SRS DOCUMENT

INTRODUCTION:

Voting is a fundamental aspect of any democratic society, allowing citizens to express their opinions and choose their representatives. However, the integrity and security of the electoral process have become increasingly important in recent years, with concerns about hacking, fraud, and manipulation of electronic voting systems. This has led to a growing interest in blockchain technology as a potential solution to these issues.
In this presentation, we will provide an overview of blockchain-based voting system, including its key features, benefits, and limitations. We will discuss the potential of blockchain technology to revolutionize the voting process, and the challenges that must be overcome to develop a secure and efficient blockchain-based voting system.

GENERAL DESCRIPTION :

Voting is a crucial component of a functioning democracy. However, some still rely on the traditional paper ballot system of voting. Even the electronic voting systems being used widely cannot be automated and is extremely tedious between having to physically go to the venues. They are also vulnerable to frauds like attacks from hackers and can be inflenced by some people.
Blockchain being immutable, transparent and efficient can solve these issues. A basic analysis of the blockchain technology (including sensible contracts) suggests that it is an appropriate basis for e-voting and furthermore, it might have the potential to form e-voting a lot acceptable and reliable.

FUNCTIONAL REQUIREMENTS :

- Authentication and authorization: The system must have robust authentication and authorization protocols to verify the identity of voters and ensure that only eligible voters can participate in the voting process.
- Confidentiality: The voting system should ensure that the votes cast by voters remain confidential and cannot be traced back to the voter.
- Transparency: The system should be transparent and allow stakeholders to audit the voting process to ensure the integrity of the results.
- Immutability: The blockchain-based voting system should ensure that once a vote is recorded on the blockchain, it cannot be altered or deleted.
- Accessibility: The voting system should be easily accessible to all eligible voters, including those with disabilities.
- Verifiability: The system should allow voters to verify that their votes were recorded correctly and that the final results are accurate.

- Security: The blockchain-based voting system should have robust security measures in place to prevent hacking, tampering, and other malicious activities.
- Scalability: The system should be scalable to handle a large number of voters and ensure that the voting process is efficient and timely.
- Flexibility: The system should be flexible to adapt to different voting scenarios, such as remote voting, proxy voting, or multi-candidate elections.
- Compatibility: The system should be compatible with different devices and platforms, including desktop computers, mobile devices, and different operating systems.

INTERFACE REQUIREMENTS :

- User interface design: The user interface should be designed to be simple, intuitive, and easy to navigate for all users, including those with limited computer skills.
- Accessibility: The interface should be accessible to all users, including those with disabilities. It should support assistive technologies such as screen readers and provide alternative input methods.
- Security features: The interface should have robust security features such as two-factor authentication, password strength checks, and secure login methods.
- Ballot design: The ballot design should be easy to read, understand, and navigate. It should include instructions and clear labels to avoid confusion.
- Confirmation: The interface should provide a confirmation screen to verify that the vote was recorded correctly before submission.
- Error handling: The interface should have clear error messages that indicate the reason for the error and provide guidance on how to fix it.
- Help and support: The interface should provide help and support options, such as frequently asked questions (FAQs) and live chat support.
- Compatibility: The interface should be compatible with different devices and platforms, including desktop computers, mobile devices, and different operating systems.
- Multilingual support: The interface should support multiple languages to accommodate a diverse range of voters.
- Feedback: The interface should provide feedback to the user, such as a progress bar or a status update, to inform them of the status of their vote.

PERFORMANCE REQUIREMENTS :

- Response time: The system should provide a fast response time to ensure that voters can submit their votes quickly and efficiently.
- Throughput: The system should be able to handle a high volume of transactions to support a large number of voters.
- Availability: The system should be available and accessible at all times, including during peak voting periods.

- Reliability: The system should be reliable and have a high level of uptime to prevent disruption to the voting process.
- Scalability: The system should be scalable and able to handle an increasing number of voters without performance degradation.
- Security: The system should have robust security measures in place to prevent hacking, tampering, and other malicious activities that could impact performance.
- Load testing: The system should undergo load testing to ensure that it can handle the required load and that performance is not impacted during peak usage periods.
- Network latency: The system should be designed to minimize network latency to provide a smooth and responsive user experience.
- Backup and recovery: The system should have robust backup and recovery mechanisms to ensure that data is not lost in case of a system failure.
- Audit logs: The system should maintain audit logs of all voting transactions for traceability and to ensure the integrity of the voting process.

DESIGN CONSTRAINTS :

- Regulatory compliance: The system must comply with relevant laws and regulations that govern the voting process, such as data protection laws and electoral laws.
- Technology limitations: The system must work within the limitations of available technology, such as the computing power, storage capacity, and network bandwidth.
- Hardware constraints: The system must be compatible with the hardware devices that voters will use to access the voting system, such as computers, mobile devices, and smart cards.
- Time constraints: The system must be designed to operate within the limited time available for voting, such as a fixed voting window.
- Budget constraints: The system must be designed to operate within the budget allocated for the project.
- User experience: The system must be designed to provide a positive user experience, including simplicity, clarity, and ease of use.
- Security constraints: The system must be designed to provide a high level of security to prevent unauthorized access, tampering, and other malicious activities.
- Scalability: The system must be designed to scale up or down to handle changes in the number of voters or voting requirements.
- Interoperability: The system must be designed to work with other systems or platforms used in the voting process, such as voter registration databases or electronic poll books.
- Maintenance and support: The system must be designed to be easily maintained and supported, with regular updates and bug fixes.