

ELECTION REGISTRATION SYSTEM ON SYSTEM Z/MAINFRAME**NOR FAZLEEN MOHAMMAD NASIR**

**A thesis submitted in fulfilment of the requirements
for the award of the degree of
Bachelor of Computer Science(Computer System and Networking)**

Faculty of Computer Science & Software Engineering**UNIVERSITY MALAYSIA PAHANG**

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Tarikh 30 NOV 2012	

ABSTRACT

Election Registration System helps system operators and system administrators to monitor and manage the registration for election activities easily without having problems in the server ability and the database. This system helps the system operator and system administrators to work in an efficient way without having so much trouble with the server down due to the overloaded users at a time by using the system z/mainframe. The system z/mainframe refers to the zero downtime servers which can ensure that there will be no problem with the server even there are a lot of requests at a time. This ERS helps the system operators and system administrators to work faster in terms of updating, viewing and printing the data in the database.

ABSTRAK

Sistem Pendaftaran Pilihan Raya membantu pengendali sistem dan pentadbir sistem untuk memantau dan menguruskan pendaftaran untuk aktiviti pilihan raya dengan mudah tanpa masalah dalam keupayaan server dan pangkalan data. Sistem ini membantu pengendali sistem dan pentadbir sistem untuk bekerja dengan cara yang cekap tanpa menghadapi masalah yang begitu banyak dengan pelayan turun disebabkan kepada pengguna yang terlalu banyak pada satu-satu masa dengan menggunakan sistem mainframe-z. Sistem mainframe-z merujuk kepada sifar waktu tergendala pada setiap server yang boleh memastikan bahawa tidak akan ada masalah dengan server bahkan terdapat banyak permintaan pada satu-satu masa. ERS ini membantu pengendali sistem dan pentadbir sistem untuk kerja-kerja lebih cepat dari segi mengemaskini, melihat dan mencetak data dalam pangkalan data.

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CHAPTER 1

INTRODUCTION

This chapter will discuss on the background of the study which from this background, several research objectives and scope will be stated out. Through this research background, the problems faced by the current system will also be listed.

1.1 Background

Malaysia's election is carried out once every four to five years. The election is managed by Election Commission of Malaysia, EC or known as Suruhanjaya Pilihanraya Malaysia, SPRM. So, the registration of citizens who are eligible for the election is carried out by this commission. According to the guidelines made by EC, citizens aged 21 and above are eligible to register. However, they are also have to be the residents in a constituency and are not disqualified by law (Rachagan, 1993).

For the eligible citizens, they have to register at the specific locations such as at the headquarter of the Election Commission of Malaysia, computerized post office for all over the country, District Office or Office of the District Council and also Election Commission counters which is open from time to time especially at the supermarkets and shopping malls through the Outreach Program. However, for these places, the registration

CHAPTER 2

LITERATURE REVIEW

This chapter will discuss on the reviews for the project. It is divided into 2 major parts, which are the current system review and the technology review.

2.1 The Existing System Review

This section will review on the current system available in three countries, which are Malaysia, Indonesia and USA.

2.1.1 Laman Web Rasmi Suruhanjaya Pilihan Raya Malaysia

Laman Web Rasmi Suruhanjaya Pilihan Raya Malaysia is a portal that provides information and applications related to the election system in Malaysia. This includes the application for checking whether the citizens are already registered or not, system for complaint and inquiry, to download forms especially the registration form and also the latest election results.

SURUHANJAYA PILIHAN RAYA MALAYSIA
Election Commission of Malaysia
Cekap dan Telus

UTAMA MENGENAI SPR PENDAFTARAN PEMILIH URUSAN PILIHAN RAYA PERSEMPADANAN BAHAGIAN PILIHAN RAYA GALERI INFORMASI SOALAH LAZIM

SELAMAT DATANG KE LAMAN WEB RASMI SURUHANJAYA PILIHAN RAYA MALAYSIA

PERKHIDMATAN ATAS TALIAN

- Semakan Daftar Pemilih
- Semakan Isi Rumah
- Sistem Aduan / Pertanyaan
- Muat Turun Borang
- Keputusan Pilihan Raya Sarawak

HEBAHAN

alamat terkini anda dalam Kad Pengenalan anda terbaharu dahulu di Jabatan Pendaftaran Negara (JPN). Untuk memohon pertukaran Pusat Mengundi, anda perlu HADIR SENDIRI dengan membawa Kad Pengenalan atau Resit Sementara JPN ke mana-mana Pejabat SPR atau Kaunter Pendaftaran SPR di seluruh negara atau di mana-mana Pejabat Pos (berkomputer) di seluruh negara.

BERITA SPR

1 2 3

PENDEKATAN TERHADAP ISU-ISU YANG DIBANGKITKAN MENGENAI PILIHAN RAYA 2008

Kebangkitan ini terdapat kecenderungan yang kuat di kalangan beberapa pihak dalam memperkatakan kemampuan dan kredibiliti Suruhanjaya Pilihan Raya (SPR) dalam mengendalikan pilihan raya di negara ini.

BACA LAGI


HUBUNGI KAMI

SURUHANJAYA PILIHAN RAYA MALAYSIA
Aras 4-5, Blok C7 Kompleks C
Pusat Perkhidmatan Kerajaan Persekutuan
62690 PUTRAJAYA

(603) - 8885 6545 (Utusan)
(603) - 8885 6500 (Pusat)
(603) - 8888 9117 (Pusat)

KOLEKSI VIDEO SPR



Figure 2.1: Homepage of Election Commission of Malaysia




SURUHANJAYA PILIHAN RAYA MALAYSIA

Election Commission of Malaysia


"Cekap dan Telus"

A++




UTAMA
MENGENAI SPR
PENDAFTARAN PEMILIH
URUSAN PILIHAN RAYA
PERSEMPADANAN BAHAGIAN PILIHAN RAYA
GALERI INFORMASI
SOALAN LAZIM

 **Latar Belakang**


Sejarah Penubuhan
Misi & Visi
Perutusan Pengerusi

 **Profil**


Pengerusi SPR
Timbalan Pengerusi SPR
Ahli SPR
Setiausaha SPR

 **Piagam Pelanggan**


Bahagian Pengurusan
Bahagian Operasi
Bahagian Teknologi Maklumat
Pejabat Pilihan Raya Negeri

 **Carta Organisasi**

Urusetia SPR
Ahli SPR






 **Perundangan**

Perlembagaan Persekutuan
Perlembagaan Negeri
Akta & Peraturan-Peraturan Pilihan Raya

 **Direktori**

Pejabat Ahli-Ahli SPR
Pejabat Setiausaha
Pejabat Timb. Setiausaha (Pengurusan)
Pejabat Timb. Setiausaha (Pilihan Raya)
Pejabat Timb. Setiausaha (Penyelidikan)
Pejabat Pilihan Raya Negeri

PERKHIDMATAN ATAS TALIAN

 **Semakan Daftar Pemilih**
 **Semakan Isi Rumah**
 **Sistem Aduan / Pertanyaan**
 **Muat Turun Borang**
 **Keputusan Pilihan Raya Sarawak**

HEBAH


SEMAKAN RANG DPT SUKU TAHUN KETIGA 2011
(26 OKTOBER 2011)

KENYATAAN MEDIA: PAMERAN RANG DAFTAR PEMILIH TAMBAHAN SUKU TAHUN KETIGA 2011(25 OKTOBER 2011)

KERATAN AKHBAR : BANTAHAN PERLU BERASAS -

1 2 3

PENDELAHAN TERHADAP ISU-ISU YANG DIBANGKITKAN MENGENAI PILIHAN RAYA BARU



Kebelakangan ini terdapat kecenderungan yang kuat di kalangan beberapa pihak dalam mempertikaikan kemampuan dan kredibiliti Suruhanjaya Pilihan Raya (SPR) dalam mengendalikan pilihan raya di negara ini.



BACA LAGI

Figure 2.2: Some information about the Election commission of Malaysia

2.1.2 Laman Web Rasmi Komisi Pemilihan Umum

Komisi Pemilihan Umum provides information about election for the Indonesian. As for Malaysia's website, it also provides information on the election for the country. However, the features are much more different as for Indonesia; it contains fewer menus compared with Malaysia's website. There is also less information about their election commission.

The screenshot displays the homepage of the Komisi Pemilihan Umum (KPU) website. The header includes the KPU logo, contact information for the Jakarta office, and a navigation bar with links like 'Halaman Utama', 'Search', and 'Lomba Desain Poster dan Flyer KPU'. A large banner at the top right reads 'Pemilu 2009' and 'Malamat Rakyat Menggunakan Hak Pilihnya'.


The main content area features several news items:

- TAHAPAN PENYELENGGARAAN PEMILUKADA DI PATI, BATANG, DAN JEPARA** (October 20, 2011): Announces the start of election preparations in three districts of Central Java.
- CHARACTER BUILDING KPU DENGAN ESQ, LEADERSHIP ARY GINANJAR** (October 19, 2011): Reports on a character-building activity for KPU staff led by Ary Ginanjar.
- PEMILUKADA MENTAWAI: YUDAS SABAGGALET-RIJEL SAMALOISA MENANG, TINGKAT PARTISIPASI CAPAI 81%** (October 18, 2011): Announces the election results for Mentawai, with a participation rate of 81%.

On the left side, there is a sidebar with links to various sections like 'Halaman Utama', 'Berita', 'Pencanan', 'Tentang KPU', 'Peraturan / UU', 'Pemilu', 'Pemilu Kepala Daerah', 'Sosial Jasi & Partisipasi Masyarakat', 'Suara KPU', 'English News', and 'KPU Dalam Berita'. Below these links is a large graphic with the text 'Pastikan Nama Anda Terdaftar Satu Kali dalam DPTA' and 'PEMILUKADA di Daerah Anda'.

On the right side, there are additional features including a 'MEDIA CENTER' link, a 'Tanda Pilihanmu' graphic, a 'BERSAMA SIKAT' section about voter education materials, and a 'KALENDER' (calendar) for September, October, and November 2011.

Figure 2.3: Homepage of Komisi Pemilihan Umum


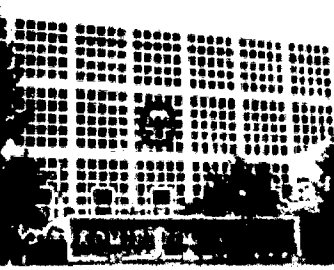



KOMISI PEMILIHAN UMUM

www.kpu.go.id

Jl. Medan Merdeka No. 29
Jakarta 10310

Tel. 021-31937223
Fax 021-31977259

Pemilu 2009

Melayani Rakyat Menggunakan Hak Pilihnya

Home
Halaman Utama
Search
Lomba Desain Poster dan Flyer KPU
Home

Halaman Utama

Berita

Pencanan

Tentang KPU

Peraturan / UU

Pemilu

Pemilu Kepala Daerah

Sosialisasi & Partisipasi Masyarakat

Suara KPU

English News

KPU Dalam Berita

KPU BANTEN TETAPKAN RATU ATUT-RANO KARNO SEBAGAI GUBERNUR-WAGUP BANTEN TERPILIH PERIODE 2012-2017


Selasa, 01 November 2011

Profil KPU

Anggota KPU

Visi & Misi KPU

Tugas & Wewenang KPU



Jakarta, kpu.go.id- Rekapitulasi penghitungan suara Pemilihan Umum Kepala Daerah dan Wakil Kepala Daerah (Pemilukada) Gubernur dan Wakil Gubernur Provinsi Banten di tingkat Provinsi telah dilaksanakan pada Minggu (30/10) di Hotel Le Dian Kota Serang, Banten.

Melalui keputusan nomor : 56/Kpps/KPU-Prov/015/Tahun 2011 tentang Penetapan Pasangan Calon Terpilih Kepala Daerah dan Wakil Kepala Daerah (Pemilukada) Gubernur dan Wakil Gubernur Provinsi Banten periode 2012-2017, yang tertuang dalam Berita Acara nomor : 30/BAK/Tahun 2011, KPU Provinsi Banten menetapkan pasangan nomor urut 1 (satu), Ratu Atut Chosiyah-Rano Karno, sebagai pasangan Gubernur-Wakil Gubernur Banten terpilih periode 2012-2017.

[Selengkapnya...](#)

Undang-undang / Peraturan


Partai Partai

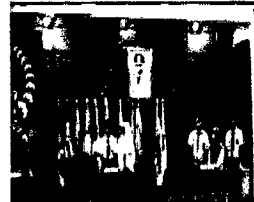
Peta Daerah Pemilihan

KPU SULAWESI SELATAN SELenggarakan LOMBA CERDAS CERMAT PEMILU DAN DEMOKRASI ANTAR SMU/SMK/SEDERAJAT

Jumst, 28 Oktober 2011

Pastikan Nama Anda Terdaftar Satu Kali dalam DPT





Jakarta, kpu.go.id- Dalam rangka meningkatkan partisipasi pemilih dan peran serta masyarakat terutama peningkatan kemampuan pemilih pemula dalam Pemilihan Umum, Komisi Pemilihan Umum Provinsi Sulawesi Selatan melaksanakan sosialisasi dalam bentuk Lomba Cerdas Cermat Pemilu dan Demokrasi antar SMU/SMK/Sederajat Tingkat Provinsi Sulawesi Selatan.

Bertempat di gedung Pola Kantor Gubernur Provinsi Sulawesi Selatan pada tanggal 27 - 28 Oktober 2011 diselenggarakan Lomba Cerdas Cermat Pemilu dan Demokrasi antar SMU/SMK/Sederajat Tingkat Provinsi Sulawesi Selatan yang memperebutkan hadiah...

Figure 2.4: Some information about the Komisi Pemilihan Umum Indonesia.

2.1.3 Federal Election Commission of USA

Federal Election Commission of USA provides information of election for their citizens. The information are including the campaign finance report and data, meetings and hearings, enforcement matters, law and regulation and also some information regarding the Federal Election Commission. However, this website seems to be lack of information if it is compared with the official website of KomisiPemilihanUmum and Election Commission of Malaysia.

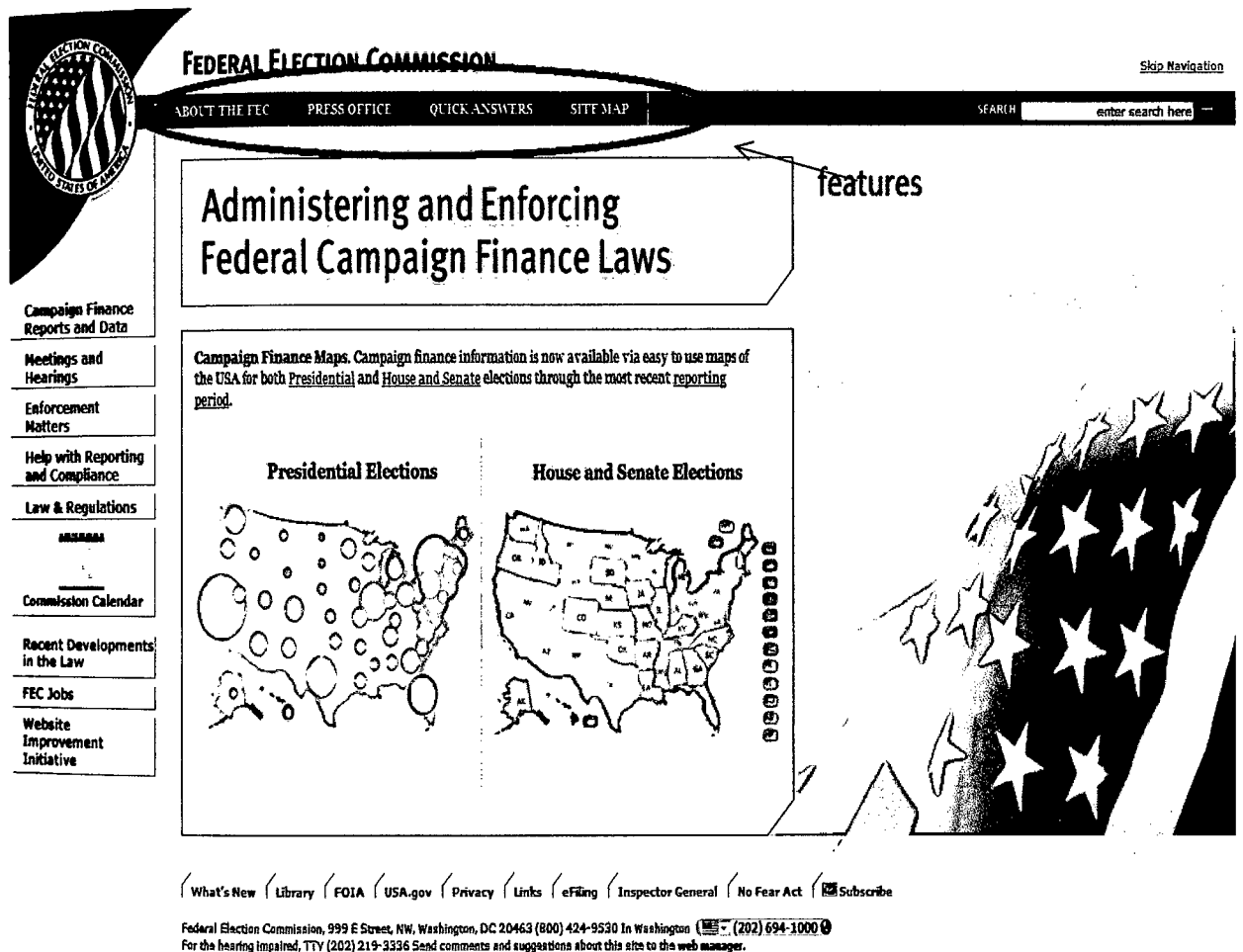


Figure 2.5: Homepage of Federal Election Commission

FEDERAL ELECTION COMMISSION

[Skip Navigation](#)

[ABOUT THE FEC](#) [PRESS OFFICE](#) [QUICK ANSWERS](#) [SITE MAP](#)

SEARCH enter search here

[The Commissioners](#)
[Mission and History](#)
[FEC Offices](#)
[Employment](#)
[Equal Employment Opportunity](#)
[Working With the FEC](#)
[Budget](#)
[Open Government at the FEC](#)

[Campaign Finance Reports and Data](#)
[Meetings and Hearings](#)
[Enforcement Matters](#)
[Help with Reporting and Compliance](#)
[Law & Regulations](#)
[Commission Calendar](#)
[Recent Developments in the Law](#)
[FEC Jobs](#)
[Website Improvement Initiative](#)

Monitoring and Enforcing Campaign Finance Laws

Campaign finance information is now available via easy to use maps of Presidential and House and Senate elections through the most recent reporting

Presidential Elections

House and Senate Elections

[What's New](#) [Library](#) [FOIA](#) [USA.gov](#) [Privacy](#) [Links](#) [eFiling](#) [Inspector General](#) [No Fear Act](#) [Subscribe](#)

Federal Election Commission, 999 E Street, NW, Washington, DC 20463 (800) 424-9530 In Washington (202) 694-1000
 For the hearing impaired, TTY (202) 219-3336 Send comments and suggestions about this site to the [web manager](#).

Figure 2.6: Some information about the Federal Election Commission

2.1.4 Comparisons between Suruhanjaya Pilihanraya Malaysia (SPRM), Komisi Pemilihan Umum (KPU), and Federal Election Commission of USA (FEC).

In official website of Suruhanjaya aPilihanraya Malaysia (SPRM), there is clearly explained about the commission including the background of the commission including the history of the establishment, profile of the commission, organization chart and also legislation. Besides that, there is also information provided about the registration of electors such as the conditions of eligibility check, how to register, places to register, certification of registration of electors and also correct selection information. Information about the legislation, election process and guide also stated for the managing the election section. The latest election result also displayed on a part of website so that users can update with the election result. Few online services are provided for the users such as revised register of electors, system complaint or enquiry and also the application for downloading the form.

Inside the Komisi Pemilihan Umum (KPU), there is some information about the commission, which is about the KPU's profile, the members of commission, vision and mission and also about the powers of commission. However, there is no explanation stated about the registration of the electors. Besides that, in the website there are information about the regulation and law for the election. The latest election result also not stated in the website. Other than that, there are no online services or application exists in the website.

For the Federal Election Commission of USA (FEC), they only stated about the commissioners, history, FEC offices, the employment and the mission for the detail of the commission. However, there is no explanation on the registration of electors. For the managing the election section, the law and regulations of the election is explained through the commission regulations, and policy statements and other guidance. Same as KPU, FEC also do not provide their latest election result on their website. For their online services or application, there exists one application which is system complaint enquiry.

No.	Features	Suruhanjaya Pilihanraya Malaysia (SPRM)	Komisi Pemilihan Umum (KPU)	Federal Election Commission Of USA (FEC)
1	About the commission	There are clearly stated about the commission including background, profile of the commission, organization chart and legislation	The information about the commission is about the KPU's profile, the members of commission, vision and mission also powers of commission.	They only stated about the commissioners, history, FEC offices, the employment and the missions.
2	Registration of electors	Detailed explanation on the conditions of eligibility check, how to register, places to register, certification of registration of electors and also the correct selection information	There is no explanation on the registration of the electors	There is no explanation on the registration of electors
3	Managing the elections	There is an explanation on the legislation, election process and guide.	There is an information about the regulation and law for the election	The law and regulations is explained through the commission regulations, and policy statements and other guidance.
4	Election result	The latest election result is displayed on a part of the website.	There is no information about the latest election result.	There is no latest election result stated on the website.
5	Online services	Few online services provided such as revised register of electors, system complaint/ enquiry, and download form.	There is no online service provided.	Only system complaint enquiry is provided.

Table 2.1: Comparisons between Suruhanjaya Pilihanraya Malaysia (SPRM), Komisi Pemilihan Umum (KPU), and Federal Election Commission of USA (FEC).

2.2 Reasons Less People Register For Become Voters

Voter registration was adopted primarily among the American states during the second half of the nineteenth century to combat perceived vote fraud made by the political machines of the day (McDonald, 2008). Registration in advance of the election would help certify the prospective voter's eligibility particularly in urban areas where people were likely to be known personally (Keyssar, 2000).

Author	Reasons
Squire et al. (1987)	<ul style="list-style-type: none"> - Different demographic - Different life situations - Legal barriers
Knack and White (2000)	<ul style="list-style-type: none"> - Low voting
Harris (1929)	<ul style="list-style-type: none"> - accusations that the rich would benefit at the expense of the poor

Table 2.2: The Reasons Why Less People Register For Election

Registration costs fall naturally on those not properly registered to vote. One group of unregistered persons is the first time registrants, as an example, youth and new citizens. Another category is those who move (Hington, 2000; Rosenstone and Hansen, 1993; Teixeira, 1992; Wolfinger and Rosenstone, 1980. Based on the table 2.2 above, Squire et al. (1987) states that three main reasons why movers may have lower voting tendencies where they may be demographically different from others in ways that correlate with lower voting, such as being younger, they may have different life situations, such as renting rather than owning their own home, and legal barriers may impose higher costs upon them.

The voter turnout rates in the United States differ widely among their demographic group. Low voting participation among the young, movers, less educated and poor groups makes the researchers and activists suggests that the voter registration requirements decrease the turnout disproportionately for certain demographic groups (Knack and White 2000). This belief dates as far back as the early 1800s, when attempt to

states that the reasons that may reduce the number of voting are comes from movers, demographic such as age and education, and situational such as rental and marital status. Knack and White (2000), states that by using the country-level data for Minnesota from several elections between 1984 and 1992, also find that the election-day registration (EDR) does not lead to a more representative electorate. The proportion of registrants in each country who registered at the polls on the Election Day was uncorrelated with the vote share of Democratic candidates, positively correlated with the percentage of adults with college degrees and negatively associated with the percentage of families below the poverty line.

2.3 Rules For Better Online Election Registration System

State and local election officials face an ongoing and challenging task in creating and implementing statewide voter registration databases. Many states have diligently working towards meeting the federal requirements to have an operational statewide Voter Registration Database. Both because many states will not meet this deadline and there will be ongoing maintenance and changes to any such system (Hawthorn, 2006).

AUTHOR /RULES	Clifton and Poore, (2006)	Poore (2006)	Hawthorn and Gellman (2006)	Bellovin (2006)	Hochheiser and Rosenthal (2006)
policies		security policies	Privacy policies	Notification policies Privacy policies	
accountabilities	✓	✓			
privacy	✓		✓	✓	
usability	✓				
security	✓	✓		✓	
accuracy	✓				
reliability	✓				
strategies	transparent internally and externally				Election day verifications done via other devices

Table 2.3: Rules That Online Application Should Have

In table 2.3, Clifton and Poore, (2006) explains that five areas that election officials should address when creating statewide voter registration databases (VRDs) are accuracy, privacy, usability, security and reliability. The policies and practice of entire voting registration system, including those that govern VRDs, should be transparent in both internally and externally. VRDs have the direct impact on the fairness of elections, means it must be possible to convince voters, political parties, politicians, academics, the press and others that VRDs are correct and operating appropriately.

Poore, (2006) said that the security policies are an important tool for ensuring accountability. Accountability should extend to external uses of VRDs data. VRDs also can be independently verified, checked, and proven to be fair so that it will increase voter confidence and help avoid litigation besides should include records of data changes, configuration changes, security policy changes and database design changes. However, Hawthorn and Gellman, (2006) said that the privacy values should be a fundamental part of the VRDs. The privacy policies for voter registration activities should be based on Fair Information Practices (FIPs), which are a set of principles for addressing concerns about information privacy. It typically addresses collection limitation, data quality, purpose specification, use limitations, security safeguards, openness, individual participation and accountability. Further, privacy policies should be published and widely distributed, and the public should be given an opportunity to comment on any changes.

Bellovin, (2006) then suggests that the registration system should have strong notification policies. This is so as the voters should be informed about their status, election information, and privacy policies of the government and security issues. A recent survey that had been carried out found that approximately two-thirds of surveyed states do not notify voters who have been purged from election rolls. Through these notification policies, the voters should be notified by email about their polling places, any changes that may affect their ability to vote or any security breaches that expose private data.

Testing is a critical tool that can reveal that “real-world” poll workers find interfaces confusing and unusable expose security flaws in the system, or that the system is likely to fail under the stress of Election Day. All of these issues, if caught before they are problem through testing, will reduce voter fraud and the loss of the right for voting of legitimate voters. Hochheiser and Rosenthal, (2006) suggest that the election officials should develop strategies for coping with potential Election Day failures of electronic registration databases. As VRDs are complex system, it is likely that one or more aspects of the technology will fail at some point. To overcome this, different strategies can be employed to adjust for various failures. They suggest that for the Election Day verifications can be done via either with the paper system, personal computers or hand-held devices with VCD-ROMs or other method that holds static copies of the voter list as backups.

2.4 Technology In Registration System

Keyssar (2000) states that the nation’s population has since grown substantially rendering obsolete this neighborly approach to administering elections in all but the most rural corners of the country.

AUTHOR	CITY/COUNTRY	PLATFORM/ SOFTWARE	TECHNOLOGY
Keyssar (2000)			Computerized management of their voter registration lists
Wagner (2006)			Gives their names, address, and birth date and in some cases, party affiliation
McDonald (2000)			Statewide portable registration or online registration
Election Commission Malaysia	Malaysia	-	The form is filled by the staffs by using computer then the form is printed out