

A Secure Online Voting System Using Digital Signature

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Abstract

A secure and advanced online voting system using digital signature is a web based voting system. It helps to automate the voting process where it facilitates the running of elections and surveys online. Voters cast their votes online and the data is stored in the database. This system was developed to address security, privacy and accuracy features which are not there in the current voting systems in Kenya. As the use of ballot paper voting is tedious, wastes a lot of time queueing, its costly printing ballots and there are errors during tallying process. Users (voters) of the system are individuals who interact with the system during voting process. All user interaction is performed remotely through the user's web browser. Voters are provided with an online registration form before voting. Voters should fill an online form and submit details. These details are compared with details in database and if they match then voter is provided with a secret Id and password using this information user can login and vote. If details are not valid entry will be canceled. The system has two modules the voter module and the admin module. The voter modules were designed using forms, where a voter is required to fill the forms with his/her details, then the details are validated and sent to the database. Then the voter will be able to view the validated forms when he/she login in the voter module, and will be able to perform functions like voting, viewing candidates and elections available. The system was implemented using digital signature algorithm and its related approaches such as password hashing, voting id encryption all this were used for authentication and authorization purpose and for securing information and data of voters, candidates and administrator. Digital signature is an approach process used for verifying and authenticating digital data, information and documents by ensuring they are not altered. This was used in storing voter and admin passwords and their username Ids. It also was used in storing voter Secret ID for voting to ensure its security and avoid unauthorized access. The system has provided the solution to security, privacy, and accuracy features as they were the main concerns for coming up with the system. Online voting system have the advantage of providing convenience to the voter and reduces time wastage in the queuing process at election centers since the voter can vote at any place during the election period. The system is simple to use and user friendly.

