**Ballot Block**

**Blockchain-Based Voting System**

**Problem Statement**

* Manipulation of votes during collection, transmission, or counting.
* Voters casting multiple ballots using different devices or identities.
* Voters cannot independently verify if their vote was counted correctly.
* All votes stored in one central server, making it a single point of failure and a target for cyberattacks.
* Many citizens doubt the fairness and security of the voting process.

**What We Are Solving**

**Our project, BallotBlock, uses blockchain technology to create a transparent, secure, and tamper-proof digital voting system that:**

* **🔗 Uses a decentralized ledger to record votes as immutable blocks.**
* **🧠 Prevents tampering by chaining each vote to the previous one using cryptographic hashes.**
* **🗳️ Ensures “One person, one vote” using unique voter authentication.**
* **🔍 Allows any user to verify that their vote was included and not altered.**
* **🧬 Distributes the blockchain across multiple nodes (peers) to avoid central server risks.**

**Features**

1. **Secure login (phone number OTP)**
2. **Face identification for one person one vote**
3. **Custom blockchain logic**
4. **Peer to peer sync**
5. **Real time visualization**
6. **Vote Integrity Check via Blockchain Validation**
7. **Timed Voting Window**
8. **Vote Receipt (Anonymized Confirmation)**

After casting a vote, the user receives a **unique hash-based receipt**, proving their vote was recorded. It maintains anonymity but allows them to verify their vote is on the blockchain.

1. **Admin Dashboard**

**A backend dashboard for election organizers to:**

* **Start or stop elections**
* **View total votes**
* **View live blockchain updates**
* **Validate blockchain status**

1. **Tutorial**