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Voting Machine in Cellular using Microcontroller

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Abstract: Voting is the most important process for revealing the public's opinion in selecting a government or on any issue under consideration. As a result, traditional voting systems based on paper ballots are being replaced by electronic voting machines. Voting is a decision-making mechanism in a society, and security is an important component of voting. The term "electronic voting" refers to the use of electronic voting methods to ensure voting security, reliability, and transparency. Electronic voting systems, which play a critical role in determining the outcome of an election, should be developed with the utmost care and security. Electronic voting machines assist blind voters by reading the instructions aloud through headphones and provide critical tools to assist people with disabilities. Voting machines are a combination of mechanical and electronic equipment used for voting and displaying election results.

Keywords: Electronic Voting Machine, EVM, microcontroller, lcd screen, led, switch, voltage regulator.

I. INTRODUCTION

The Electronic Voting Machine (EVM) retains all of the characteristics of ballot paper voting while making polling much more convenient. The EVM saves time, money, and manpower because it is fast and completely reliable. It also aids in maintaining total voting secrecy in the absence of ballot papers. The EVM is completely temper proof, and at the end of the polling, simply press a button to obtain the results.

Since their introduction, electronic voting machines have proven to be a highly effective tool. It has grown in popularity due to its accuracy, dependability, and secrecy when voting. It is more cost effective and avoids malpractice and invalid votes because it does not require any manpower. It is also convenient for the voter because he or she only needs to press one key, which corresponds to the candidate.

We are currently developing a modified electronic voting machine (MEVM). This voting machine is known as an E-Electronic voting machine (M-EVM). This has two features. The first is for voters who do not have a mobile device. Such a voter may vote physically in a voting centre, such as by pressing the key in front of his or her candidate symbol. Second, if a voter has a mobile phone and lives in a remote area from a voting centre, does not like waiting in lines, and does not have time, he or she can vote by sending an SMS from his or her personal phone. The first facility is similar to a traditional voting machine. So we concentrated on the second facility, which is that the voter's mobile number must be registered in the M-EVM database. Only registered mobile phone numbers can be used to vote. This voter sends an SMS to M-EVM, and M-EVM responds to that mobile number by taking the voter's vote. Once a particular person's vote is cast, that person's mobile phone number is blocked. As a result, once a person has voted, he or she is unable to vote again. In this system, voters first send a message with candidate information to M-EVM. Then M-EVM responds with all candidate names such as A) ABC, B) XYZ, etc., and the voter responds similarly A or B. The voter's vote is then taken. If a voter selects more than one option, his or her vote is invalid and the voter is unable to vote again. After voting, the voter receives a message indicating whether their vote was successful or unsuccessful. We can generate a special list of mobile voted results in a personal computer/laptop for security purposes, and this list is automatically updated whenever a voter votes. The voting officer must cross-check the voter and search the name of each voter in this list for an instant result. We can connect M-EVM to a personal computer/laptop via USB, and then all personal computers and laptops can be connected to each other via LAN. Voting totals for each candidate in each division are totaled in each division. personal computer/ laptop. The results will be displayed after 1 hour of voting. The result SMS is sent to all registered mobile numbers.
[1-2]

II. BLOCK DIAGRAM

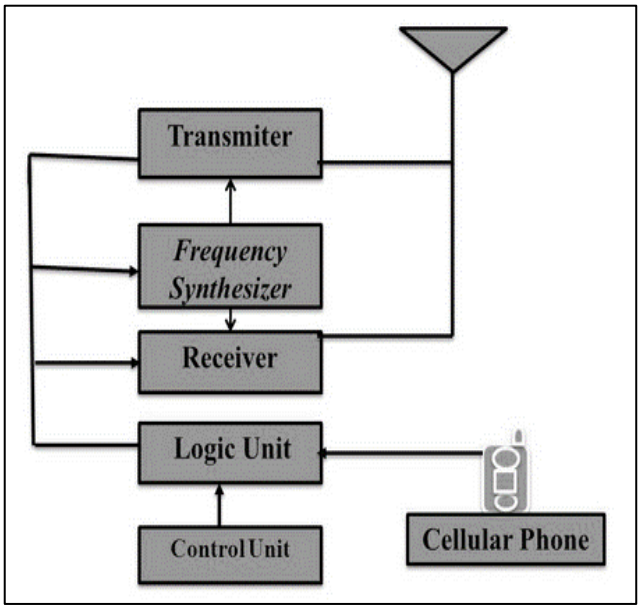

Figure 1: Cellular Block diagram

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Arm Cortex M3:

The STM32F103RCT6 medium-density performance line family includes a high-performance ARM Corte-M3 32-bit RISC core running at 72 MHz, high-speed embedded memories (Flash memory up to 128 Kbytes and SRAM up to 20 Kbytes), and a wide range of enhanced I/Os and peripherals connected to two APB buses.

All devices include two 12-bit ADCs, three general-purpose 16-bit timers, and one PWM timer, as well as standard and advanced communication interfaces such as up to two I2Cs and SPIs, three USARTs, a USB, and a CAN. The devices are powered by a 2.0 to 3.6 V DC supply.

They are available in two temperature ranges: -40 to +85 °C and -40 to +105 °C extended temperature range. A broad range of power-saving modes enables the development of low-power applications. The STM32F103R medium density performance line family includes devices with pin counts ranging from 36 to 100. Different sets of peripherals are included depending on the device. The following description provides an overview of the entire range of peripherals proposed in this family. [3]

Universal Serial Bus (Usb):

USB was created to standardise the connection of computer peripherals to personal computers, both for communication and power supply. It is now common on other devices such as smart phones and PDAs.

USB has effectively replaced a variety of earlier interfaces, including serial and parallel ports, as well as separate portable device power chargers. In our device, we use USB 2.0, which adds a higher maximum signalling rate of 480 Mbit/s to the USB 1.x Full Speed signalling rate of 12 Mbit/s. The effective throughput of the High Speed signalling rate is limited to 35 MB/s or 280 Mbit/s due to bus access constraints. Engineering Change Notices 1.1 have made additional changes to the USB specification (ECN). [4]

GSM Moule:

GSM (Global System Mobile) is a digital communication system that has quickly gained worldwide acceptance and market share. GSM-based mobile services were first introduced in Finland. GSM, along with other wireless mobile telecommunications technologies, is part of the evolution of wireless mobile telecommunications, which also includes High-Speed Circuit-Switched Data (HCSD), General Packet Radio System (GPRS), Enhanced Data GSM Environment (EDGE), and Universal Mobile Telecommunications Service (UMTS).

GSM is a mobile phone digital wireless communication protocol. It also has many other useful features, such as security, authentication, and the ability to switch phones without having to reconfigure the phone with the SIM card present. The GSM network is divided into three sections.

- Mobile Station
- Base Station
- Network Subsystem

III. OBJECTIVES

1. The study's goal is to design and build a cellular voting machine using a microcontroller.
2. Understand the fundamental electronic components needed to build a microcontroller-based cellular voting machine.
3. Understand the construction process in detail and identify the various steps involved.
4. Understand the gadget's operation, function, and application.

IV. REVIEW OF LITERATURE

Qadah and Taha (2006) created an electronic voting machine set for student elections at universities. It used mobile network communication to allow students to vote. Using switches, gates, and other discrete electronic components, a simple electronic voting machine was created.

The results are displayed using a seven segment display (Hoque 2014). Carson et al. (1987) patented an electronic voting machine with a motorised mechanism for a ballot paper, whereas Thomas E. et al. (1975) patented microprocessor-controlled buttons, buffers, and displays. [5-8]

Mambo et al. proposed the concept of proxy signature in 1996. There have been several proxy signature schemes proposed. Lin and Jan proposed the first proxy blind signature scheme in 2000, combining the functionality of both proxy and blind signatures.

Tan et al. proposed a proxy blind signature scheme in 2002; however, Lal and Awasthi demonstrated that this scheme was insecure and proposed a new scheme that is both secure and more efficient than Tan et alscheme. .'s Yang and Liang proposed a new proxy blind signature scheme with revocation in 2013. [9-11]

V. RESEARCH METHODOLOGY

Books, educational and development journals, government papers, and print and online reference resources were just a few of the secondary sources we used to learn about the composition, use, and consequences of Voting Machine in Cellular Using Microcontroller.

VI. RESULT AND DISCUSSION

The voting machine operates in accordance with the system design. The outcome is displayed on the LCD screen, along with the number of votes cast for each party.

The following are the results displayed on the cellular screen based on the input. [12]

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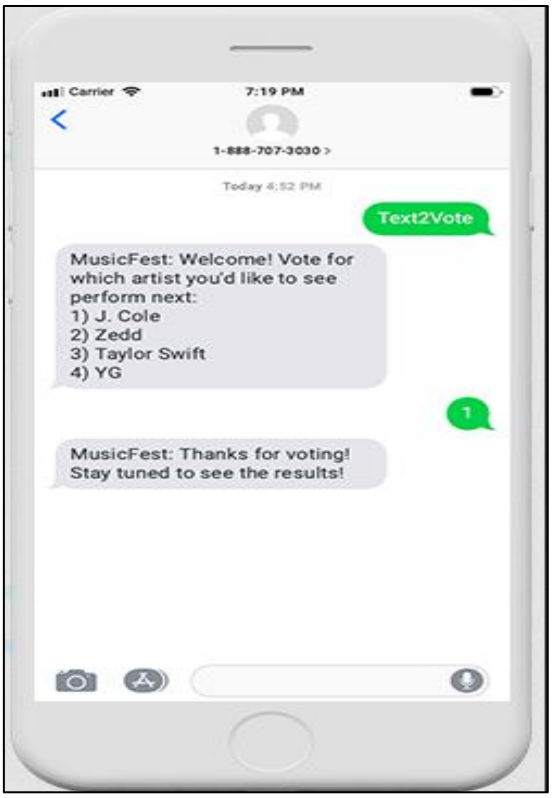

Figure 2: Message on Cellular

Following figure show that voting result displayed on LCD

Figure 3: Voting result

VII. CONCLUSION

By referring to this paper, security performance is improved, security tensions are avoided, and queues at polling booths are avoided. Voters can easily cast their ballots from any location at any time. It can save the voter's time and prevent forgery votes. Authentication is always a difficult requirement to meet for remote voting schemes, the majority of which use a public Computer Science & Information Technology (CS & IT) 303 key-based signature scheme to authenticate votes. The public-key overhead in our scheme is greatly reduced by utilising the existing GSM authentication infrastructure. Our scheme also improves security and gives voters more mobility and convenience. We presented the basic structure and protocol of our GSM-based mobile voting system in this paper.

REFERENCES

[1] ETS 300 506. Security aspects (GSM 02.09 version 4.5.1), Digital cellular telecommunications system (phase 2), (2000).
[2] Fujioka, T., Okamoto, K.,Ohta :A practical secret voting scheme for large scale elections. In J. Seberry and Y. Zheng, editors, Advances in Cryptology—Auscrypt'92, volume 718 of Lecture Notes in Computer Science, pages pp. 244–251, Gold Coast, Queensland, Austrailia, 13-16 December 1992. Springer Verlag, (1992).
[3] "ARM Cortex M3", :http://www.st.com
[4] 5.5.4". Universal Serial Bus Specification (Technical report). 2000. p. 40. v2.0.
[5] Qadah Z., Taha R. (2006) Electronic voting systems: Requirements, design, and implementation. Computer Standards & Interfaces 29 (2007) 376–386. Elsevier Ltd.
[6] Hoque Md. (2014) A Simplified Electronic Voting Machine System. International Journal of Advanced Science and Technology Vol.62, (2014), pp.97-102.
[7] Carson H., Indianapolis, Ind. (1987) ELECTRONIC VOTING MACHINE. [Online]Available from <http://www.google.com/patents/US46 49264> Access [12/11/2014]
[8] Thomas E. et al (1975) ELECTRONIC VOTING MACHINE. [Online]: Available from <http://www.google.com/patents/US40 15106> Accessed [12/11/2014]
[9] M. Mambo, K. Usuda, and E. Okamoto, "Proxy signatures: delegation of the power to sign messages," IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, vol. E79-A, no. 9, pp. 1338–1353, 1996. View at: Google Scholar
[10] B. T. Lau, "Proxy signature schemes," in Proceedings of the 2006 1st IEEE Conference on Industrial Electronics and Applications, ICIEA 2006, Singapore, May 2006. View at: Publisher Site | Google Scholar
[11] H. Wang and R. Yan, "A code-based multiple grade proxy signature scheme," in Proceedings of the 2013 8th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing, 3PGCIC 2013, pp. 559–562, France, October 2013.
[12] T. M. Carbaugh, ―Secretary of State Kevin Shelley Announces Directives To Ensure Voter Confidence in Electronic Systems,‖ California Secretary of State,2003). Science, pages 539 556. Springer-Verlag, May (2000)