

# ONLINE ELECTRONIC VOTING SYSTEM

## A Project Work

Submitted to the Institute of Information Technology, Jahangirnagar University, Savar, Dhaka in partial fulfillment of the requirements for the B.Sc (Hons.) degree in IT.

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## DECLARATION

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This project report titled “” is submitted to the **Institute of Information Technology**, Jahangirnagar University, Savar, Dhaka in partial fulfillment of the requirements for having the B.Sc (Hons.) degree in IT. This is also need to certify that the project work is under the 3rd Year 2nd Semester course of the IIT “*IT-3200: Semester Project & Viva*”. So, we, here declaring that this project report has not submitted elsewhere for the requirement of any kind of degree, diploma or publication.

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## ACCEPTANCE

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## ABSTRACT

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*The existing system of election is running manually and the piloted electronic voting using electronic voting machine (EVM) has many limitations in its mechanism. In this project, we have proposed an automated online electronic voting system by which voter registration, candidate selection, voting activities and reporting systems are accomplished automatically. Proper security services are also incorporated in the system to secure the database of the voters' information, and voter details. Finally, at the end of the day, casted votes will be counted automatically which would take lesser time than the manual system. The result would be accurate, faster and reliable, and thus minimizing corruption.*

Keywords: EVM, EVS, online electronic voting system.

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## TABLE OF CONTENTS

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<i>Chapter No.</i>	<i>Chapter Name</i>	<i>Page No.</i>
1.	Introduction	7
2.	Literature review	8
3.	System analysis and design	10
4.	Documentation with coding	11
5.	Results and outcome	12
6.	Conclusion and further recommendation	22
	References	23

# Chapter One

## Introduction

However, the system that exists currently in Bangladesh is totally paper based except very few centers consider EVM. This EVM is a simple electronic device used to record votes in place of ballot papers and boxes which were used earlier in conventional voting system. It is a simple machine that can be operated easily by both the polling personnel and the voters. Being a standalone machine without any network connectivity, nobody can interfere with its programming and manipulate the result. It has mainly two units: Control unit and Ballot unit. The Control Unit is the main unit which stores all data and controls the functioning of EVM. The program which controls the functioning of the control unit is burnt into a microchip on a “one time programmable basis” [Sarker, 2013]. Once burnt it cannot be read, copied out or altered. The EVMs use dynamic coding to enhance security of data transmitted from ballot unit to control unit. The new EVMs have also real time clock and date-time stamping facility which enables them to record the exact time and date whenever a key is pressed. After the voting is completed and the close button is pressed, the machine does not accept any data or record any vote. Through the press of “total” button, the control unit can display the number of votes recorded till that time which can be cross checked with the register of voters. The display system of the control unit shows the total number of votes polled in a polling station and the candidate-wise votes polled in the machine when the ‘result’ button is pressed by the counting staff in the presence of counting agents at the counting center. The control unit can also detect any physical tampering made with the connecting cable and indicate the same in the display unit.

## Chapter Two

### Literature review

The Australian Capital Territory (ACT) is one of eight states and territories in Australia [Thomos, 2004]. A close election in 1998 in the ACT found numerous problems in the state's hand-counting system, when two candidates were separated by only three or four votes. After recounting, officials discovered that out of 80,000 ballots, they had made about 100 mistakes. Ultimately, the ACT Electoral Commission adopted a new system known as eVACS, or Electronic Voting and Counting System. The system was created (by a company called Software Improvements) to run on Linux, which is a widely used, freely available open-source operating system [AEC's, 2007].

A national ad-hoc Commission will assess the pilot, with particular reference to the efficiency of the system, and address any problems it may encounter. The Commission will then make any necessary recommendations in order to prepare the system for wider testing in future elections [Kim Alexander, 2001].

Recently, over 100 million mobile phone SIMs have been re-registered with the biometric details of subscribers<sup>1</sup>. A Bangladeshi Higher Court has declared that ongoing biometric SIM registrations using fingerprints is legal<sup>2</sup>. The Bangladesh government has assured mobile phone users that their privacy would not be in jeopardy after they undergo biometric registration of their SIM cards and if there is any misuse of their personal data, carriers could be fined up to Tk. 300 crore (\$38.3M USD). “The cabinet has assured that there is no scope for misuse of the fingerprints of the subscribers and they need not be worried to this end<sup>3</sup>”.

The government decided to undertake voter registration along with their photographs, finger print and signature. The Bangladesh army commenced the creation of suitable people identification system to give the voter registration process a head start. International and

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<sup>1</sup> 31 May, 2016: bdnews24.

<sup>2</sup> 13 April, 2016: biometricupdate.com.

<sup>3</sup> 4 April, 2016: Bangladesh Cabinet.



local firms, academic institutions offered solutions. On invitation Dohatec<sup>4</sup> proposed a solution for gathering voter data on laptops with web cam, finger print scanner and signature pad to the army. Dohatec solution comprises of the electronic Voter Registration and ID software - 'eRegistry' and the higher level matching software – 'Biometrics Fusion Server' [Akan]. Microsoft examined the system and found it a robust solution and gave it worldwide focus. The Pilot Project went off successfully. Large scale matching solution has been provided since. Moreover many universities and organizations using biometric registrations and security systems all over the Bangladesh. For a democratic country public opinion is the most important determinant to establish a government and voting is the process through which people display their opinion and help to setup a democratic government. So the voting system should be reliable, accurate and it must be transparent. But the existing system has lot of limitations listed as below:

- a. The manual system that takes lots of time and the government has to bear the financial expenses for this purpose every election year.
- b. The election commission gets on pressure to prepare new and previous voter into the voter list. So it may contain numerous fake voters in voter list.
- c. Sometimes people ruin their votes by stamping on two or more signs mistakenly.
- d. While casting the votes the acting officers present in the centers marks a voter with a black ink on his or her nail but it is removable. So there is a chance for casting illegal votes.
- e. Manually checking voter list by polling agents takes long time whereas 100% vote cast is challenging.
- f. These votes are counted manually so the process becomes a gradual one which may be inaccurate as well.
- g. In Electronic voting machine has no reporting system whereas voter cannot understand his/her vote is casted or not.
- h. Anyone can press the button and give the vote. Device has no authentication process.

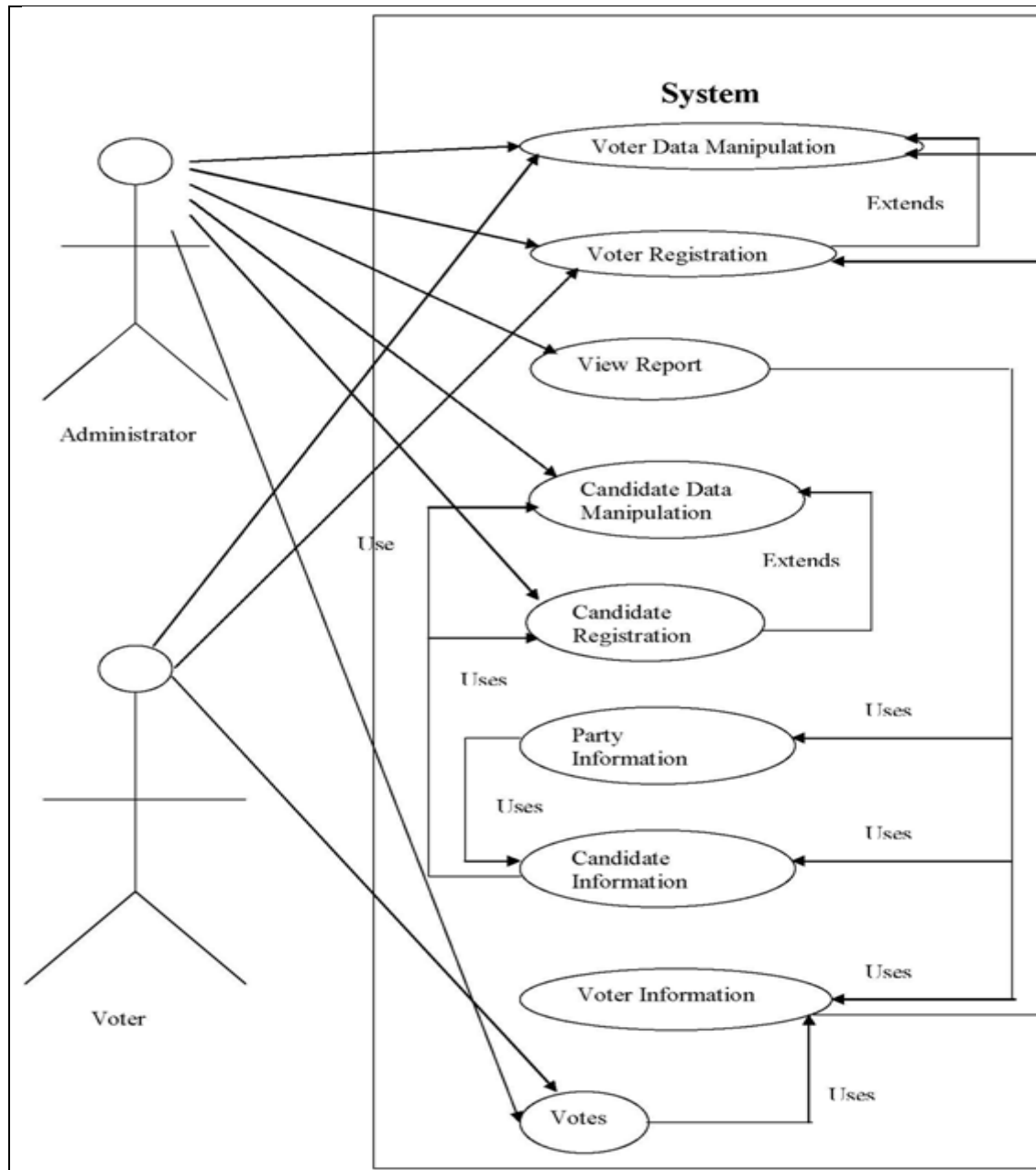
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<sup>4</sup> Dohatec CA is a trusted, qualified and licensed CA and issues Digital Certificates according to Bangladesh Law.

## Chapter Three

### System Analysis and Design

#### 3.1 The main flow diagram of our working project:



**Fig:** Voting process algorithm & System flowchart

We have used html, css, bootstrap, php and java script for our project. In database we have used mysql/maria db.

## Chapter Four

### Documentation with Coding

The full codes of our software are given in a CD to Institute of Information Technology, Jahangirnagar University, Bangladesh.

The algorithm of our online electronic voting system is:

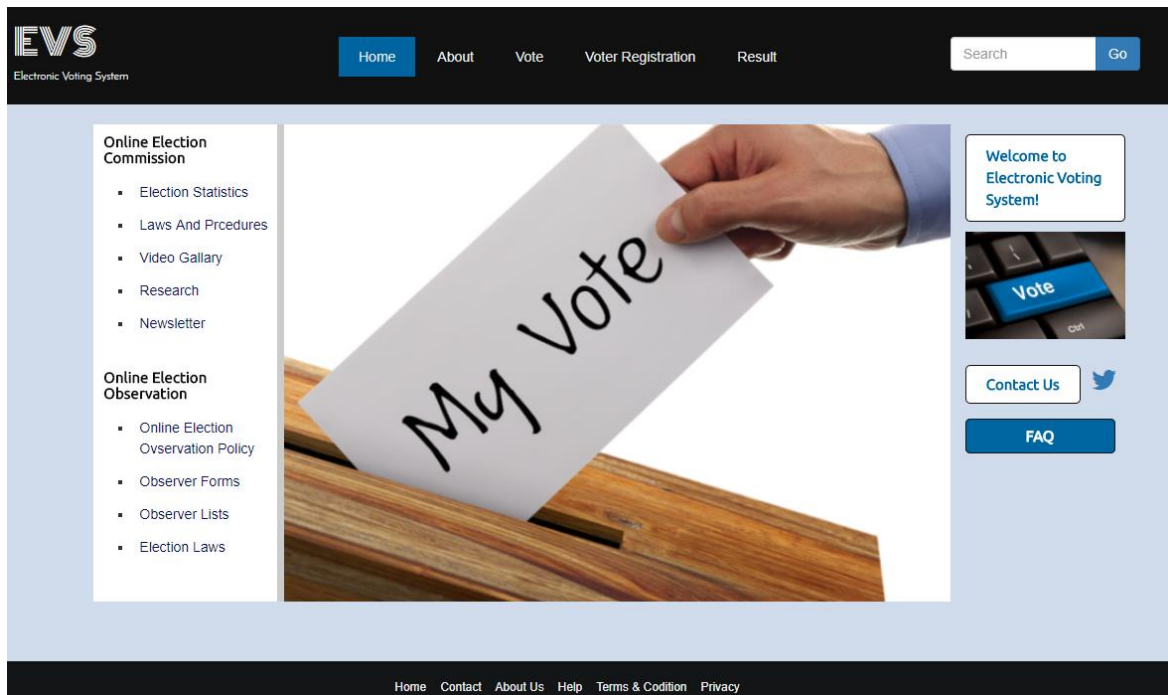
1. Admin will add the party, positions, candidate and voters in admin site.
2. Voter will be registered by admin.
3. Registered voter can login in user site.
4. One voter can login and vote only one time.
5. The candidates of all positions of all parties will appear gradually.
6. Voter will select the candidates, confirm votes and submit finally.
7. Admins can see the results, save and print them finally.

# Chapter Five

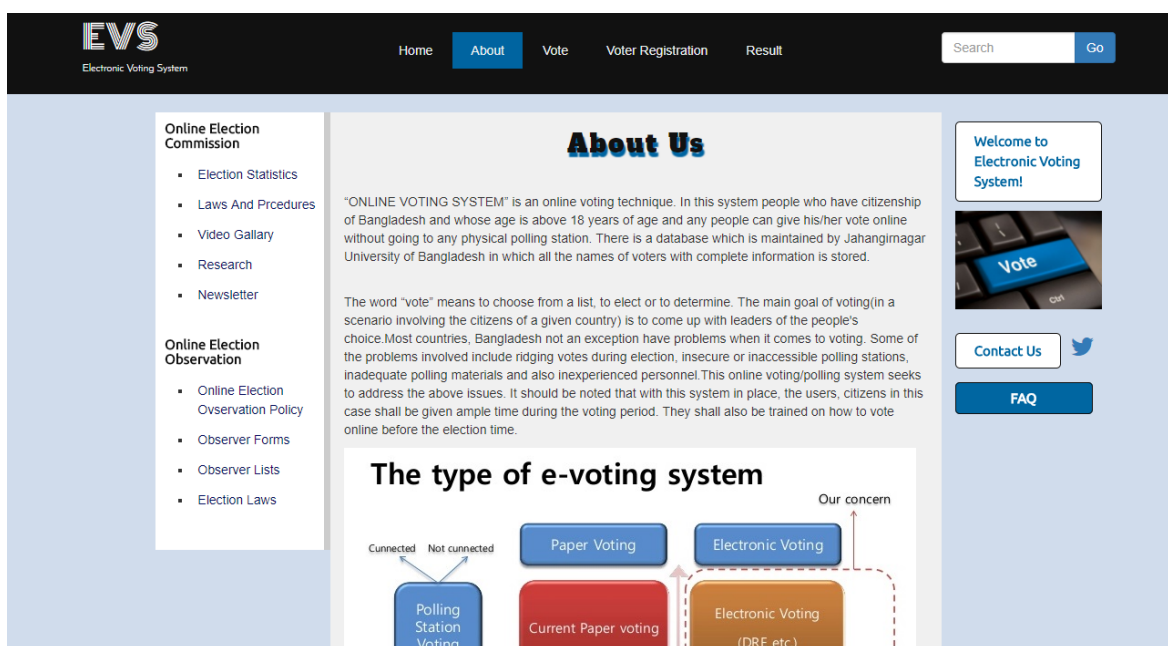
## Results and Outcome

Our online voting system has 20 particular functionalities. The main outputs are given below.

1. User site home page:



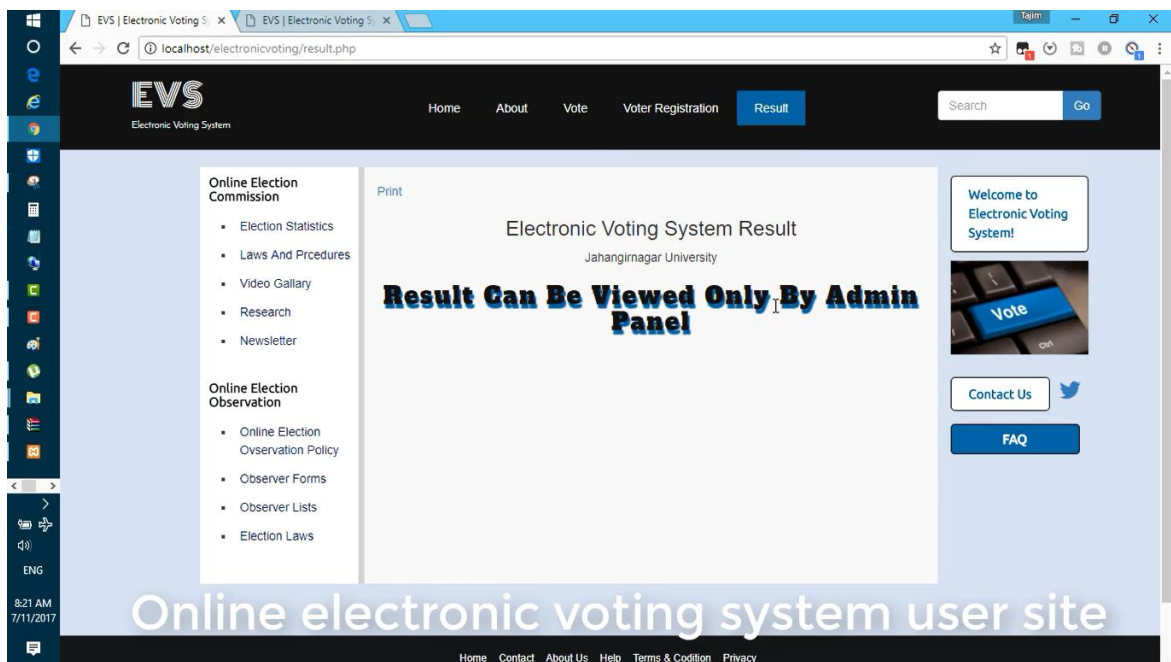
2. User site about page:




3. Voting login page in user site:

The screenshot shows the login page of the Electronic Voting System (EVS). The header includes the EVS logo, navigation links (Home, About, Vote, Voter Registration, Result), and a search bar. The main content area features the title "Electronic Voting System" and a login form with fields for NID, Username, and Password, along with a Login button. A red warning message states: "\*\*\* You can login only one time and your vote will cast for one time only. So be carefull \*\*\*". The left sidebar contains links for Online Election Commission and Online Election Observation. The right sidebar includes a welcome message, a "Vote" button, and links for Contact Us and FAQ.


4. Results and voter registration is not in user site:




5. Admin login (admin site will be logged out automatically after a few minutes):




Electronic Voting System

 Please enter your login details.

**Username**







**Password**




[Forgotten Password?](#)

[Home](#)
[Contact](#)
[About Us](#)
[Help](#)
[Terms & Codition](#)
[Privacy](#)

EVS\_IIT\_JU © 2017 | All rights reserved.

6. Home page of admin site shows the current time status of voting:



Electronic Voting System

[Home](#)
[Parties](#)
[Position](#)
[Candidates](#)
[Voters Info](#)
[Voters](#)
[Winner](#)
[Registration](#)
[Admin](#)
[Log Out](#)

Print

## Electronic Voting System

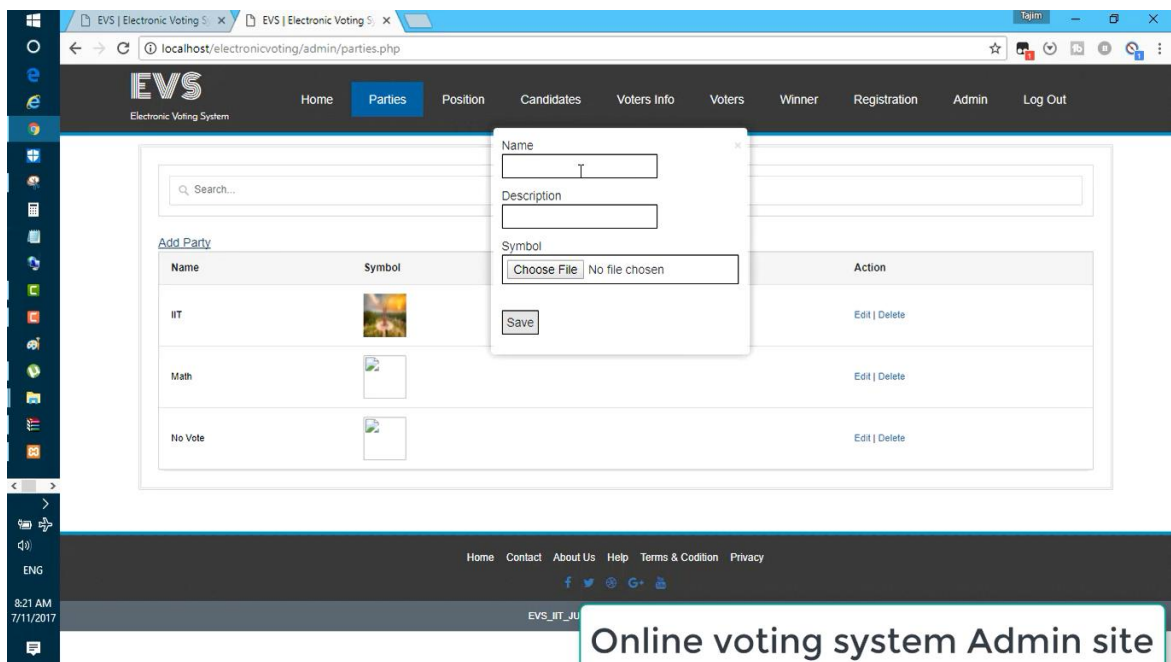
Jahangirnagar University

<b>Chairman</b>	<b>Total Votes</b>	<b>3</b>
K M Akkas Ali	=	3   %
Faruque Hossain	=	0   %
Risala Tasin Khan	=	0   %
<b>President</b>	<b>Total Votes</b>	<b>2</b>
Fazlul Karim Patwary	=	1   %
Fahima Tabassum	=	1   %
<b>Vice President</b>	<b>Total Votes</b>	<b>2</b>
M Mesbah Uddin	=	1   %
M Shamim Kaiser	=	1   %
<b>Secretary</b>	<b>Total Votes</b>	
<b>Joint Secretary</b>	<b>Total Votes</b>	

**Time:** 08:21:36am

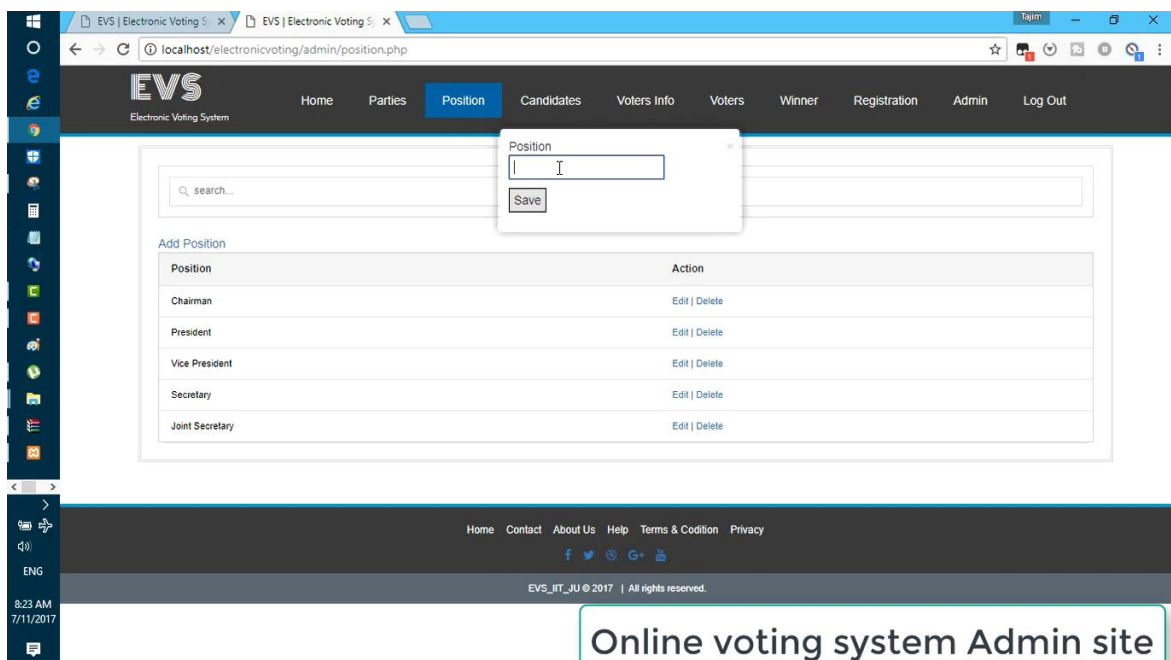
# Online voting system Admin site

7. Admins can add parties from here:



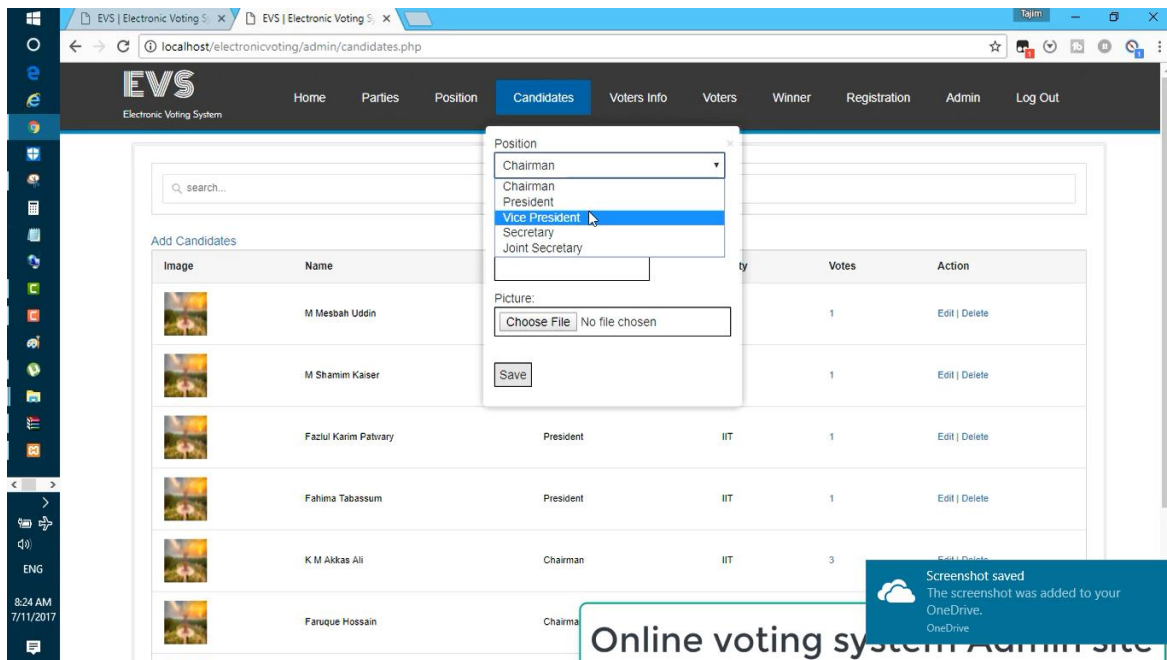
Online voting system Admin site

8. Admins can add positions:

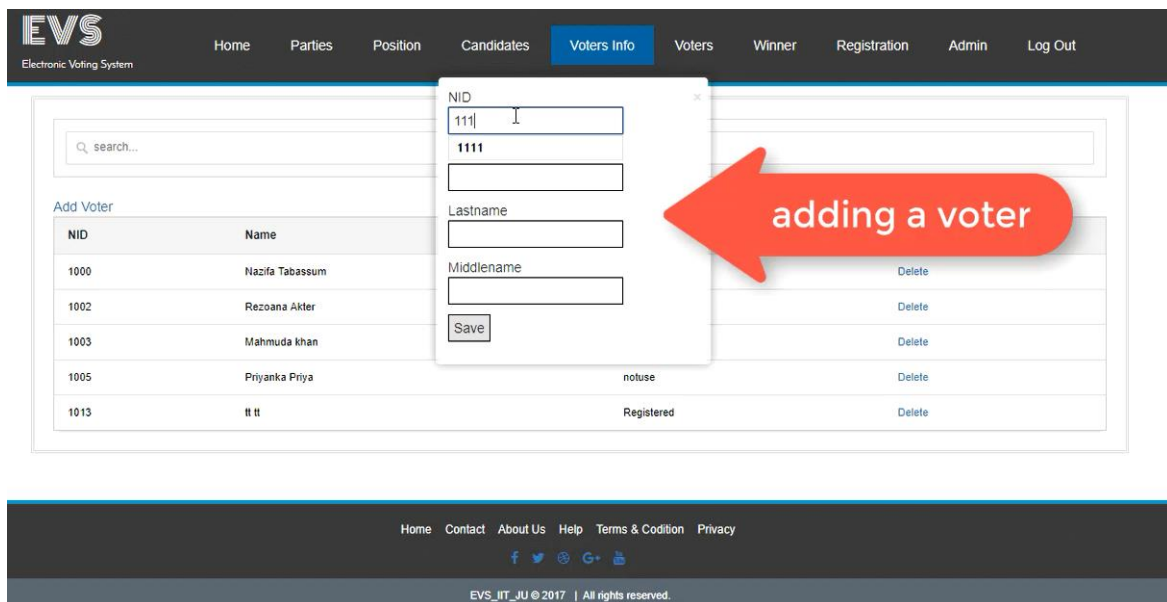


Online voting system Admin site

9. Candidates in all positions for all the parties can be added in admin panel:



10. Voter list will be made with the name and ID in voters info section:



11. New voter added:



**EVs**  
Electronic Voting System

Home Parties Position Candidates **Voters Info** Voters Winner Registration Admin Log Out

search...

Add Voter

NID	Name	Status	Action
1000	Nazifa Tabas	used	Delete
1002	Rezoana Akti	notuse	Delete
1003	Mahmuda khan	used	Delete
1005	Priyanka Priya	notuse	Delete
1013	It It	Registered	Delete
1111	Tajm Iftu	notRegistered	Delete

**New voter**

12. The statistics of the voters also seen here in admin panel:

**EVs**  
Electronic Voting System

Home Parties Position Candidates **Voters** Winner Registration Admin Log Out

search...

Total Voters: 3

Voted: 2 67%

Not Vote: 1 33%

Name	Status	Action
Nazifa Tabassum	voted	Delete
Mahmuda khan	notvoted	Delete
It It	voted	Delete

Home Contact About Us Help Terms & Condition Privacy

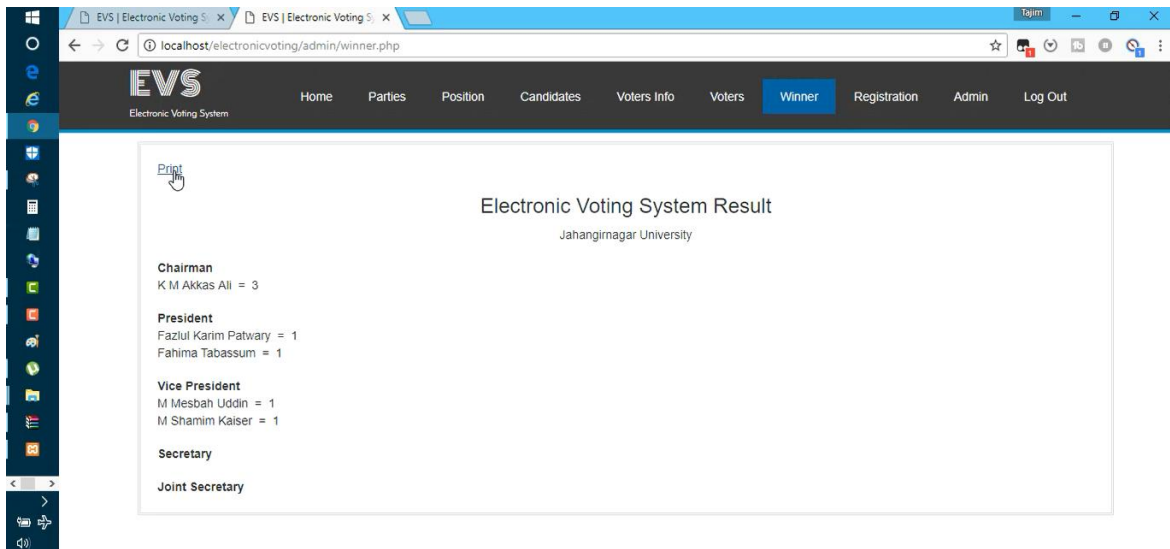
ENG

8:25 AM  
7/11/2017

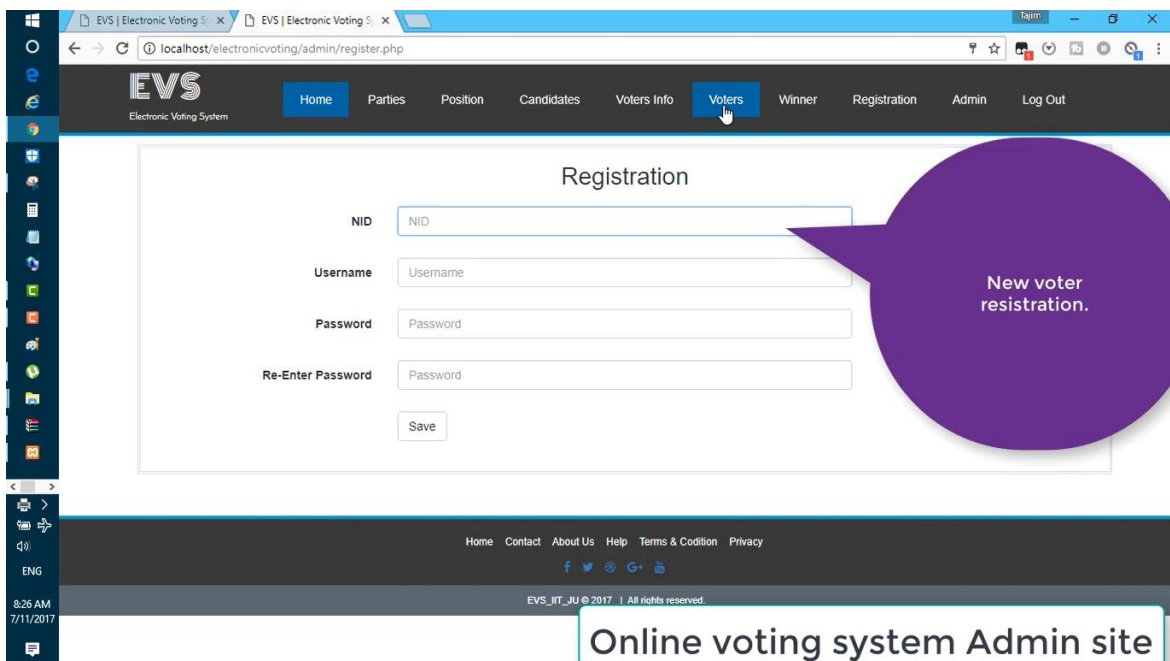
EVs\_IIT\_JU

**Online voting system Admin site**

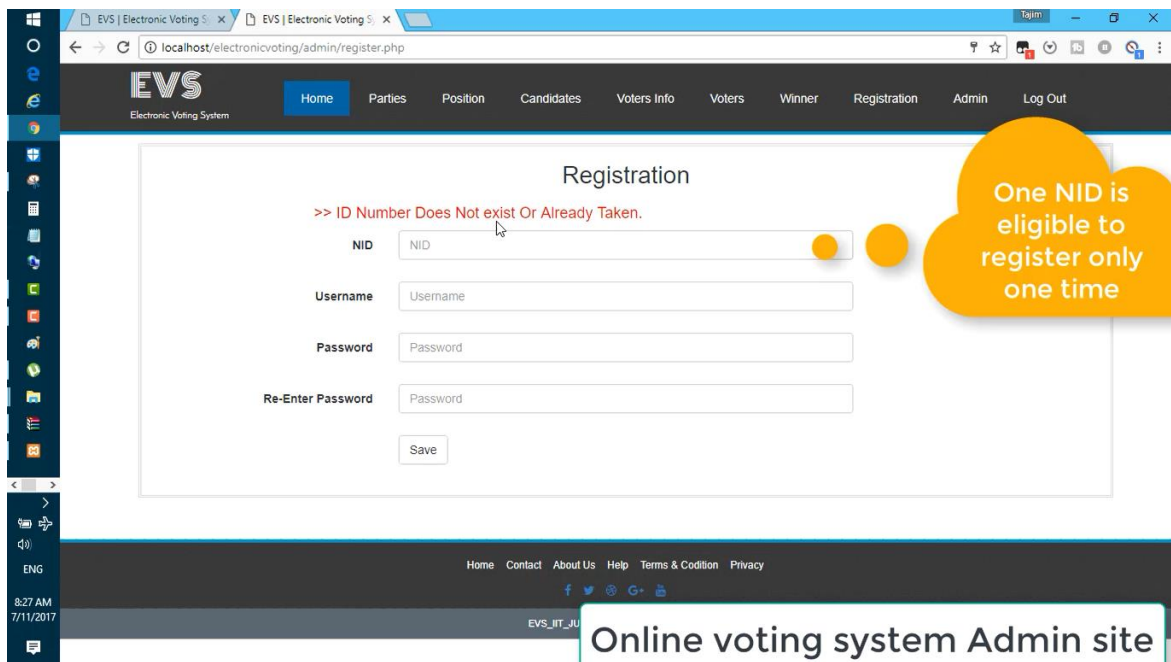
13. Admins can see the result, print it and save it as pdf files:



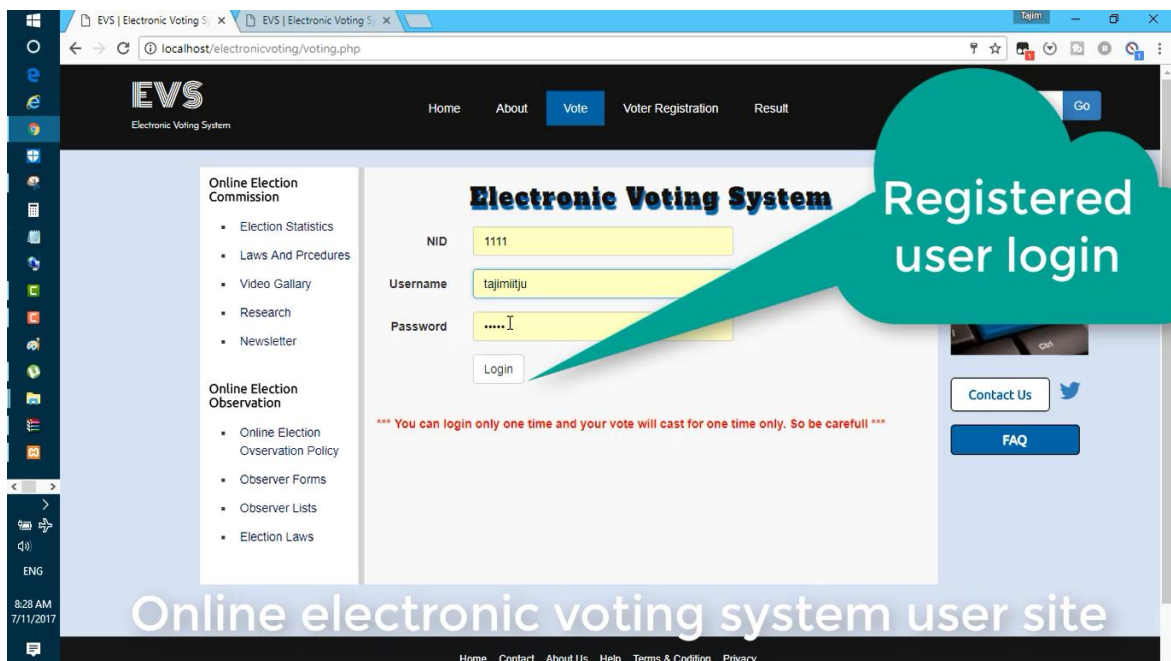
#### 14. Voters registration in admin panel:



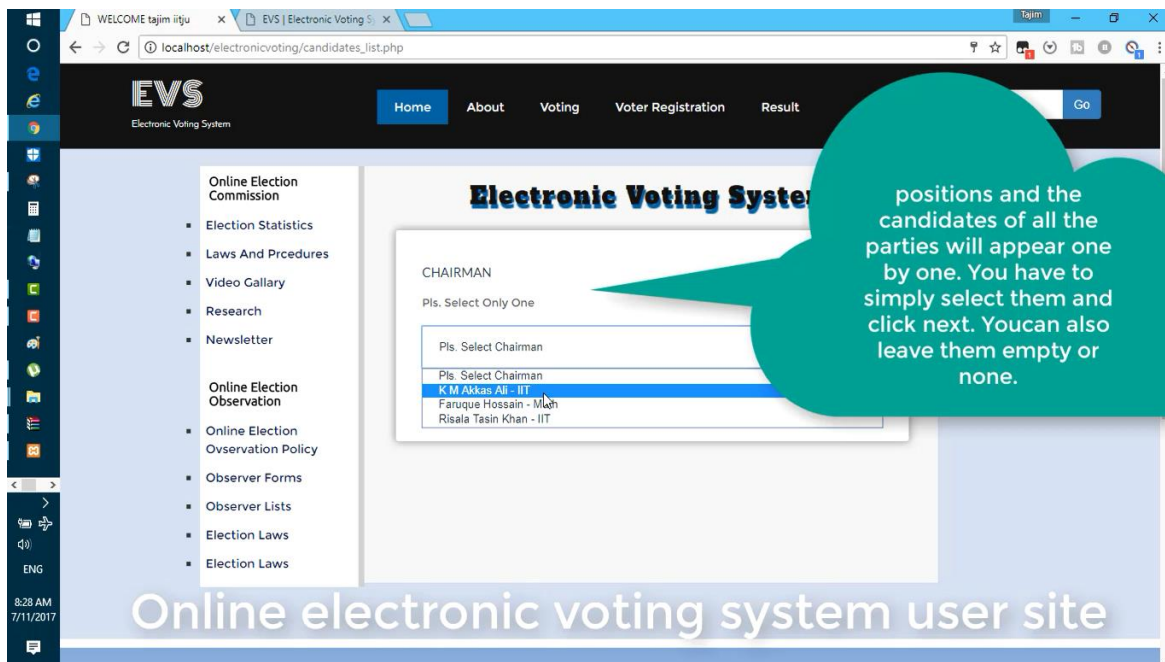
#### 15. One NID is eligible for register at only one time:



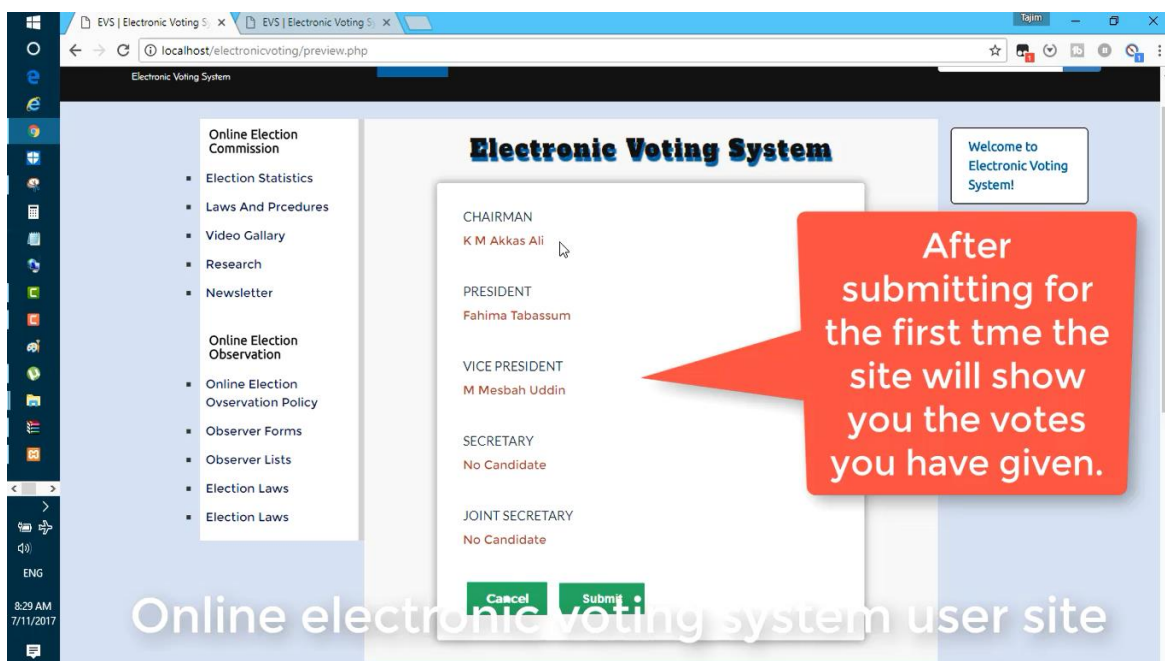
16. Registered user can login to vote:



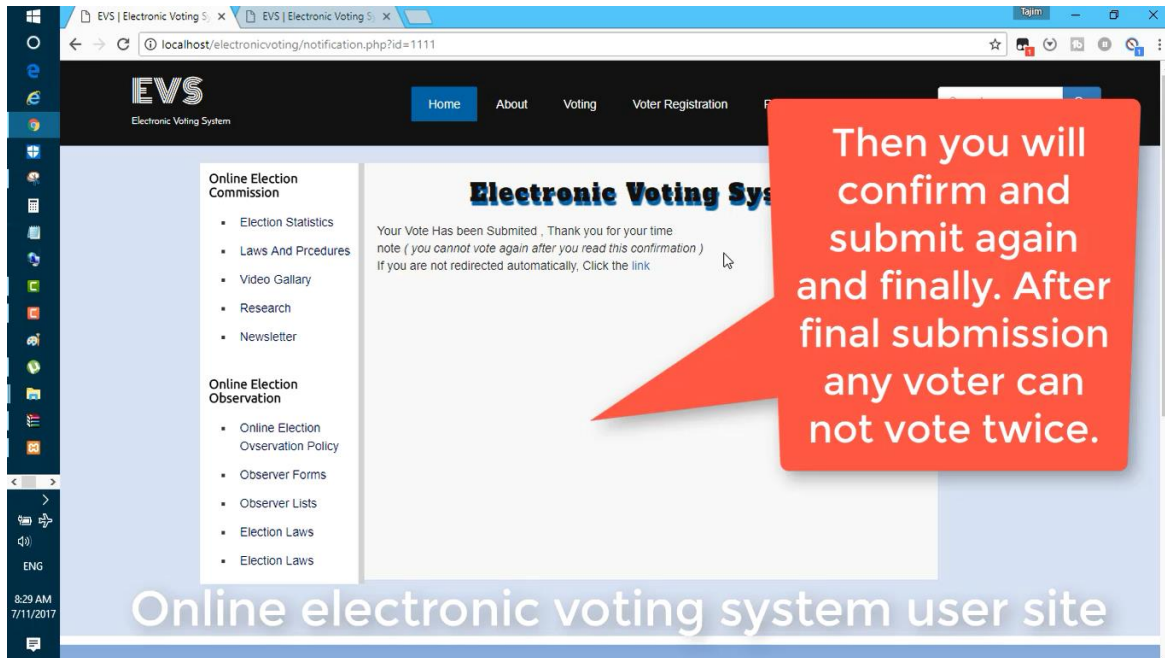
17. User will select the candidates for all the positions those will appear one by one:



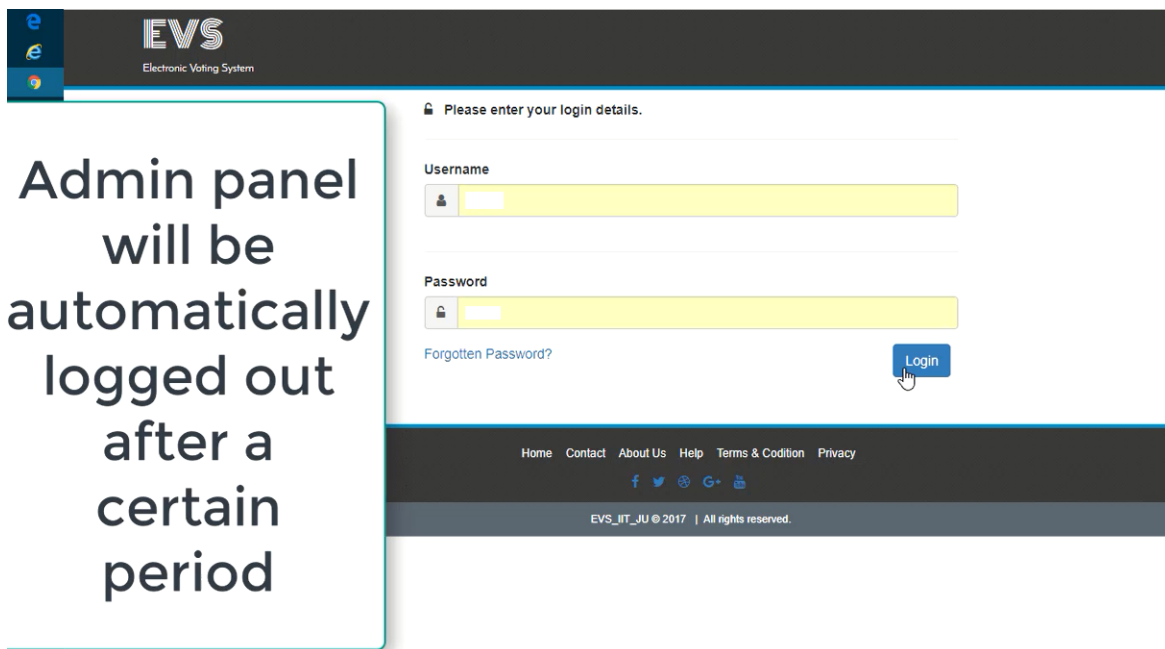
18. The system will show a voter about his/her given votes. Voter will see these and confirm and submit it again:



19. After submit and again submit it with confirmation user site will show a confirmation message. After seeing which the user can not vote again. Any user can login only one time and can give vote only one time.



20. Admin panel will be logged out automatically after a few minutes:



## Chapter Six

### Conclusions and Further Recommendations

E-voting systems have many advantages over conventional systems but it still has to solve many hurdles before becoming coming to fruition [Rohan, 2015]. Bangladesh's majority population is rural and illiterate. Also there is shortage of power and inadequate network between cities and villages. This system requires good bandwidth and high speed internet connection for operating, but it is still a distant reality in many rural areas. However conditions are improving with the onset of education in rural areas and with increasing urban population this project may soon become a reality. We want to make this system biometrically secure with fingerprints. Biometric electronic voting system is very challenging work. Moreover, fingerprints have been one of the most highly used methods for human recognition; automated biometric systems have only been available in recent years. Because fingerprints have a generally broad acceptance with the general public, law enforcement and the forensic science community, they will continue to be used with many governments' legacy systems and will be utilized in new systems for evolving applications that require a reliable biometric.





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