in Government 3.0—Next Generation Government Technology Infrastructure and Services. 2017, pp. 283–298.
12. M. Goede, "E-Estonia: The E-government cases of Estonia, Singapore, and Curaçao," Arch. Bus. Res., vol. 7, no. 2, pp. 1–13, 2019.
13. D. Springall, T. Finkenauer, Z. Durumeric, J. Kitcat, H. Hursti, M. MacAlpine, and J. A. Halderman, "Security analysis of the Estonian internet voting system," in Proc. ACM SIGSAC Conf. Comput. Commun. Secur., Nov. 2014, pp. 703–715.

14. M. Jun, “Blockchain government—A next form of infrastructure for the twenty-first century,” *J. Open Innov., Technol., Market, Complex.*, vol. 4, no. 1, p. 7, 2018.
15. M. M. Olembo, P. Schmidt, and M. Volkamer, “Introducing verifiability in the POLYAS remote electronic voting system,” in *Proc. 6th Int. Conf. Availability, Rel. Secur.*, Aug. 2011, pp. 127–134.
16. D. Y. Marcos del Blanco and M. Gasco, “A protocolized, comparative study of helios voting and Scytl/iVote,” in *Proc. 6th Int. Conf. eDemocracy eGovernment (ICEDEG)*, Apr. 2019, pp. 31–38.
17. M. D. Castillo. (Feb. 2018). Russia is Leading the Push for Blockchain Democracy. [Online]. Available: <https://www.coindesk.com/markets/2018/02/21/russia-is-leadingthe-push-for-blockchaindemocracy/>
18. E. Akcagündüz, “Can blockchain technology increase participation in local governments? A review on blockchain-based voting systems in local governments,” *R&S-Res. Stud. Anatolia J.*, vol. 5, no. 1, pp. 121–147, Jan. 2022.
19. D. Di Francesco Maesa and P. Mori, “Blockchain 3.0 applications survey,” *J. Parallel Distrib. Comput.*, vol. 138, pp. 99–114, Apr. 2020. [142] S. Panja, S. Bag, F. Hao, and B. Roy, “A smart contract system for decentralized Borda count voting,” *IEEE Trans. Eng. Manag.*, vol. 67, no. 4, pp. 1323–1339, Nov. 2020. [143] (2022). Polys Blockchainthe Technology for 21st Century Elections. [Online]. Available: <https://polys.vote/blockchain>

D.CERTIFICATE



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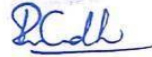
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in the
International Conference on Cognitive Computing and Artificial Intelligence (ICCCAI-2024) in association with
Taylor's University, Malaysia held on 7th & 8th March 2024.



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