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Secure & Safe Voting System using-Fingerprint Recognition

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Abstract: ***An Online Voting System is a safe and secure way to do the voting online. Those who do not have time or facility to go to the region to vote, it provides a very great opportunity to them to give their vote while sitting at home.***
It not only allows to vote at a specific voting day, we can even have the voting days to be extended as per the workload. It even also allows to cast their vote on the different occasions.
The System Makes the utilization of Firebase as backend, for login, enlistment and for capacity reason which make our framework profoundly made sure about and solid.
It also utilizes Firebase ML unit for fingerprint recognition which allows to cast the vote easily and individually.
It also uses a unique sensor (unique mark sensor) for the fingerprint recognition.
Words to be acknowledged: It is an alternate way to cast the vote safely and securely which is provided by the internet. Though it is completely ones choice to go to different assigned places to cast their vote.

I. INTRODUCTION

A. Project Plan

1) About The Project: An online voting system is the easiest way to choose for a party/firm while sitting at their homes and all this requires is just a smart phone and internet connection. This Application is a safe means to cast the votes and ensures the data protection as well as the safety of the individual. As well it is easily understandable and contains easy steps for vote casting. This Application requires very few documents i.e. phone number to send the otp for verification. Fingerprint to account individual vote and security and an additional government document number. The Application is safe by all means and convenient for individuals use. Solitary is ensured by the application while fewer documentation is required.

2) Purpose And Scope

a) The motivations included by the voting system:

i) It leads to the reduction in the cost of conducting of the elections by the Election Authority or Election Committee.

ii) It ensures that each and every one votes even those who are indulged in the election process.

iii) Online casting can save many resources like paper and labor work as well as it is easily accessible.

iv) Those who have moved to different places like abroad, can also cast their vote easily and it ensures the right to vote for the individual.

b) Scope of OVS: It focuses around the study of the political party being preferred by the people of a specific region.

This is likewise will deliver:

i) Less exertion and less work concentrated, as the essential expense and spotlight essential on making, overseeing, and running a safe web casting a ballot entry.

ii) It will lead to increase in the number of the voters as they will thing it is quite simple and easy process to cast their vote.

II. ONLINE VOTING

Electronic machines like phone and laptops which has touch screens can be used for the voting purpose. Cell phones having fingerprint sensor can be used to cast the vote. These machines acts as the EVM for the people casting vote online.

1) Poll: It is basically a process where the person has to go to the polling booth by himself to cast his/her vote. This process includes the person to stand in queue for the EVM machine to cast his vote.

2) Regional: It is basically the process where one visits the site (a web site) for the vote casting process and here only the people who have specific license are allowed to cast their vote there.

3) KIOSK: It is a form of the web voting where the voting is done only on the KIOSK systems and these voting can be done at the periodic gaps of few days or even at the gap of few weeks. Here people visit the specific offices of the concerned authorities for vote casting.

4) Remote: It is the process where the person can cast their vote while sitting at their homes. They can cast their votes from their personal PC'S and mobile phones. While accessing the online voting system providing their identities and login into it.

III. METHODOLOGY

A. Front End

1) *Starting with XML:* Extensible Markup Language (XML) is a language which is used to code the basic program of the project it stores the data as well as used for the coding of the main program or the application created . It is a textual data format with strong support via Unicode for different human languages. Although the design of XML focuses on documents, the language is widely used for the representation of arbitrary data structures such as those used in web services.

a) XML stands for extensible Markup Language
b) XML is a markup language like HTML
c) XML is designed to store and transport data
d) XML is designed to be self-descriptive

B. Back End

1) *Firebase:* Firebase is an application which is basically used to develop the safe and secure applications. It provides a great environment for the application to be developed. The Firebase allows you to run and save the data easily. The multiple application data can be stored here with a great efficiency. It is quite helpful in updating the data and storing the data to a great extent of the memory. The one who have to update his data can submit their documents to the government site that can directly be linked here and the data can be updated here.

2) *Firebase Markup Language Set:* Firebase Markup Language set was instructed by the Google in early 90's. this set is quite helpful in operating the firebase main system. This markup set works both on the use of the net as well as offline. It provides high internet speed. Fast data usage and accessibility for the user purpose. In other way it uses the other AI's to function upon the processing of the different functionality os the project being made.

Feature	On-device	Cloud
Text recognition	✓	✓
Face detection	✓	
Barcode scanning	✓	
Image labeling	✓	✓
Landmark recognition		✓
Custom model inference	✓	

3) *Java:* Java is an object oriented programming language.

It is Oracle based , 3000000000 devices are being operated by it.

It is used for:

a) Android app application
b) Application for Desktop
c) Website applications
d) For website servers
e) Gaming
f) Connecting the Databases
g) And many more

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IV. LITERATURE SURVEY

A Shivali Parmar, R.kumar, Uttarandan tried to make the project by combining both the image processing and the fingerprint recognition. But the focus being towards the retina scanning for the face processing leads to the not completion of the project as they were unable to do so. They generated a project which has a good memory space but unable to find the security path.

B. Faizas A. Hamma, S Kalandi their research on the topic OVS carried them to the stage of the maximum storage of the data and application deployment. They set a path to the new generating vote casting system. They searched a way to cast the vote while sitting at their homes and not going to different places. These Scholars came together for this project and successfully find out a way for big data storage over the internet and a way to easy vote.

C. Srivandana gave away with the idea of the 4 tier voting system. The 1st tier talked about the data intake. The 2nd tier talked about the data storage. The 3rd tier talked about the voters data input and the last 4h tier talked about the data output or the result conclusion.

D. Goyal v leads us to the mark of the PAN identification linked with the home based voting system. He even got this approved from the government department to clarify the idea with the different countries. This was the first project based on semi virtual reality. Up till now the same base process has been followed by each and every individual.

E. Udaynarayan Vishwakarma was the one who implemented the face identification system linked to the online voting. The voting became quite more secure and safe. Also kept the user data secure and safe. He came out with the idea to use the camera altogether with the selection option of the voting.

V. SYSTEM ANALYSIS

A. Existing System

1) The system which exists currently does not give the combination of the face recognition as well as the fingerprint recognition. They individually consists of the same.

2) The security provided by the existing system is not that good. Any data can be accessed from that system easily when needed.

3) Here the risk of the double voting and the vote stealing has been reduced.

4) In existing system the person has to go to the booth and that to costs expense for the visiting as well as the arrangements being made by the government also takes much expense while OVS is accessible in very less cost.

5) The current system is quite time consuming as it has to deal with the rush of the people of a specific region at one polling center. As well as it has to deal with the individual time taken by a person to cast his vote.

B. Proposed System

To overcome the drawback of the present system, the parallel setup has been created. This system fulfills all the requirements needed by the government to organize the elections.

The setup deals with the best UI. The important country organization can make a best use of it as it saves many resources and is user friendly.

1) Advantages of Proposed System: It is costs nothing , just an internet connection is needed. It helps to cast the vote easily without any rush and standing in the queue. It is the fastest way to cast the vote.

2) Behavioural Feasibility

This contains the following queries

a) Can each and every individual cast vote online?

b) Is there any drawback of the system?

This project would be helpful as it fulfills all the needs of a system for the voting.

All feasible structure components are checked carefully and are concluded to be safe.

Online Voting System(OVS) is considered to be not harmful to public interests.

VI. IMPLEMENTATION

A. Fingerprint Recognition

As each and every one has a different finger scales which makes it unique from one another. This uniqueness helps to identify the individual. Here the fingerprint system helps to take the fingerprint and identify the individual. This helps in avoiding the vote stealing and fake voting. This system is vastly used now a days to avoid any kind of frauds.

B. Image Processing

Image processing is an important part to identify the individual. The step takes the help of the camera of your smart device. It helps to get to know that the right person has casted his/her vote. It also insures the presence at the time of the voting. To ensure that no forceful participation has taken place at the time of elections Image Processing is necessary.

The three steps are as follows:

1) Taking help of camera sensors.
2) Taking the picture via graphics technology.
3) Displaying the picture as a result at the time of verification.

VII. DATA FLOW DIAGRAMS

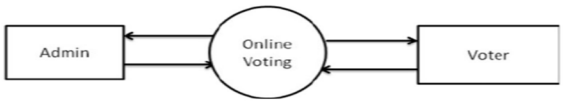
Data flow diagrams are the pictorial representation of the data in the form of the diagrams or the graphs. The basically contains the images consists of the single or multiple lines and the shapes like circle or rectangle with the data written into them.

There are different levels of the data flow diagram that are level 1, level 2 and level 3. All these levels states something different about the data. The zero level is the basic level to represent the data in any form.

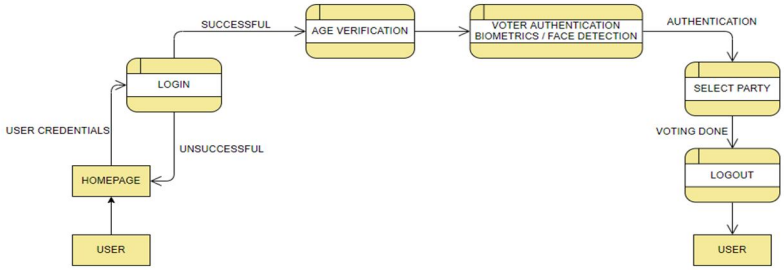
Data flow diagram are quite useful in understanding or gaining knowledge about the structure of the project. How it is created uses and the components used in it.

These graphs vary from the range of easy understanding to the complex understanding.

A. L 0 Data Flow Diagrams



B. L 1 Data Flow Diagram



VIII. CONCLUSION

A. As each and every one of the human of a country has the right to choose their leader and has the right to vote. The project ensures the safety of the rights of the voter and look forward for the maximum percentage of voting.

B. The data being present in the government record already leads the voter to just open the application anywhere in the smart device. Just the internet connection in the smart device is needed. If you are the right person of the id you can vote.

C. Even very less documentation can help you to vote. The date of birth being registered is helpful to identify that only the people above 18 years can cast their vote. While it is also linked with the PAN CARD number. Itb also clicks the photo of the person casting his vote at the time of the voting.

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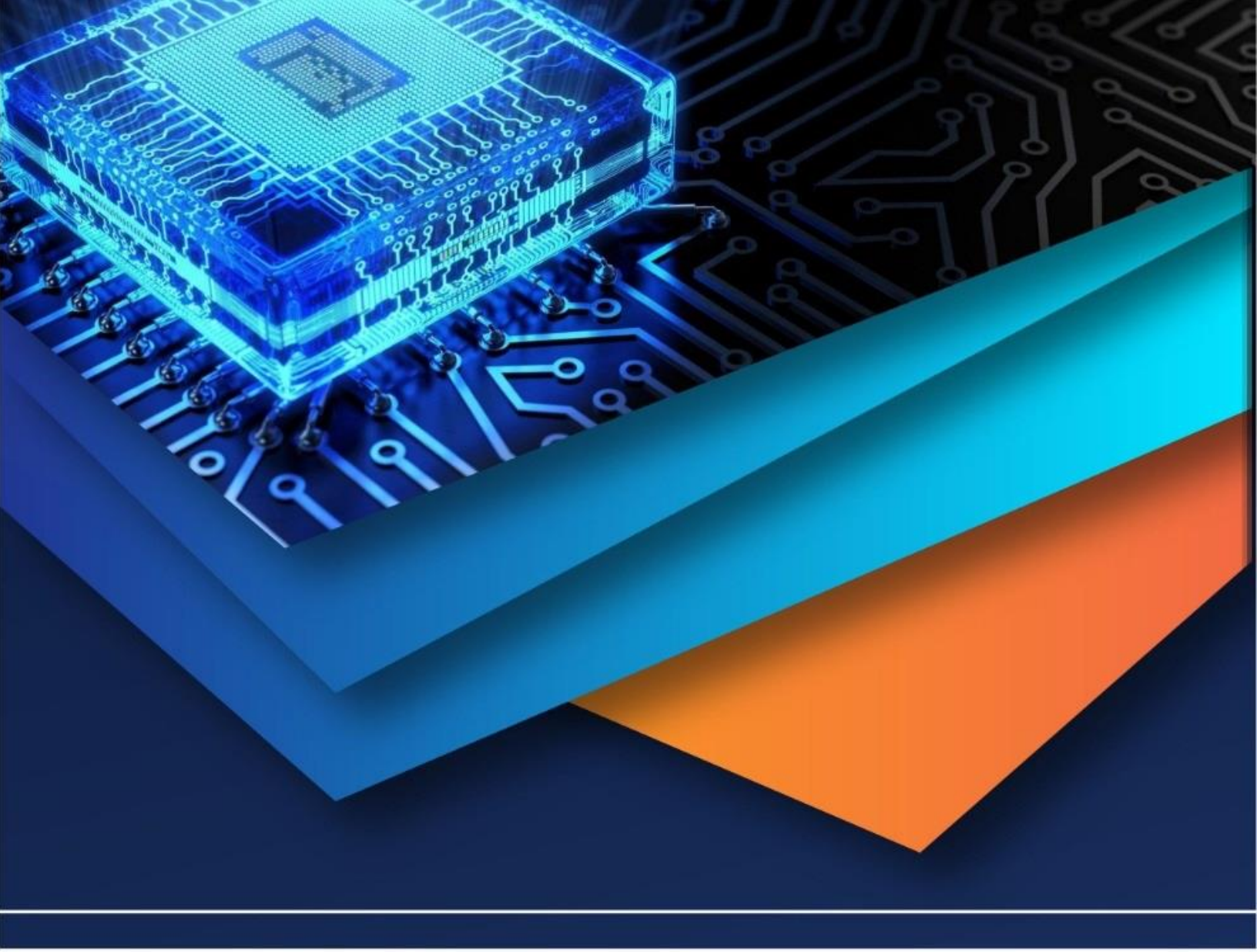

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