Nextgen Ballot

Theme: web3 & Blockchain

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Problem Statement

Traditional elections face issues like:

- Manual processes and delayed results.
- Voter fraud and impersonation.
- Limited accessibility for remote voters.
- Lack of transparency and trust.

Approach

NextGen Ballot offers:

- Secure and verified online voting
- Blockchain-based vote recording
- Real-time vote count and result publication
- Accessible via mobile and desktop
- Admin dashboard for control and transparency

Architecture & Tech Stack

- **Frontend:** HTML5 + CSS3 + JavaScript(Vanilla)
- **Backend:** Node.js with Express.js
- **Blockchain:** MongoDB Atlas(Cloud NoSQL DB)
- **Authentication&Security:** OTP Verification(mock) + CAPTCHA + Aadhaar &Phone-based Login
- **Tools & Hosting**: VS Code,GitHub

Key Features

Secure Authentication with CAPTCHA & Mock OTP

Blockchain-based Vote Logging (Immutable)

Real-time Result Dashboard

Role-Based Admin Panel

Mobile Friendly & User-Centric Design

Flow Overview

- Voter registers and logs in securely
- Views verified candidate list
- Casts one anonymous vote
- Vote is encrypted and stored on blockchain
- Admin sees live stats, ends voting session
- Results are auto-declared in real-time

From Problem to Progress

Challenges

- Smart contract logic syncing with UI
- Ensuring privacy without breaking auditability
- Designing for non-tech users

Learnings

- Real-world blockchain integration
- Secure authentication design
- Collaborative agile development in limited time.

Future Scope

- Real-time Aadhaar or DigiLocker login
- DAO-based student council and corporate voting
- IPFS for decentralized frontend hosting
- zk-SNARKs for enhanced vote privacy
- Compliance-ready for government use

Thank You