

Online Voting System

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DECLARATION OF AUTHORSHIP

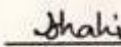
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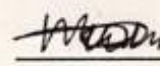
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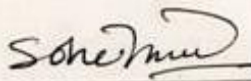
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ABSTRACT

The project "Online Voting Software" aims at making the voting process easy in cooperative societies. Presently voting is performed using ballot paper and the counting is done manually, hence it consumes a lot of time. There can be possibility of invalid votes. All these makes election a tedious task. In the proposed system voting and counting is done with the help of computer, all the participant cast their vote from anywhere, worldwide. It saves time, avoid error in counting and there will be no invalid votes. It makes the election process easy.

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1. INTRODUCTION

Statement of the Problem

Voting is a painful process especially in calculating votes and recognizing the voted candidate and summing votes to determine the winner.

In other Tertiary Institution It was so evident unfortunately that the turnover of these said elections had turned to be slow and tiresome. It was slow because of the following scenarios:

1. As of now, the voting used to be carried out as follows- the ballot papers would be issued to all the students, the students would fill in their chosen nominees, the voting would be held where the students dropped their ballot into a ballot box. Then, the ballot box would be opened, and the ballots would be counted by hand. There was a lot of margin for error.
2. The Election is done manually, so the canvassing is consuming a big amount of time, in fact in most of the elections the canvassing of votes took a long hours and more time consume.
3. Miscount of votes that may cause for under vote or otherwise over vote.
4. Misally and misstated vote for a candidate.

As a students in this school, there is a call and a need for reformation and revitalization of the existing traditional and manual voting system. The implementation of the online voting system is the answer for this chaos.

It is hard and tiresome on the part of the election facilitators because it needs a lot of energy and time to overcome the complexity of the preparations and the holding of the election down to the canvassing of votes. So with these problems the call for a change is considered.

Aim and Objectives of this project

The aim of this project, is to simplify process of casting, counting and announcing the result of voting

The objectives are:

1. To develop a system software that will help lower overhead of Voting Process
2. To develop cost-effective system of voting
3. To improve the efficiency in voting
4. To increase accuracy

Justification of the Study

The new or the voting process is lagging behind as a result of a manual system. There is need to prove the voting processing speed for foster address of the institute student's union Online voting

is a term encompassing several different types of voting, embracing both election means of casting a vote and electronic means of counting votes. Since our School doesn't have this, a proposed system can be very useful and helpful. With assurance of that, this automated system be very handy in getting votes, and counting them accurately and fast.

Scope and Limitations of the Study

The system is created as a web-based application. The system need a domain to be hosted, in which a student need to visit that site using their computers or smartphones and log in using their credentials to cast and view the voting process. It is focused on studying the existing system of voting in other tertiary institution and to make sure that the peoples vote is counts, for candidates in the elective positions. This will also produce:

Less effort and less labor intensive, as the cost and focus on creating, managing, and running a secure web voting portal

Increasing number of voters as individuals will find it easier and more convenient to vote

2. LITERATURE REVIEW

General Overview

A students union, student government student senate, students association, Guild of students, or government of student body is a student organization present in many colleges, universities, and high schools. In higher education, the students' union is often accorded its own building on the campus dedicated to social, organizational services, representation, and academic support of the membership

In the United States student union often only refers to a physical building owned by the university with the purpose of providing services for students without a governing body. This building is also referred to as student activity center, although the Association of College Unions International Care US-based as hundreds of campus organizational members.

Outside the US. Student Union and students union refer to a representative body, as distinct from a student activity or Depending on the country, the purpose, assembly, method, and implementation of the mighty universally the purpose of students' union or student government is to represent in some fashion (Rober 2011).

In some cases, sans mons are run by students, independent of the educational facility.

The purpose of these organization is to represent students both within the institution and externally, including on local and national issues. Student's union are also responsible for providing a variety of services to student. Depending on the organization's makeup, students can get involved in the union by becoming active in a committee, by attending councils and general meetings, or by becoming elected officer.

Some students' unions often officially recognize and allocate an annual budget to other organizations on campus. In some institutions, postgraduate students are within the general students' unions, whereas in others they have their own postgraduate representative body. In some cases, graduate students lack formal representation in student government,

As mentioned before universally the purpose of students' union or student government is to represent fellow students. Many times student's unions usually focusing on providing students with facilities, support, and services. Simple variations on just the name include the name differences between the Nigeria (student government) and other countries (student's union),

Depending on the country there are different methods of representation compulsory education to Higher education or tertiary (Henry M. 2011).

Voting

Voting is a method for a group such as a meeting or an electorate to make a decision or express an opinion, usually following discussions, debates or election campaigns. Democracies elect holders of high office by voting. Residents of a place represented by an elected official are called constituents, and those constituents who cast a ballot for their chosen candidate are called voters. There are different systems for collecting votes. In a democracy, a government is chosen by voting in an election: a way for an electorate to elect, ie, choose, among several candidates for rule. In a representative democracy voting is the method by which the electorate appoints its representatives in its government. In a direct democracy, voting is the method by which the electorate directly make decisions, turn bills into laws, etc.

A vote is a formal expression of an individual's choice in voting, for or against some motion (for example, a proposed resolution), for or against some ballot question, for a certain candidate, a selection of candidates, or a political party. A secret ballot has come to be the practice to prevent voters from being intimidated and to protect their political privacy (J. Scott Armstrong, 2010)

Ballot

A ballot is a device used to cast votes in an election, and may be a piece of paper or a small ball used in secret, it was originally a small ball used to record decisions made by voters.

Each voter uses one ballot, and ballots are not shared. In the simplest elections, a ballot may be a simple scrap of paper on which each voter writes in the name of a candidate, but Governmental elections use pre-printed ballots to protect the secrecy of the votes. The voter casts his/her ballot in a box at a polling station.

In British English, this is usually called a ballot paper. The word ballot is used for an election process within an organization (such as a trade union holding a ballot of its members). The word ballot comes from Italian ballotta, meaning a small ball used in voting or a secret vote taken by ballots in Venice, Italy. Ancient Greek ostraca, 5th century BC, Ancient Agora Museum in Athens, housed in the Stoa of Attalus (Merriam-Webster. Retrieved 2017).

Voting System

Ancient Greek bronze secret ballots used to cast a juror's vote on a case, 3rd century BC, Ancient Agora Museum in Athens, housed in the Stoa of Attalus In ancient Greece, citizens used pieces of broken pottery to scratch in the name of the candidate in the procedures of ostracism.

The first use of paper ballots to conduct an election appears to have been in Rome in 139 BC.

In Ancient India, around 920 AD, in Tamil Nadu, Palm leaves were used for village assembly elections. The palm leaves with candidate names, will be put inside a mud pot, for counting. This was called Kudavolai system (Abahlali baseMjondolo, 2005).

A voting system primarily consists of a set of methods and rules for counting votes or ballots in a bid to determine the outcome of elections. Winners may be determined by a plurality, a majority (more than 50% of the vote), an extraordinary majority (a percentage of the vote much greater than 50%), or unanimity.

Additionally, electronic voting (also known as e-voting) is a method of conducting elections in which votes or ballots are cast or collected electronically. Electronic voting is a encompassing several types of voting, embracing both electronic means of casting a vote (or ballot) and electronic means of counting votes (or ballots). Thus the term Intranet Voting can be used to describe a voting or electoral process that would enable voters to cast a secure and secret ballot over a computer network within an organization (intranet). Furthermore, there are essentially two different forms of voting; they are namely:

- ❖ Distance voting
- ❖ Presence voting

In distance voting, the voter or electorate acts without the physical supervision of electoral commission personnel, and casts his or her vote from a place other than a polling booth, such as casting absentee ballots via mail, internet voting, or intranet voting.

In Presence Voting, a voter or an electorate can cast his or her vote in a polling station under the physical supervision of the electoral administrators (or electoral commission personnel). Examples of presence voting are the conventional elections in polling stations or voting with e-voting machines (C. Molokwu, 2014).

Candidate

A candidate or nominee, is the prospective recipient of an award or honor, or a person seeking or being considered for some kind of position for example:

To be elected to an office, in this case a candidate selection procedure occurs.

To receive membership in a group, Nomination is part of the process of selecting a candidate for either election to an office by a political party or the bestowing of an honor or award. This person is called a nominee, though nominee often is used interchangeably with candidate.

A presumptive nominee is a person or organization believes that the nomination is inevitable or likely. The act of being a candidate in a race for either a party nomination or for electoral office is called a candidacy. Presumptive candidate may be used to describe someone who is predicted to be a formal candidate. Candidate is a derivative of the Latin candidus (shining white). In Ancient Rome, people running for political office would usually wear togas chalked and bleached to be bright white at speeches, debates, conventions, and other public functions

Candidate in Elections

In the context of elections for public office in a representational partisan democracy, a candidate who has been selected by a political party is normally said to be the nominee of that party. The party's selection (that is, the nomination) is typically accomplished either based on one or more Online Etymology Dictionary. Retrieved 2017). Primary elections according to the rules of the party and any applicable election laws.

Candidates also may be described as incumbents, if they are already serving in the office for which they are seeking re-election or challengers, if they are seeking to unseat an incumbent. In the context of elections for public office in a direct democracy, a candidate can be nominated by any eligible person and if parliamentary procedures are used, the nomination has to be seconded, i.e., receive agreement from a second person

In some non-partisan representative systems, no nominations (or campaigning) take place at all, with voters free to choose any person at the time of voting with some possible exceptions such as through a minimum age requirement in the jurisdiction. In such cases, it is not required (or even possible) that the members of the electorate be familiar with all of the eligible persons in their area, though such systems may involve indirect elections at larger geographic levels to ensure that some first-hand familiarity among potential collectors can exist at these levels i.e., among the elected delegates (Merriam-Webster. Retrieved 2017).

Electoral Systems

Different voting systems use different types of votes. A plurality voting system does not require the winner to achieve a vote majority, or more than fifty percent of the total votes cast. In a voting system that uses a single vote per race, when more than two candidates run, the winner may commonly have less than fifty percent of the vote. A side effect of a single vote per race is vote splitting, which tends to elect candidates that do not support centrism, and tends to produce a two-party system. An alternative to a single-vote system is approval voting, in a jurisdiction using an

electronic Direct Record voting system (DRE), voters choose by pushing a button next to a printed list of candidates and referenda, or by touching the candidate or referenda box on a touchscreen interface. As the voter makes a selection, the DRE creates an electronic ballot stored by in the memory components of the system. After the polls close, the system counts the votes and reports the totals to the election officials. Many DREs include a communication device to transmit vote totals to a central tabulator. The touchscreen systems remind people of an automated teller machine (ATM) and often are described as such (Smith, Sydney. 1839).

Voting Equipment

The recent years, voting equipment's which were widely adopted in many countries may be divided into five types

1. Paper-based voting: The voter gets a ballot and a pen or a marker to indicate he want to vote for which candidate. Hand-counted ballots is a time and labor consuming process, but it is easy to manufacture paper ballots and the ballots can be retained for verifying, this type is still the most common way to vote.
2. Lever voting machine: Lever machine is peculiar equipment, and each lever is assigned for a corresponding candidate. The voter pulls the lever to poll for his favorite candidate. This kind of voting machine can count up the ballots automatically. Because its interface is not user-friendly enough, giving some training to voters is necessary.
3. Direct recording electronic voting machine: This type, which is abbreviated to DRE, integrates with keyboard; touch screen, or buttons for the voter press to poll. Some of them lay in voting records and counting the votes is very quickly. But the other DRE without keep voting records are doubted about its accuracy.
4. Punch card: The voter uses metallic hole-punch to punch a hole on the blank ballot. It can count votes automatically, but if the voter's perforation is incomplete, the result is probably determined wrongfully.
5. Optical voting machine: After each voter fills a circle correspond to their favorite candidate on the blank ballot, this machine selects the darkest mark on each ballot for the vote then computes the total result. This kind of machine counts up ballots rapidly. However, if the voter fills over the circle, it will lead to the error result of optical-scan.

Review of related works

All computer scientists who have done work in or are interested in electronic voting seem to agree that online voting does not meet the requirements for public elections and that the current widely-deployed voting systems need improvement.

Other researchers have done work in electronic voting: while they may not explicitly mention voting from remote poll sites, their work is nonetheless relevant to any effort at designing or implementing a remote poll system.

In (1996) Lorrie Cranor acknowledges the problems inherent in each kind of voting apparatus, but doesn't make an overt recommendation on her site for one technology over the rest.

Some other academicians like Peter Neumann in (2007) focus on the immensity of the problem one faces when trying to design and implement a truly secure voting system. They often remind us of Ken Thompson's Turing acceptance speech and the fact that we really can't trust any code which we did not create ourselves. Therefore, they tend to be extremely suspicious of proprietary voting machines and their makers who insist that we should just trust them.

Neumann (2007) gives a list of suggestions for generic voting criteria which suggests that a voting system should be so hard to tamper with and so resistant to failure that no commercial system is likely to ever meet the requirements, and developing a suitable custom system would be extremely difficult and prohibitively expensive. A voting machine must produce human-readable hardcopy paper results, which can be verified by the voter before the vote is cast, and manually recounted later if necessary.

V. Kalaichelvi and R.M. Chandrasekaran(2005)assert that the implementation of electronic voting protocol for all electoral activities will aid in reducing the menace of electoral malpractices and irregularities. Also, they advocate that electronic voting shall provide a high degree of freedom, security, safety, confidence, as well as establish the essential requirements of an electronic voting system that will address crucial issues such as privacy, authentication, anonymity and duress.

Also, D. Chaum (2007), recommends that electronic voting, fortified with cryptographic algorithms and security techniques, is best suitable for the conduct of electoral activities globally. Additionally, P. Norris (2005) states that if citizens will not come to the polls, then newer technologies should be devised and employed that will bring the polls closer to the citizens. He also added that these newer technologies will allow users and citizens to be far more

knowledgeable about public political issues, be well articulated in expressing their own opinions, and active in casting their votes.

David Chaum (2007) presents a very interesting scheme, whereby voters could get receipts for their votes. This receipt would allow them to know if their votes were included in the final tally or not, and to prove that they voted without revealing any information about how they voted. The security of this scheme depends on visual cryptography developed by Naor and Shamir in (2007), and on voters randomly choosing one of two pieces of paper. In (2007) Mercuri and Neumann advocate the use of this technique in electronic voting systems.

3. PROPOSED METHOD

Product perspective

The software project is a standalone system and not a part of a larger system. The system is made up of two panels, one running visible directly to the administrator as a backend and the other visible to the end users, in this case the voters, through web pages. The two users of the system, namely the voters and the election authority (EA) interact with the system in different ways. The election authority configures the whole system according to its needs using the web interface, also the voters cast their votes using the web interface provided. These votes are accepted by the system on the server.

Product Functions

On the EA side, the system can be used to create/update/delete the election details (voter, position, candidates etc.). The EA will be able to specify the different attributes it wants for position/candidates of a particular election instance and voters. For example, the EA might be happy with just the roll numbers of each voter. After the election is set up, passwords must be generated and mailed to voters on request.

The system is also able to run separate election instances at the same time.

From the voter's panel, the system is used to help them cast their votes and allow them to view the results, which are automatically generated as they are casting their votes.

User Classes and Characteristics

The users can be divided into two main classes:

- ❖ The EA: its primary objective is to conduct fair and hassle-free elections. The EA has to be a neutral party and should not have any gain/loss from the election results. The EA invites potential candidates to file their nomination for certain positions depending on certain constraints. They should have adequate experience of using a computer to be able to configure the election properly.
- ❖ The Voters: The voters should have a basic knowledge of how to use a web browser and navigate through web pages. The voters should be aware that they have to keep their user-id and password confidential.

Design/Implementation Constraints

Even though the system enables voters to poll their vote from any terminal connected to the Internet, the voters should initially contact the election administrator's office to register themselves

and establish their user-ids. This constraint is imposed to ensure that only the genuine person is allowed to vote in the elections.

External Interface Requirements

User Interfaces

We have given all the use cases that are there for the system to specify the user interface. They are given below:

Use case 0: Welcome screen for the Administrator

Main success scenario:

1. The EA is asked to login using his administrator password.

Notes:

If EA enters wrong user-id or password. He is asked to re-enter the password.

Use case 1: Manage Voters

Main success scenario:

The EA chooses to create a new voter record for the first time ever, the EA is redirected to a new screen where he is required to specify the attributes of the voters that are needed to be stored in the database along with the user-id which is unique key among them.

- ❖ If the system encounter improper attribute format. Signal an error and go back to the same screen without any action.
- ❖ If the entered entity shares the same unique key with an existing entity, but the other attributes differ in their values. The system throws up an error displaying the clashing attributes and asks the EA to reenter the entity.

Modify the voter's information

Main success scenario:

1. The system presents the EA with list of voters screen.
2. The EA chooses the voter(s) to modify.
3. The EA either modifies the details or deletes the voter(s).
4. The system asks the EA to confirm the changes. The EA confirms.
5. The system presents the EA with the voter's list screen of step 1.

Note:

If EA cancels without confirming. The system does nothing and takes the EA back to the voter's list screen of step 1.

Use case 2: Manage Positions

Main success scenario:

The EA chooses to create a new position in the system, the EA is redirected to a new screen where he is required to specify the attributes of the position that are needed to be stored in the database along with the position name which is unique key among them.

- ❖ If the system encounter improper attribute format. Signal an error and go back to the same screen without any action.
- ❖ If the entered entity shares the same unique key with an existing entity, but the other attributes differ in their values. The system throws up an error displaying the clashing attributes and asks the EA to reenter the entity.

Modify position information

1. The system presents the EA with the list of all posts.
2. The EA chooses the post it wants to modify.
3. The EA either modifies the details or deletes the post.
4. The system presents the EA with the screen of step 1.

Use case 3: Manage the Candidates

Main success scenario:

When the EA chooses to create a new candidate, the EA is redirected to a new screen where he is required to specify the attributes of the candidate that are needed to be stored in the database along with the user-id which is unique key among them.

- ❖ If the system encounter improper attribute format. Signal an error and go back to the same screen without any action.
- ❖ If the entered entity shares the same unique key with an existing entity, but the other attributes differ in their values. The system throws up an error displaying the clashing attributes and asks the EA to reenter the entity.

Modify Candidate information

1. The system presents the user with the list of candidates
2. The EA chooses the candidate to modify.
3. The EA either modifies the details or deletes the candidate.
4. The system presents the EA with the screen of step 1.

Use case 4: Deletion of the already done election

Main success scenario:

1. The EA backup the result of election instance.
2. The EA chooses to delete the election instance.
3. The system asks the EA to confirm the request.
4. The EA confirms the request.
5. The system deletes all the information about the election instance and is now ready for configuration of a new election instance.

Use case 5: The Voting on the Voter's end

Main success scenario:

1. The voter is asked to login using the user-id and password provided to him earlier.
2. The system presents the voter with successive screens for voting categorize in respect to positions.
3. The voter selects one of the position to cast his vote on.
4. The system presents the voter with the list of candidates on that position.
5. The system presents the voter with the final choices of the candidates and ask for confirmation to cast vote.
6. The voter confirms the choices.
7. The system registers the choices made by the voter.

Note:

- ❖ If the voter enters wrong user-id or password. He is asked to re-enter the password.
- ❖ If the voter has already voted once. The system does not allow him to vote again.
- ❖ If the voter does not select any candidate for a position and attempts to submit. The system asks him to select one of the candidates.
- ❖ If the voter wishes to reconsider his choices. The system will not allow if he already confirm his choice.
- ❖ In case of system crashes or power failure at any point:
 - a. The voter has not confirmed. He has to re-login and vote again.
 - b. The voter has not confirmed his vote. He need not login again to vote.

Hardware Interfaces

There are no hardware interfaces to this software system. The only interfaces are through a computer system.

Software Interfaces

The poll server runs on http server that is enabled to handle server pages (eg. Apache Tomcat). It uses a relational database to keep track of the polls, which it connects through standard database connectivity interfaces.

Communications Protocols and Interfaces

- ❖ For the purpose of sending the voters their passwords through mail, the system should use the SMTP protocol.
- ❖ The system should also use standard protocols for secure transactions between the Voter and the system through the internet.

Non Functional Requirements

Performance Requirements

The software is expected to have reasonably short response time. It should be able to log-in and feed the voter with new pages on request with a response time of the order of a few seconds. The system is expected to serve a maximum of up to 10000 voters at any point of time, each voter being active for about a couple of minutes and requiring about 10 pages (depending on the number of positions to be voted for) in all. This would imply that the system should have the capability for processing about 100 transactions each second.

Safety Requirements

- ❖ In order to prevent data loss in case of system failure, the result of votes that were polled till then have to be saved in the database, for the system to resume the counting process on reboot.
- ❖ The EA should set up his system time appropriately for the election process to start at the correct time.
- ❖ In case the EA detects any security lapse in the system, he should be able to shut down the server and close all connections immediately while preserving the already polled votes.
- ❖ The system should be capable of gracefully recovering from earlier crashes and continuing the voting process.

Security Requirements

- ❖ The system should provide basic security features like password authentication and encrypted transactions.

- ❖ All the passwords generated and communicated to the users should be stored in the server only in an encrypted form for login management to prevent misuse.
- ❖ Serial attacks should be avoided by maintaining a minimum time gap between successive invalid log-in attempts.

4. SYSTEM IMPLEMENTATION

Database Design

The Online voting system uses a database called eVoting comprising of these tables as illustrated below:

Database Tables

1. **Student table:** the table holds records of registered student/voters with their respective preferred usernames and passwords. It also has the student id, student name, course of study, year of study and session.
2. **Candidate table:** the table hold the record of candidate such as; candidate id which must be equal to his id in student table, candidate name which is looked up from student table, position a candidate contesting for and session.
3. **Vote count table:** That holds records of the candidate, and the voter who casts a vote in favor of the candidate. Its primary key is the id field which is also necessary during vote counting. The database is queried to find out how many voters' casts their votes for a given contestant.
4. **Position table:** the table holds record of the available position, it includes position ID which automatically increment, position name and limit of contestants per position
5. **Admin table:** the table holds login details of Database Administrator, it includes Admin ID which automatically increment, username and a password for login.
6. **Logging Attempt:** this table hold the number of time a user try to login with wrong credentials, the record is used to count the limit number of logging attempt allowed for user in order to block a brute-force attack.
7. **Rigging Attempt:** the table keep the record of voters who try to vote more than once per position.

Interface Design

The system was developed as an interactive mechanism between the user at the interface and the database using the web-browser. This system enables a user through a web browser to interact with the MYSQL database to enter, edit, view and retrieve such data as per the privileges granted. These activities were achieved using Java servlets. HTML forms offer the best layout to enter data, change and view the database. These forms/pages were also kept as short and simple as possible for easy public awareness on the use of the system, some of the forms and report interfaces created include the following:

1. **Home Page:** this is the first page a user will interact with when he visit the system
2. **Login to vote:** When a user clicks on voting button, this page appears to him, to bypass this page, a user need login details which is his own school id and password given to him by admin to log in and cast his vote.
3. **Voting Category Page:** After a user bypass login to vote page. he will be redirected at this page, which is voting category, it contain all the registered position on the system, a user 'need to select which position he want vote on and click.
4. **Voting Page:** This is the main voting page each position has its own voting page, 'it contains all the candidate participating on that position: a user need to select which candidate he wants cast his vote to and click vote button to confirm his vote, after a user cast his vote on that particular position, he will automatically be redirected to voting category, on the category he can select another position to cast on his vote, if a voter try to vote again on the same position, the system will remind him that he can only cast his vote once and then discard the vote without recording it.
5. **Result Page:** This page contains all position and candidates that are participating on all the positions, each position and its contestants are separated from all positions, the page also contains vote count of each candidate and a percentage for each candidate according to the number of his vote, showing the winner of the election on each of the positions.
6. **Administrative Login:** Administrators use this page to login to the control panel there are two kind of administrators on the system, Admin and super Admin, Admin can create and manage student(vote),
7. **Admin Homepage:** This is the admin control panel. in this page admin have all the access to the system, he can add new position, new student, new candidate, he can also alter any student or delete a student or candidate or position, almost all the functionality of the system is here, such as searching for particular student record, candidate or position.
8. **Super Admin Control Panel:** This is the master of the system, a super admin has the high privileges more than admin, and super admin can create and destroy admin. He can view the result in his own view and even save it or print for future presentation, also super admin can view all the action done by other admins on the system, as well as the report of voters who try to vote more than once in the system.

9. **Voter Registration Page:** This is the student registration page, it provides all the needed field such as student id, name, department, year and password.
10. **Candidate Registration Form:** This page provides a form for registering new candidate, when filling the form, admin need to insert candidate id which is equal to his student id, after inserting the id, the system will look up that student name in student's record and place it in candidate name, admin now can select a position in respect to the position that particular candidate wants to participate to, and then provide a candidate picture and the current session and click add.
11. **Admins Report:** this is where super admin take a look at what other admins are doing on the system, from adding new candidate, positions, voters or anything like that.
12. **Rigging attempt:** This page display to admins the list of voters who tried to vote more than once, the page display the voter name, position he tried to vote more than once on, number of try and date of last try.
13. **Display (Result):** This page display to admin the result of Election with each candidate on the positions and each one with the number of vote he gain, in this page, admin can download the result in Excel file for future use, admin can also clear the election result, making room for another election to take place because the system can only allow candidate to vote once.

There are forms that are strictly preserved for the system administrators. He/she is the only one with the privileges to access and use these forms. The link leading to this pages is disabled for ordinary users.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

In Online Voting System, a student can use his her voting right online without any difficulty.

He or She has to be registered first for him/her to vote Registration is mainly done by the system Administrator for security reasons. The system Administrator registers the students on a special site of the system visited by him only, by simply filling a registration form to register student.

After registration, the student is assigned a secret Username and password with which he/she can use to log into the system and enjoy services provided by the system such as voting, checking results among others. If invalid/wrong details are submitted then the student is not registered to vote

Conclusion

This proposed system enables a student to cast his/her vote through internet without going to voting booth, proxy vote or double voting is not possible, fast to access, highly secure, easy to maintain all information of voting, highly efficient and flexible.

The use of online voting has the capability to reduce or remove unwanted human errors. In addition to its reliability online voting can handle multiple modalities, and provide better scalability for large elections.

The main aspect behind Online Voting System is that it enabled us to bring out the new ideas that were sustained within us for many days. This project offers the voters to cast easily through internet. Vote counting is also made easy by the Online Voting System since it's just a matter of querying the database. Online Voting System is use by a number of school all over the world today. Developing a good system is critical to the success of the system to prevent system failures and to gain wide acceptance the best method available. A good Online Voting System requires ten characteristics which this system already has. These are

- ❖ **Convenience**
- ❖ **Reliability**
- ❖ **Verifiability**
- ❖ **Flexibility**
- ❖ **Consistency**
- ❖ **Social acceptance**
- ❖ **Democracy**
- ❖ **Nobility**
- ❖ **Accuracy**
- ❖ **Privacy**

In analyzing, designing, implementing, and maintaining standards, we considered these characteristics as the foundation. These standards were made in respect to Student Union Government. Online Voting System will be an inexpensive and less time consuming method once a system exhibiting Student Union Government standards and the above mentioned characteristics is implemented.

Recommendations

After A research and finalization of this project, it is highly recommended that, the online voting system serves to be the best to put in use, especially in the 21" century where human beings are embracing technology and where there is malicious struggle for power by leaders all over the world. This struggle for power has resulted in the use of all approaches by the leaders in power to remain in their positions at whatever costs even if it means applying vote rigging to win elections. With this system in place, a number of such problems shall be forgotten. It is also recommended that the KSITM should put the Online Voting System technology to practice to phase out some of the problems they will go through, during manual voting.

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