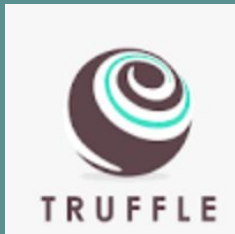


# Driving Voter Turnout Using Blockchain:

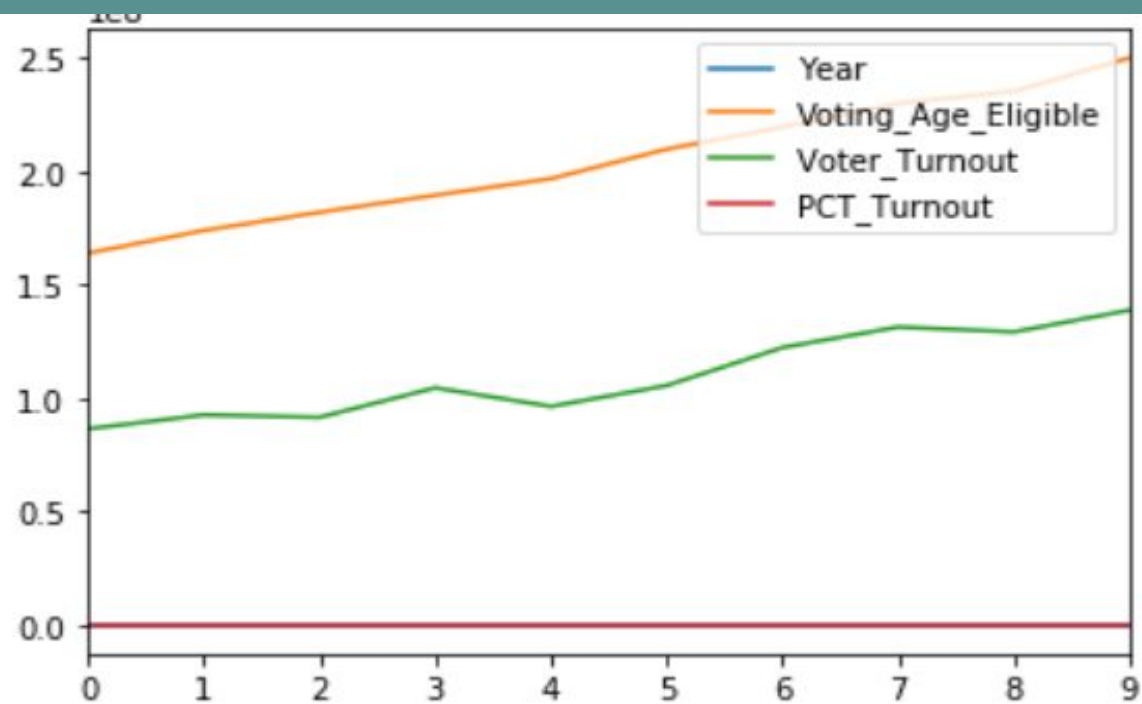
Digitization and Security, featuring Solidity  
Smart Contracts

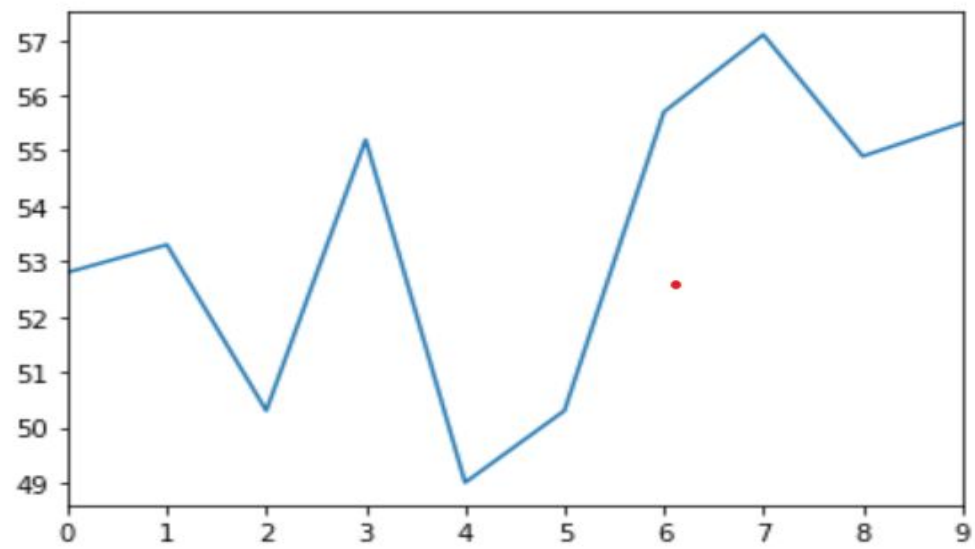
Ryan Claycomb, Pani Maddi, David Frasier,  
John Hernandez

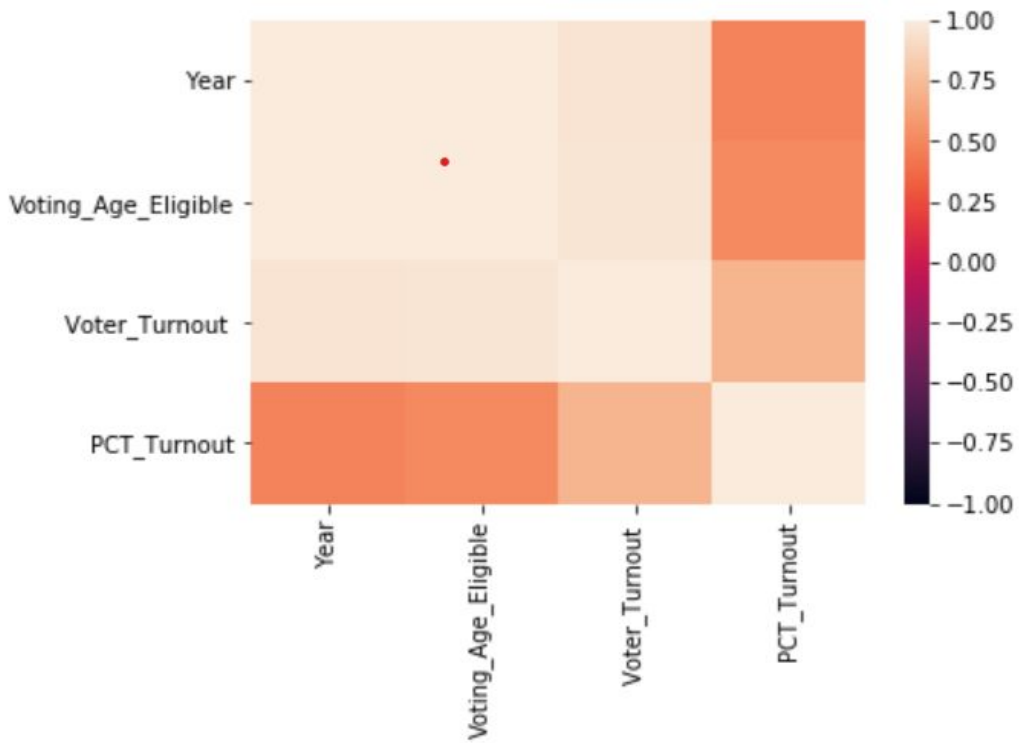








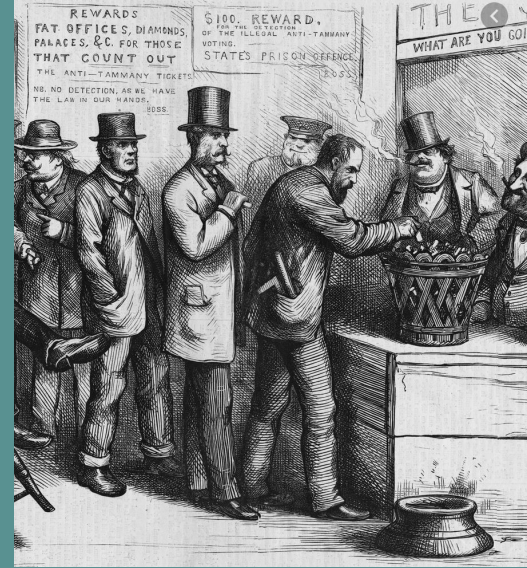




Extreme voting lines  
expose where Georgia  
primary failed

## *Russia Targeted Election Systems in All 50 States, Report Finds*

**Texas says it found 95,000 non-  
citizens on voter rolls; 58,000 have  
voted**



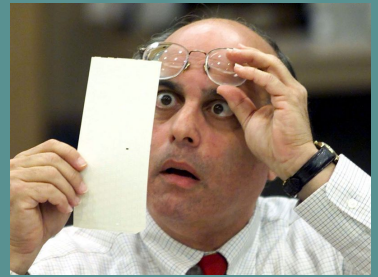
# Goals & Methodology

- ❑ Goal: Drive Voter Turnout
- ❑ How: Voting Web Dapp w/Solidity
  - ❑ Backend (Remix IDE, Truffle Suite or Faucet)
  - ❑ Front End (NPM, Unbox Pet Shop)
  - ❑ Hosting (Pinata, IPFS)
  - ❑ Election Information (Sample Ballot)





# TRUST



## ❑ Traditional

- ❑ Manual Work
- ❑ Known Sunk Cost
- ❑ Jail, Traveling, Military, Weather, Childcare, Work
- ❑ Centralized, Legal and Political

## ❑ Smart Contract Voting

- ❑ Automation
- ❑ Gas Cost, Initial Capital
- ❑ Safer Immediately
- ❑ Decentralized Identity and Vote Storage
- ❑ Built for Legality
  - ❑ Timestamping, Digital Signatures



# Voting Dapp: Demo

# Voting DAPP: High Level Process

Ethereum Mining  
Capacity

Candidate  
Registration

Voter  
Registration &  
Onboarding

Cast Your  
Ballot

Dashboard &  
Analytics

- ❑ **Ethereum Capacity Constraints / Bottlenecks**

- ❑ Develop logistics for timely and legal voting

- ❑ Obtain Candidates

- ❑ Register Candidates

- ❑ Obtain Voters

- ❑ Register Voters

- ❑ Wallet Setup

- ❑ Authentication

- ❑ Vote

- ❑ Confirmation

- ❑ API, 3rd Party Integrations



DESIRED VOTE PROCESS - Frictionless process to encourage DAPP voting (drive Voter participation% higher)

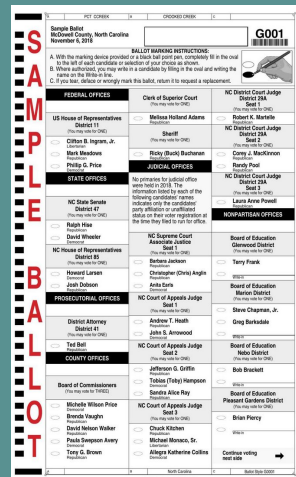
- ❑ Log In (Authenticate)
- ❑ Vote
- ❑ Log off



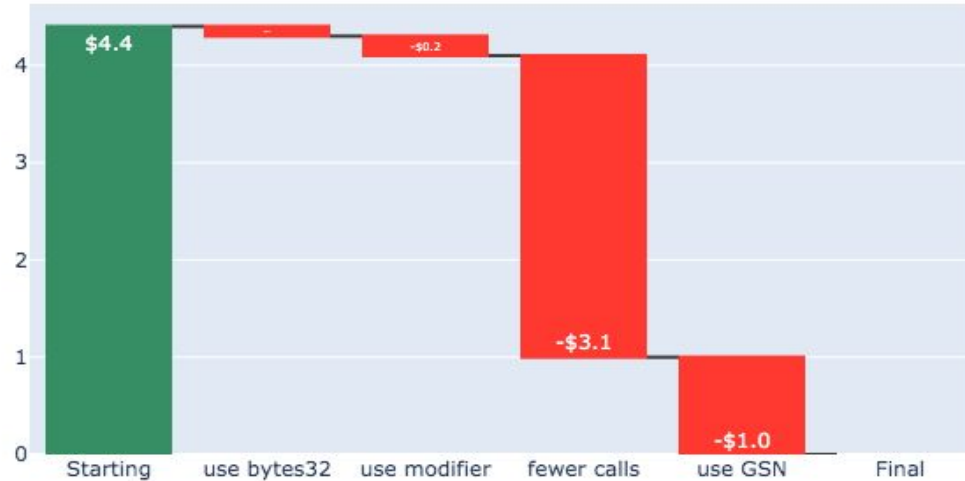
**I DON'T WANT TO PAY FOR GAS  
SHOW STOPPER?**

# Optimizing Gas

- ❑ Gas for writing to Ethereum (not for reading)
- ❑ Use lower cost data elements - ex. bytes32 instead of string
- ❑ Simple Contracts
- ❑ Don't Repeat Yourself (DRY)
- ❑ Use Modifiers for Checks
- ❑ Do as little as possible in constructor



## 0ETH (\$0) GAS FOR VOTERS



## GSN (Gas Station Network)

- ❑ Voters: No gas charge
- ❑ Miners: Still get paid gas
- ❑ 3rdParty (could be GOV'T): Pays gas

Security via  
Nodes and  
'Open Ledger'

***Russia Targeted Election Systems in  
All 50 States, Report Finds***

**Texas says it found 95,000 non-  
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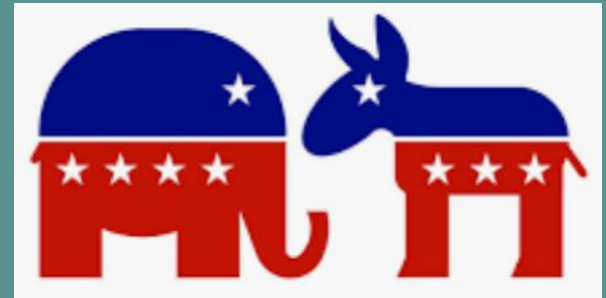
Authentication

Digitization

Extreme voting lines  
expose where Georgia  
primary failed

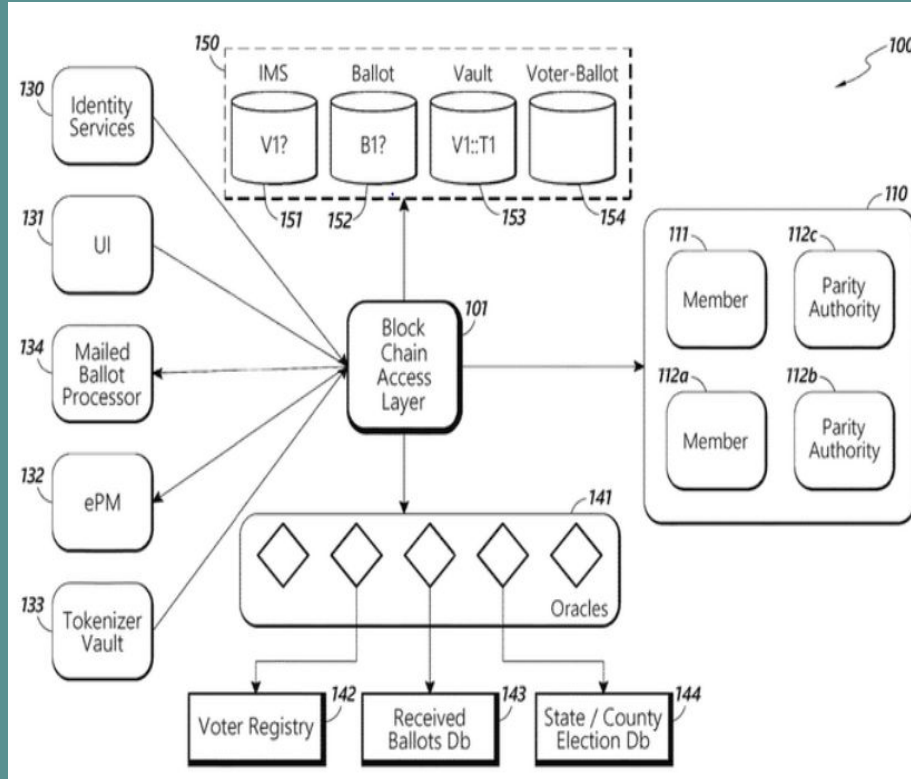
# Next Steps

- ❑ Subcontracts and Subcontractors
- ❑ Offboarding to Centralized Database? Long Term Storage?
- ❑ Digitization Instead of Blockchain
- ❑ Chain Wars & Nodes
- ❑ Authentication of User Info
- ❑ Political and Legal





# USPS PATENT FILED 8/18/20



## BACKGROUND

### Field

**[0002]** This development relates to a voting system that also incorporates the use of cryptographic elements, such as blockchains, as are used with cryptographic currencies, to track and secure the vote by mail system.

### Description of the Related Art

**[0003]** Voters generally wish to be able to vote for elected officials or on other issues in a manner that is convenient and secure. Further, those holding elections wish to be able to ensure that election results have not been tampered with and that the results actually correspond to the votes that were cast. In some embodiments, a blockchain allows the tracking of the various types of necessary data in a way that is secure and allows others to easily confirm that data has not been altered.

## Voter Turnout: 2020 vs. 2016

