

# ONLINE VOTING SYSTEM



Secure. Private. Accessible.  
Verifiable — the future of  
voting

# THE PROBLEM

## Voter Turnout % 2024 vs 2019 (STATE/UT WISE)

T29.1 Voter Turnout in Previous Elections [2009 – 2024]

Indicators	LS 2009	LS 2014	LS 2019	LS 2024*
Total Votes polled in the Lok Sabha Elections	41.73 crore	55.42 crore	61.47 crore	64.64 crore
Total Electorate	71.70 crore	83.41 crore	91.19 crore	97.98 crore
Total Voter Turnout (percentage)	58.21 %	66.44 %	67.40 %	66.10 %
Women Turnout (as percentage of total women electors)	55.82 %	65.54 %	67.18 %	65.78 %
Male Turnout	60.24 %	67.00 %	67.02 %	65.55%
Gender Gap	4.42 %	1.46 %	-0.16 %	-0.23%

\*Election in PC- Surat was uncontested.

T29.2 State-wise VTR (%) [2019 & 2024]

State/UT	VTR % - 2024	VTR % - 2019
Andaman & Nicobar Islands	64.16	65.12
Andhra Pradesh	81.78	80.38
Arunachal Pradesh	81.07	82.11
Assam	81.87	81.60
Bihar	56.28	57.33
Chandigarh	68.03	70.61
Chhattisgarh	72.94	71.64
DNH and D&D*	71.44	77.05
Goa	76.99	75.14
Gujarat	60.74	64.51
Haryana	64.77	70.34
Himachal Pradesh	71.45	72.42
Jammu and Kashmir*	58.65	44.37
Jharkhand	66.77	66.80
Karnataka	70.90	68.81
Kerala	72.04	77.84
Ladakh*	71.19	71.05
Lakshadweep	84.98	85.21
Madhya Pradesh	67.01	71.20

\*For analytical purpose

### Fact

- In 2024 elections, the total number of votes polled was 64.64 crore where as in 2019, the total votes polled was 61.47 crore. In comparison to 2019, the number of total votes polled in 2024 has increased by 3.17 crore votes and an increase of 5.2% may be seen in the number of votes polled in 2024 as compared to 2019.
- Extraordinary voter turnout in the Union Territory of J&K in last 35 years.

## LIMITED ACCESSIBILITY:

Remote voters like diaspora and armed forces personnel cannot reach polling stations

## POTENTIAL FOR LARGE-SCALE FRAUD

Manipulation of the machine's software or hardware could potentially alter results

## LACK OF TRANSPARENCY:

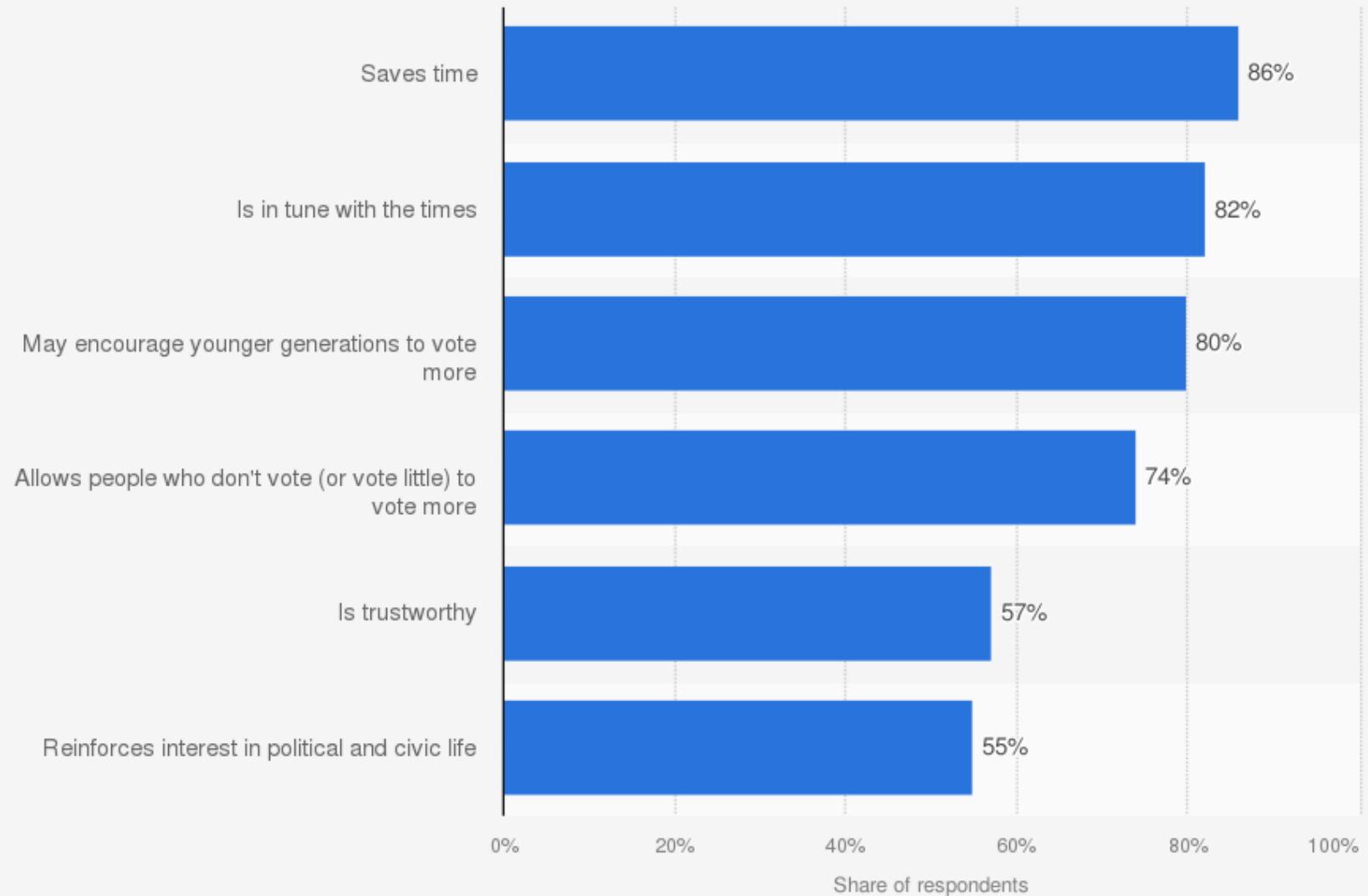
Postal and proxy voting offer no verifiable proof that each vote was received, recorded, and counted correctly.

## PRIVACY & TRUST ISSUES

Existing online methods risk revealing voter identity, eroding confidence in secure and secret remote voting.

# THE SOLUTION

Public opinion on the benefits of online voting in France in 2021



Sources

IFOP; Various sources (SLIB)  
© Statista 2024

Additional Information:

France; IFOP; November 16 to 17, 2021; 1,015 respondents; 18 years and older; Computer-assisted web interviews

## BLOCKCHAIN TRANSPARENCY

Votes are recorded on a blockchain-based public ledger, making them immutable and auditable without exposing voter identity

## REMOTE ACCESSIBILITY

Eligible voters can securely vote from any location using Aadhaar and EPIC verification.

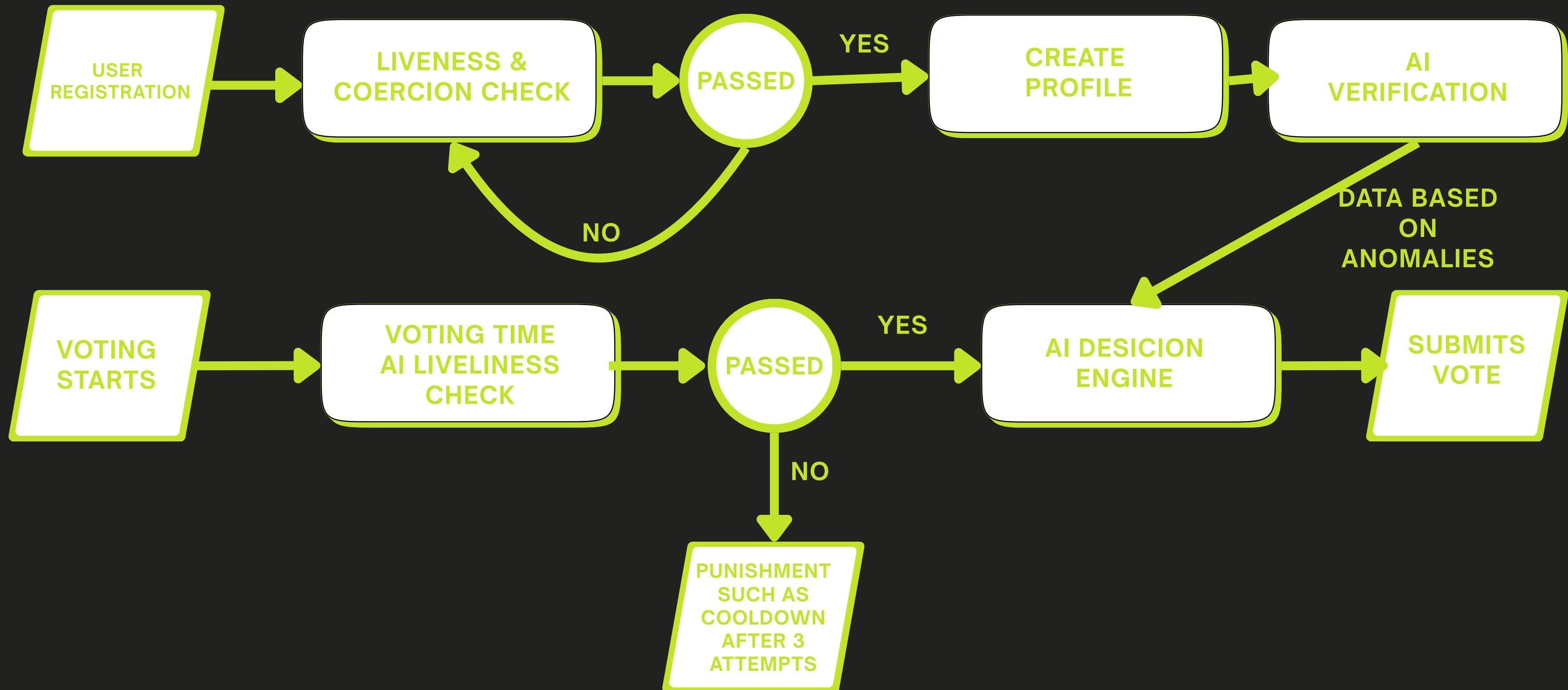
## END-TO-END ENCRYPTION

Every vote is encrypted directly on the voter's device using homomorphic encryption,

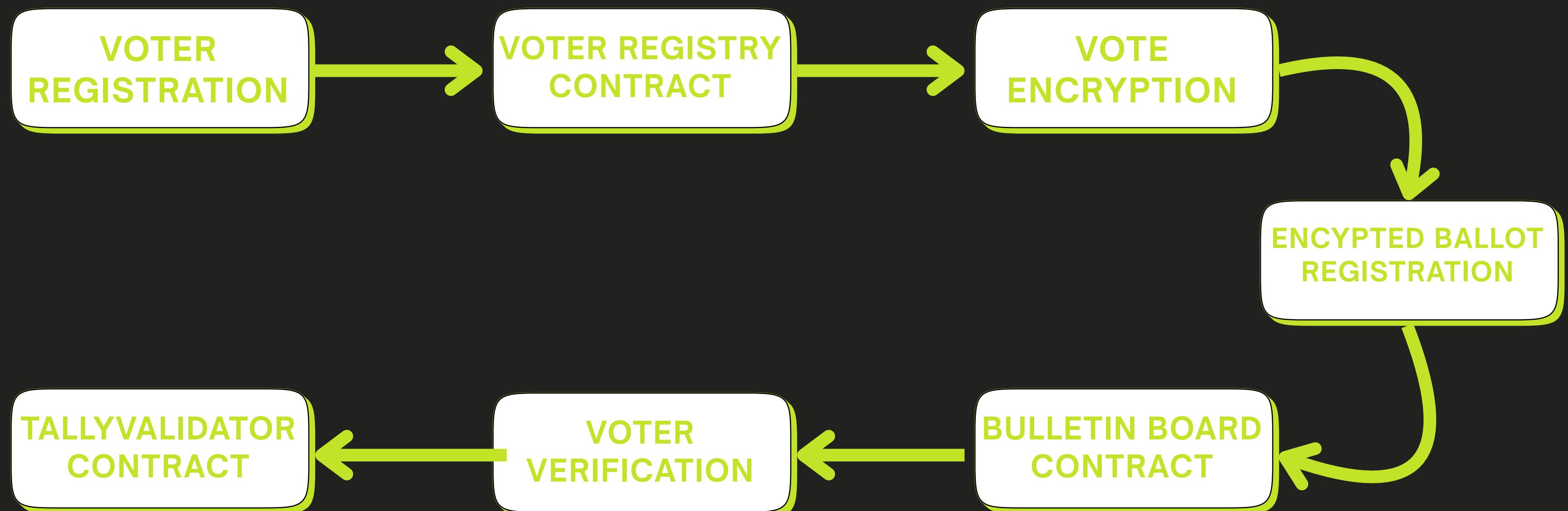
## AI VERIFICATION LAYER

A built-in AI module performs facial liveness detection and behavioral checks

# A.I INTEGRATION



# BLOCKCHAIN INTEGRATION



# TECH STACK

Our platform is built on a secure, modular, and scalable stack. Each layer—from interface to encryption—is optimized for performance, auditability, and trust, ensuring seamless voter experience and bullet-proof integrity.

## FRONTEND & USER INTERFACE

- React + TypeScript for responsive web and mobile voting dashboards.
  - Tailwind CSS for clean, accessible UI.
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## BACKEND & API LAYER

- Node.js + Express for scalable REST APIs.
  - FastAPI (Python) for ML-based fraud detection services.
  - Redis for caching sessions and OTPs.
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## BLOCKCHAIN & DATABASE LAYER

- Ethereum / Polygon for immutable vote recording.
  - PostgreSQL for voter metadata and system logs.
  - IPFS / S3 for storing encrypted ballots and audit trails.
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## SECURITY & ENCRYPTION MODULES

- Homomorphic Encryption (Microsoft SEAL) for secure vote tallying.
  - libsodium for end-to-end cryptography.
  - Cloud HSM for distributed key custody.
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# COMPETITIVE ADVANTAGE

## WHO ARE THE COMPETITORS?

Existing solutions like postal ballots, proxy voting, and limited online pilot systems focus on convenience but lack scalability, transparency, or verifiable security. Some blockchain-based prototypes exist, but most are academic, not production-ready.

## WHAT ARE YOUR STRENGTHS?

We combine blockchain security, AI-powered verification, and open-source transparency in one unified platform. Our architecture is scalable, auditable, and regulation-ready, designed for real-world deployment — not just a demo

## WHY WILL PEOPLE CHOOSE YOU?

Voters gain trust, accessibility, and verifiability with zero compromise on privacy. Governments benefit from lower logistics cost, faster counting, and tamper-proof auditing. It's not just a tech upgrade — it's a secure leap toward inclusive digital democracy

