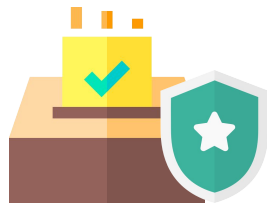# Protecting Democracy from Election Fraud using Blockchain Technology

**Protect**
your
Right To Vote

"It is enough that the people know there was an election. The people  who cast the vote decide nothing. The people who count the votes decides everything."

- JOSEPH STALIN

# The Problem

- Since the dawn of democracy, elections throughout India have been plagued with **accusation of illegitimacy**. As democratic societies across the globe are beginning to adopt technology to improve the efficiency of the election process, many people are discovering that certain types of technology can be **extremely useful**.

- The whole process, due to various form of **tampering** and **malpractice**, is distributed by the public which creates a huge gap and lack of trust between a voter and election commission. This shakes the very foundation of democracy and violate the right of vote which creates a **SOCIAL PROBLEM.**

# The Solution

Protecting Democracy from Election Fraud using Blockchain Technology

**Blockchain Technology**

**+**

**Internet of Things**

# The solution (contd.)

In our solution, we provide a **foolproof**, **secure** and **transparent** system to legitimize Indian elections and **bridge the trust gap** between the voter and the election body.
With this project :

- We provide transparency to the voters
- We legitimize the elections
- We build trust of a normal voter/citizen towards the system/process
- *We protect your right to vote.*

# Technology Adopted

The core technology that would be used here is **Blockchain**.

- Blockchain is an undeniably ingenious invention, by allowing digital information to be distributed but not copied, blockchain technology created the backbone of a new type of internet.
- In simple words, blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.
- Information held on a blockchain exists as a shared — and continually reconciled — database.

# Approach/Methods

- Designing the blockchain instance.

- Permissions, atomic exchanges, key management.

- Block signatures, key formats.

- Asymmetric cryptographic methods

- Building the APIs.

- Data storage and retrieval

- Data authentication through digital signature and hash functions.

- Perform audit related functions.

- Developing the server

- Front-end and designing interfaces

# Architecture

Appended on common ledger

Proof Of Work

Blockchain Network

A citizen casts his/her vote
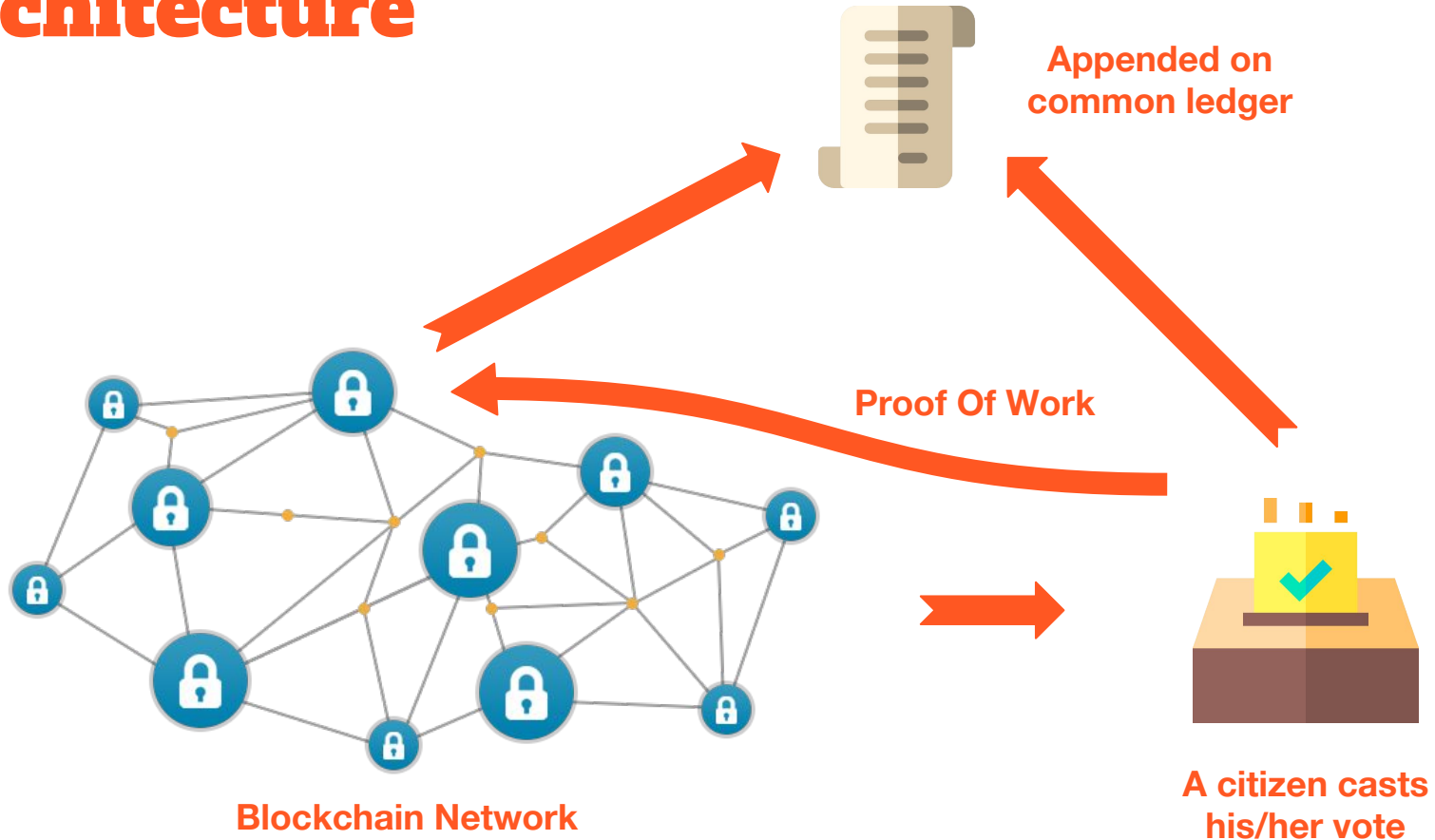
# Major Deliverables

A fully implemented P2P network powered with blockchain and WebRTC for election process.

**P2P network (WebRTC)**

+

**Blockchain Ledger**

+

**Secure Interface**

——

# Project Development — Blockchain Module

```python
from block import Block
from genesis import create_genesis_block
from new_block import next_block


''' Create a blockchain and add the genesis block '''


blockchain = [create_genesis_block()]
previous_block = blockchain[0]


''' Number of blocks to add after the genesis block '''


num_of_blocks_to_add = int(input("Enter the number of blocks to be added to blockchain"))


''' Adding the blocks to chain '''
for i in range(0, num_of_blocks_to_add):
        block_to_add = next_block(previous_block)    # Taken from new_block.py
        blockchain.append(block_to_add)

        previous_block = block_to_add

        ''' We have to tell every node about this transaction '''
        print("Block #{} has been added to the blockchain!".format(block_to_add.index))
        print("Hash: {}\n".format(block_to_add.hash))
```

# Project Development    - Proof Of Work Module

```python
from block import Block
import json
import datetime as date


''' Blockchain block class definition '''


miner_address = "q3nf394hjg-random-miner-address-34nf3i4nflkn3oi"


def proof_of_work(last_proof):
        ''' Create a variable that we will use to find our next prrof of work '''
        incrementor = last_proof + 1

        ''' Keep incrementing the incrementor until it's equal to a number
        divisible by 9 and proof of work of the previous block in chain '''

        while not (incrementor%9 == 0 and incrementor%last_proof == 0):
                incrementor += 1

        ''' Once that number is found I'll return it as a proof of our work '''

        return incrementor
```

- **Plug & Play**

- **Blockchain Powered**

- **Scalable & Adaptable**

- **Real time Notifications**

# Let's put an end to election fraud...

**Govt. saves money**  =

**Voter saves Time**  =

**Elections are secure**  =

**Trust b/w Govt. and Voter**  ↑

# Research Paper

- **Status -** Ongoing (Final editing)

- **Estimated Date Of Completion -** End of March - Mid April

- **Title -** Protecting Democracy from Election Fraud using Blockchain Technology

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