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FINGER PRINT VOTING SYSTEM USING MINUTIAE ALGORITHM

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ABSTRACT :

Web Applications are used in the development of the Smart Voting System. Each voter's facial image, finger print, and voter ID with block chain are required by the programmed in order to guarantee their individuality in the system. The election committee's manual labour is decreased by this system enables easy voting and authenticates the voter to prevent loitering or voting fraud. It guarantees that the voting process cannot be changed by an unauthorized individual. Using gathered data that is kept in a centralized database data, the voter authentication may be done in real time. The suggested dual authentication method employs facial detection as its second level of verification after verifying the finger print as its first stage. The security of the voter data is another priority for this smart voting system. By requiring all citizens to register to vote even after being mobilized, this helps to increase the voting rate.

I.INTRODUCTION

In India we used two types of voting process. Traditionally we used ballot papers to vote and the votes are counted manually, which consume excess of time. Then ballot papers are replaced by electronic voting machine as it consumes large time to count the votes and due to the error involved in the manual counting process. The electronic voting machine gives quick publication of result which is accurate. In existing system, there are so many chances to

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misuse the votes as it does not have proper identification system [1]. In our technique, iris and Finger print are used. Fingerprint is unique for every single person, so that we can avoid bogus voting. But for old person and cancer patients the fingerprint is not clearly visible so we introduced the technique called iris scanning, so that they can cast their votes As we all know India is a largest democratic country, the best form of our government is one which allows the citizen to cast the vote and elect the leader of their choice. The future of our country and fate of citizens all lies in a single vote. Traditionally we used ballot papers to vote and the votes are counted manually, which consume excess of time. Then ballot papers are replaced by electronic voting machine as it consumes large time to count the votes and due to the error involved in the manual counting process. The electronic voting machine gives quick publication of result which is accurate. The one that are temporarily out of their voting stations will have difficulties in casting their votes. The online voting should be adopted, as the current process is not flexible for voter's convenience, online voting will increase the number of voter's participation in the election. The proposed system will give trust and confidence to voters that the proposed voting system will provide protection to votes and as well as who cast their votes. In our proposed system, we have altered level of safety in voting process which provides reliable and secure voting. They are iris recognition, finger print and OTP. Next the voting portal is accessed and vote is encrypted by the blockchain end to end encryption.

II.LITERATURE REVIEW

Vishal Vilas Natu, "voting gadget" is completely on paperwork and electronics device. There is greater office work to keep records of the voter and the voter has to go to the poll container by using carrying voter id for authentication. Using machines, the voter casts their vote once authentication is accomplished by electing govt. The device includes a list of applicants and other details. More than one buttons are presenting front of their specific call via setting the fingerprint, the voter can donate their vote to the candidate.2) Kasane said in paper-primarily based elections, citizens solid their votes by truly setting their vote in sealed packing containers dispensed across the electoral system

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circuits around a given country. When the election length ends, all these packing containers are opened and the votes were counted manually within the presence of the certified officers. In this, the patron and the database, producing reports, sending method, there can be errors in counting of votes or a few messages to voters in the previous procedure. Cases electorate discover methods to vote extra than once automatically. Sometimes electorates are even manipulated to distort the effects of an election in favor of positive candidates.3) Prasad, Halderman, Proposed in the International Journal for Research "Security Analysis of India's Electronic voting machines". The author said security is the heart of the-voting system, he developed this for a security reason to overcome the duplications with a wide variety of security measures.. Development of A Fingerprint Biometric Authentication System for Secure Electronic Voting Machines B. U Umar*1, O. M Olaniyi2, L. A Ajao2, D. Maliki3, I. C Okeke4 1,2,3,4Federal University of Technology, Minna/Department of Computer Engineering

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Abstract Democratic government in the world today rely on electronic voting as the foremost means of providing credible, transparent and fair elections for the electorate. There is a need for developed electronic voting systems to be security enhanced to ensure the authenticity of the developed system. Traditional paper balloting systems suffer from vote tampering, multiple voting and illegal voting by unregistered voters. They are also, susceptible to under-aged voting due to the difficulty in authenticating the identity of prospective voters. Manual collation and publication of vote results also lead to slow response times and inaccuracies in published results. This research paper proposes a system to combat the current challenges through the development of a fingerprint biometric authentication system for secure electronic voting machines. It uses a fingerprint biometric sensor, integrated via Python to verify users of the system. The inclusion of biometrics improves the security features of the system. The secure voting system is built using PHP and easy to use Graphical User Interface was designed using HTML and CSS. Users are required to interact with the machine via a 7” touchscreen interface. From the results, it shows that the developed machine has a minimum response time of 0.6 seconds for a

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specific operation, a FAR of 2%, FRR of 10% and overall system accuracy of 94%. The developed machine is able to combat the challenges of authentication of users, thereby guaranteeing the transparency, credibility, integrity and vote authenticity of the elections. . Keywords: Fingerprint Authentication, Biometric Security, Electronic Voting, Integrity 1. Introduction Democracy is a system of governance of the people, by the people and for the people. The backbone of this governance system is the existence of elections, the right of governing citizens to choose their leaders. Voting is the process through which elections are carried out. The outcome of voting is the expression of the electorate, opinion and decision that is accepted by everybody. It means that the integrity of elections is the most important factor in the success of the democratic process [1]. Nigeria has been operating paper-based electoral systems for all her elections. This system involves printing ballot paper on which votes will be cast and distributing this paper to polling booths before the days of the election. After all, votes have been cast on election day, sealed boxes containing votes are opened before all legitimate members of the booth and counted. This information of counted votes is then submitted to a centralized station along with the paper evidence in the boxes. It is the duty of the central station to comply and publish the names of the winners and losers through television, radio or other official channel. This entire system, as with any other electoral system is only useful if the system is transparent [2]. However, this has not been the case in Nigeria. Most citizens are of the opinion that elections held in Nigeria today are neither free nor fair. [3] put forward that “elections as an essential component of the democratization process remains weak and undeveloped in the country with the biggest challenge of transparency of the voting system”. Consequently, they argue, this leads to a loss of confidence and trust in the electoral process. Other challenges associated with the paper-based electoral system currently employed by the Independent National Electoral Commission (INEC) include and are not limited to, missing names of some registered voters, intimidation and disfranchisement of voters, multiple and underage voting, snatching or destruction of ballot boxes, miscomputation and falsification of results. These challenges stimulate post-election related violence with the far-

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reaching consequence of eroding peoples' trust and confidence in the democratic process [3].

III.EXISTING SYSTEM

Similarly, Thompson et al. [23] found that the amount of visible area in a target print was positively correlated with classification accuracy among novices. Interestingly, this relationship also depended on the source of the print.

Marcon [24] had naïve observers' rate "high quality" (known prints) and "low quality" latent for distinctiveness. Performance for categorizing pairs of prints as coming from the same source or a different source was higher for high-quality and high-distinctiveness images. Together, these studies show that performance suffers when fingerprint image quality is low, but reveal little about the specific nature of the information that correlates with low or high quality.

DISADVANTAGES OF EXISTING SYSTEM:

- although it was unclear why one finger should hold more information than another since presented areas were constant across prints.

IV.PROPOSED SYSTEM:

- Finger print and block chain is used for user to authenticate voting mechanism in this corner edge method is used to finger print matching. Whenever any transaction will occur in the system, the record of that transaction is maintained in the form of hash value in a block. Each next block will get attached to the previous block and in this way a virtual block chain will occur. The hash value of a current block is generated using the data of a current block and the hash of the previous block. In this way if any of the block is tempered the subsequent all the block's hash must be changed. Such multiple copies are maintained at different servers, which will assure the data security and confidentiality. As everything is through application interface, it will maintain the transparency in the voting system

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ADVANTAGES OF PROPOSED SYSTEM:

- The proposed system will be designed to provide a secure data and a trustworthy Evoting amongst the people of the democracy.
- Reduces manual work and easy to get results in short time.
- Users can vote from any location with secured process.

V.THEORETICAL BACKGROUND

What is finger print matching?

There has been a longstanding belief in the scientific validity of fingerprint evidence, based on the apparent permanence and uniqueness of individual fingerprints, the experience-based claims of trained fingerprint examiners, and the longstanding courtroom acceptance of this forensic technique. Yet systematic scientific study of the accuracy of latent fingerprint identification is a very recent development, still very much in progress. In the past, fingerprint identification was sometimes even claimed to be “infallible” or to have a “zero error rate” so long as the method was appropriately applied by an experienced examiner [1], [2]. High-profile cases in which errors were discovered, along with the inherent implausibility of assertions of infallibility, led to doubts about such claims of accuracy, but only in the last few years have scientific efforts to assess the strengths and limitations of fingerprint identification gained traction. The 2009 National Academy of Sciences report on forensic science [3] emphasized and spotlighted both the limits of our knowledge and the need for basic research, and since that report. The available data suggest a low level of false positive errors by experts under experimental conditions and a substantially higher rate for false negatives [4], [5]. While these data suggest that well-trained, experienced examiners are highly accurate when making positive identifications, it is also clear that errors still occur. Understanding what characteristics of print pair comparisons make errors more or less likely is thus critical to assess both the power and limits of this important forensic technique. Fingerprint examiners can specialize and become latent or tenprint examiners or both. A latent examiner focuses on comparing “chance” fingerprints left accidentally at crime scenes or elsewhere, to possible source prints. A tenprint examiner, by contrast, compares fingerprints purposefully collected in

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controlled circumstances (such as at a police station) with those on file in a database. In police stations, impressions from all ten fingers are often collected on a single sheet, which is why they are called tenprints. Tenprints are also referred to as "known prints" because the identity of the source of the impression is known. In this paper, we use the term known print to refer to such prints. Latent prints have to be processed in order to be made visible, and often contain only a portion of a finger or other friction ridge area. They are often smudged, distorted, and may contain artifacts or noise due to the surface upon which they were left, or as a result of processing. By contrast, known prints are collected in controlled situations where poor impressions can be retaken, so they are typically larger, clearer, and richer in information content than latent images. Latent prints tend to be highly variable in quality, while known prints generally capture fingerprint information with high fidelity. Known prints are often acquired by law enforcement agencies using ink or a scanner. A sample latent and known print.

Benefits of Fingerprint:

1. **Achieve economies of scale** – increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
4. **Streamline processes.** Get more work done in less time with less people.
5. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
6. **Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a

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minimal learning curve on hardware and software issues.

9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious "people" or "financial" issues at stake.

Trash Classification Using Neural Networks

advantages:

1. **Price:** Pay for only the resources used.
2. **Security**: Cloud instances are isolated in the network from other instances for improved security.
3. **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud's core hardware.
4. **Scalability:** Auto-deploy cloud instances when needed.
5. **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
6. **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
7. **Traffic:** Deals with spike in traffic with quick deployment of additional instances to handle the load.

VI.SYSTEM ARCHITECTURE

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system. Organized in a way that supports reasoning about the structures and behaviors of the system.

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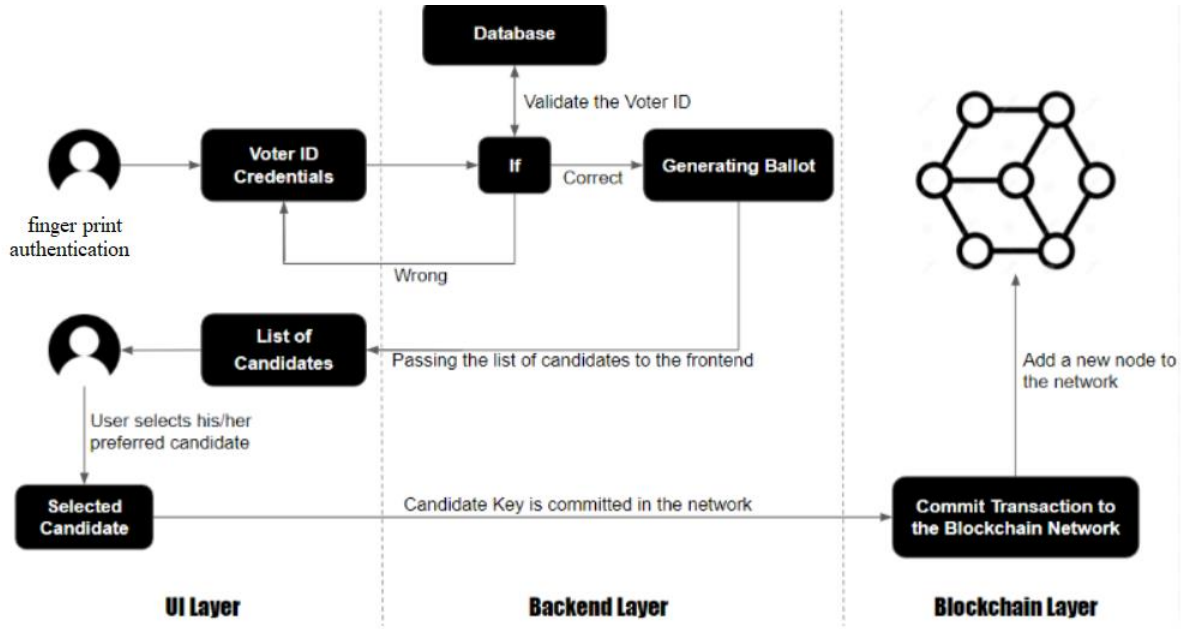

Figure 5. 1 System Architecture

3-Tier Architecture:

The three-tier software architecture (a three-layer architecture) emerged in the 1990s to overcome the limitations of the two-tier architecture. The third tier (middle tier server) is between the user interface (client) and the data management (server) components. This middle tier provides process management where business logic and rules are executed and can accommodate hundreds of users (as compared to only 100 users with the two tier architecture) by providing functions such as queuing, application execution, and database staging.

The three tier architecture is used when an effective distributed client/server design is needed that provides (when compared to the two tier) increased performance, flexibility, maintainability, reusability, and scalability, while hiding the complexity of distributed processing from the user. These characteristics have made three layer architectures a popular choice for Internet applications and net-centric information systems.

Advantages of Three-Tier:

- Separates functionality from presentation.

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- Clear separation – better understanding.
- Changes limited to well define components.
- Can be running on WWW.
- Effective network performance.

VII.CONCLUSION

The proposed system will be designed to provide a secure data and a trustworthy Evoting amongst the people of the democracy. Block chain itself has been used in the voting system known as the decentralized block chain system. By adopting finger print based login and block chain in the distribution of databases on evoting systems one can reduce the cheating sources of database manipulation. This project aims to implement voting result using block chain algorithm from every place of election.

VIII.REFERENCES

[1] N. Kshetri and J. Voas, "Blockchain-Enabled E-Voting,"IEEE Software,vol. 35, pp. 95-99, jul 2018.

[2] M. Pawlak, J. Guziur, and A. Poniszewska-Mara nda, "Voting Processwith Blockchain Technology: Auditable Blockchain Voting System," inLecture Notes on Data Engineering and Communications Technologies,pp. 233-244, Springer, Cham, 2019.

[3] B. Singhal, G. Dhameja, and P. S. Panda, "How Blockchain Works," inBeginning Blockchain, pp. 31-148, Berkeley, CA: Apress, 2018.

[4] Agora, "Agora Whitepaper," 2018.

[5] R. Perper, " Sierra Leone is the first country to use blockchain duringan election - Business Insider," 2018.

[6] S. Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," tech.rep., 2008.

[7] G. Wood et al., "Ethereum: A secure decentralised generalised transaction ledger,"Ethereum project yellow paper, vol. 151, pp. 1-32, 2014.

[8] S. Landers, "Netvote: A Decentralized Voting Platform - Netvote ProjectMedium," 2018.

[9] P. McCorry, S. F. Shahandashti, and F. Hao, "A Smart Contract forBoardroom Voting with Maximum Voter Privacy," inLecture Notes inComputer Science, ch. FCDS, pp. 357-375, Springer, Cham, 2017.

[10] Z. Brakerski and V. Vaikuntanathan, "Efficient Fully Homomorphic Encryption from (Standard)LWE,"SIAM Journal on Computing, vol. 43,pp. 831-871, jan 2014.