

Biometric System Based Electronic Voting Machine

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Abstract– This paper focuses on biometric based electronic voting machine. Biometric is used to identify the person depending on their physiological and behavioral characteristics. We use finger print and face recognition for identification. One voter can give their vote only once. So this system is more secure and also bogus voting, double voting is avoided. This system uses multi-biometrics, to protect system from fake biometrics. Also avoid the corruption. No one can see the candidate result before completion of voting.

Keywords: Fingerprint sensor, face capture digital camera, ARM7, MATLAB software, finger print recognition, face recognition, PC.

I INTRODUCTION:

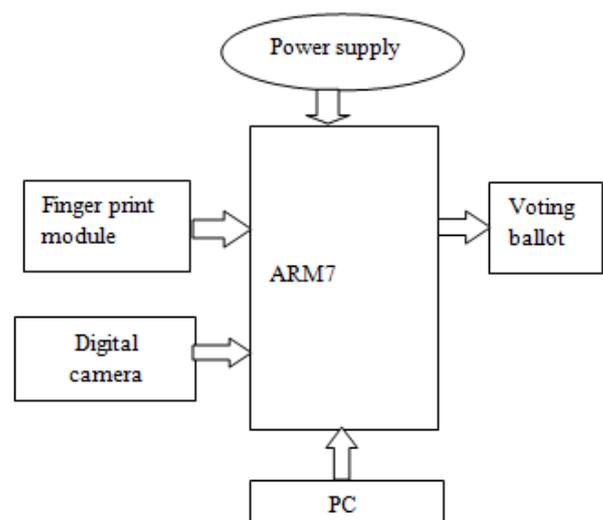
Now day's, India uses ballot paper, ballot boxes and stamping. This is long process to identify the person and also give their vote. This is not secure method for voting. So this method is completely replaced by EVM. EVM uses only one unit called as ballot unit. To identify the person biometric system is used. Here we use finger print and face recognition for identification. Finger print having 94% efficiency. So to avoid this problem we use face recognition also. This system is more secure and design is portable. All Voter's data is saved in personal computer. One person can give their vote only once.

II PROPOSED SYSTEM:

Biometrics is a method of identify a person based on physical or behavioral characteristics. Examples of biometric information used to identify people include fingerprint, voice, face, iris, handwriting, and hand geometry. Biometric sample is compared sequentially to a set of stored samples to determine the closest match. The verification method provides the best combination of speed and security. Unprecedented growth in electronic transactions has underlined the need for a faster, more secure and more convenient method of user verification than passwords can provide. Biometric identifiers offer several advantages over traditional and current methods. Passwords can be forgotten, shared, hacked or unintentionally observed by a third party. By eliminating these potential trouble spots, only biometric technology can provide the security, with convenience needed for today's complex electronic landscape.

A. BLOCK DIAGRAM

Block diagram of the Proposed system shown as below:



ARM7 CONTROLLER

The ARM7 is a low-power, general purpose 32-bit RISC microprocessor use in application customer-specific integrated circuits (ASICs or CSICs). Its simple, and fully static design particularly suitable for cost and power-sensitive applications. The ARM7's having high speed as compared to other controller.

ARM7 is Advanced RISC Machine. It has three stage pipeline structure as:

Instruction fetch.

Decode.

Execution.

It has 40KB RAM and 512KB FLASH memory.

It has 31 register banks and each of 32-bit.

FINGER-PRINT RECOGNITION:

A fingerprint is formed from an impression of pattern of ridges on a finger. A ridge is defined as a single curved segment, and a valley is the region between two adjacent ridges. The minute which are the local discontinuities in the ridge flow pattern, provide the feature is that are used for identification. An important component in fingerprint recognition systems is the fingerprint matching algorithm. According to the problem domain, fingerprint matching algorithms are classified in two categories: fingerprint verification algorithms and fingerprint identification algorithms. The aim of fingerprint verification algorithms is to determine whether two fingerprints come from the same finger or not. On the other hand, the fingerprint identification algorithms search a query fingerprint in a database looking for the fingerprints coming from the same finger statistical theory on the uniqueness of fingerprint minutiae. A critical step in studying the statistics of fingerprint minutiae is to reliably extract minutiae from the fingerprint images. However, fingerprint images are rarely of perfect quality. They may be degraded and corrupted due to variations in skin and impression conditions. Thus, image enhancement techniques are employed prior to minutiae extraction to obtain a more reliable estimation of minutiae locations.

Finger print sensor:

Fingerprint Sensor Module is able to capture fingerprint image , template generation, template matching, fingerprint searching, template storage, etc. The features of finger print sensor is as follows:

Proprietary Intellectual Property: Optic fingerprint enrollment device, Hardware as well as fingerprint algorithm are all developed by Key Power Security.

Immense Improved Algorithm: The algorithm is good for low-quality fingers due to its excellent correction and tolerance features

Easy to Use and Expand.

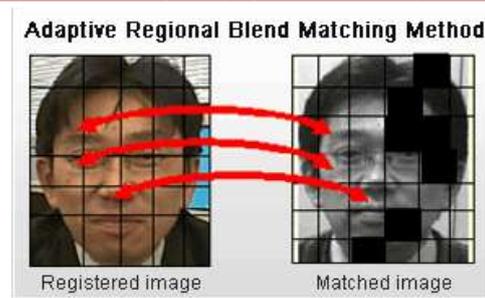
Finger print sensor can capture the finger and convert it into digital form and stored digitally in the PC. MATLAB coding is used at the storing and matching purpose.

FACE RECOGNITION:

Humans often use faces to recognize individuals and advancements in computing capability over the past few decade snow enable similar recognitions automatically.

For face recognition ,first capture the image using digital camera.so it is stored digitally. Then convert that image into pixel format. By measuring the distance between two eyes and nose first image is saved in pc using software coding.

At the matching time captured image is compared with stored image. If match is correct then and then only person can give their vote. It is common biometric method used for identification. So face enhancement is important. By enhancing and extracting the image quality of image is improved.



B.WORKING

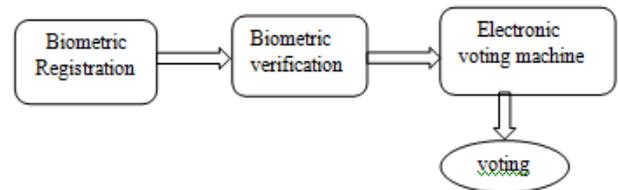


Fig. Block diagram of actual working on biometric system based voting machine.

ALGORITHM OF PROPOSED SYSTEM:

Step1: First initialization of process.

Step2:For identification the voters data and their fingerprint ,face and voter details are stored in personal computer. It means registration of voter.

Step3: Check if the voter is valid or not by using their stored data. That is captured finger and face is compared with stored data in personal computer.

Step4: If the voter is not able to give their vote or not registered then message is display the person is invalid on LCD.

Step5: If voter is valid , then go to next step.

Step6: Check if the voter has already voted or not.

Step7: If he has already given his vote, then message is displayed that he has already voted and is prevented from voting for the second time.

Step8: Else, if the candidate is voting for the first time, then he is allowed to vote.

Step9: Voter can denote their vote.

Step10: Result is stored on PCand display the result on LCD display after completion of complete voting.

C. Acknowledgement

It gives us a great pleasure to submit this Project. This is the only page where we have the opportunity to express our emotions and gratitude from the bottom of our heart.

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