भारत निर्वाचन आयोग
Election Commission of India

ELECTHON '23

A 30 Hour Hackathon For Securing The Electoral Future

Powered By H2S

Team Name : ParamNetwork

Problem Statement : How can we ensure the registration of new voters in the electoral roll?

Problems with existing system

- **Migration and mobility:** Urban areas in India often experience a high degree of migration and mobility, with people moving in and out of cities frequently
- **Lack of awareness:** Urban residents, especially those who have recently migrated to cities, may lack awareness about the importance of voting, the registration process, and the location of polling booths
- **Busy lifestyles:** Urban residents may lead busy lives with demanding work schedules, long commutes, and other responsibilities, which can make it challenging for them to take time out to participate in elections.
- **Voter registration issues:** Obtaining voter identification cards and getting registered on voter lists can be a bureaucratic and time-consuming process, and some urban residents may face challenges in completing these requirements.
- **Inconvenient polling locations:** In some urban areas, polling booths may be located far away from residential areas or may not be easily accessible by public transportation, which can discourage people from voting.

Brief about the Idea:

- Digital identity system for both existing and new users to establish user authentication
- Seamless voting experience for improved accessibility and convenience
- Anywhere, anytime voting for increased participation and engagement
- Strong security features to protect against cyber threats and prevent fraud
- Potential benefits include improved transparency and accountability, increased voter turnout, and simplified registration process

Brief about the Idea:

- The idea is to create a digital identity for existing and new users.
- Create a blockchain-based website/app that combines voter registration and cast voting in one platform. And users would can cast their vote for a chosen party in their region, which would be securely and privately recorded on the system.
- The website/app would need to be designed with strong security and privacy features, and comply with relevant laws and regulations. Potential benefits include improved security and transparency, simplified registration, and greater accessibility for voters.

Proposed solution benefits

- Simplified registration process
- Mobile voter registration
- Digital Identity
- Digital Voting
- Cost effective and Verifiable
- Integration with other government services
- Helpful for effective campaigns

Problems with existing solutions

- **Migration and mobility:** Urban areas in India often experience a high degree of migration and mobility, with people moving in and out of cities frequently
- **Lack of awareness:** Urban residents, especially those who have recently migrated to cities, may lack awareness about the importance of voting, the registration process, and the location of polling booths
- **Inconvenient polling locations:** In some urban areas, polling booths may be located far away from residential areas or may not be easily accessible by public transportation, which can discourage people from voting.
- **Voter registration issues:** Obtaining voter identification cards and getting registered on voter lists can be a bureaucratic and time-consuming process, and some urban residents may face challenges in completing these requirements.
- **Busy lifestyles:** Urban residents may lead busy lives with demanding work schedules, long commutes, and other responsibilities, which can make it challenging for them to take time out to participate in elections.

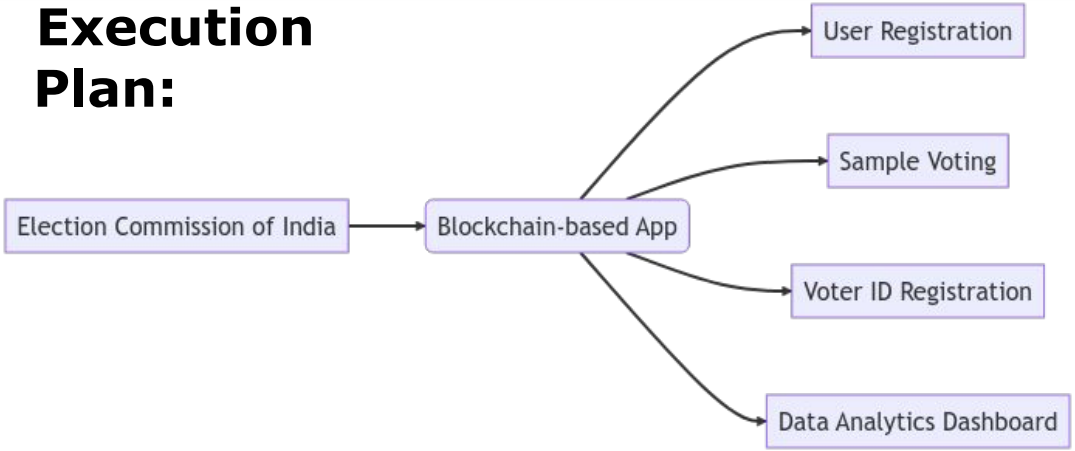
Opportunity

- A blockchain-based app that combines voter registration and sample voting in one platform, with strong security and privacy features and compliance with relevant laws and regulations.
- **Problem**: Many countries face challenges with voter registration, including difficulty reaching eligible voters, concerns about security and privacy, and inconsistent record-keeping. Additionally, the COVID-19 pandemic has created new challenges for in-person voting and registration, increasing the need for secure and accessible digital solutions.
- **Solution**: The proposed app addresses these challenges by combining voter registration and sample voting in one platform, leveraging blockchain technology to ensure security and privacy. The app streamlines the registration process and makes it more accessible, while also providing an auditable record of the voting process. This enhances transparency and reduces the risk of voter fraud or manipulation.
- **Differentiation**: The proposed app is unique in its combination of voter registration and sample voting, as well as its use of blockchain technology to enhance security and privacy. While there are existing digital solutions for voter registration and voting, many lack the security and privacy features of blockchain technology. Additionally, the integration of sample voting in the app provides an added benefit to users, allowing them to participate in a simulated voting experience before election day.

List of features offered by the solution :

- **Voter registration**: The app would allow users to register for a voter ID, securely and easily from their mobile device.
- **Cast voting:** Users could participate in a simulated vote for a chosen party in their region, with the results recorded on the blockchain.
- **Blockchain security:** The use of blockchain technology would ensure secure and private recording of voting data, reducing the risk of fraud or manipulation.
- **User authentication:** The app would use authentication mechanisms to verify the identity of users, ensuring the integrity of the voting process.
- **Auditable record-keeping:** The blockchain-based platform would provide an auditable record of voting data, enhancing transparency and accountability.
- **User-friendly interface:** The app would be designed with a user-friendly interface, making it easy for users to navigate and complete registration and voting processes.
- **Accessibility features:** The app would be designed to be accessible to a wide range of users, including those with disabilities.
- **Compliance with relevant laws and regulations:** The app would comply with relevant laws and regulations regarding voter registration and voting, ensuring that the app is legally and ethically sound.
- **Data privacy:** The app would prioritise user data privacy, protecting sensitive information from unauthorized access or disclosure.
- **Integration with existing systems:** The app would be designed to integrate with existing voter registration and voting systems, enhancing the overall efficiency and effectiveness of the electoral process.

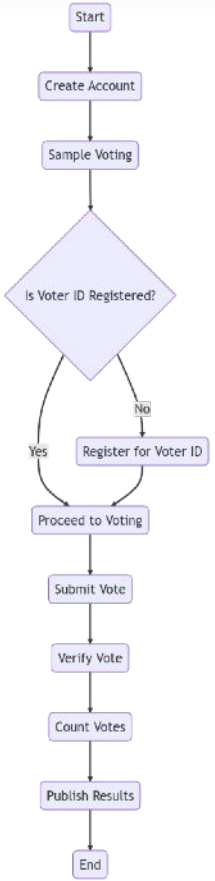
Execution Plan:



- The Election Commission of India will be the main user of the system
- The Blockchain-based App will be the core component of the system that will handle user registration, sample voting, and voter ID registration
- User Registration will allow users to create an account in the system
- Sample Voting will ask users to vote for a sample party and store the vote securely in the blockchain
- Voter ID Registration will allow users to register for a Voter ID card online
- Data Analytics Dashboard will provide insights and analytics on voter registration and voting patterns

Process Flow Diagram/ Use case Diagram:

- The process flow diagram starts with the "Start" node
- Users can "Create Account" in the system
- After creating an account, they can proceed to "Sample Voting"
- The system checks if the user's "Voter ID is Registered"
- If yes, the user can "Proceed to Voting"
- If no, the user can "Register for Voter ID"
- After registering, the user can "Proceed to Voting"
- Users can "Submit Vote"
- The system will "Verify Vote"
- The verified votes will be "Counted"
- The "Results" will be "Published"
- The process flow diagram ends with the "End" node



Technology/ Other Tools used :

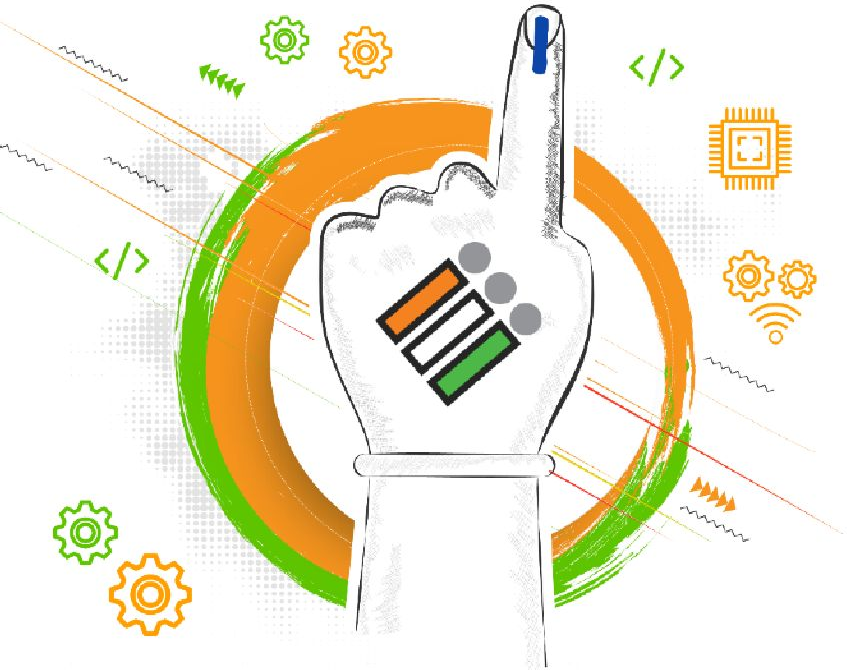
- {**Param**} **proprietary Made in India Blockchain** technology for secure and private voting
- {**Param**} **Smart chain code** for managing and executing voting rules
- Web development frameworks (**React**) for building the user interface
- Backend technologies (**Node.js**) for building the server-side logic
- Cloud platforms (**OCP/AWS**) for hosting and scaling the application
- Database technologies (**MongoDB**) for storing user data and voting records
- Integration with existing government systems and databases (e.g. Aadhaar for voter ID verification)
- Mobile app development frameworks (**React Native**) for building a mobile app version of the solution

Additionally, data security and privacy compliance measures would need to be implemented to ensure the protection of voter data and prevent any unauthorized access or tampering of the voting records.

भारत निर्वाचन आयोग
Election Commission of India

ELECTHON '23

H2S HACKSKILL



THANK YOU

Estimated cost of/ after implementing the solution:

- Blockchain technology development and integration costs : ~ ₹ 25,00,000
- Server hosting and maintenance costs (e.g. cloud hosting fees): ~ ₹ 25,000 monthly
- Development team salaries and project management costs: ~ ₹ 8,00,000 to ₹ 20,00,000 Monthly
- Integration with government databases and systems: ~ ₹25,00,000
- User interface design and development costs: ~ ₹10,00,000
- Mobile app development costs: ~ ₹ 15,00,000
- Data security and privacy compliance costs (e.g. security audits, data encryption, compliance certifications) : ~ ₹ 10,00,000

The above cost is only a estimate and actual cost might be low or high depending upon the detailed scope of work and team required