

SHORT MESSAGING SERVICE (SMS) VOTING

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Abstract

SMS appeared on the wireless scene in 1991 in Europe and since then, SMS has caused subtle but interesting changes in the society. One of such changes is the revolutionary development SMS has brought to voting and elections. This paper explores the use of SMS in voting; it reviews the manual voting system and compares SMS Voting with other forms of voting.

Keywords: SMS, voting, agent, GSM.

Introduction

Voting could be a very arduous task, most times, one has to wait in a queue to vote, and wait for a long time before results are counted and announced. With the use of SMS, voting process could be seamless and asynchronous. Voters cast their votes from their mobile phone without waiting for the next person.

SMS voting involves voters casting votes by sending SMS to a number which receives and processes all messages. SMS voting could be used for television programmes, radio shows, political elections, entertainment awards and nominations just to mention a few.

According to *Wikipedia Encyclopedia*, SMS voting on the television program *American Idol* has introduced many Americans to SMS, and usage is on the rise. In Europe, the Eurovision Song Contest organized the first pan-European SMS-voting in 2002, as a part of the voting system (there was also a voting over the classical phone lines). In 2005, the Eurovision Song Contest organized the biggest televoting ever (with SMS and phone voting).

Short message service is a mechanism of delivery of short messages over the mobile networks. It is a store and forward way of transmitting messages to and from mobiles. The message (text only) from the sending mobile is stored in a central short message center (SMS) which then forwards it to the destination mobile. This means that in the case that the recipient is not available; the short message is stored and can be sent later. Each short message can be no longer than 160 characters. These characters can be text (alphanumeric) or binary non-text short messages. An interesting feature of SMS is return receipts. This means that the sender, if wishes, can get a small message notifying if the short message was delivered to the intended recipient. Since SMS used signaling channel as opposed to dedicated channels, these messages can be sent/received simultaneously with the voice/data/fax service over a GSM network. SMS supports national and international roaming. This means that you can send short messages to any other GSM mobile user around the world. With the PCS networks based on all the three technologies, GSM, CDMA and TDMA supporting SMS, SMS is more or less a universal mobile data service.

The popularity of SMS has increased in the past few years. Below is a figure that illustrates the popularity of SMS in Europe, Figure 1.

Election/Voting

Elect, as stated in *Oxford Advanced Learners Dictionary of Current English*, means chosen; selected; not yet in office; those person(s) specially chosen; or considered to be the best. The same medium defines Election as; choosing or selection of candidates for an office by vote for the whole country or a town or district; to fill a vacancy.

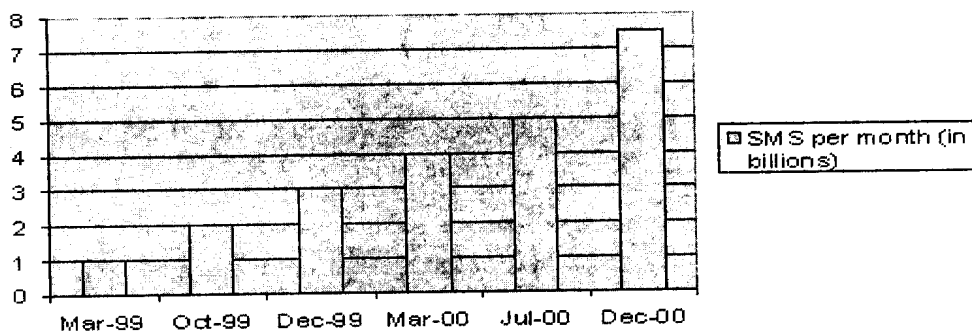


Figure 1: Popularity of SMS in Europe (http://www.gsmworld.com/gsmdata/t_top).

Voting is one of the most critical features in our democratic process. In addition to providing for the orderly transfer of power, it also cements the citizen's trust and confidence in an organization or government when it operates efficiently. In the past, changes in the election process have proceeded deliberately and judiciously, often entailing lengthy debates over even the minutest detail. These changes have been approached with caution because discrepancies with the election system threaten the very principles that make our society democratic (Borras, 2006).

Manual voting system

There are different forms of the present system of voting, they include the use of ballot boxes, papers, telephone calls, manual voter counting etc. but one general problem is the arduous task of data collection and processing, all the above systems make it difficult to collect data from voters and process results, this problems often create other problems such as rigging, discouragement of voters and late release of results. The present voting system, in other words, is ineffective and inefficient. Below are the setbacks of the existing voting system.

1. There is little or no privacy.
2. Takes a long time to count and compile results.
3. Voting could be rigged.
4. The voters have to be physically present at the voting location, making it inconvenient.
5. There's a high possibility of having a queue if there is a large number of voters.

The Wes-Electronic Voting system solves most of the problems identified above but has a problem because it is integrated with the web and not all users are connected to the web.

SMS-voting

SMS-voting simply means the use of SMS technology in the election process. It covers such critical areas as the collection and collation of voters' votes/preferences/information; and making the result available for access on the SMS technology platform.

Times are changing; society is becoming more and more web-oriented, citizens are used to the high degree of flexibility in the services provided by the private sector, and are now beginning to set demanding standards for the delivery of services by governments.

Internet voting is seen as the logical extension of internet applications in commerce and government, and in the wake of the United States 2000 general elections, is among those solutions being seriously considered to replace older, less reliable election systems.

The implementation of SMS election would allow increased access to the voting process for millions of potential voters. Higher levels of voters' participation will lend greater legitimacy to the electoral process and should help to reverse the trend towards apathy that is fast becoming a feature of many democracies. However it has to be recognized that the use of technology will not by itself correct this trend. Greater engagement of voters throughout the whole democratic process is also required (Borras, 2006).

Architecture of the application

The server architecture consists essentially of a mobile phone, computer, GSM terminal, software (agent) and a central database. The application works this way: a mobile phone is connected to the computer via a DK5 cable; the agent retrieves incoming SMS on the phone and processes it (against the database); and also prepares the result in the form a text message (SMS) that can be sent back to users via the mobile phone. The central database stores candidates' information and eligible voters. Voters send coded messages (SMS) of their choice candidates through the mobile phone to get their votes processed. They can also request for vote status of specific candidates.

System and software design

The system is separated into hardware and software, the hardware required include:

Hardwares

1. Inbuilt modem phone.
2. Connectivity cable.
3. Personal computer.

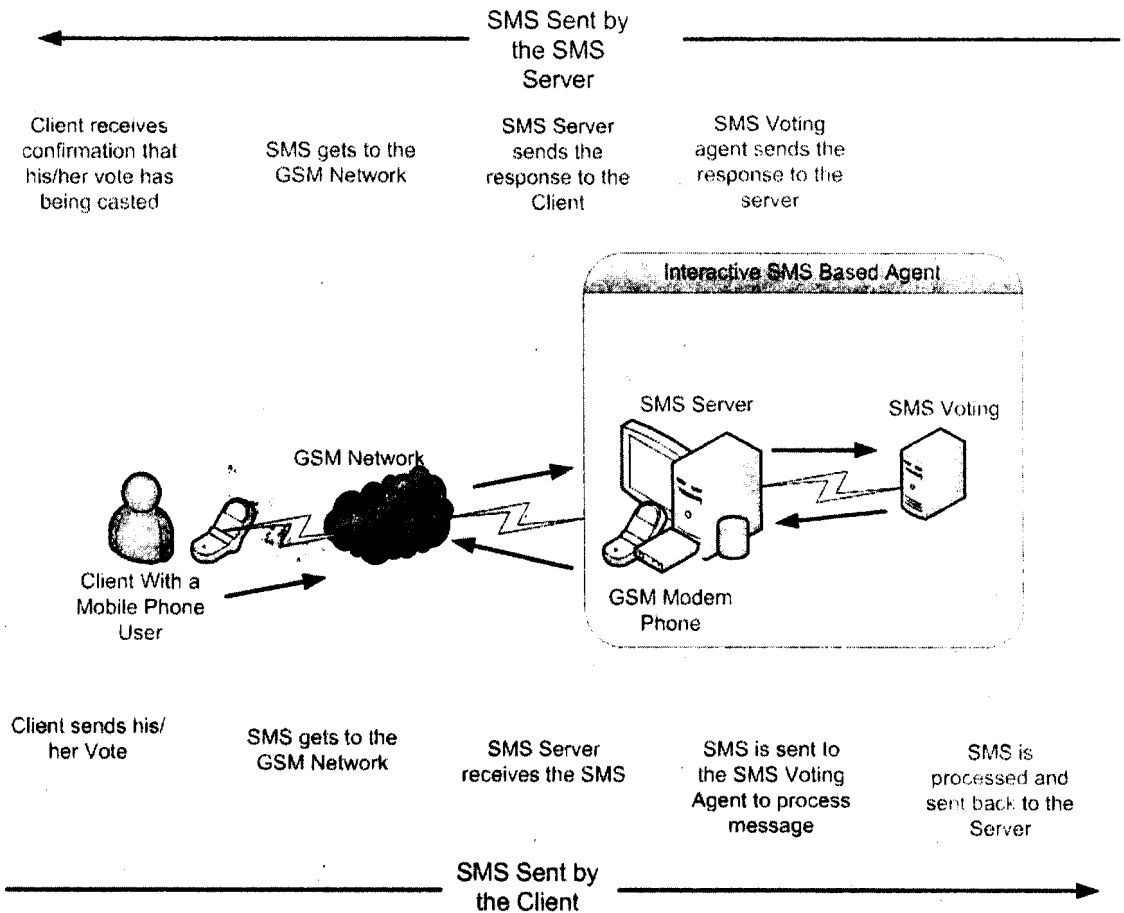


Figure 2: Architecture of the application.

Software design

This agent of the software is responsible for processing messages that is related to voting in any form. An organization trying to elect new officers via voting could use this agent. For example, to elect new officers into the Babcock University Computer Club offices, each of the post is assigned a code and the candidates are also assigned a number, Table 1.

Table 1: Agent of the software.

Post	Postcode	Contestant	Contestant Id
President	A	Folarin Ayoola	1
	A	Dafe Ejiro	2
Vice	B	Olawale Jegede	1
President	B	Adewale Alex	2

The following format for sending your vote would be used:

***A2,B2#**

This means that the sender is voting Folarin Ayoola for the post of president and Adewale Alex for the post of Vice President.

The result for the election can be requested for during or at the end of the voting process. Each post and the general result can be checked, for example to check the result for president. The format to be sent for the request is shown below:

[Post]

For example: **PRES**

To check the result for the post of president, the sender receives the message below:

26 Votes Total. Current Result for President: Folarin: 46%, Dafe: 34%

To request for the whole result of the election the user sends:

CHECK to the system

The sender receives the message below:

92 Votes Total. Current Result: President: Folarin: 46%, Dafe: 34%, Vice president: Adewale Alex: 40%, Olawale Jegede: 23%

Input design

There are two input types for SMS voting, they are as follows

To cast a vote, send *a2, b2, c2, d1, e1, f1#

To check vote results *CHECK#

Database design



The database used to store information by the voting agent uses three tables. The tables are:

Posts: This stores information about the different posts being contested for; the posts could be President, Vice President. The table also stores the post code and the post abbreviation, that is, SEC for secretary.

Contestants: Holds contestants name and the post the contestant is going for.

Results: Holds the results of the elections, stores the voter and the contestant voted for.

The operations of the application

1. Vote for candidates: Users can vote for candidates of their choice. The application is automated to send an SMS of the winners for each of the post or office being contested for.
2. Users can request for the latest votes of any contestant

3. Users can request for the latest votes of any post.

Benefits of the application

1. Higher levels of voter participation will lend greater legitimacy to the electoral process and should help to reverse the trend towards voters' apathy that is fast becoming a feature of many democracies.
2. Voters will enjoy high level form of convenience and flexibility both for voting and accessing the results.
3. The whole election process can be automated thereby reducing administrative and operational cost of hosting an election.
4. Since it is software that processes users' votes (interactively), disruptions and rigging normally associated with the manual process of election will be avoided. This will help to beef up the confidence and integrity of the results, the electoral process and the administrator of the whole election process.
5. The implementation of SMS election would allow increased access to the voting process for millions of potential voters.

Conclusion

It is obvious that SMS-voting is the future of electronic voting technology which can play an important role in the creation of a free and fair elections, what is left is for us to recognize this fact and utilize it.

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